

Performance Plan

Luxembourg

Third Reference Period (2020-2024)

Status: Final RP3 PP (Article 16(a and b))

Date of issue: 16.09.2023

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** Only as per Article 15(6) of the Regulation*

Signatories

Performance plan details	
State name	Luxembourg
Status of the Performance Plan	Final RP3 PP (Article 16(a and b))
Date of issue	16.09.2023
Date of adoption of Draft Performance Plan	03.11.2023
Date of adoption of Final Performance Plan	20.12.2023

We hereby confirm that the present performance plan is consistent with the scope of Regulation (EU) No 2019/317 pursuant to Article 1 of Regulation (EU) No 2019/317 and Article 7 of Regulation (EC) No 549/2004.

Name, title and signature of representative	
Luxembourg Civil Aviation Authority	<p>Mr. Pierre JAEGER, Director of Civil Aviation Authority, Ministry of Mobility and Public Works</p> <div style="text-align: center;">   Pierre JAEGER Directeur de l'Aviation Civile </div>

Additional comments	
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Document change record		
Version	Date	Reason for change

SECTION 1: INTRODUCTION

1.1 The situation

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ANNEX L. JUSTIFICATION FOR SIMPLIFIED CHARGING SCHEME

1 - INTRODUCTION

1.1 - The situation

NSA(s) responsible for drawing up the Performance Plan	Ministry of Mobility and Public Works, Luxembourg Civil Aviation Authority, Luxembourg Supervisory Authority for Air Navigation Services
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1.1.1 - List of ANSPs and geographical coverage and services

Number of ANSPs	3	
ANSP name	Services	Geographical scope
skeyes	ATM, MET	Belgium, Luxembourg
MUAC	ATM	Belgium, Luxembourg, The Netherlands, Germany (North-West)
ANA LUX	ATM, MET	Luxembourg

Cross-border arrangements for the provision of ANS services

Number CB arrangements where ANSPs provide services in an other State	3
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ANSPs providing services in the FIR of another State	
ANSP Name	Description and scope of the cross-border arrangement
SKEYES	ATS, FIS, alerting service for Germany (DFS) ATS, FIS, alerting service, CNS, AIS, MET for Luxembourg (ANA) ATS, FIS, alerting service for The Netherlands (LVNL) ATS, FIS, alerting service for France (DSNA) ATS, FIS, alerting service in Belgium airspace assigned to MUAC
MUAC	ATS, FIS, alerting services in Luxembourg airspace above FL245 ATS, FIS, alerting services for Denmark ATS, FIS, alerting service for France ATS, FIS, alerting services for Germany
ANA Luxembourg	ATS, FIS for Belgium (Skeyes) ATS, FIS for France (DSNA) ATS, FIS for Germany (DFS)

Number CB arrangements where ANSPs from another State provide services in the State	Click to select
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ANSPs established in another Member State providing services in one or more of the State's FIRs	
ANSP Name	Description and scope of the cross-border arrangement

1.1.2 - Other entities in the scope of the Performance and Charging Regulation as per Article 1(2) last para.

Number of other entities	3	
Entity name	Domain of activity	Rationale for inclusion in the Performance Plan
Belgian Supervisory Authority for Air Navigation Services (BSA-ANS)	Competent authority	Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317
Eurocontrol		Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317
Luxembourg Civil Aviation Authority	Competent authority	Determined costs incurred in relation to the provision of air navigation services in accordance with the article 22(1) of Commission implementing regulation (EU) 2019/317

1.1.3 - Charging zones (see also 1.4-List of Airports)

En-route	Number of en-route charging zones	1
En-route charging zone 1	Belgium-Luxembourg	

Terminal	Number of terminal charging zones	1
Terminal charging zone 1	Luxembourg - TCZ	

1.1.4 - Other general information relevant to the plan

This PP was formerly produced as a FAB PP, and was, after coordination with COM, truncated to a national PP. The national Belgian(-Luxembourg) targets and inputs for safety, environment and capacity are the same as of Version 2.1 of the FABEC PP. There are no updated targets, just ANSP (MUAC+skyes) level targets produced to national targets. There are no additions as regards the national input in respect to those three Key Performance indicators. While in some regards to MUAC a split between the participating countries on PP level was not feasible (compare MUAC investments, pensions and interest rates) NSAs are aware of this situation. Possible redundancies will be taken into consideration on oversight level.

Relevant local circumstances with high significance for performance target setting and updated view on the impact of the COVID-19 crisis on the operational and financial situation of ANSPs covered in the performance plan

The Covid-19 pandemic affects performance and performance planning in a number of ways :

-> Practical issues

- Financial impact
- Staff issues (protection, rostering,...)
- System implementation
 - * distancing constraints and remote working requirements affect practical elements of development, testing, validation and training
 - * travel constraints limit presence and delivery by international suppliers
- ATCO training and availability
 - * distancing constraints limit training capacity
 - * increased pressure on simulators for training as well as currency
 - * lack of high load traffic levels in OJT
 - * working requirements following vaccination

-> Uncertainty and data availability

- Ongoing pandemic
- Uncertainty and variability in traffic recovery
- short term volatility in traffic demand

Further information on individual ANSPs is provided either directly in the individual chapters of this draft performance plan when relevant or, when additional relevant information has to be provided for a specific performance area, in the various national Annexes R or T referred to in the plan. It has also been presented and discussed in detail during the various consultation meetings held by the national NSA and is reflected in the consultation material provided in Annex C.

Additional comments

1.2 - Traffic Forecasts

1.2.1 - En route

En route Charging zone 1

Belgium-Luxembourg

En route traffic forecast

[Indicate the source and date of the forecast]

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	1 240	1 275	1 249	541	639	1 023	1 160	1 244	-0.1%
IFR movements (yearly variation in %)		2.9%	-2.1%	-56.6%	18.0%	60.1%	13.4%	7.2%	
En route service units (thousands)	2 594	2 644	2 620	1 081	1 167	2 096	2 404	2 560	-0.5%
En route service units (yearly variation in %)		1.9%	-0.9%	-58.7%	8.0%	79.6%	14.7%	6.5%	

1.2.2 - Terminal

Terminal Charging zone 1

Luxembourg - TCZ

Terminal traffic forecast

[Indicate the source and date of the forecast]

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	35.3	37.4	38.1	20.1	24	35	37	39	0.6%
IFR movements (yearly variation in %)		5.9%	1.9%	-47.1%	18.3%	46.3%	6.8%	5.6%	
Terminal service units (thousands)	51.2	54.7	56.4	40.2	45.9	54.3	56.7	60.1	1.3%
Terminal service units (yearly variation in %)		6.8%	3.2%	-28.7%	14.0%	18.4%	4.3%	6.1%	

1.3 - FABEC Stakeholder consultation

1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

Introductory remark
<p>Information of this Belgian national plan has been previously presented to the stakeholders through 2 consultation processes, a FABEC consultation process for operational targets (safety, environment, en-route capacity) as part of the initial 2019 & 2021 revised FABEC performance plan, and a national one for the cost-efficiency and the terminal capacity.</p> <p>The initial FABEC stakeholder consultations and outcomes are listed and described below. The operational targets for Belgium were already presented to the stakeholders during these consultations for the safety, environment and en route capacity performance areas.</p> <p>The national consultations on cost-efficiency, investments and terminal capacity and related outcomes are presented in the following chapter.</p>

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
<p>SAFETY: airspace users fully support the targets set by FABEC and related national targets, but more transparency by NSA and ANSP is needed, in terms of information on the different ANSP targets.</p>
<p>ENVIRONMENT: the proposed KEA target and related national breakdown values, in line with the reference value is strongly supported. ANSPs have to build an efficient airspace by reducing complexities. Moreover, greater focus should be put on improving vertical flight efficiency to reduce CO2 emissions.</p>
<p>CAPACITY: the FABEC targets and related national breakdown values, which are in line with the reference values, are supported. Mitigation measures shall be identified and planned to manage volatility, staff availability, rostering, training, new ATC system implementation.</p>
<p>INCENTIVE SCHEME: airspace users strongly advocated for a penalty-only scheme. The CRSTMP limitation is not supported. Furthermore, only the achievement of both FAB and ANSP targets would drive the changes required by airspace users.</p>
<p>Although stakeholders commented on the challenging nature of the targets, the targets in the areas of safety, environment and capacity and related national and ANSPs breakdown values are in line with EU-wide targets, as well as the incentive scheme is consistent with EU Regulation 2019/317 laying down a performance and charging scheme in the single European sky. Therefore, the FABEC Council decided not to alter the proposed targets and incentive scheme.</p>

1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	Select	Not discussed at FABEC consultation; part of national level consultations.
Charging policy	Yes	Not discussed at FABEC consultation; part of national level consultations.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	<p>The FABEC en route incentive scheme uses a symmetrical maximum amount of bonus and penalty corresponding to 0,5% of the determined costs.</p> <p>Airspace User representatives strongly advocated for a penalty-only scheme. No bonus should be awarded unless there would be a significant improvement in CAP performance.</p>
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	Yes	<p>The FABEC en route incentive scheme will apply one point of the modulation mechanism as referred to the Annex XIII of the regulation IR (EU) 2019/317 to limit the scope of incentives to cover only CRSTMP delay causes.</p> <p>Airspace User representatives did not support the limitation of the scope to cover only CRSTMP delay causes.</p>

Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	<p>The FABEC en route incentive scheme is elaborated with a dead band around the pivot value in recognition of the volatile nature of performance at current delay levels. Only penalising does not serve the purpose of improving performance.</p> <p>Airspace User representatives did not agree such a symmetric approach. They consider that only a penalty scheme should be developed to manage performance.</p>
Establishment or modification of charging zones	Select	Not discussed at FABEC consultation; part of national level consultations.
Establishment of determined costs included in the cost base for charges	Yes	Not discussed at FABEC consultation; part of national level consultations.
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	Select	Not discussed at FABEC consultation; part of national level consultations.
Where applicable, decision to apply the simplified charging scheme	Select	Not discussed at FABEC consultation; part of national level consultations.
New and existing investments, and in particular new major investments, including their expected benefits	Yes	Not discussed at FABEC consultation; part of national level consultations.

1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	FABEC ATSPs (ANA Luxembourg, DFS, DSNA, LVNL, MUAC, skeyes and Skyguide)
Dates of main meetings / correspondence	General FABEC stakeholder consultation meeting, 2 September
Main issues discussed	See minutes of the meeting
Actions agreed upon	See minutes of the meeting
Points of disagreement and reasons	See minutes of the meeting
Final outcome of the consultation	See minutes of the meeting

Additional comments

#2 - Airspace Users	
Stakeholder group composition	Air France, DLH, Ryanair, SWISS, Easyjet, Tuifly, IATA, A4E, ERAA
Dates of main meetings / correspondence	General FABEC stakeholder consultation meeting, 2 September
Main issues discussed	See minutes of the meeting
Actions agreed upon	See minutes of the meeting
Points of disagreement and reasons	See minutes of the meeting
Final outcome of the consultation	See minutes of the meeting

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#4 - Airport operators	
Stakeholder group composition	ACI was invited to the FABEC stakeholder consultation meeting as representative body for the airports. No representative attended.
Dates of main meetings / correspondence	General FABEC stakeholder consultation meeting, 2 September
Main issues discussed	See minutes of the meeting
Actions agreed upon	See minutes of the meeting
Points of disagreement and reasons	See minutes of the meeting
Final outcome of the consultation	See minutes of the meeting

Additional comments
Not consulted by the NSA; consultation of staff is considered the responsibility of the ANSPs.

#5 - Airport coordinator	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#6 - Other (specify)	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

1.3.1 - Belgium-Luxembourg en route Stakeholder consultation

1.3.1.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
<p>Stakeholders questioned the rise in costs over the reference period. In particular, the number of ATCO-hirings together with the corresponding costs for training and the pre-retired ATCOs, the inclusion of the carry over related to the correction mechanism of 2020 and 2021 in the asset base and the assumptions used to calculate the return on equity. The Belgian NSA (BSA-ANS) decided to not include the carry over related to the correction mechanism of 2020 and 2021 in the asset base and revise the assumptions on the return on equity, resulting in a reduction of the cost of capital. For MUAC, it was highlighted that the rise in costs was mainly due to a shift of costs from the general Eurocontrol budget towards MUAC and that the corresponding rise of the MUAC budget is not sustainable in the current situation. Airspace users advocated that the MUAC member states should bear this cost. For ANA, it was stated that the main cost driver is staff costs and that there were discussions ongoing concerning additional public funding.</p> <p>At this moment, there is uncertainty on the evolution of traffic. The traffic scenario proposed (STATFOR May 2021 scenario 2) was adjusted, but only with regard to the change of the distance factor. It still remained to be seen whether the STATFOR October 2021 forecast will be included after the submission, depending on the development of the evolution of traffic.</p>

1.3.1.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	No	stakeholders were informed on the intention of the Belgian and Luxembourg NSAs to adjust the STATFOR May 2021 scenario 2 to reflect the change of the distance factor. No comments were received.
Charging policy	Yes	BE and LUX NSA stated that it was the intention to spread the carry-over related to the correction mechanism of 2020 and 2021 underrecoveries over 7 years in accordance with art. 5(5) of commission Implementing Regulation 2020/1627. One stakeholder expressed concerns with regard to the effect this might have on the liquidity of skyes.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September.
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September.
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September.
Establishment or modification of charging zones	No	No charging zones were modified.
Establishment of determined costs included in the cost base for charges	Yes	<p>See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels and stated that the benefit of the activities and investments that will be generated by these costs are not always clear.</p> <p>The NSAs interacted with the ANSPs to make sure all investments and activities are generated in a cost efficient way. However, the NSAs have not reconsidered any of those with the objective of reducing costs.</p>
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	Not applicable
Where applicable, decision to apply the simplified charging scheme	No	Not applicable

New and existing investments, and in particular new major investments, including their expected benefits	Yes	Stakeholders questioned the level of investments of Skeyes, and commented that the benefit of the investments was not demonstrated enough. Skeyes replied that a lot of equipment had to be replaced due to end-of-life and that synergies with BEL Defense were set up in order to mitigate the costs of the investments. For MUAC, investments were scaled back and postponed to RP4 where possible.
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1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	skeyes, MUAC, ANA
Dates of main meetings / correspondence	Wednesday, August 18, 2021
Main issues discussed	Cost-efficiency target for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario.
Actions agreed upon	No specific actions were agreed upon.
Points of disagreement and reasons	skeyes highlighted that opting for a 7-year period for the carry-over of the underrecoveries might potentially raise liquidity issues should the forecasted traffic not materialise.
Final outcome of the consultation	In conclusion, the Belgian and Luxembourg NSAs decided to accept the financial plans of skeyes, MUAC and ANA to be included in the cost-base of the Belgian-Luxembourg en route charging zone for RP3, apart from the Cost of Capital of skeyes, which was adjusted by revising the assumptions used to calculate the return on equity and exclude the carry over related to the correction mechanism of 2020 and 2021 out of the asset base used to calculate the cost of capital.

Additional comments

#2 - Airspace Users	
Stakeholder group composition	IATA, Lufthansa Group, Brussels Airlines, Ryanair, KLM, TUI Fly
Dates of main meetings / correspondence	Wednesday, August 18, 2021
Main issues discussed	Cost-efficiency target for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario. The main topics discussed were: Financial plan of skeyes (especially: the cost evolution, skeyes' ATCO-training, cost of capital and skeyes' staff increase), financial plan of MUAC (especially: increase in costs and the shift of costs from the general Eurocontrol to the MUAC budget) and ANA Luxembourg (especially: staff evolution and potential state support).
Actions agreed upon	It was agreed upon that skeyes would provide additional information on cost allocation for investments, cost of capital and staffing evolution.
Points of disagreement and reasons	Airspace users raised concerns about the cost evolution at skeyes during RP3. Specifically, questions were raised on the investment level and cost of capital. With regard to the investments, skeyes indicated that these were necessary due to end-of-life, and that where possible, synergies with BEL Defense were set up in order to mitigate the costs of the investments. Additionally, questions were raised on the return on equity used and the inclusion of the underrecoveries of 2020 and 2021 in the asset base. According to the airspace users, the percentage used should be lower and the underrecoveries should be excluded from the asset base. With regard to MUAC, airspace users stated that the rise in costs by the recent cost allocation shift was not sustainable, and requested that the state would bear at least a proportion of these costs. For ANA Luxembourg, airspace users appreciated the ongoing discussions regarding the potential state support and asked whether the discussions on this topic would be finalized before the submission deadline. ANA Luxembourg replied that this was the intention.
Final outcome of the consultation	In conclusion, the Belgian and Luxembourg NSAs decided to accept the financial plans of skeyes, MUAC and ANA to be included in the cost-base of the Belgian-Luxembourg en route charging zone for RP3, apart from the Cost of Capital of skeyes, which was adjusted by revising the assumptions used to calculate the return on equity and exclude the carry over related to the correction mechanism of 2020 and 2021 out of the asset base used to calculate the cost of capital. The discussions about potential additional public funding from the state of Luxembourg come to an agreement in November 2021.

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	ACV-CSC, VSOA, TUEM
Dates of main meetings / correspondence	Wednesday, August 18, 2021

Main issues discussed	traffic risk sharing, level of costs and investments
Actions agreed upon	No specific actions were agreed upon.
Points of disagreement and reasons	Professional staff representative bodies stated that the use of a prognosis of traffic in general is not realistic. In the current circumstances, they estimate that the actual number will likely be lower. and that the system of risk-sharing is not appropriate. it was further stated that the current level of investments and recruitments is the result from the RP1 and RP2 cost savings, and that professional staff representative bodies had doubts about the added value of using consultants instead of hiring staff and the outsourcing of the ATCO training centre.
Final outcome of the consultation	In line with commission Implementing Regulation 2019/317, the STATFOR base forecast was included in the performance plan.
Additional comments	

#4 - Airport operators	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments
Airport operators were not invited.

#5 - Airport coordinator	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments
Airport coordinators were not invited.

#6 - Other (specify)	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

1.3.2 - Luxembourg Terminal stakeholder consultation

1.3.2.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
As the main cost driver is staff costs, questions raised about the higher success rate than expected in matter of ab initio training and their public servant status, also in matter of possible early retirement compensation. Regarding the potential additional public funding, the discussions are still ongoing.

1.3.2.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	No	No comments were made on the use of the STATFOR May 2021 scenario 2 forecast.
Charging policy	Yes	The users have been informed of the intention to spread the carry-over related to the correction mechanism of 2020 and 2021 underrecoveries over 7 years in accordance with art. 5(5) of commission Implementing Regulation 2020/1627. No comments were made.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	An symmetric bonus/malus system was introduced, with a maximum bonus of 0.25% and a maximum penalty of 0.25%. ANA indicated that no bonus will be calculated as long as the traffic in terms of service units stays below the level of 2019.
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	Yes	Luxembourg Terminal incentive scheme will be based upon CRSTMP-delay only. No comments were made
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	A symmetric deadband of 30% has been presented to the users. No comments were made.
Establishment or modification of charging zones	No	
Establishment of determined costs included in the cost base for charges	Yes	
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	
Where applicable, decision to apply the simplified charging scheme	No	
New and existing investments, and in particular new major investments, including their expected benefits	Yes	No comments were made.

1.3.2.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	ANA
Dates of main meetings / correspondence	Regular exchanges during the establishment period - Users consultation on 20th September 2021
Main issues discussed	RP3 assumptions (traffic scenario, incentive scheme, ...) Investments Operational and staff costs
Actions agreed upon	Ongoing discussions about additional public funding
Points of disagreement and reasons	/
Final outcome of the consultation	The discussions about additional public funding come to an agreement in November 2021.

Additional comments

#2 - Airspace Users	
Stakeholder group composition	Cargolux, Luxair
Dates of main meetings / correspondence	Users consultation on 20th September 2021
Main issues discussed	Staff costs - additional public funding
Actions agreed upon	Ongoing discussions about additional public funding
Points of disagreement and reasons	Increase of staff costs
Final outcome of the consultation	Due to the recruitment process in the civil service, the room to adapt is quite narrow. The discussions about additional public funding come to an agreement in November 2021.

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#4 - Airport operators	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#5 - Airport coordinator	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#6 - Other (specify)	
Stakeholder group composition	ILR (Institut Luxembourgeois de Régulation)
Dates of main meetings / correspondence	Users consultation on 20th September 2021
Main issues discussed	/
Actions agreed upon	/
Points of disagreement and reasons	/
Final outcome of the consultation	/

Additional comments

1.3.3 - Belgium-Luxembourg en route Stakeholder consultation

1.3.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
<p>Stakeholders raised serious concerns on the rise in costs over the reference period, more specifically for skeyes and MUAC. State intervention from Luxembourg (NSA costs and Cost of Capital) to mitigate the rise was highly appreciated. All stakeholders agreed that inflation is an element which is difficult to control.</p> <p>skeyes indicated that several elements were causing the rise in costs:</p> <ul style="list-style-type: none"> - the need to invest (combined with the necessary hirings to execute these investments) to assure business continuity and sufficient capacity levels in the future, - the age pyramid at skeyes, which had a triple effect: <ul style="list-style-type: none"> - a rise in costs for pre-retired ATCO's - a rise in staff costs due to the need to hire additional ATCO's - a rise in training costs - complexity of the Belgian airspace (see also Annex R) <p>For MUAC, the rise of costs can be explained by the new Maastricht agreement, including a shift of costs from the general Eurocontrol towards the MUAC budget. Additionally, figures were adjusted to inflation.</p> <p>After the consultation, the Belgian state decided to intervene to mitigate the costs in 2023 and 2024. In 2023, the Belgian state will bear 0.5M€ of Part I of the Eurocontrol budget. In 2024, the Belgian state will bear 3M€ of Part I of the Eurocontrol budget. The Eurocontrol costs for the respective years included in the en route reporting tables are adjusted accordingly.</p>

1.3.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	No	The STATFOR June 2022 base scenario was proposed. Stakeholders were informed on the intention of the Belgian and Luxembourg NSAs to adjust the STATFOR June 2022 base scenario to reflect the change of the distance factor. No comments were received.
Charging policy	Yes	BE and LUX NSA stated that it was the intention to spread the carry-over related to the correction mechanism of 2020 and 2021 underrecoveries over 7 years in accordance with art. 5(5) of commission Implementing Regulation 2020/1627. Airspace users appreciated this.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Establishment or modification of charging zones	No	No charging zones were modified.
Establishment of determined costs included in the cost base for charges	Yes	See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels.
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	Not applicable
Where applicable, decision to apply the simplified charging scheme	No	Not applicable

New and existing investments, and in particular new major investments, including their expected benefits	Yes	Stakeholders stated that the cost allocation of the investments of skeyes is not clear, and difficult to identify even though the sharing keys for each investment separately were represented in the investment plan which was provided before the consultation.
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1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	skeyes, MUAC, ANA
Dates of main meetings / correspondence	Tuesday 28 June 2022
Main issues discussed	Revised cost-efficiency target for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario. Revised cost-efficiency for Belgium Terminal.
Actions agreed upon	No specific actions were agreed upon.
Points of disagreement and reasons	skeyes indicated that although the actual traffic in May 2022 was above the traffic prediction, this was not reflected in the June 2022 traffic, where the traffic evolution went back to the level of the STATFOR base scenario.
Final outcome of the consultation	In conclusion, the Belgian and Luxembourg NSAs decided to accept the revised financial plans of skeyes, MUAC and ANA to be included in the cost-base of the Belgian-Luxembourg en route charging zone for RP3. After the consultation, the Belgian state decided to intervene to mitigate the costs in 2023 and 2024. In 2023, the Belgian state will bear 0.5M€ of Part I of the Eurocontrol budget. In 2024, the Belgian state will bear 3M€ of Part I of the Eurocontrol budget. The Eurocontrol costs for the respective years included in the en route reporting tables are adjusted accordingly.

Additional comments

#2 - Airspace Users	
Stakeholder group composition	IATA, Lufthansa Group, Brussels Airlines, TUI Fly/BATA
Dates of main meetings / correspondence	Tuesday 28 June 2022
Main issues discussed	Cost-efficiency target for the Belgium-Luxembourg en route charging zone, comprising the costs of skeyes, (part of) MUAC, ANA and the NSAs, as well as the traffic scenario. The main topics discussed were: inflation, Financial plan of skeyes (especially: the cost evolution, skeyes' ATCO-training, investments planned and skeyes' staff increase), financial plan of MUAC (especially: increase in costs, pension scheme and the shift of costs from the general Eurocontrol to the MUAC budget) and financial plan of ANA Luxembourg (especially: staff evolution, investments and state support). Revised cost-efficiency for Belgium Terminal.
Actions agreed upon	It was agreed upon that skeyes would provide additional information on staffing evolution and FTE breakdown.
Points of disagreement and reasons	Airspace users recognized that the inflation is not under the control of the ANSPs. Airspace users raised concerns about the cost evolution at skeyes during RP3. Specifically, questions were raised on the investment level. Skeyes indicated that to assure business continuity, these were necessary due to end-of-life, and that where possible, synergies with BEL Defense were set up in order to mitigate the costs of the investments. With regard to MUAC, airspace users stated that the rise in costs raises concerns, although recognizing the effects of inflation and the commitment of MUAC to focus on investments that occurs the most benefit for the users. For ANA Luxembourg, airspace users questioned the level of ATCO-hirings, as the ab initio success rate was presented as a constraint. ANA Luxembourg replied that this elevated costs, while it was granted to execute the hirings by the government in order to assure a sufficient level of ATCO staff.
Final outcome of the consultation	In conclusion, the Belgian and Luxembourg NSAs decided to accept the revised financial plans of skeyes, MUAC and ANA to be included in the cost-base of the Belgian-Luxembourg en route charging zone for RP3. After the consultation, the Belgian state decided to intervene to mitigate the costs in 2023 and 2024. In 2023, the Belgian state will bear 0.5M€ of Part I of the Eurocontrol budget. In 2024, the Belgian state will bear 3M€ of Part I of the Eurocontrol budget. The Eurocontrol costs for the respective years included in the en route reporting tables are adjusted accordingly.

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	ACV-CSC
Dates of main meetings / correspondence	Tuesday 28 June 2022
Main issues discussed	traffic scenario, level of costs and investments, ATCO training
Actions agreed upon	No specific actions were agreed upon.
Points of disagreement and reasons	<p>Professional staff representative bodies stated that the June 2022 STATFOR base forecast is most likely too optimistic. According to them, recovery will only take place at a lower pace.</p> <p>Furthermore, it was stated that the current costs were so high due to lack of staff in earlier periods, in combination with a halt in investments.</p> <p>Professional staff representative bodies had doubts about the added value of the outsourcing of the ATCO training centre</p>
Final outcome of the consultation	In line with commission Implementing Regulation 2019/317, the June 2022 STATFOR base forecast was included in the performance plan.
Additional comments	

#4 - Airport operators	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments
Airport operators were not invited.

#5 - Airport coordinator	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments
Airport coordinators were not invited.

#6 - Other (specify)	
Stakeholder group composition	N/A
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

1.3 - Stakeholder consultation

1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
Airspace users indicated that they were not pleased with the fact that only partial information was delivered at a late stage which was hence hindering a fully informed discussion. BE and LUX recognized this, but stated that there was no choice given that a compliance review was still not finalized. On suggestion of the Commission, another consultation will be held after the submission deadline.

1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	No	The STATFOR March 2023 base scenario was proposed. Stakeholders were informed on the intention of the Belgian and Luxembourg NSAs to adjust the STATFOR March 2023 base scenario to reflect the change of the distance factor. No comments were received.
Charging policy	Yes	BE and LUX NSA stated that it was the intention to spread the carry-over related to the correction mechanism of 2020 and 2021 underrecoveries over 7 years in accordance with art. 5(5) of commission Implementing Regulation 2020/1627. Airspace users appreciated this.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	BE and LUX NSA stated that they had no intention to deviate from the 0,5% maximum malus which was already proposed in the 2019 submission. No comments were received
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	No	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Establishment or modification of charging zones	No	No charging zones were modified.
Establishment of determined costs included in the cost base for charges	Yes	See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels and noticed proposed effort which was going in the right direction.
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	Not applicable
Where applicable, decision to apply the simplified charging scheme	No	Not applicable
New and existing investments, and in particular new major investments, including their expected benefits	Yes	See annex C

1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	skeyes, MUAC, ANA
Dates of main meetings / correspondence	Thursday, August 31, 2023
Main issues discussed	(revised) cost base and financial plans of skeyes, MUAC and ANA, savings proposed and potential actions in relation to the findings of the Commission
Actions agreed upon	no specific actions were agreed upon
Points of disagreement and reasons	no specific points were mentioned
Final outcome of the consultation	no specific points were mentioned
Additional comments	

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#2 - Airspace Users	
Stakeholder group composition	IATA, EBAA, Brussels Airlines, Lufthansa, DHL
Dates of main meetings / correspondence	Thursday, August 31, 2023
Main issues discussed	(revised) cost base and financial plans of keyes, MUAC and ANA, savings proposed and potential actions in relation to the findings of the Commission
Actions agreed upon	no specific actions were agreed upon
Points of disagreement and reasons	Data provide only the day before, only containing potential measures. No complete plan was put forward. Consequently they considered not to be in a position to adequately assess the corrective measures proposed.
Final outcome of the consultation	BE and LUX NSA will organize another consultation after the submission deadline.

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#4 - Airport operators	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#5 - Airport coordinator	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	

Final outcome of the consultation	
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Additional comments

#6 - Other (specify)	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

1.3 - Stakeholder consultation

1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
Stakeholders requested to be informed of the compliance review report and consequently a summary of the results will be included in the annex Z concerning the corrective measures.
Stakeholders complained about the delay of the Belgium-Luxembourg final performance plan and noted that the plan is only finalized when the RP3 is almost finished. They expect a quicker delivery for RP4.
Stakeholders requested clear rules on how must be managed revision of the performance plan cost for past years. Belgium will request the

1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	No	The STATFOR March 2023 base scenario was proposed. Stakeholders were informed on the intention of the Belgian and Luxembourg NSAs to adjust the STATFOR March 2023 base scenario to reflect the change of the distance factor. No comments were received.
Charging policy	Yes	BE and LUX NSA stated that it was the intention to spread the carry-over related to the correction mechanism of 2020 and 2021 underrecoveries over 7 years in accordance with art. 5(5) of commission Implementing Regulation 2020/1627. Airspace users appreciated this.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	BE and LUX NSA stated that they had no intention to deviate from the 0,5% maximum malus which was already proposed in the 2019 submission. No comments were received
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	No	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	Not discussed as this was treated by the FABEC consultation held on the 2nd of September 2021.
Establishment or modification of charging zones	No	No charging zones were modified.
Establishment of determined costs included in the cost base for charges	Yes	See also description of main points discussed during the consultation meeting: Airspace users expressed concerns about the cost levels and the future evolution in RP4
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	Not applicable
Where applicable, decision to apply the simplified charging scheme	No	Not applicable
New and existing investments, and in particular new major investments, including their expected benefits	Yes	See annex C

1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	skeyes, MUAC, ANA
Dates of main meetings / correspondence	Thursday, October 26, 2023
Main issues discussed	(revised) cost base and financial plans of skeyes, MUAC and ANA, savings and actions in relation to the findings of the Commission
Actions agreed upon	no specific actions were agreed
Points of disagreement and reasons	no specific points were mentioned
Final outcome of the consultation	no specific outcomes were expected

Additional comments

#2 - Airspace Users	
Stakeholder group composition	IATA, EBAA, Lufthansa Group, KLM
Dates of main meetings / correspondence	Thursday, October 26, 2023
Main issues discussed	(revised) cost base and financial plans of skeyes, MUAC and ANA, savings and actions in relation to the findings of the Commission
Actions agreed upon	Airspace users would like to consult the compliance review: Belgium will add a summary of the results in the final performance plan
Points of disagreement and reasons	no specific points were mentioned
Final outcome of the consultation	A summary of the results of the compliance review is added in the Annex Z

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	ACV-CSC
Dates of main meetings / correspondence	Thursday, October 26, 2023
Main issues discussed	(revised) cost base and financial plans of skeyes, MUAC and ANA, savings and actions in relation to the findings of the Commission
Actions agreed upon	no specific actions were agreed
Points of disagreement and reasons	Staff representative assessed the change from a FABEC performance plan to a national one as uncompliant with the regulation.
Final outcome of the consultation	no specific outcomes were expected

Additional comments

#4 - Airport operators	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#5 - Airport coordinator	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	

Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

#6 - Other (specify)	
Stakeholder group composition	
Dates of main meetings / correspondence	
Main issues discussed	
Actions agreed upon	
Points of disagreement and reasons	
Final outcome of the consultation	

Additional comments

1.4 - List of airports subject to the performance and charging Regulation

1.4.1 - Airports as per Article 1(3) (IFR movements $\geq 80\,000$)

ICAO code	Airport name	Charging Zone	IFR air transport movements			
			2016	2017	2018	Average

1.4.2 Other airports added on a voluntary basis as per Article 1(4)

Number of airports	1		
ICAO code	Airport name	Charging Zone	Additional information
ELLX	Luxembourg	Luxembourg - TCZ	

Additional comments
/

1.5 - Services under market conditions

Number of services under market conditions	0
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1.6 - Process followed to develop and adopt a FAB Performance Plan

Description of the process
Not applicable

1.7 - Establishment and application of a simplified charging scheme

Is the State intending to establish and apply a simplified charging scheme for any charging zone/ANSP?	No
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SECTION 2: INVESTMENTS

[#REF!](#)

- 2.1.1 - Summary of investments
- 2.1.2 - Detail of new major investments
- 2.1.3 - Other new and existing investments

[#REF!](#)

- 2.2.1 - Summary of investments
- 2.2.2 - Detail of new major investments
- 2.2.3 - Other new and existing investments

2.3 - Investments - ANA LUX

- 2.3.1 - Summary of investments
- 2.3.2 - Detail of new major investments
- 2.3.3 - Other new and existing investments

Annexes of relevance to this section
ANNEX E. INVESTMENTS

NOTE: The requirements as per Annex II, 2.2.(c) are addressed in item 4.1.2

2.1 - Investments - skeyes

2.1.1 - Summary of Investments

Number of new major investments	4
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#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	ATM Next Generation	66 988 226	19 685 766	-	38 137	97 903	276 969	496 219	15 years	78%	22%	Phased entry into operations as of 2023
2	remote radio sites	11 791 765	7 647 669	11 755	35 502	96 879	170 983	692 819	15 years	80%	20%	2024
3	Wide Area Networking	8 576 318	4 441 710	225	32 390	91 549	349 730	782 941	8 years	87%	13%	2023
4	A-SMGCS 2 system EBBR	6 571 171	3 695 161	3 156	10 148	24 709	102 161	134 494	6 years software / 15 years hardware	0%	100%	2022
Sub-total of new major investments above (1)		93 927 480	35 470 307	15 135	116 178	311 040	899 843	2 106 473				
Sub-total other new investments (2)		194 245 251	67 228 451	1 220 208	1 429 440	1 427 657	1 191 720	1 245 265		77%	23%	
Sub-total existing investments (3)				13 836 587	11 813 707	11 242 118	12 617 575	14 954 387		77%	23%	
Total new and existing investments (1) + (2) + (3)		288 172 731	102 698 758	15 071 931	13 359 325	12 980 815	14 709 137	18 306 125				

* The total % enroute+terminal should be equal to 100%.

2.1.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1	ATM Next Generation						Total value of the asset	66 988 226 €
Description of the asset	The NextGen ATM program aims to define the future of the current ATM system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies. The program includes the upgrade of the current ATM system to extend its lifetime until the modernisation of the system							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014						
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	
	1.1		3.1, 3.2	4.2		6.3		

Benefits for airspace users and results of the consultation of airspace users' representatives	The evolution of the ATM system will ensure business continuity, ensure compliance with current and future European requirements (e.g. CP1, SES2+) and improve the efficiency and capacity		
Joint investment / partnership	No		
Investment in ATM systems	Yes		
If investment in ATM system, type?	New system	The investment includes the renewal of the current system and the extension of the lifetime of the current system (Midlife upgrade) until the operational date of the new system	
If investment in ATM system, Reference to European ATM Master Plan / PCP	PCP	AF 1.1, AF3.1, AF 3.2, AF 4.3, AF 6.3	

Name of new major investment 2	remote radio sites					Total value of the asset		11 791 765 €	
Description of the asset	This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 “new” sites for Enroute and Approach. The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network	Increased level of safety for airspace users as a result of improved communication service resilience, guaranteed business continuity of air navigation services through reduced traffic disruption.							
	Local	Increased level of safety for airspace users as a result of improved communication service resilience, guaranteed business continuity of air navigation services through reduced traffic disruption.							
	Non-performance								
Quantitative impact per KPA	Safety	Safety level is maintained in case of equipment failure (decrease risk of single point of failure.							
	Environment	N.A.							
	Capacity	Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes delay in 2018)							
	Cost Efficiency	N.A.							
Results of the consultation of airspace users' representatives	Airspace users' have been consulted on the investment plan of skeyes during the consultation meeting held on 26 October 2022 . No specific comments on this investment were received.								
Joint investment / partnership	Yes	As part of the partnership between skeyes and Belgian Defense, new radiosite are installed whenever possible on military sites to avoid purchasing and equipping new plot of land							
Investment in ATM systems	No								
If investment in ATM system, type?	Click to select								
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select								

Name of new major investment 3	Wide Area Networking	Total value of the asset	8 576 318 €
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Description of the asset	From mid 2022 onwards, skeyes’ existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. The creation of a new Wide Area Network (WAN) will support all skeyes operational and business critical processes and related IT systems. In particular, it will provide highly available, secure and scalable network connectivity to interconnect all skeyes locations (point of presence).							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	
Level of impact of the investment	Network	Business continuity of air navigation services through reduced risk of data traffic disruption						
	Local	Cost reduction and efficiency gains through the use of a more efficient, scalable network.						
	Non-performance							
Quantitative impact per KPA	Safety	N.A.						
	Environment	N.A.						
	Capacity	Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes delay in 2018)						
	Cost Efficiency	Efficiency gains through the use of a more efficient and scalable network. The new WAN will be a major enabler for virtualization projects (ATM Next Gen and Digital Towers)						
Results of the consultation of airspace users' representatives	Airspace users’ have been consulted on the investment plan of skeyes during the consultation meeting held on 26 October 2022 . No specific comments on this investment were received.							
Joint investment / partnership	No							
Investment in ATM systems	No							
If investment in ATM system, type?	Click to select							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select							

Name of new major investment 4	A-SMGCS 2 systeem EBBR					Total value of the asset		6 571 171 €	
Description of the asset	This project focuses on replacing the existing Advanced Surface Movement Guidance and Control (A-SMGCS) data fusion system, three Surface Movement Radars (SMR), and the MLAT system at Brussels Airport. The project comprises two investments: the A-SMGCS system and the cameras								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
		2.1, 2.2, 2.3		4.2, 4.4					
Level of impact of the investment	Network								
	Local								
	Non-performance								
Quantitative impact per KPA	Safety								
	Environment								
	Capacity								
	Cost Efficiency								

Benefits for airspace users and results of the consultation of airspace users' representatives	Airspace users' have been consulted on the investment plan of skeyes during the consultation meeting held on 26 October 2022 . No specific comments on this investment were received.	
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	

2.1.3 - Other new and existing investments

2.1.3.1 - Overall description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period

<p>The description and justification of the costs nature and benefit of other new and existing investments in fixed assets planned over RP3 are described in Annex E. Each planned investment has been categorised into three overarching categories:</p> <ul style="list-style-type: none"> - ATM enhancement - CNS and MET enhancement - Infrastructure enhancement
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2.1.3.2 - Details of the main other new investments in fixed assets planned over the reference period

Number of new other investments	Click to select number of new other investments
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#	Name of investment	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Description
				2020	2021	2022	2023	2024	

2.2 - Investments - MUAC

2.2.1 - Summary of investments

Number of new major investments	6
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#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	New Voice Communication System	6 939 000	6 939 000	663 020	706 133	698 362	690 383	682 310	8 to 15	100%		Q4-2017
2	MeDUSA (MUAC Dual System Architecture)	13 500 000	13 500 000	0	0	0	0	0	8 to 15	100%		Q4-2025
3	Back up Voice Communication System	8 700 000	8 700 000	0	0	0	0	0	8 to 15	100%		Q4-2027
4	Data Centre Modernisation	7 103 000	7 103 000	0	0	0	0	0	15 to 20	100%		Q2-2023
5	IOP-G programme - First deployment	21 000 000	21 000 000	0	0	0	0	0	8 to 15	100%		Q2-2029
6	PHOENIX - New ops building (previously called New ATCO Consoles project)	34 375 000	34 375 000	0	0	0	0	0	8 to 50	100%		Q4-2026
Sub-total of new major investments above (1)		91 617 000	91 617 000	663 020	706 133	698 362	690 383	682 310				
Sub-total other new investments (2)		36 509 000	36 509 000	0	549 900	1 207 900	638 890	2 543 438				
Sub-total existing investments (3)				8 581 777	6 267 967	5 228 738	4 740 827	4 132 352				
Total new and existing investments (1) + (2) + (3)		128 126 000	128 126 000	9 244 797	7 524 000	7 135 000	6 070 100	7 358 100				

* The total % enroute+terminal should be equal to 100%.

2.2.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1	New Voice Communication System						Total value of the asset	6 939 000 €
Description of the asset	ED-137 compliant VoIP Voice Communication System, including test system. The system supports the FABEC concept for inter-centre sectorisation.							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	

Level of impact of the investment	Network	Very limited on the short term. Positive impact on the network will arise once VoIP has been implemented across all ANSPs in Europe.
	Local	None
	Non-performance	None
Quantitative impact per KPA	Safety	Current safety levels are maintained or improved. Improved radio coverage.
	Environment	No impact
	Capacity	The N-VCS can support more sectors than the old one and provides in addition more flexibility when switching from one sector
	Cost Efficiency	Reduced communication maintenance costs
Results of the consultation of airspace users' representatives	Covered in national consultation of BE, NL, GE and LUX. No specific comments were made.	
Joint investment / partnership	Yes	Common procurement with DSNA
Investment in ATM systems	Yes	
If investment in ATM system, type?	Replacement investment	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	Replacement of the Voice System, supporting VoIP for ground telephone; implementation objective COM11.1

Name of new major investment 2	MeDUSA (MUAC Dual System Architecture)					Total value of the asset		13 500 000 €	
Description of the asset	The MUAC Dual System Architecture (MeDUSA) project will provide an upgraded Fallback/system, which will support the necessary operational requirements for a safe transition from Primary high capacity to Fallback sustained capacity. Upgraded Fallback CWP-HMI with additional functionalities on top of the currently existing ones : identical look and feel as the PRI-CWP, datalink and outgoing OLDI. The project is currently in the initiation phase.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network	None							
	Local	Due to the similar HMI and features in both PRI and FLB, training effort will be less. In addition, the legacy fallback system is a							
	Non-performance	None							
Quantitative impact per KPA	Safety	The project is in the initiation phase. It is too early to quantify it's impact.							
	Environment	No direct impact							
	Capacity	Positive impact as a) MEDUSA ensures that primary system capacity at MUAC can grow and b) When operating under fallback							
	Cost Efficiency	No direct impact							
Results of the consultation of airspace users' representatives	Covered in national consultation of BE, NL, GE and LUX. No specific comments were made.								
Joint investment / partnership	No								
Investment in ATM systems	Yes								
If investment in ATM system, type?	Overhaul of								
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	The upgraded Fallback System will provide for a new Fallback CWP-HMI, as well as a replacement of the current MUAC Fallback Flight Server							

Name of new major investment 3	Back up Voice Communication System					Total value of the asset		8 700 000 €	
Description of the asset	Replacement of the current BVCS system introduced in 2008								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network	None							
	Local	None							
	Non-performance	This is a replacement project, without direct impact on network or local performance.							
Quantitative impact per KPA	Safety	The project is in the initiation phase. It is too early to quantify it's impact.							
	Environment	No direct impact							
	Capacity	No direct impact							
	Cost Efficiency	With the migration to IP technology, the phase out of legacy telephony will start							
Results of the consultation of airspace users' representatives	Covered in national consultation of BE, NL, GE and LUX. No specific comments were made.								
Joint investment / partnership	No								
Investment in ATM systems	Yes								
If investment in ATM system, type?	Replacement								
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	Replacement of the Backup Voice System, supporting VoIP for ground telephone: implementation objective COM11.1							

Name of new major investment 4	Data Centre Modernisation					Total value of the asset		7 103 000 €	
Description of the asset	The data Centre Modernisation project aims at the upgrade of the equipment rooms and their installations and facilities to the Uptime Institute TIER III level. Besides that, the project will deliver processes and tooling to efficiently plan the rack-space and administer the assets and their physical (network) interconnections.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network	No							
	Local	No							
	Non-performance	The upgrade of the infrastructure is needed in order to ensure that the platform remains capable to support current and future IT							
Quantitative impact per KPA	Safety	Reduced risk of system interruptions							
	Environment	Improved energy consumption, fire protection and physical security							
	Capacity	Reduced risk of system interruptions							
	Cost Efficiency	No							
Results of the consultation of airspace users' representatives	Covered in national consultation of BE, NL, GE and LUX. No specific comments were made.								

Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	

Name of new major investment 5	IOP-G programme - First deployment					Total value of the asset		21 000 000 €	
Description of the asset	To comply with the Initial SWIM Implementing Rule 716/2014 of the Pilot Common Projects (PCP), MUAC is preparing the implementation of the Flight Object (FO), supported by the Blue SWIM Profile. The IOPG Programme comprises additional validations to complement the validations under SESAR1 & SESAR2020, the development and integration of the SWIM Node and Flight Object Manager (common project with ITEC) and the modifications to the legacy systems.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
					Family 5-6-2				
Level of impact of the investment	Network								
	Local								
	Non-performance								
Quantitative impact per KPA	Safety								
	Environment								
	Capacity								
	Cost Efficiency								
Benefits for airspace users and results of the consultation of airspace users' representatives	Access to common flight data can result in improved coordination in user-preferred route environments, safety, robustness and concepts of operation. Costs saving through common development of the Blue SWIN Node and Flight Object Manager with ITEC.								
Joint investment / partnership	Yes								
Investment in ATM systems	Yes								
If investment in ATM system, type?	New system								
If investment in ATM system, Reference to European ATM Master Plan / PCP	PCP	AF#5,family 5-6-2							

Name of new major investment 6	PHOENIX - New ops building (previously called New ATCO Consoles project)						Total value of the asset	34 375 000 €
Description of the asset	New operational building, flexibly locatable in a brighter OPS Room, including new consoles designed to modern ergonomic standards, improved training, test and locat contingency infrastructure, refurbished training, test & contingency environment. The Study Phase has been approved by the MCG; the outcome of the study will be presented in the MCG of Spring 2022.							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No							
Specify links to the PCP/CP1/Interoperability Regulations	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	

specifying links to the ECA/EC/ET/interoperability regulations (add the sub-AF number(s) under each relevant box)								
Level of impact of the investment	Network							
	Local	The new building will provide additional CWPs to handle more traffic.						
	Non-performance							
Quantitative impact per KPA	Safety	The project is in the initiation phase. It is too early to quantify it's impact.						
	Environment	Sustainability will be a high priority for the new OPS building						
	Capacity	Additional CWPs will allow for a higher capacity and support the future CONOPS.						
	Cost Efficiency	No impact						
Results of the consultation of airspace users' representatives	Covered in national consultation of BE, NL, GE and LUX. No specific comments were made.							
Joint investment / partnership	No							
Investment in ATM systems	No							
If investment in ATM system, type?	Click to select							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select							

2.2.3 - Other new and existing investments

2.2.3.1 - Overall description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period

The existing investments with the highest significance in terms of operational and financial impact are : the MUAC building (9 M€ of depreciations over RP3), new FDPS which has been fully depreciated at the end of 2020 (3.7 M€ of depreciations in 2020), the data centre operations (3.1 M€ of depreciation over RP3), the Radio Direction Finder (1.2 M€ over RP3), the MUAC office Cloud operations OBS (1.1 M€ over RP3) and the BEEK transmitter station (0.6 M€ over RP3). The new investments with the highest significance are disclosed in section 2.7.1 . Other new investment projects includes among others , Maintenance of servers and workstations, the new Access Control system and increased automation in training (MUSE project).

2.2.3.2 - Details of the main other new investments in fixed assets planned over the reference period

Number of new other investments	3
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#	Name of investment	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Description
				2020	2021	2022	2023	2024	
1	Data Centre operations	7 321 000	7 321 000	620 000	620 000	620 000	620 000	620 000	<p>Obsolescence : replacement of servers and workstations</p> <p>NOTE: Although the total value of this line is more than €5mIn, the line covers a significant number of smaller repacement investments which are grouped here for convenience. Alle individual investments are well below the €5mIn threshold.</p>

2	New Access Control System	2 800 000	2 800 000				100 000	200 000	obsolescence of the existing access control system, acquire a new and state of the art access control system based on an integrated security platform which interconnects all required applications within an open architecture meeting the present regulations, expecting benefits are in user friendliness, IT security, capacity and possibilities of the new system, improvement of physical barriers, futureproof and reducing of maintenance costs
3	Automated/remote ATCO training, self training and scoring (MUSE)	1 708 000	1 708 000					600 000	Improvement of the real time simulation environment at MUAC and from home leading to workload reduction, self training for ab-initios

2.3 - Investments - ANA LUX

2.3.1 - Summary of investments

Number of new major investments	6
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#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	Radar / SUR: A-SMGCS Level 2 and updates	1 053 000	1 053 000	0	70 512	105 300	105 300	105 300	15			31/12/2021
2	Communication systems: VCS/VCR, emergency radio; ADD and AMHS	2 541 244	2 541 244	18 602	26 153	27 724	27 724	148 936	10			31/12/2020 31/12/2023 31/12/2024
3	Navigation systems: ILS/DME24	477 860	477 860	18 322	47 476	39 822	39 822	39 822	15			31/12/2020 31/12/2024
4	Aeronautical Systems: AIS/AIM, eTOD and MET	3 369 273	2 286 610	1 087	10 295	8 341	19 516	34 266	10			31/12/2021
5	Radar / SUR: Surveillance chain evolution	1 250 000	1 250 000	0	0	0	0	0	10			31/12/2023
6	Navigation systems: DVOR/DME DIK	600 000	600 000	0	0	0	0	15 000	20			31/12/2024
Sub-total of new major investments above (1)		9 291 377	8 208 714	38 011	154 436	181 186	192 361	343 324				
Sub-total other new investments (2)		16 754 269	6 131 772	117 833	282 949	286 993	372 501	486 817				
Sub-total existing investments (3)				1 938 434	1 978 230	2 203 101	2 094 234	1 988 457				
Total new and existing investments (1) + (2) + (3)		26 045 647	14 340 487	2 094 278	2 415 615	2 671 280	2 659 097	2 818 598				

* The total % enroute+terminal should be equal to 100%.

2.3.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1	Radar / SUR: A-SMGCS Level 2 and updates						Total value of the asset	1 053 000 €
Description of the asset	A-SMGCS Level 1 (monitoring) is already installed and operational on ELLX. Level 2 installation ensures the tracking and monitoring of aircraft and transponder equipped vehicles on the airport as a safety tool.							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No							
Specify links to the PCP/CP1/Interoperability Regulations	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	

Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)								
Level of impact of the investment	Network							
	Local							
	Non-performance							
Quantitative impact per KPA	Safety	enhanced from Level 1						
	Environment	no impact						
	Capacity	enhanced traffic flow in LVP conditions						
	Cost Efficiency							
Results of the consultation of airspace users' representatives	Use of A-SMGCS as a ground movement control system (Acft / vehicles) for safe airport OPS. Consultation and user support ensured.							
Joint investment / partnership	No							
Investment in ATM systems	Yes							
If investment in ATM system, type?	New system	Ground surveillance and control						
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	ESSIP: ESSIP AOP04.1, AOP04.2 (A-SMGCS): ENV01, ATM Masterplan.						

Name of new major investment 2	Communication systems: VCS/VCR, emergency radio; ADD and AMHS					Total value of the asset		2 541 244 €	
Description of the asset	Installation of a new voice communication system (HW replacement, 8.33 kHz capable) and voice recording system for ATC. Upgrade of emergency radio to a telephone based system, replacement of ATC Data Display (ADD) and ATC Message Handling System (upgrade) for SUR, Flight Data, weather(current & forecast) as an important safety tool.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network								
	Local								
	Non-performance								
Quantitative impact per KPA	Safety	back-up equipment							
	Environment	no impact							
	Capacity	no impact							
	Cost Efficiency								
Results of the consultation of airspace users' representatives	Continuity of voice communication service through a reliable system. The implementation of a voice recording system in ATC is a requirement (AET and DAC recommendation). TWR ADD replacement and upgrade to display relevant ATC info. User consultation planned during local AUC meeting.								
Joint investment / partnership	No								
Investment in ATM systems	Yes	Basic VCS, data display and flight data and message handling.							
If investment in ATM system, type?	New system	Replacement of VCS and installation of a new VCR, replacement of ADD and overhaul of AMHS.							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	Basic VCS system compliant with ESSIP ITY-AGVCS objective for air-ground communication; availability of a stable emergency VCS; and ATC information (compliance with ICAO standards and EUROCONTROL recommendations).							

Name of new major investment 3	Navigation systems: ILS/DME24	Total value of the asset	477 860 €
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Description of the asset	Implementation of a new Instrument Landing System (ILS) and distance metering equipment (DME) at RW24							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	
Level of impact of the investment	Network							
	Local							
	Non-performance							
Quantitative impact per KPA	Safety	replacement of legacy system						
	Environment	no impact						
	Capacity	no impact						
	Cost Efficiency	-3						
Results of the consultation of airspace users' representatives	Continuity of service and through replacement of existing systems after life-cycle. User consultation planned during local AUC meeting.							
Joint investment / partnership	No							
Investment in ATM systems	Yes	Basic navigation and landing system.						
If investment in ATM system, type?	Replacement							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	Availability of navigation systems for all aircraft type.						

Name of new major investment 4	Aeronautical Systems: AIS/AIM, eTOD and MET					Total value of the asset		3 369 273 €	
Description of the asset	Implementation of modern AIM / AIS aeronautical, digital production and management systems including digital NOTAM in line with future requirements. Installation of electronic terrain and obstacle data (eTOD) and data management system for all areas as required;								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	Click to select								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network								
	Local								
	Non-performance								
Quantitative impact per KPA	Safety		no impact						
	Environment		no impact						
	Capacity		no impact						
	Cost Efficiency								
Benefits for airspace users and results of the consultation of airspace users' representatives	Availability of flight safety relevant terrain & obstacle data to ensure obstacle clearance in LU airspace and aerodrome. Digital aeronautical data handling								
Joint investment / partnership	No								

Investment in ATM systems	Yes	Basic aeronautical data and information for ANS.
If investment in ATM system, type?	New system	Implementation of new digitalised AIS/AIM management and work-flow management and NOTAM system. Implementation of new eTOD management system. Replacement of RWY Visual Range (RVR) sensors for MET.
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	ESSIP: INF07 (eTOD) and ITY-ADQ (Aeronautical Data Quality) compliance; compliance with ICAO requirements. Initial implementation steps in line with SESAR ATM MP to create a SWIM enabled aeronautical environment.

Name of new major investment 5	Radar / SUR: Surveillance chain evolution					Total value of the asset		1 250 000 €	
Description of the asset	ATC requested for a surveillance chain evolution in order to handle Mode S conspicuity code assignment (APP), make use the tool allowing flexible use of airspace (APP), go additional CWP customization (APP & TWR), enable Director sector for 3rd APP position (APP), to enable P BN management by FDP, enable TWR sector giving TWR the opportunity to request dedicated changes specially in VFR handling (TWR) and enable dedicated layout for DCL HMI at								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network								
	Local								
	Non-performance								
Quantitative impact per KPA	Safety								
	Environment								
	Capacity								
	Cost Efficiency								
Results of the consultation of airspace users' representatives	It has been presented to the users, but as the investments are carried by the state as it was done in the past, there was no reaction from the side of the users.								
Joint investment / partnership	No								
Investment in ATM systems	Yes	Basic surveillance and control							
If investment in ATM system, type?	Overhaul of	implementation of additional functionalities of the actual surveillance chain							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	ATC02.8 ITY-SPI, ITY-ACID, ATC02.9							

Name of new major investment 6	Navigation systems: DVOR/DME DIK					Total value of the asset		600 000 €	
Description of the asset	Renewing of DVOR/DME DIK (used for enroute)								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	Click to select								
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability		
Level of impact of the investment	Network								
	Local								
	Non-performance								

Quantitative impact per KPA	Safety	back-up in case of GNSS failure
	Environment	no impact
	Capacity	no impact
	Cost Efficiency	
Benefits for airspace users and results of the consultation of airspace users' representatives	It has been presented to the users, but as the investments are carried by the state as it was done in the past, there was no reaction from the side of the users.	
Joint investment / partnership	No	
Investment in ATM systems	Yes	Basic navigation for approach and en-route
If investment in ATM system, type?	Replacement	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	MON PBN Transition 3.7

2.3.3 - Other new and existing investments

2.3.3.1 - Overall description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period

2.3.3.2 - Details of the main other new investments in fixed assets planned over the reference period

Number of new other investments	Click to select number of new other investments
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#	Name of investment	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Description
				2020	2021	2022	2023	2024	

SECTION 3: PERFORMANCE TARGETS AND MEASURES FOR THEIR ACHIEVEMENT

3.1 - Safety targets

[3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs](#)

3.2 - Environment targets

[3.2.1 - Environment KPI #1: Horizontal en route flight efficiency \(KEA\)](#)

3.3 - Capacity targets

[3.3.1 - Capacity KPI #1: En route ATFM delay per flight](#)

[3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight](#)

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS
En Route Charging Zone #x

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS
Terminal Charging Zone #x

[3.4.3 - Pension assumptions](#)

[3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services](#)

[3.4.5 - Restructuring costs](#)

[3.4.6 - Additional determined costs related to measures necessary to achieve the en route capacity targets](#)

3.5 - Additional KPIs / Targets

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

[3.6.1 - Interdependencies and trade-offs between safety and other KPAs](#)

[3.6.2 - Interdependencies and trade-offs between capacity and environment](#)

[3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity](#)

[3.6.4 - Other interdependencies and trade-offs](#)

Annexes of relevance to this section

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)

ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)

ANNEX F. BASELINE VALUES (COST-EFFICIENCY)

ANNEX H. RESTRUCTURING MEASURES AND COSTS

ANNEX M. COST ALLOCATION

ANNEX J. OPTIONAL KPIs AND TARGETS

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

ANNEX U. VERIFICATION BY THE NSA OF THE COMPLIANCE OF THE COST BASE

SECTION 3.1: SAFETY KPA

3.1 - Safety targets

[3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs](#)

- a) Safety national performance targets
- b) Detailed justifications in case of inconsistency between local and Union-wide safety targets
- c) Main measures put in place to achieve the safety performance targets

Annexes of relevance to this section

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

3 - PERFORMANCE TARGETS AT LOCAL LEVEL

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety performance targets

Number of Air Traffic Service Providers		2					
skeyes		2020A Actual	2020 Target	2021 Target	2022 Target	2023 Target	2024 Target
	Safety policy and objectives	B	B	C	C	C	C
	Safety risk management	C	C	C	C	D	D
	Safety assurance	B	B	B	B	C	C
	Safety promotion	C	C	C	C	C	C
	Safety culture	B	B	B	C	C	C
	Additional comments						
MUAC		2020A Actual	2020 Target	2021 Target	2022 Target	2023 Target	2024 Target
	Safety policy and objectives	C	C	C	C	C	C
	Safety risk management	D	D	D	D	D	D
	Safety assurance	C	C	C	C	C	C
	Safety promotion	C	C	C	C	C	C
	Safety culture	C	C	C	C	C	C
	Additional comments						
ANA LUX		2020A Actual	2020 Target	2021 Target	2022 Target	2023 Target	2024 Target
	Safety policy and objectives	B	B	C	C	C	C
	Safety risk management	C	C	C	C	D	D
	Safety assurance	B	B	B	B	C	C
	Safety promotion	B	B	C	C	C	C
	Safety culture	B	B	B	C	C	C
	Additional comments						

b) Detailed justifications in case of inconsistency between local and Union-wide safety targets

n/a

* Refer to Annex O, if necessary.

c) Main measures put in place to achieve the safety performance targets

There are different committees established within the FABEC as explained in the "FABEC Reference Guide", clearly highlighting the existing groups at ANSPs as well as Competent Authorities level and their responsibilities. For the KPA of Safety the ANSPs' committee installed is the Standing Committee Safety (SC-SAF) where all 7 ANSPs are represented.

On ANSPs level, a few measures for safety risk management were put in place.

Skeyes (Belgium) decided to put in place following measures:

- Safety culture assessment and promotion;
- Improvement of the integration of contractors into the SMS;
- Yearly Rehearsal and update of all emergency procedures;
- Management of improvements in safety that address key risks;
- Management of performance deviations and deficiencies from its operational risk baseline;
- Continuous improvement of the SMS through yearly conduct of internal SMS audits.

ANA (Luxembourg) decided to put in place following measures:

- EOSM Question 1.1: Training to Accountable Manager on SMS (including safety culture) for safety responsibilities and accountability (completed);
- EOSM Question 1.2: All CNS ATSEPs were given a refresher training on their SMS duties, Safety Culture, Just Culture, reporting and investigation principles. Misconceptions were clarified and the training was conducted with practical examples. Their reporting and investigation quality has improved significantly since this training. Other ANA personnel was given this training on request on a voluntary basis; All management staff were given a refresher course on their SMS duties, Safety Culture, Just Culture, and investigation principles. Training was conducted with practical examples and misconceptions were clarified during an open discussion. Staff understanding has improved since this course;
- EOSM Question 4.1: Internal audit on existing of emergency/contingency procedures, as gap analysis with EOSM/CANSO SOE standards (on-going); Drafting and implementation of compliant emergency/contingency procedures (on-going); Organization of live exercises/rehearsals by end 2022, then repetition on yearly basis (on-going); Inclusion of live exercises findings into corrective actions/recommendations process (on-going);
- EOSM Question 7.1: Review and update of the hazard identification analysis process by end 2022, then review at least every 5 years (planned); Monitoring of appropriate application of the hazard identification process (planned);
- EOSM Question 7.3: Review of acceptable risk level by end 2022 and then at least once every 5 years (on-going); Review risk level to ensure it is in line with the risk tolerance of governing body (on-going); Implementation of a formal process for corrective action, further to risks identified as unacceptable (on-going);
- EOSM Question 15.1: Inclusion of SSP and EPAS into the business plan (on-going);
- EOSM Question 17.1: Safety focus on internal communications (on-going); Improvement of staff information when procedures have changed (on-going); Tailoring of safety communication to the recipient's needs (on-going).

MUAC decided to put in place following measures

- Improving traceability between safety requirements;
- Creating an overall MUAC dashboard to steer the KPIs, including the safety aspect;
- Providing input to the FABEC working groups (SRAP and SPM).

Furthermore, all FABEC ANSPs jointly decided to put in place following measures to show their common spirit and to work together even closer:

- Identification of deviations / gaps to the requirements described in the RP3 EoSM-questionnaire, if any, and implementation of remedial measures accordingly;
- Retrieval of a better common understanding between ANSPs and Competent Authorities of EoSM-questionnaire requirements, where necessary;
- Maintenance of a FABEC dashboard. This is kept up-to-date by the SPM working group reporting to the SC-SAF. A yearly aggregation of SMI, RI and EoSM results is done under the leadership of the DSNA and analysed both by SPM and SC-SAF. The publication on a website is foreseen in the near future.

Last mentioned measures emphasize the FABEC added value through an intense cooperation between the 7 ANSPs.

On the Competent Authority level, the compliance verification of Commission Implementing Regulation (EU) 2017/373 is considered an effective means by inspecting the current safety performance and thus also anticipating if a set target is endangered. As the EoSM results are directly linked to aforementioned regulation's compliance verification, this is clearly depicting an early indicator of EoSM maturity and its necessary improvement.

Further, FABEC Competent Authorities meet regularly (three times a year) in a dedicated working group, the Safety Performance and Risk Coordination Task Force (SPRC TF), to gather Safety Performance data, to compare the ANSPs' performance among each other and to jointly determine whether and where catch-up demand is necessary. Additionally, the SPRC TF has established cooperation with the Standing Committee Safety (SC-SAF) to guarantee a holistic approach including all 7 FABEC ANSPs.

** Refer to Annex O, if necessary.*

SECTION 3.2: ENVIRONMENT KPA

3.2 - Environment targets

[3.2.1 - Environment KPI #1: Horizontal en route flight efficiency \(KEA\)](#)

- a) Environment national performance targets
- b) Detailed justifications in case of inconsistency between national targets and national reference values
- c) Main measures put in place to achieve the environment performance targets

Annexes of relevance to this section

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

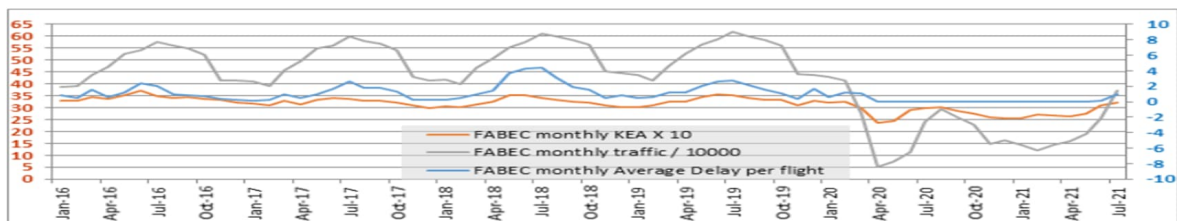
a) National environment performance targets

	2020A	2020	2021	2022	2023	2024
National reference values	-	n/a	3.10%	3.05%	3.00%	3.00%

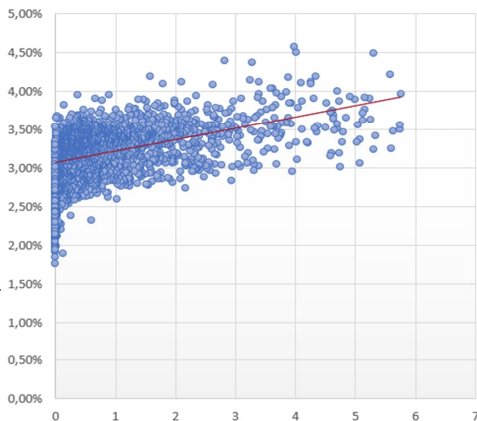
	2020	2021	2022	2023	2024
National targets	Target	Target	Target	Target	Target
	-	3.10%	3.05%	3.00%	3.00%

b) Detailed justifications in case of inconsistency between national targets and national reference values

Belgium is planning to reach the reference values. However, in line with earlier statements made by FABEC, Belgium wants to underline uncertainties of the achievement of strong correlation with delays. Though the Netherlands is also committed to achieve capacity reference values, current volatility in traffic evolution - and thus also uncertainties as far as bottlenecks and delays might endanger this goal.



KEA and Average ATFM Delay W/O Outlier



Conclusion:

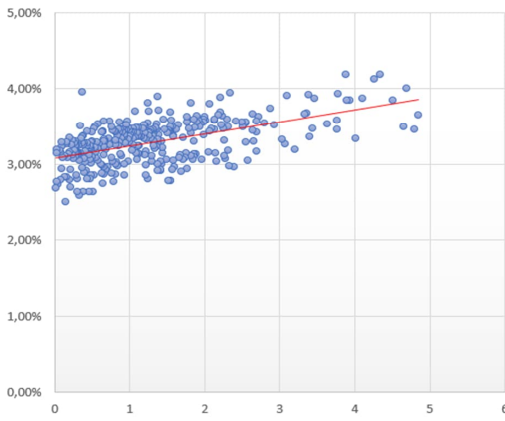
We can derive an equation as follows:

$$y = b_0 + B_1x$$

$$KEA = 0,0309526553346238 +$$

$$0,00114880921312177 \cdot \text{Average ATFM Delay}$$

KEA and Average ATFM Delay 2019 W/O Outlier



Conclusion:

We can derive an equation as follows:

$$y = b_0 + B_1x$$

$$KEA = 0,0312888303131166 +$$

$$0,00121222756558709 \cdot \text{Average ATFM Delay}$$

In addition, Belgium continues to underline the limitations of the KPI HFE, with significant influential factors without (share of overflights as well as weather) or only within limited control of ANSPs and the civil aviation administration (military use of airspace). Furthermore, there are numerous situations where a good horizontal flight efficiency might not constitute the most CO2-efficient flight path (flying in non-optimal Flight Level or non-optimal wind-related flight paths, see <https://www.eurocontrol.int/publication/eurocontrol-data-snapshot-14-horizontal-flight-efficiency>). Also, from a network perspective, focussing on local HFE might have a negative impact (see also <https://ansperformance.eu/library/pru-hfe.pdf>) and thus Belgium advocates for a reassessment of the local level HFE and especially to reassess the necessity and benefit of considering contributions by individual ANSPs.

Apart from improvements on HFE, Belgium also stresses additional projects to reduce any negative environmental impact that are within the control of ANSPs. Thus, among others, projects to improve vertical flight efficiency during climb and decent (CCO/CDO), but also the MUAC project to reduce contrails at night, perceived to have a measurable impact on climate change should be valued. In addition, efforts of ANSPs to reduce noise pollution with a severely negative impact on the highly populated areas around airports does pose a priority of ANSPs that however result in trade-offs with horizontal flight efficiency and should thus be especially taken into account when assessing performance in the KPA Environment.

** Refer to Annex P, if necessary.*

c) Main measures put in place to achieve the environment performance targets

skeyes

Within skeyes airspace, reducing extra nautical miles to improve KEA is very challenging due to the limited size of the airspace, especially as the KEA indicator excludes the track flown within a range of 40 nm around the departure and arrival airport which limits KEA improvement for DEP or ARR flights.

Reducing track miles can be done at tactical level (direct routes, use of released military areas...) or by proposing better (shortest) routes to the airspace users (flight planning). The former campaign "Stick to your flight Plan" organized by the Network Manager in the summer of 2019 to deal with the capacity at network level during the summer was limiting skeyes' possibilities for HFE improvement as no direct or shortcut could be given anymore. Should these measures be put in place during the remainder of RP3, any improvement at tactical level would not be expected. A better use of the military airspaces could also support HFE improvement but then again, this should not be limited by any potential eNM measures.

Another option is to improve flight planning by proposing shortest routes to the airspace users. FRA, which has been identified as an important enabler for HFE improvement by the PRB, is however out of scope of skeyes as it controls only the airspace below FL245.

Nevertheless, skeyes is actively contributing to the EU-wide environmental target and intends to reach the local contribution to the targets contained in the ERNIP. Skeyes therefore takes part in the following initiatives :

- the CIV-MIL AMC, co-located at skeyes premises, which aims at optimising the airspace management between CIV and MIL.
- an improved FUA at Belgian level - this initiative is currently steered by BCAA - in the form of a new Rolling UUP process. This R-UUP process allows for an increase in pre-tactical airspace releases giving Airspace Users more opportunities to flight plan shorter routes through released TRAs/TsAs. R-UUP process has been implemented and skeyes is moving from R-UUP to BB-AUP to Modular ASM.
- the Environmental Action plan currently developed by skeyes, in which the main pillar is addressing horizontal (and vertical) flight efficiency . The aim is, through an internal and an external consultation, to identify the initiatives that could potentially improve HFE within the skeyes AoR.

MUAC

MUAC has implemented free route airspace (FRA) 24/7 across its entire airspace. FRA offers airspace users more direct flight planning options, reducing fuel burn and emissions.

MUAC optimises airspace sectors to draw full benefit from free route airspace. On the AIRAC date 25 March 2021, MUAC successfully implemented a major overhaul of its airspace sector layout, which now better meets the European concept of free route airspace. The new airspace sector organisation is designed to better support higher traffic levels as soon as commercial schedules resume. Benefits include a reduction in flight planning restrictions and the creation of several shorter flight-plannable route options. The new sectorisation, with the alignment of flows and sector boundaries, also provides benefits for MUAC operations in terms of a reduction in airspace complexity and therefore enhanced capacity performance. Full acceptance of the measures and thus benefits are expected over the course of 2021, resulting in an improved and then maintained HFE.

After optimizing ATS-routes in 2020 MUAC has removed more than 100 network restrictions – the so-called Route Availability Document (RAD) measures - to improve flight planning options, making flights 'greener' by ensuring more direct routings.

The implementation of concept "CDR activation" to "Area activation" has been done which allows for a better predictability and traffic distribution between DECO and BSG sector groups. All routes are available for flight planning 24/7 and closed by FUA. A MUAC FUA cell has been created.

The rolling UUP trial and the F365+ trial have been taken over by the Booking Based AUP process to improve the planned usage and tactical availability of the military airspace reservations in Belgium

A full list of projects improving horizontal flight efficiency within FABEC (including Belgium) and additional information might be found in the ERNIP Part 2 (<https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-2>). For further information on FRA development as well as Extended Arrival Management XMAN, please consult the FABEC-webpage under <https://www.fabec.eu/strategy/operations>.

SECTION 3.3: CAPACITY KPA

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

- a) Capacity national performance targets
- b) Detailed justifications in case of inconsistency between national targets and national reference values
- c) Main measures put in place to achieve the target for en-route ATFM delay per flight
- d) ATCO planning

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

- a) Capacity national performance targets
- b) Contribution to the improvement of the European ATM network performance
- c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

Annexes of relevance to this section

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

a) National capacity performance targets

	2020A	2020	2021	2022	2023	2024
National reference values	n/a	n/a	n/a	0.17	0.17	0.17
		2020	2021	2022	2023	2024
		Target	Target	Target	Target	Target
National targets		n/a	n/a	0.17	0.17	0.17
	2020A	2020	2021	2022	2023	2024
Breakdown values	Actual	Value	Value	Value	Value	Value
skeyes contribution to Belgium target	0.06	0.64	0.07	0.12	0.13	0.12
MUAC contribution to Belgium target	0.01	0.95	0.13	0.14	0.14	0.14

NOTE: 2020 and 2021 targets for MUAC were set at overall MUAC level, through the draft FABEC RP3 performance plan. It is not feasible to adjust these targets retroactively.

Skeyes

skeyes contribution to RP3 FABEC capacity target is in line with reference values set by NM.

Current ATCO recruitment is set at full pace as well as training capacity, and aims at the largest extent possible to compensate the wave of retirement.

MUAC

MUAC's contribution to the RP3 FABEC capacity target is in line with the reference values set by the NM. The drop in traffic observed in 2020 and the slow recovery in 2021 are important factors in delay reduction.

While the volatility of traffic demand is expected to be very high over the coming years, MUAC is confident that there will be sufficient staffing and procedures in place to stay within the set targets, e.g. as a result of the 2019 ATCO social agreement and the 'minus counter' applied during low traffic in years 2020 and 2021, which helps to provide more ATCO hours in the later years of RP3.

b) Detailed justifications in case of inconsistency between national targets and national reference values

During RP1, and at the time of developing RP2 plans, traffic growth was lower than forecasts and its future was uncertain. As a result, the main focus of all stakeholders was on cost-efficiency, and ANSPs aimed to control costs, i.e. through reducing or delaying recruitments and investments. In reality, FABEC airspace - like the rest of Europe - has experienced unforeseen high traffic growth since 2015, as well as significant traffic shifts. FABEC ANSPs have reacted to this but measures required to increase capacity in a structural manner need time to be implemented and become effective (e.g. hiring and qualifying new ATCO need 3 to 5 years), investment and related operational changes for additional capacity also need several years and may imply provisional capacity reduction for training and safe commissioning purposes. During RP2, FABEC experienced high delays, while some major measures for capacity within FABEC will be implemented during RP3 - but take time to deliver.

In the current context of the crisis and the resulting low traffic demand, ATCO training facilities were subject to COVID restrictions (where in some cases the maximum training capacity was already reached in some facilities). Licenced ATCOs were required to train high traffic load scenarios in simulators to keep proficiency, and on-the-job trainingspots for ab initio's were limited. As a result the capacity building measures were slowed down.

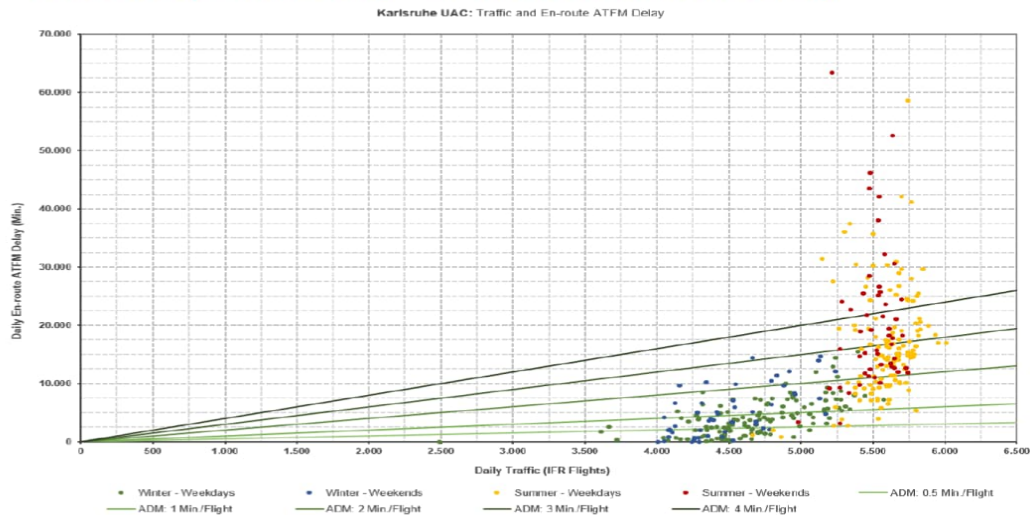
It is still expected that, in the next years, despite extensive efforts, some FABEC ACCs, including Belgian ACCs, could still be facing an imbalance between traffic and capacity (the targets are challenging and performance will also depend on the traffic evolution which is currently still very uncertain) or staffing issues. Although some good progress is being witnessed in some FABEC ACCs, measures enabling capacity to match the demand will be implemented during or till end RP3.

ANSPs already planned major capacity enhancement measures for RP3 to remedy this situation, including implementing global and local individual ACCs measures agreed with the NM (see list of main contributive measures below and detailed individual measures in the latest NOP 2022 – 2024 edition).

The main drivers such as ATCO hiring and training will progressively deliver benefits during and after the period.

Major uncertainties remain regarding further traffic development and volatility. It is important to consider that, if an ACC operates close to its capacity limits, minor variations in traffic levels can lead to significant changes in the amount of delay. The example below of Karlsruhe ACC, generated for traffic and delay of 2018, shows the exponential impact on delays of the traffic evolution. In some cases, even without more traffic in total, just a local traffic shift is enough to overload sectors and to create a large amount of delays.

Interdependency of Traffic and Delay



Otl

as of ab-initio, the relatively high number of upcoming retirements, the outcomes of the next national or local social agreements and, the continuation and local impact of eNM measures/ANSPs summer if implemented.

* Refer to Annex Q, if necessary.

c) Main measures put in place to achieve the target for en-route ATFM delay per flight

Full set of detailed measures implemented by ANSPs and contributing to local capacity improvements will be listed in the European Network Operations Plan (NOP) 2022-2024 and updated in the Network Operations Plan 2022-2026 which elaboration work has now started. All ANSP capacity measures detailed in the NOP and in this performance plan and their impact on capacity provision, delay forecast, and target setting are based on values provided and calculated by the Network Manager and Eurocontrol in general. This is the case at national and ANSP level to ensure consistency: national and ANSP reference values are respectively calculated by NM at national and ANSP levels and consistent with the EU-wide capacity targets. As the national and ANSP targets strictly stick to the NM reference values, consistency is ensured as well. The capacity profile computed in the NOP – and all the proposed associated measures – are based on the high traffic scenario of the STATFOR Forecast published mid-October 2021 (future versions of the NOP will be updated according to future STATFOR publications, this could increase the gap between the capacity profiles and the PP). In case of assessment of the Performance Plan based on the NOP, due consideration shall be given to the differences between the traffic forecasts. The main measures providing capacity enhancement planned to be implemented by the ANSP to achieve the targets are described here under.

Regarding skewes:

Within the framework of the e-NM measures, specific RAD restrictions have been created for skewes in order to reduce the overall traffic complexity by strategically reducing the number of conflicting traffic streams.

A midlife upgrade of the CANAC2 ATM system is foreseen for 2024. During this upgrade limited impact on capacity is expected due to testing and validation activities.

The rationalization of infrastructure, systems and equipment will be increased during RP3 enhancing capacity by reinforcing business continuity and improving resilience.

A better application of FUA is enabled by the implementation in 2019 of the colocation of the Air Traffic Control Centre of Belgian Defence in skewes ACC. In order to further enhance FUA in BE, a Rolling UUP Live Trial has been conducted during the summer of 2021, and R-UUP procedures have been implemented. Benefits are improved flight planning, increased flight efficiency including a positive impact on environment and more opportunities to plan higher capacities. In addition, a traffic complexity tool has been purchased. skewes is moving from R-UUP to BB-AUP to Modular ASM.

Regarding MUAC:

To provide the necessary staffing, MUAC is taking several measures, including training of new staff, cross training of ATCOs, a new agreement with the social partners for mitigating measures and (further) scrutinizing of involvement of operational staff in developments. Furthermore, a study is undergoing to reduce the number of sectors open during the night. Since the traffic downturn, a deal has been agreed with the social partner that allows for some of the surplus ATCO shifts from 2020 and Q1 2021 to be deferred. These days can be used at zero addition cost in the rest of the RP3 period.

Furthermore, MUAC has taken an active part in developing measures at network level aimed at safeguarding or increasing throughput while decreasing delay. MUAC sees further opportunities in this area in improved and harmonized ASM. Also the exclusion of short-duration high-workload flights is under investigation. MUAC has also been active in using some of the surplus ATCO shifts in 2020/2021 to accelerate some airspace design projects that should also provide additional capacity as the recovery materialises. Looking further ahead, MUAC is working on post-OPS analysis and business intelligence as a means of further fine-tuning and optimising daily operations. This is expected to deliver some additional capacity, as well as avoiding ATFM delays due to overregulation.

At FABEC level:

Performance in Belgium should also be considered in relation to the added value of cooperation at FABEC level. FABEC collaboration with NM contributes to enhance capacity and prevent or mitigate delays through supporting the rolling seasonal NOP planning activities, eNM/ANSP summer measures. On top of FABEC ongoing airspace design initiatives, it was 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, FRA cross-border operations and ATS route structure below FRA, in order to optimize all FABEC measures, make them consistent at network level and deliver the highest possible benefits of operations.

In general, it should be noted that capacity benefits and delay reductions expected from the ANSP initiatives listed in the ANSP capacity planning included in the latest NOP 2022-2024, have been taken into account in the NM delay forecast (where quantitative impact of ANSP capacity measures are calculated according to NM methodology at ACC, ANSP and FAB level and resulting delay forecast is computed). Those ANSP and ACC capacity profiles and exhaustive list of initiatives can be found for each FABEC country and relative ANSPs & ACCs in Annex 5 of the European Network Operations Plan 2022-2024 edition 2021.

** Refer to Annex Q, if necessary.*

d) ATCO planning

	Actual					Planning	
	2018	2019	2020	2021	2022	2023	2024
Brussels (EBBU ACC)							
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	0.8	5	5	3.5	4	7	7
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	4	12.3	2	2.3	4	4	4
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	87.8	80.5	83.5	84.7	84.7	87.7	90.7

	Actual					Planning	
	2018	2019	2020	2021	2022	2023	2024
Maastricht (EDYY UAC)							
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	6	1	4	14	14	15	14

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

a) National capacity performance targets

	2020A	2020	2021	2022	2023	2024
	Actual	Target	Target	Target	Target	Target
National targets	0.06	0.12	0.12	0.05	0.05	0.05
Additional comments						

Airport level	ELLX-Luxembourg	0.06	0.12	0.12	0.05	0.05	0.05
	Airport contribution to national targets	EBBR is the only Belgian airport incorporated in the Performance Plan.					

b) Contribution to the improvement of the European ATM network performance

Low targets for arrival delay contributes significantly to the overall performance of the European ATM network performance as it provides for a high degree of predictability for both airspace users and partner ANSPs. Luxembourg TMA despite being small offers additional capacity, as well as an improved layout at the airport and enhanced taxi plan and improved follow-me services will help utilize this capacity also on the ground.

* Refer to Annex Q, if necessary.

c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

APP director position with new associated sector is expected to bring these improvements as APP can handle more flights at the same time respecting current margins. These position will be fully implemented over the coming years, training has already been completed. Most gains will be made during the busy evening rush periods where the APP sector got busy quickly.

* Refer to Annex Q, if necessary.

SECTION 3.4: COST-EFFICIENCY KPA

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #x

- a) RP3 revised cost-efficiency performance targets (IR 2020/1627)
- b) Information on the baseline values for the determined costs and the determined unit costs
- c) Detailed justifications for the adjustments to the baseline values
- d) Where a deviation from the Union-wide performance targets is observed, please indicate if the NSA considers those deviations to be necessary and proportionate
- e) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS
- f) Findings of the verification by the NSA (under Art. 22(7) of IR 2019/317) of the compliance of the cost base for charges with the requirements of Article 15(2) of Reg. 550/2004 and Article 22 of IR 2019/317, and where applicable identification of

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #x

- a) RP3 revised cost-efficiency performance targets (IR 2020/1627)
- b) Information on the baseline values for the determined costs and the determined unit costs
- c) Detailed justifications for the adjustments to the baseline values
- d) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS
- e) Findings of the verification by the NSA (under Art. 22(7) of IR 2019/317) of the compliance of the cost base for charges with the requirements of Article 15(2) of Reg. 550/2004 and Article 22 of IR 2019/317, and where applicable identification of

3.4.3 - Pension assumptions

- 3.4.3.1 Total pension costs
- 3.4.3.2 Assumptions for the "State" pension scheme
- 3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme
- 3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

3.4.5 - Restructuring costs

- 3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3
- 3.4.5.2 Restructuring costs planned for RP3

3.4.6 - Additional determined costs related to measures necessary to achieve the en route capacity targets

- a) Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs
- b) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3
- c) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3 by nature by ANSP
- d) Demonstration that the deviation from the Union-wide targets is exclusively due to the additional determined costs related to measures necessary to achieve the performance targets in capacity

Annexes of relevance to this section

- ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
- ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
- ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
- ANNEX H. RESTRUCTURING MEASURES AND COSTS
- ANNEX M. COST ALLOCATION
- ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS
- ANNEX U. VERIFICATION BY THE NSA OF THE COMPLIANCE OF THE COST BASE

NOTE: The following requirements as per Annex II, 3.3 are addressed in the Annexes A and B:

- Point 3.3 (d) on cost-allocation;
- Point 3.3 (e) on the return on equity and cost of capital;

- Point 3.3 (f) on assumptions for pension costs and interest on debt for other entities, inflation forecast and adjustments beyond IFRS;
- Point 3.3 (g) on adjustments to the unit rates carried over from previous reference periods;
- Point 3.3 (h) on costs exempt from cost-sharing;
- Point 3.3 (k) reporting tables and additional informations.

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #1 - Belgium-Luxembourg

a) RP3 revised cost-efficiency performance targets (IR 2020/1627)

En route charging zone Name of the CZ	Baseline 2014	Baseline 2019	RP3 revised cost-efficiency targets (determined 2020-2024)				2024 D vs. 2014 B	2024 D vs. 2019 B
	2014 B	2019 B	2020/2021 D	2022 D	2023 D	2024 D		
Total en route costs in nominal terms (in national currency)	180 282 820	217 686 422	442 197 853	250 216 368	262 099 700	252 086 165	39.8%	15.8%
Total en route costs in real terms (in national currency at 2017 prices)	187 125 621	211 278 970	424 899 880	220 164 809	217 182 536	205 455 739	9.8%	-2.8%
Total en route costs in real terms (in EUR2017) ¹	187 125 621	211 278 970	424 899 880	220 164 809	217 182 536	205 455 739	9.8%	-2.8%
YoY variation			101.1%	-48.2%	-1.4%	-5.4%		
Total en route Service Units (TSU)	2 288 106	2 537 599	2 241 977	2 107 529	2 404 046	2 560 026	11.9%	0.9%
YoY variation			-11.6%	-6.0%	14.1%	6.5%		
Real en route unit costs (in national currency at 2017 prices)	81.78	83.26	189.52	104.47	90.34	80.26	-1.9%	-3.6%
Real en route unit costs (in EUR2017) ¹	81.78	83.26	189.52	104.47	90.34	80.26	-1.9%	-3.6%
YoY variation			127.6%	-44.9%	-13.5%	-11.2%		

National currency	EUR
¹ Average exchange rate 2017 (1 EUR=)	1.00

b) Information on the baseline values for the determined costs and the determined unit costs

En route charging zone Name of the CZ	Baseline 2014	Baseline 2019	Actuals 2014	Actuals 2019	2014 Baseline adjustments	2019 Baseline adjustments
	2014 B	2019 B	2014 A	2019 A		
Total en route costs in nominal terms (in national currency)	180 282 820	217 686 422	155 716 192	199 494 828	24 566 628	18 191 595
Total en route costs in real terms (in national currency at 2017 prices)	187 125 621	211 278 970	161 485 138	193 678 302	25 640 483	17 600 668
Total en route costs in real terms (in EUR2017) ¹	187 125 621	211 278 970	161 485 138	193 678 302	25 640 483	17 600 668
Total en route Service Units (TSU)	2 288 106	2 537 599	2 362 038	2 619 592	-73 932	-81 993

c) Detailed justifications for the adjustments to the baseline values

c.1) Adjustments to the 2014 baseline value for the determined costs

Number of adjustments	10
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Adjustment #1	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Cost base of ANA Luxembourg added	ANA Lux	ANSP	Staff	3 350 935	3 507 217	3 507 217
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014. The adjustment is mainly related to staff costs and other operating costs (+ depreciation, cost of capital)						

Adjustment #2	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
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Cost base of ANA Luxembourg added	ANA Lux	ANSP	Other operating	1 904 279	1 993 092	1 993 092
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014.						

Adjustment #3	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Cost base of ANA Luxembourg added	ANA Lux	ANSP	Depreciation	335 841	335 841	335 841
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014.						

Adjustment #4	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Staff	10 544 101	11 035 860	11 035 860
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #5	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Other operating	1 476 982	1 545 866	1 545 866
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #6	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Depreciation	1 628 710	1 628 710	1 628 710
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #7	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base	MUAC	ANSP	Staff	3 840 289	4 019 394	4 019 394
Description and justification of the adjustment						

In EUROCONTROL, the remunerations of active staff are subject to an internal tax, while the pensions of retired staff are subject to national taxes in the countries where they reside. Pensioners receive a compensation for local income taxes, depending on where they live, to ensure all pensioners receive the same net pension. In 2005, the EUROCONTROL's Pension Fund was created whereby the pensions (amounts paid to the pensioners) are financed through this Fund (from employer and employee contributions) and the income tax compensation on pensions is financed on a pay as you go basis from the budget.

In 2016, an agreement was made between the 4 MUAC States and the other EUROCONTROL Member States whereby the 4 States were given more autonomy over MUAC while in exchange the pension tax compensation related to MUAC is progressively (over a period of 7 years from 2016 to 2022) borne by the 4 States. The agreements were embedded in Decision n°128 and n°129 of the Permanent Commission. In accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016, these costs have been included since 2016 in a Special Annex (to the general budget of EUROCONTROL) in a staggered approach (10% in 2016, 20% in 2017, 30% in 2018, 40% in 2019, 60% in 2020, 80% in 2021). These costs will be included at 100% in MUAC (Part III) General Budget and thus the MUAC Cost Base once the new Maastricht Agreement has been ratified.

In 2014, the total overall Eurocontrol tax compensation on pension and ancillary cost in 2014 was 38,326,507.28 €. The proportion for MUAC was 31.5 % or 12,072,849,79 EUR. The Belgian share within MUAC for 2014 was 30,8550%, the Luxembourg share within MUAC for 2014 was 0,9543%.

In order to provide for a baseline that makes future costs comparable to the situation in 2014, the MUAC cost base is adjusted accordingly.

Adjustment #8	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base	MUAC	ANSP	Other operating	1 908 558	1 997 570	1 997 570

Description and justification of the adjustment

Under the same discussions between the 4 MUAC States and the 41 EUROCONTROL Member States, an agreement embedded in Decision n° 128 of the Permanent Commission was concluded as relates the allocation to Part III (MUAC) of the costs for support services delivered by other units of the Agency to MUAC. Similarly, the 4 states agreed to include these costs in a Special Annex (Part IV), in accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016. There is no progressive approach for these costs and they are supported directly at 100% by the 4 MUAC states. As from 2022 these costs will be included at 100% in MUAC (Part III) General Budget.

In 2014, the HQ support costs amounted to 6.000.000 EUR, included by 100% into the MUAC Special Annex (Part IV); The Belgian share within MUAC for 2014 was 30,8550%, the Luxembourg share within MUAC for 2014 was 0,9543%.

In order to provide for a baseline that makes future costs comparable to the situation in 2014, the MUAC cost base is adjusted accordingly.

Adjustment #9	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
adjustment of cost base	MUAC/Eurocontrol	NSA/EUROCONTROL	Staff	-282 613	-282 613	-282 613

Description and justification of the adjustment

the adjustment as described in #7 is deducted from the Eurocontrol cost base.

12,072,849,79 EUR was shifted from the Eurocontrol cost base towards the MUAC cost base. The Belgian share within Eurocontrol for 2014 was 2,2367%, the Luxembourg share within Eurocontrol for 2014 was 0,1042%.

In order to provide for a baseline that makes future costs comparable to the situation in 2014, the Eurocontrol cost base is adjusted accordingly.

Adjustment #10	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
adjustment of cost base	MUAC/Eurocontrol	NSA/EUROCONTROL	Other operating	-140 454	-140 454	-140 454

Description and justification of the adjustment

the adjustment as described in #8 is deducted from the Eurocontrol cost base.

6.000.000 EUR was shifted from the Eurocontrol cost base towards the MUAC cost base. The Belgian share within Eurocontrol for 2014 was 2,2367%, the Luxembourg share within Eurocontrol for 2014 was 0,1042%.

In order to provide for a baseline that makes future costs comparable to the situation in 2014, the Eurocontrol cost base is adjusted accordingly.

Total adjustments to the 2014 baseline value for the determined costs	Costs nominal NC	Costs real NC	Costs EUR2017
	24 566 628	25 640 483	25 640 483

c.2) Adjustments to the 2014 service units

Impact of transition to actual route flown	Coefficient M2/M3	Source	Service units
	-3.13%	CRCO correction factor May 2019 (on 12 months)	-73 932

Other adjustment to the 2014 service units	No
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Total adjustments to the 2014 service units	-73 932
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c.3) Adjustments to the 2019 baseline value for the determined costs

Number of adjustments	11
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Adjustment #1	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Staff	11 088 105	10 710 289	10 710 289
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #2	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Other operating	2 690 238	2 598 571	2 598 571
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #3	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Depreciation	1 037 099	1 037 099	1 037 099
Description and justification of the adjustment						
Change in the allocation of the approach costs (see annex M for detailed explanation).						

Adjustment #4	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base	MUAC	ANSP	Staff	3 430 285	3 313 402	3 313 402
Description and justification of the adjustment						

In EUROCONTROL, the remunerations of active staff are subject to an internal tax, while the pensions of retired staff are subject to national taxes in the countries where they reside. Pensioners receive a compensation for local income taxes, depending on where they live, to ensure all pensioners receive the same net pension. In 2005, the EUROCONTROL's Pension Fund was created whereby the pensions (amounts paid to the pensioners) are financed through this Fund (from employer and employee contributions) and the income tax compensation on pensions is financed on a pay as you go basis from the budget.

In 2016, an agreement was made between the 4 MUAC States and the other EUROCONTROL Member States whereby the 4 States were given more autonomy over MUAC while in exchange the pension tax compensation related to MUAC is progressively (over a period of 7 years from 2016 to 2022) borne by the 4 States. The agreements were embedded in Decision n°128 and n°129 of the Permanent Commission. In accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016, these costs have been included since 2016 in a Special Annex (to the general budget of EUROCONTROL) in a staggered approach (10% in 2016, 20% in 2017, 30% in 2018, 40% in 2019, 60% in 2020, 80% in 2021). These costs will be included at 100% in MUAC (Part III) General Budget and thus the MUAC Cost Base once the new Maastricht Agreement has been ratified by all four States, which is assumed to happen before the end of 2021.

In 2019, the tax compensation amounted to 17.553.719 EUR, 40% of which were attributed to the MUAC special annex (EUROCONTROL Part IV) and 60% thereof to the EUROCONTROL General Budget (Part I); the Belgian share within MUAC for 2019 was 31,5912%, the Luxembourg share within MUAC for 2019 was 0,9770%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly.

NOTE: due to the staggered approach, part of the adjustment was already included in the 2019 actual costs. Only the difference is reported here.

Adjustment #5	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base	MUAC	ANSP	Other operating	0	0	0

Description and justification of the adjustment

Under the same discussions between the 4 MUAC States and the 41 EUROCONTROL Member States, an agreement embedded in Decision n° 128 of the Permanent Commission was concluded as relates the allocation to Part III (MUAC) of the costs for support services delivered by other units of the Agency to MUAC. Similarly, the 4 states agreed to include these costs in a Special Annex (Part IV), in accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016. There is no progressive approach for these costs and they are supported directly at 100% by the 4 MUAC states. As from 2022 these costs will be included at 100% in MUAC (Part III) General Budget.

In 2019, the HQ support costs amounted to 4.514.080 EUR, included by 100% into the MUAC Special Annex (Part IV); the Belgian share within MUAC for 2019 was 31,5912%, the Luxembourg share within MUAC for 2019 was 0,9770%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly.

NOTE: This part was already included in the 2019 actual costs. It is still incorporated in the baseline in order to have a consistent approach among the MUAC states.

Adjustment #6	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
adjustment of cost base	Eurocontrol	NSA/EUROCONTROL	Staff	-176 871	-176 871	-176 871

Description and justification of the adjustment

the adjustment as described in #4 is deducted from the Eurocontrol cost base.

In 2019, the tax compensation amounted to 17.553.719 EUR, 40% of which were attributed to the MUAC special annex (EUROCONTROL Part IV) and 60% thereof to the EUROCONTROL General Budget (Part I). Only the part attributed to MUAC has to be adjusted for the Eurocontrol cost base. The Belgian share within Eurocontrol for 2019 was 2,3443%, the Luxembourg share within Eurocontrol for 2019 was 0,1747%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the Eurocontrol cost base is adjusted accordingly.

Adjustment #7	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
adjustment of cost base	Eurocontrol	NSA/EUROCONTROL	Other operating	0	0	0

Description and justification of the adjustment

the adjustment as described in #5 is deducted from the Eurocontrol cost base.

17.553.719 EUR was shifted from the Eurocontrol cost base towards the MUAC cost base. The Belgian share within Eurocontrol for 2019 was 2,3443%, the Luxembourg share within Eurocontrol for 2019 was 0,1747%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the Eurocontrol cost base is adjusted accordingly.

NOTE: This part was already included in the 2019 actual costs. It is still incorporated in the baseline in order to have a consistent approach among the MUAC states.

Adjustment #8	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on staff costs	ANA LUX	ANSP	Staff	139 218	134 475	134 475

Description and justification of the adjustment

The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

Adjustment #9	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on other operating costs	ANA LUX	ANSP	Other operating	-5 394	-5 210	-5 210

Description and justification of the adjustment

The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

Adjustment #10	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on depreciation costs	ANA LUX	ANSP	Depreciation	-6 583	-6 583	-6 583

Description and justification of the adjustment

The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

Adjustment #11	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on cost of capital	ANA LUX	ANSP	Cost of capital	-4 502	-4 502	-4 502

Description and justification of the adjustment
The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

Total adjustments to the 2019 baseline value for the determined costs	Costs nominal NC	Costs real NC	Costs EUR2017
	18 191 595	17 600 668	17 600 668

c.4) Adjustments to the 2019 service units

Impact of transition to actual route flown	Coefficient M2/M3	Source	Service units
	-3.13%	CRCO correction factor May 2019 (on 12 months)	-81 993

Other adjustment to the 2019 service units	No
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Total adjustments to the 2019 service units	-81 993
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d) Description and justification of the consistency between local and Union-wide cost-efficiency targets

With the corrective measures taken, Belgium(-Luxembourg) reaches the requirements set in Commission Implementing Decision (EU) 2023/1336.

* Refer to Annex R, if necessary.

e) Where a deviation from the Union-wide performance targets is observed, please indicate if the NSA considers those deviations to be necessary and proportionate under:

Additional costs of measures necessary to achieve the capacity targets for RP3	Yes	Detailed in part 3.4.6 of the performance plan
Restructuring costs planned for RP3	No	

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS

Following the COVID crisis and the collapse of traffic, one-off cost-cutting measures have been taken by the ANSPs (recruitment freeze, revision of investment plans, revision of supplier contracts, etc.). However, these one-off measures will not lead to structural efficiency gains. In line with the Belgian Airspace Vision 2030, ANSPs active in Belgian airspace have taken various initiatives to improve efficiency in a structural way (civil-military integration, defragmentation of ATM systems, dynamic airspace use etc.). These long-term initiatives are being developed and deployed but the benefits will only be tangible in several years. (cf. annex R)

Subsequent to Commission implementing decision (EU) 2023/1336, corrective measures were taken and included in the 3.4.7 and annex Z.

* Refer to Annex R, if necessary.

g) Findings of the verification by the NSA (under Art. 22(7) of IR 2019/317) of the compliance of the cost base for charges with the requirements of Article 15(2) of Reg. 550/2004 and Article 22 of IR 2019/317, and where applicable identification of corrections applied to the cost base as a result of this verification

BSA-ANS, the Belgian NSA, engaged to confirm whether the respective costs should be allocated to the respective cost bases within the context of the performance plan and verified the compliance of the cost base with the legal requirements. No findings were raised. In addition, an independent compliance review was performed that confirmed the allocation of the approach costs, which were deemed justifiable, independently auditable and hence considered in compliance with the relevant legislation.

** Refer to Annex U, if necessary.*

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #1 - Luxembourg - TCZ

a) RP3 revised cost-efficiency performance targets (IR 2020/1627)

Terminal charging zone Name of the CZ	Baseline 2019	RP3 revised cost-efficiency targets (determined 2020-2024)				2024 D vs. 2019 B
	2019 B	2020/2021 D	2022 D	2023 D	2024 D	
Total terminal costs in nominal terms (in national currency)	14 275 844	30 885 049	14 758 082	15 289 170	15 808 863	10.7%
Total terminal costs in real terms (in national currency at 2017 prices)	13 843 792	29 829 282	13 245 680	13 135 564	13 239 595	-4.4%
Total terminal costs in real terms (in EUR2017) ¹	13 843 792	29 829 282	13 245 680	13 135 564	13 239 595	-4.4%
YoY variation		115.5%	-55.6%	-0.8%	0.8%	
Total terminal Service Units (TNSU)	56 026	86 668	53 623	56 688	60 145	7.4%
YoY variation		54.7%	-38.1%	5.7%	6.1%	
Real terminal unit costs (in national currency at 2017 prices)	247.10	344.18	247.01	231.72	220.13	-10.9%
Real terminal unit costs (in EUR2017) ¹	247.10	344.18	247.01	231.72	220.13	-10.9%
YoY variation		39.3%	-28.2%	-6.2%	-5.0%	

National currency	EUR
¹ Average exchange rate 2017 (1 EUR=)	1.00

b) Information on the baseline values for the determined costs and the determined unit costs

Terminal charging zone Name of the CZ	Baseline 2019	Actuals 2019	2019 Baseline adjustments
	2019 B	2019 A	
Total terminal costs in nominal terms (in national currency)	14 275 844	13 598 057	677 787
Total terminal costs in real terms (in national currency at 2017 prices)	13 843 792	13 190 915	652 877
Total terminal costs in real terms (in EUR2017) ¹	13 843 792	13 190 915	652 877
Total terminal Service Units (TNSU)	56 026	56 026	0

c) Detailed justifications for the adjustments to the baseline values

c.1) Adjustments to the 2019 baseline value for the determined costs

Number of adjustments	4
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Adjustment #1	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on staff costs	ANA LUX	ANSP	Staff	709 010	684 161	684 161
Description and justification of the adjustment						
The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.						

Adjustment #2	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on other operating costs	ANA LUX	ANSP	Other operating	1 737	1 676	1 676
Description and justification of the adjustment						
The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.						

Adjustment #3	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on depreciation costs	ANA LUX	ANSP	Depreciation	-23 507	-23 507	-23 507
Description and justification of the adjustment						
The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.						

Adjustment #4	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change of allocation keys - effect on cost of capital	ANA LUX	ANSP	Cost of capital	-9 453	-9 453	-9 453
Description and justification of the adjustment						
The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.						

Total adjustments to the 2019 baseline value for the determined costs	Costs nominal NC	Costs real NC	Costs EUR2017
	677 787	652 877	652 877

c.2) Adjustments to the 2019 service units

Adjustment to the 2019 service units	No
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d) Description and justification of the contribution of the the local targets to the performance of the European ATM network

In RP2, ANA has delivered necessary capacity (very few delays) despite a strong traffic increase. In order to ensure safe flights despite the permanent growth of traffic volume and knowing that ANA ATC was operating close to and even above the air space's capacity limits to respond to user demands at peak times, ANA took in early 2019 based on an extensive needs analysis the decision to implement a 3rd position in the tower (the ground position) and in the approach (the director position). Due to the fact that ANA, as a State administration, relies on State decisions regarding recruitment of human resources, as all staff are civil servants or public employees, a longer planning and budgeting process and due justification is the norm before any recruitment can start.

Every new vacancy needs the prior authorization of ANA's supervising ministry and the central HR management of the State. After years of drought, in 2019 ANA finally obtained a significant number of new vacancies.

In order to anticipate the expected market-oriented failure rate of 50%, the central HR management of the State granted even more vacancies than expected. Willing to improve safety and capacity as rapidly as possible, ANA simply couldn't miss this unique opportunity and started immediately the recruitment of new ATCO trainees. So far the failure rate is very low and the manning of these 3rd positions is proceeding faster than originally anticipated.

Unfortunately the increase of costs based on decisions taken before the COVID-19 crisis can't be avoided. All ANA can do is to engage in damage limitation.

After years of hold out, ANA started in 2018 to overhaul the whole ANSP infrastructure. In 2020 and 2021 the pandemic crisis has put a temporary break on this plan, which resulted in a re-prioritization, cancelling and postponement of parts of the project portfolio. However, under condition of the availability of the necessary financial resources, ANA is willing to accelerate again next year in order to catch-up the delayed investments.

Even though Luxembourg State was as well severely struck by the COVID-19 crisis, ANA has got the confirmation, that same as in RP2, in 2020 and 2021, as well for the remainder of RP3, the Luxembourg State will carry all investment related costs and the staff costs of the electro technical department. Neither the cost of capital, nor the depreciation costs will be charged to the users, which means more than 12 M€ in total for RP3.

ANA did its outmost to receive additional public funding in order to further reduce the chargeable unit rate. ANA found an agreement with its Ministry and the Ministry of Finance which allows ANA to maintain the chargeable unit rate for 2022 on the same level as foreseen in the initial performance plan (from 2019), despite the decrease of traffic.

In addition, ANA will renounce on any bonus which would result from the application of the incentive scheme during the COVID-19 crisis (as long as traffic in terms of service units stays below the level of 2019).

** Refer to Annex R, if necessary.*

e) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS

ANA has undergone efforts to reduce costs in 2020 and 2021 in comparison to the initially planned costs. Since ANA's hands were tied regarding staff costs, ANA did its outmost to reduce the other operating costs for 2020 and beyond, i.e.

- Reduction in travels and meeting expenses
- Cost reduction related to training expenses
- Reduction of Office costs
- Reduction of Experts contracts and consulting expenses
- Budget reduction for social events and any other communication related cost, nice-to-haves in times of crisis.
- Cost reduction related to internet connections

Despite the unavoidable significant increase of staff costs, ANA manages to stay 2% under the cumulated determined costs foreseen in the initial plan.

For the remaining years of RP3, ANA hasn't foreseen any further net increase of staff. The increase of staff costs from 2021 to 2024 is limited to the application of the factors that are mandatory for the Luxembourg State budget (such as a factor for career shifts and the sliding scale of wages).

** Refer to Annex R, if necessary.*

f) Findings of the verification by the NSA (under Art. 22(7) of IR 2019/317) of the compliance of the cost base for charges with the requirements of Article 15(2) of Reg. 550/2004 and Article 22 of IR 2019/317, and where applicable identification of corrections applied to the cost base as a result of this verification

The Luxembourg NSA and the Ministry have agreed on the allocation of costs and the NSA performs annually the verification of actual costs in reference to Regulation EU 2019/317 Art. 22 (7), 23 and 28(7). The accounts of ANA Lux are audited each year by an independant auditor and also by the IGF (Inspection Générale des Finances).

Transparency is ensured and information is regularly exchanged with the EC, Eurocontrol and airspace users as required by Reg EC 550/2004 and Reg EU 2019/317.

However the detailed presentation of potential findings and related corrections resulting from the NSA oversight in this report would be deemed to be infringing the confidentiality provided for in Reg EC 550/2004 Art. 18.

** Refer to Annex U, if necessary.*

3.4.3 - Pension assumptions

skeyes

3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pension costs - TOTAL PENSION COST SKEYES*	20 798	22 172	42 970	23 666	24 426	26 352
En-route activity	14 422	15 365	29 787	16 316	17 615	18 993
Terminal activity (EBBR)	3 661	3 924	7 585	4 213	4 387	4 739
Terminal activity (Regional airports)	1 850	1 929	3 779	2 171	2 240	2 417
Other activities	865	954	1 819	966	184	203

* Includes the total pension cost at charge of skeyes, while determined pension cost is limited to the pension cost for the En route and EBBR terminal activity.

3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Yes-2					
civil servants	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	45 718	48 554	94 272	50 665	53 522	57 819
Employer % contribution rate to this scheme	35%	35%		35%	35%	35%
Total pension costs in respect of this scheme	16 001	16 994	32 995	17 733	18 733	20 237
Number of employees the employer contributes for in this scheme	501	506		502	515	535
contractual employees	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	31 674	33 026	64 700	37 211	39 234	42 119
Employer % contribution rate to this scheme	8.86%	8.86%		8.86%	8.86%	8.86%
Total pension costs in respect of this scheme	2 806	2 926	5 732	3 297	3 476	3 732
Number of employees the employer contributes for in this scheme	389	392		416	420	447

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

The State pension scheme in place is a "Pay-As-You-Go" scheme based on career duration and income earned

- for civil servants, skeyes makes a contribution of 35% to the State for each civil servants

- for contractual employees, skeyes makes a contribution of 8.86% to the State

Regulations on pension are a prerogative of the Federal State The existing regulatory regime may be consulted on <https://www.sfpd.gov.be/fr/centre-de-connaissances/legislation> skeyes has no information whether changes of those regulations are to be expected during RP3.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The pension cost "state pension scheme" is budgetted taking into account the current national pension regulations and the increase in pensionable payroll (increase in staff numbers and salary increase).

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

The pension costs have been determined based on existing regulatory regime. Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated.

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No					
<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	819	835	1 654	895	936	954
Employer % contribution rate to this scheme	14%	14%		14%	14%	14%
Total pension costs in respect of this scheme	114	116	230	124	130	132
Number of employees the employer contributes for in this scheme	4	4		4	5	5

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

skeyes has a defined contribution pension scheme for members of the Executive Committee which are contractual employees Skeyes pays premiums to an insurance company under an extra group insurance contract.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The pension cost "defined contribution pension scheme" is budgetted taking into account the current contract and an annual indexation.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

The pension costs have been determined based on existing regime Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated.

3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme (in nominal terms in '000 national currency)

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	Yes
Is the occupational "Defined benefits" pension scheme funded?	Yes

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	33 944	35 474	69 418	36 316	38 298	41 165
Total pension costs in respect of this scheme	1 877	2 136	4 013	2 512	2 087	2 251
- in respect of regular pension costs	0	0	-	0	0	0
- in respect of non-recurring deficit repair	0	0	-	0	0	0
- reported as staff costs (in reporting tables)	1 877	2 136	4 013	2 512	2 087	2 251
- not reported as staff costs (in reporting tables): please use comment box	0	0	-	0	0	0
Actuarial assumptions	Not available					
% discount rate						
% projected increase in benefits						
% annual increase in salaries						
% expected return on plan assets						
Net funding surplus / deficit						
Number of employees the employer contributes for in this scheme	385	388		432	416	443

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

skeyes has a defined benefit scheme for contractual staff members (excluding the Executive Committee) Skeyes pays premiums to an insurance company under an extra group insurance contract.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The pension cost "defined benefit pension scheme" is budgetted taking into account the current contract, evolution in contractual staff numbers and salary increases.

Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations.

Not applicable.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

The pension costs have been determined based on existing regime Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated.

3.4.3 - Pension assumptions

MUAC

3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pension costs	12 805	13 562	26 367	35 410	37 830	40 067
En-route activity	12 805	13 562	26 367	35 410	37 830	40 067
Terminal activity			-			
Other activities			-			

3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No
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<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies						
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme						
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

MUAC does not have a "State" pension scheme.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No
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<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies						
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme						
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

MUAC does not have a "defined contributions" pension scheme.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

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3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme (in nominal terms in '000 national currency)

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	Yes
Is the occupational "Defined benefits" pension scheme funded?	Yes

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	163 014	167 049	330 063	197 297	207 720	215 899
Total pension costs in respect of this scheme	12 805	13 562	26 367	35 410	37 830	40 067
- in respect of regular pension costs			-			
- in respect of non-recurring deficit repair			-			
- reported as staff costs (in reporting tables)	12 805	13 562	26 367	35 410	37 830	40 067
- not reported as staff costs (in reporting tables): please use comment box			-			
Actuarial assumptions						
% discount rate						
% projected increase in benefits						
% annual increase in salaries						
% expected return on plan assets						
Net funding surplus / deficit			-			
Number of employees the employer contributes for in this scheme	750	750		750	750	750

<p>Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3</p> <p>MUAC employees are eligible for membership in the EUROCONTROL defined benefit pension scheme. This scheme is the first and unique pillar for the employees. Contributions from the employees and the employer are paid to the EUROCONTROL pension fund. The pension costs reported in this section relates to 2 different elements : the employer contribution (expressed as a percentage of the basic salary -17.5% in 2021) and the tax compensation on pension. Following a decision from the MUAC Member States, this tax compensation on pensions is gradually recognised over RP3 as pension costs in the MUAC costbase. This explains the substantial increase of pension costs as from 2022.</p>
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<p>Description of the assumptions underlying the calculations of pension costs comprised in the determined costs</p> <p>One of the main assumptions is the percentage of the employer contribution which is set at 17.5% of the basic salary in 2021. According to actuarial studies, this percentage is expected to increase up to 20% during RP3. Another assumption relating to the tax compensation on pension (accounted on a Pay as You Go basis) is the mortality and taxation pressure in the countries where pensioners reside.</p>
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<p>Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations.</p> <p>Not applicable.</p>
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<p>Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users</p> <p>Increase of pension age of ATCOs and non ATCO staff. Review of benefits. New HR policy limiting access to permanent contracts of employment.</p>

3.4.3 - Pension assumptions

ANA LUX

3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pension costs	368	375	743	388	397	410
En-route activity	93	95	188	97	99	102
Terminal activity	178	182	360	186	191	197
Other activities	98	98	195	105	107	111

3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Yes-2
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<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	4 600	4 692	9 292	4 848	4 968	5 130
Employer % contribution rate to this scheme	8%	8%		8%	8%	8%
Total pension costs in respect of this scheme	368	375	743	388	397	410
Number of employees the employer contributes for in this scheme	66	60		43	46	47

<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	14 757	15 051	29 808	15 552	15 937	16 455
Employer % contribution rate to this scheme	0%	0%		0%	0%	0%
Total pension costs in respect of this scheme	0	0	-	0	0	0
Number of employees the employer contributes for in this scheme	115	127		141	137	137

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

The pension costs depend on the status of the person. For a public servant there is no employer's share, whereby for a salaried employee an employer's share of 8 % exists. Regarding this regulation there are no changes expected for RP3.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The calculation is based on the assumption that around one quarter of our staff are salaried employees, whereby the other three quarter are public servants. (as in 2020)

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No
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<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies			-			
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme			-			
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

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3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme (in nominal terms in '000 national currency)

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	No
Is the occupational "Defined benefits" pension scheme funded?	No

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies			-			
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme			-			
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

skeyes

Select number of loans	3
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Interest rate assumptions for loans financing the provision of air navigation services (Amounts in nominal terms in '000 national currency)						
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Loan #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Federal holding investment company loan					
Remaining balance	2 500	2 510		2 520	2 530	2 540
Interest rate %	2.50%	2.50%		2.50%	2.50%	2.50%
Interest amount	63	63	125	63	63	64

Loan #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Eurocontrol loan for bridging the pandemic period: principal received in 2020 and last installment 03/22.					
Remaining balance	31 305	6 261		0	0	0
Interest rate %	1.50%	1.50%		1.50%	1.50%	1.50%
Interest amount	470	94	563	-	0	0

Loan #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loans received from the belgian federal state in 2020 and 2021 to face liquidity issue due to the pandemic. The loan will be gradually reimbursed as from 2023.					
Remaining balance	20 000	130 000		130 000	87 500	45 000
Interest rate %	0.00%	0.00%		0.00%	0.00%	0.00%
Interest amount	0	0	-	0	0	0

Other loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description						
Remaining balance						
Average weighted interest rate %	-	-		-	-	-
Interest amount			-			

Total loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total remaining balance	53 805	138 771		132 520	90 030	47 540
Average weighted interest rate %	0.99%	0.11%		0.05%	0.07%	0.13%
Interest amount	532	157	689	63	63	64

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

MUAC

Select number of loans 4

Interest rate assumptions for loans financing the provision of air navigation services
(Amounts in nominal terms in '000 national currency)

Loan #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Bullet loans with KBC contracted in December 2020 for 60 million € up to 31 Dec 2027 at variable rate (IRS Swap Curve + 0.4%)					
Remaining balance	60 000	60 000		60 000	60 000	60 000
Interest rate %	0.40%	0.40%		0.40%	0.40%	0.40%
Interest amount	0	240	240	240	240	240

Loan #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with KBC contracted in 2017 for 40 million € at variable rate (EURIBOR 1 to 9 months + 0.40%) maturing in December 2025					
Remaining balance	25 000	20 000		15 000	10 000	5 000
Interest rate %	0.40%	0.40%		0.40%	0.40%	0.40%
Interest amount	120	100	220	80	60	40

Loan #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with BNP contracted in 2017 for 30 million € at variable rates (EURIBOR + 0.40%) maturing in December 2025					
Remaining balance	18 750	15 000		11 250	7 500	3 750
Interest rate %	0.40%	0.40%		0.40%	0.40%	0.40%
Interest amount	90	75	165	60	45	30

Loan #4	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with KBC contracted in 2014 for 70 million € at variable rate (EURIBOR 1 to 9 months +0.58%) maturing in December 2022					
Remaining balance	17 500	8 750				
Interest rate %	0.58%	0.58%				
Interest amount	152	102	254			

Other loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description						
Remaining balance						
Average weighted interest rate %	-	-		-	-	-
Interest amount			-			

Total loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total remaining balance	121 250	103 750		86 250	77 500	68 750
Average weighted interest rate %	0.30%	0.50%		0.44%	0.45%	0.45%
Interest amount	362	517	879	380	345	310

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

ANA LUX

Select number of loans Select

Interest rate assumptions for loans financing the provision of air navigation services
(Amounts in nominal terms in '000 national currency)

Other loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	No loans, financed 100% through equity					
Remaining balance						
Average weighted interest rate %	-	-		-	-	-
Interest amount			-			

Total loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total remaining balance	-	-		-	-	-
Average weighted interest rate %	-	-		-	-	-
Interest amount	-	-	-	-	-	-

3.4.5 - Restructuring costs

3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

Restructuring costs from previous reference periods approved by the European Commission?	No
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3.4.5.2 Restructuring costs planned for RP3

Restructuring costs foreseen for RP3?	No
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Additional comments

3.4.6 - Additional determined costs related to measures necessary to achieve the en route capacity targets

Additional costs of measures necessary to achieve the capacity targets for RP3?	Yes
If yes, number of en route charging zones concerned	1

Belgium-Luxembourg

a) Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs

skeyes:

To prepare for the expected resumption of air traffic during RP3, skeyes must ensure its ATCO capacity is maintained at appropriate levels. Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3 and RP4. To compensate, additional ATCOs shall be recruited and trained to ensure skeyes operational capacity is retained. Furthermore, skeyes intends to replace its ATM system with a single, integrated and harmonised airspace management system with MUAC and BEL DEF to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.

MUAC:

In 2019, an agreement was closed on new general conditions on employment, which increases ATCO availability in order to mitigate the gap between staff availability and traffic demand. In addition, and to provide a structural solution, additional ATCOs were hired who consequently also needed to be trained, causing an additional training cost.

The PABI project aims to optimize further the planning of daily operations.

The Manpower planning system-tool aims at creating a more advanced rostering system.

For all MUAC-related measures, only costs attributable to Belgium and Luxembourg are included.

b) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3

Number of capacity measures, which induce additional costs	7
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Measure #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	3 067	4 016	7 083	7 152	9 756	9 912

Description and justification of the additional determined costs of the measure

(skeyes) To prepare for the expected resumption of air traffic during RP3, skeyes must ensure its ATCO capacity is maintained at appropriate levels.

skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3.

Consequently, in order to compensate, additional ATCOs shall be recruited and trained to ensure a sustainable capacity. The additional costs reflected within measure #1 amounts to 9.9 million euros in 2024.

The amounts supra has been updated following the compliance review and represent the external cost of initial certification training as well as salary costs for new ATCO in order to replace departing ATCO's. These amounts do not include the costs of recruitment campaigns, entrance exams and related administrative costs.

The table below provide the detail of the operational cost related to the ab initio ATCO training:

Table 4: Breakdown of cost on ab-initio training (nominal terms)						
	2020A	2020B	2020D	2020E	2020F	2020G
Ab-initio training (in '000)						
Direct costs						
Training facilities (MUAC)			5,405	478	-	-
Recruitment (EU/US/UK)			5,165	485	-	-
Recruitment (EU/US/UK)			485	5,405	-	-
Recruitment (EU/US/UK)			321	5,395	-	-
Recruitment (EU/US/UK)			1,172	663	-	-
Recruitment (EU/US/UK)			-	400	1,052	-
Recruitment (EU/US/UK)			392	1,052	-	-
Recruitment (EU/US/UK)			-	-	1,308	-
Recruitment (EU/US/UK)			-	-	484	-
Recruitment (EU/US/UK)			2,800	5,111	62	-
Indirect costs						
Travel expenses (MUAC)	5,770	7,461	5,280	6,244	6,833	6,867
Travel expenses (EU/US/UK)	5,165	5,247	4,867	5,152	6,106	6,251
Total for ab-initio training	6,738	6,008	6,449	6,589	6,797	6,947

There has been 1 new batch of 15 candidates ATCOs starting in 2020 and 3 new batches totalling 32 candidate ATCOs starting in 2021. The determined training costs are based on the assumption of 3 new batches of 14 candidates ATCOs in 2022, 2023 and 2024. Training costs in a given year include training costs of the new ATCO batches as well as those initiated in prior years.

The operational cost of training to maintain the ATCO capacity at an appropriate level for en-route amounts to 6.6 million euros in 2024.

The table below provides the detail of the staff cost related to RP3 recruitments (ab-initio and ACS-TCL trainees):

	2020A	2021A	2021D	2022D	2023D	2024D
Staff costs						
Ab-initio students company wide	2,065	1,363	1,328	2,419	2,314	2,279
Ab-initio students for en-route	1,482	984	957	1,745	1,658	1,607
ACS-TCL students company wide	225	13	223	379	1,581	1,693
ACS-TCL students for en-route	225	13	223	379	1,381	1,563
Total company wide	2,275	1,377	1,451	2,798	3,695	3,893
Total for en-route	1,707	997	1,081	2,124	3,049	3,270

Measure #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	0	1 380	1 380	1 971	1 482	1 657

Description and justification of the additional determined costs of the measure

With the ATM NextGen Program, skeyes intends to modernize its ATM system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.

The first phase of the modernization program is a second midlife upgrade (MLU2) of the current system in 2023-2024 to secure the service provision during the transition until the effective deployment of the second phase. MLU2 consists of a technical upgrade and a functional upgrade. The aim of the technical upgrade is to replace the hardware of all the main systems and sub-systems, virtualise certain components, improve the technical architecture, in particular by strengthening cyber security, and convert the obsolete 32-bit software into a more recent 64-bit version. The purpose of the functional update is to carry out three adaptations (ECP - Engineering Change Proposal) required to comply with regulations, security recommendations and necessary operational changes. The second midlife upgrade entered in the deployment phase and is on track for a commissioning in 2024.

The second phase of the modernization program is to deploy a future-proofed ATM system to comply with European regulations, to support the integration of civil and military ATM services and to implement the last technical and operational standards to improve our service provision. The second phase will be deployed at the end of RP4. In 2021, skeyes signed an agreement with Eurocontrol MUAC and Belgian Defence for the development of a single system (SAS3). After one year of definition phase, it appears that the risks of the project in terms of scope, planning and budget were too high for skeyes. Therefore, the project has been put on hold. skeyes is currently in discussion with Belgian Defence to define the best way forward for the modernisation of the system to be commissioned in 2028.

The investment costs for the period are based on the price and payment milestone in the contract with the supplier for the technical and functional upgrade.

The operational costs for the period are based on the study costs and external support (Program and project management, engineering support, ATM architecture support...) planned for the period. These cost are directly linked to the modernisation of the ATM system and are not related to the normal operation. These cost were accepted by the Commission for other ANSP (e.g. the cost of 4flight and Coflight in France include depreciation, cost of capital and other operating costs directly related to these investments and were retained as necessary to achieve the capacity targets for RP3). The operational costs does not include the cost of the maintenance contract with the supplier.

The amounts supra has been updated following the compliance review.

Measure #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	2 234	2 900	5 133	3 204	3 316	3 398

Description and justification of the additional determined costs of the measure

(MUAC) GCE Package : The measure aims to increase ATCO availability in order to mitigate the gap between staff availability and traffic demand. Key measures of the proposal include: an increase in annual working time for newly recruited ATCO staff; the replacement of stand-by shifts (where staff are off duty but on call) by flex shifts (where the shifts have to be worked within a certain time window); the possibility to contract additional working days for staff currently in post; more flexible working time planning on an annual basis; the possibility to transfer leave days to a lifetime working time account, freeing up additional working days in the short to medium term; the possibility to increase working time with the consent of the ATCO, including extension of the retirement age to 60 years; and an increase in the basic salary scales of O grades by 10.75% over a two-year period.

Measure #4	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	359	494	853	51		

Description and justification of the additional determined costs of the measure

(MUAC) Post-OPS Analysis and BI (PABI): the scope of this project consists of enhancing the Post-OPS Analysis process and tooling at MUAC, in order to further optimise the planning of daily operations, and in this context to develop Business Intelligence facilities that not only allows the efficient creation of KPI monitoring and reporting workflows and dashboards, but also allows users to perform data mining in a self-service manner.

The additional insights gained from properly consolidated MUAC performance data will improve the cost-efficiency not only of the ATM operations directly, but also of the ATM system and operational concepts development strategies, thereby securing the stability and long-term sustainability of MUAC services. In accordance with OPS ATCOM requirements timeline, PABI is estimated to provide a slight amount of additional capacity and some CRSTMP delay reduction by avoiding over-regulation, and a better determination of the necessary amount of excess ATCOs to cover the unforeseen.

Measure #5	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	3 111	2 970	6 080	3 267	3 273	3 402

Description and justification of the additional determined costs of the measure

(MUAC) ab initio recruitment: Following a prolonged stoppage of all ab-initio recruitment after the financial crisis in 2007, MUAC identified the need to re-start the recruitment process in order to cope with the expected outflow of ATCOs to retirement. Prior to this, the decision to outsource the initial training from IANS in Luxembourg to ENAC in Toulouse had already been taken. The costs presented above include the staff costs for the ab initio's, sim pilots needed for their training, as well as the cost for their initial training at ENAC.

Measure #6	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	0	160	160	704	1 988	2 418

Description and justification of the additional determined costs of the measure

(MUAC) additional ATCOs needed for the Brussels sector: due to an underrecruitment in the past, the number of ATCOs allocated to the Brussels sector will rise substantially (from 106 to 119 ATCOs) over RP3. Together with the earlier mentioned (MUAC-wide) GCE package, this will provide additional capacity within the MUAC AoR over Belgium and Luxembourg.

As only around 90% (percentage varies slightly each year) of the costs of the Brussels sector are attributed to Belgium and Luxembourg, only this part is reflected here.

Measure #7	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	198	189	387	205	204	102

Description and justification of the additional determined costs of the measure

(MUAC) Manpower Planning System: the aim of the project is to develop top down a new state-of-the-art tool, called the Manpower Planning Suite (MPS). The first two stages of the project focus on a new framework and a modernised Roster Tool. In next stages the other MPS tools will be developed based on the same framework. The new MPS will be an enabler to incorporate new operational requirements that are difficult or impossible to implement with the current design of the data model and tools. Migration of the manpower planning tools will allow for 24/7 service provision.

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total additional costs of measures ('000 national currency)	8 968	12 109	21 077	16 553	20 018	20 889

c) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3 by nature by ANSP

Additional costs of measures necessary to achieve the capacity targets for RP3 (nominal terms in '000 national currency)						
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Belgium-Luxembourg	2020D	2021D	2020/2021D	2022D	2023D	2024D
Staff			-		3 049	3 270
of which, pension costs			-			
Other operating costs	3 067	5 396	8 463	9 123	7 938	7 873
Depreciation			-		13	13
Cost of capital			-		238	413
Exceptional items			-			
Total additional costs of measures	3 067	5 396	8 463	9 123	11 238	11 569

Belgium-Luxembourg	2020D	2021D	2020/2021D	2022D	2023D	2024D
Staff	4 390	5 139	9 529	6 253	7 649	8 280
of which, pension costs	359	435	793	504	617	668
Other operating costs	1 511	1 574	3 085	1 177	1 132	1 040
Depreciation			-			
Cost of capital			-			
Exceptional items			-			
Total additional costs of measures	5 901	6 713	12 614	7 430	8 780	9 320

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total additional costs of measures ('000 national currency)	8 968	12 109	21 077	16 553	20 018	20 889

Additional comments

(skeyes) The costs of measure 1 and 2 presented above allow the achievement of the performance targets in the key performance area of capacity amounts to 11.6 million euros in 2024. These amounts do not include the costs of recruitment campaigns, entrance exams and related administrative costs.

d) Demonstration that the deviation from the Union-wide targets is exclusively due to the additional determined costs related to measures necessary to achieve the performance targets in capacity

(skeyes) Together with the replacement of end of life equipments, the recruitment and training of new ATCO and the ATM next gen are mandatory to safeguard business continuity and capacity over RP3. This is developed more in depth in the annexes E and F.

CORRECTIVE MEASURES

* *Complement with detailed explanations in Annex Z.*

SECTION 3.5: ADDITIONAL KPIS / TARGETS

[3.5 Additional KPIS / Targets](#)

Annexes of relevance to this section

ANNEX J. OPTIONAL KPIS AND TARGETS

3.5 - Additional KPIs / Targets

Number of additional KPIs	0
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SECTION 3.6: DESCRIPTION OF KPAS INTERDEPENDENCIES AND TRADE-OFFS INCLUDING THE ASSUMPTIONS USED TO ASSESS THOSE TRADE-OFFS

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

[3.6.1 - Interdependencies and trade-offs between safety and other KPAs](#)

[3.6.2 - Interdependencies and trade-offs between capacity and environment](#)

[3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity](#)

[3.6.4 - Other interdependencies and trade-offs](#)

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

3.6.1 - Interdependencies and trade-offs between safety and other KPAs

a) Do the measures to reach the targets in the different KPAs require changes in the ANSP functional system that have safety implications? If yes, which mitigation measures are put in place?

Other KPAs may require changes directly impacting the ANSP functional system. Some changes have already been identified e.g. new procedures for greener routes or modernization of systems to comply with Common Project 1 (CP1) requirements (KPA environment), additional changes may be identified at a later stage.

Improving and maintaining a mature SMS (for example human resources / staff requirements) does also have an indirect impact on other KPAs (especially KPA cost efficiency). An important effort is required to train, maintain and operate experience feedback mechanisms (investigators, local and corporate safety committees, automatic loss of separation detection tools, improved runway alerting systems like ASMGCS) as well as functional system changes' analysis (development of safety barrier models etc.).

In all cases, changes are subject to Commission Implementing Regulation (EU) 2017/373 including its detailed requirements for changes to the functional system.

On the ANSPs level, the current safety management processes requested by aforementioned Common Requirements do ensure that safety levels are not compromised when implementing airspace changes or changes to the ATM/ANS functional system. Changes to the ATM/ANS functional system could be required to reach the targets in the different KPAs. A mitigation layer exists as these changes will require approval from the Competent Authorities.

Furthermore, changes might also be necessary on the organisational level (i.e. safety training or safety culture initiatives).

On the Competent Authority level, the changes to the ANSP functional system are closely supervised. The precise changes' scope as well as interfaces are challenged during this process to ensure that all essential information is available to avoid any unacceptable safety implications right from the start of the change management procedure. The combination of changes due to measures to reach the targets in the different KPAs may not have any negative safety implication and overall safety should improve in line with the safety targets. Furthermore, change management procedures and any change thereto require prior approval by the Competent Authority. These procedures are also inspected by EASA in the frame of the ongoing standardisation (STD) visits. Besides, the Competent Authority oversees the Safety Management requirements covered by Commission Implementing Regulation (EU) 2017/373 Part.ATM/ANS and Part.ATS specifically. That ensures a high standard of safety performance management.

b) What are the main assumptions used to assess the interdependencies between safety and other KPAs?

Safety constitutes the highest priority and its attainment cannot be compromised by adverse interdependencies with other key performance areas. Thus, it is always part of any other KPA's consideration. The achievement of an acceptable level of safety has the highest priority. Safety will naturally be balanced with other strong requirements linked to environment, production pressure and finances. In all change paths undertaken, this balance is addressed and ensured to guarantee that this balance stays acceptable. Sometimes this leads to a non-acceptance of change proposals, based on one of these requirements. ANSPs have a safety target for their operations, that, if quantifiable, helps to establish a bottom line for safety.

On the Competent Authority level, the mitigation measures described in a) address the assumptions used to assess the interdependencies between safety and other KPAs.

c) What metrics, other than those indicators described in the Regulation, are you monitoring during RP3 to ensure targets in the KPAs of capacity, environment, and cost-efficiency are not degrading safety?

ANSPs have defined own (K)PIs to monitor their performance by means of other ad-hoc and flexible indicators than those described in Commission Implementing Regulation (EU) 2019/317. These are also crossing the KPAs to highlight the interface and interdependency between safety and other KPAs. At FABEC level, ANSPs have a dashboard including safety data as well as lagging and leading indicators. For instance: there is an indicator that monitors the number of runway crossings at a certain crossing to ensure achieving the safety objective(s). These indicators could typically indicate production pressure. Similarly, there are parameters for the driving direction of runway inspections, separation on final, etc. Besides, there is a common FABEC dashboard which is kept up-to-date by the SPM working group reporting to the SC-SAF. A yearly aggregation of SMI, RI and EoSM results is done under the leadership of the DSNA and analysed both by SPM and SC-SAF. The publication on a website is foreseen in the near future.

Moreover, FABEC ANSPs also hold performance board meetings to monitor indicators relevant to their Integrated Safety Management System (Safety, Security, Quality, Environment). Indicators, issues and possible trade-offs are discussed, explained and sorted out by board members under the leadership of the ANSPs' management.

On the Competent Authority level, the Safety Management System's components as described in Commission Implementing Regulation (EU) 2017/373, Part-ATS, ATS.OR.200 are subject to the ongoing oversight. These are: Safety policy and objectives, safety risk management, safety assurance and safety promotion.

d) Do targets allow trade-offs in operational decision making to managing resource shortfalls in order to preserve safety performance? Do targets restrict the release of staff for safety activities, such as training?

In terms of resources normally the operational staff is the bottleneck. Of course, the acceptable safety performance is priority 1, second is safety training, third is the change management of changes to the functional ATM system(s). No non-safety target will be able to restrict safety or safety activities. Operational safety trade-offs (day to day operations at unit level) are very different in nature and content to safety performance trade-offs at organisational level. Operational safety is the main driver but consequences of corporate decision making is also tracked and monitored. Specific processes are required to manage the operational HR's needs that must be maintained independent of the different size of FABEC ANSPs. Furthermore, budget issues are scrutinized because of civil service specific norms and rules.

e) Has the State reviewed the ANSP financial and personnel resources that are needed to support safe ATC service provision through safety promotion, safety improvement, safety assurance and safety risk management after changes introduced to achieve targets in other KPAs? Please, explain.

The FABEC ANSPs, included those active in the airspace of Belgium, have committed themselves by declaring to have sufficient resources to perform the required safety activities in their day-to-day operations. The NSA oversee the financial and personnel plan to ensure all necessary activities are carried out.

On the Competent Authority level, the Safety Management System's components as described in Commission Implementing Regulation (EU) 2017/373, Part-ATS, ATS.OR.200 are subject to the ongoing oversight. These are: Safety policy and objectives, safety risk management, safety assurance and safety promotion.

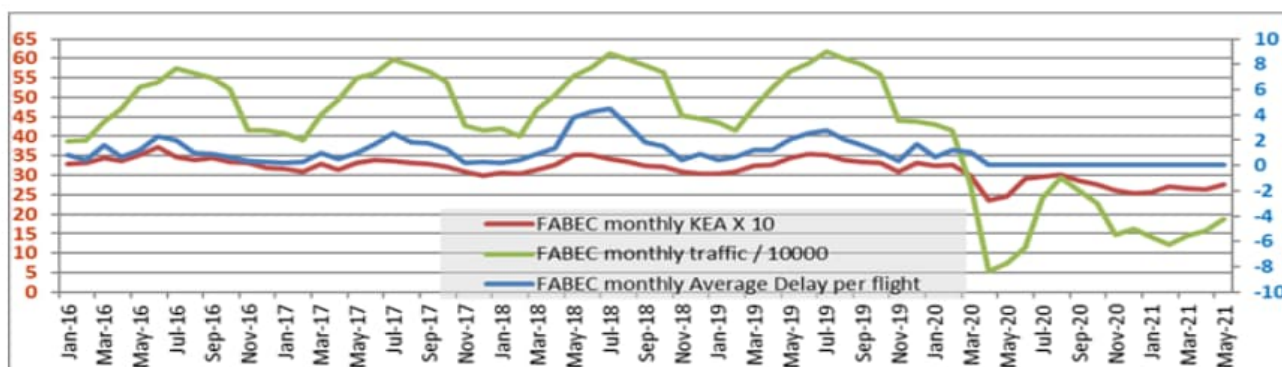
Besides, the Management System requirements for ATS providers laid down in Commission Implementing Regulation (EU) 2017/373 Part.ATM/ANS and Part.PERS are strictly overseen by the Competent Authority. These include, but are not limited to, the following aspects: providing appropriate human and financial resources by the senior management, ensuring sufficient resources allocated to the compliance monitoring function and safety manager function, allocation of appropriate resources to achieve the planned safety performance by the safety review board, appropriate resources covered in the Stress Management and Fatigue Management policies. Apart from this, the Competent Authority supervises the annual plan, the resulting annual report and the (5 years) business plan to ensure that financial and personnel resources are dealt with proportionally.

Furthermore, the mitigation measures described in a) address the assumptions used to assess the interdependencies between safety and other KPAs.

3.6.2 - Interdependencies and trade-offs between capacity and environment

The interdependency between capacity and environment is most clearly illustrated at FABEC level. Following traffic increases, the FABEC KEA indicator increased between 2014 and 2016. From 2017 onwards the KEA performance has stabilised as a balance has occurred between continued strong traffic growth and the introduction of operational changes such as FRA, but this may also be related to a change in the KEA calculation method. In 2020 KEA has decreased with the massive drop of traffic as from the outbreak of the COVID-19 pandemic.

KEA achievements are clearly influenced by traffic level and volatility (the yearly profile is clearly influenced by seasonality and number of flights). ATCOs can offer more direct routing with low traffic and facing no capacity issues. Nevertheless, with the capacity and staffing issues incurred by FABEC ANSPs in the core area, delays increased significantly during RP2, deteriorating flight efficiency. The graph provided here under show the relationship between traffic and delay increases and KEA deterioration :



In addition NM summer initiatives introduced as from 2018 summer introduced massive rerouting which have impacted FABEC flight efficiency in order to mitigate capacity issues. As stakeholders put priority on reducing delays, this comes at a cost to environmental performance.

3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

As it has been described in chapter 3.3.1, main capacity improvements during RP3 and following RP4 will be provided through measures such as:

- Implementation new ATM systems or upgrades of legacy systems enabling new concepts of operations or introducing new ATC tools (ATM NextGen);
- ATCO hiring plans;
- More flexible rostering and new working conditions for ATCO.

These measures have an impact on the costs bases of ANSP: on staff costs for additional recruitments or social agreements, on depreciation costs and costs of capital regarding new investments.

Individual ANSPs' detailed interdependencies between cost-efficiency and capacity are addressed in chapter 3.4 and in Annex R & S of this performance plan.

3.6.4 - Other interdependencies and trade-offs

Regarding Environment performance, capacity is not the only performance area influencing KEA achievement; many other factors, some of them out of the full scope of responsibility of ANSPs, can impact a good flight efficiency.

Among the main factors can be listed:

- Further implementation of FUA in the airspaces most affected by military activities is expected to bring a certain improvement of flight efficiency. However, the current ERNIP edition includes only a few project (out of around 300) focusing on FUA improvement. In addition, benefits from FUA implementation will only be significantly perceivable if the level of military activity/training will remain unchanged in the years to come. Increase of military activity has an impact on flight efficiency. Nevertheless, FABEC has set up a FUA harmonization and implementation initiative with its ANSPs through a permanent joint CIV-MIL task-force.
- Weather has been becoming more extreme and unpredictable; and so has its impact on air traffic (to reflect the real situation the TMA cylinder should be extended from 40NM to 200NM, therefore excluding the constraints set for arrival and departure from the calculation of en-route flight efficiency).
- Structure of the traffic: more overflights automatically means a better HFE. FABEC area, however, contains the busiest European airports (FRA, CDG, AMS), and Heathrow in close proximity.
- In contrast to the aim to minimise emissions, Airspace users are not obliged to fly the shortest route. One example of a reason why they might not do this is when longer but cheaper route is available due to different unit rates across Europe. Neither are they obliged to provide a reason for not flying the shortest route. In addition the new En Route charging calculation according to actual flown route could have an impact on Airspace users choice regarding routes, which will influence flight-efficiency in a magnitude which is still unknown.
- The NM and the ANSPs have optimized their operations with respect to rolling UUP and Procedure 3, bringing more flexibility and more options for AOs to fly shorter routes. Unfortunately, the major part of AOs are not able to seize these opportunities because they file their flight plans more than 6-7 hours in advance. As a consequence, when a TRA is released only 3 hours in advance, they are not able to update their flight plans. As long as the flown track follows the flight plan trajectory, this lack of AOs' reactivity has a negative impact on flight efficiency and potentially on capacity (for instance if several flight plans are filed in a region with a capacity bottleneck whereas if these flight plans were updated, the corresponding flights would be rerouted outside this area).

More in general, we note that the performance scheme does not cover all KPAs and indicators that are relevant to ANS performance, and indeed to air transport as a whole. Performance areas such as security, sustainability, business continuity, etc are also important, and activities undertaken to address performance in these areas can affect performance in relation to the KPIs and targets included in this plan, e.g. improving security will come at a cost. Similarly, within the KPAs of safety, capacity, environment and cost efficiency there are (both local and European) issues or priorities that require action even without target setting - compare the PIs included in the performance and charging regulation. As an example, it may be necessary to invest in detecting and/or preventing runway incursions or airspace infringements. This will also affect cost efficiency but it will not contribute to meeting any of the targets in this plan.

SECTION 4: CROSS-BORDER INITIATIVES AND SESAR IMPLEMENTATION

[4.1 - Cross-border initiatives and synergies](#)

[4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs](#)

[4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives](#)

[4.2 - Deployment of SESAR Common Projects](#)

[4.3 - Change management](#)

Annexes of relevance to this section

ANNEX N. CROSS-BORDER INITIATIVES

4.1 - Cross-border initiatives and synergies

4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs

Number of cross-border initiatives	10
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Initiative #1	
Name	Collaboration for Flight Object Interoperability (FO IOP)
Description	Maastricht Upper Area Control Centre (MUAC), DFS and LVNL will jointly develop components that will enable interoperability between their respective Air Traffic Management systems and help deliver a Single European Sky.
Expected performance benefits	CAP+ CEF+

Initiative #2	
Name	The 14 ACCs of FABEC are internally benchmarked with the focus on sector level capacity
Description	The study explores factors influencing capacity provision at all 14 FABEC ACCs. In contrast to available benchmark reports this is done on a unusual detailed level and unusual large data set. Local supervisors, ATCOs and ATFM experts along with FABEC performance experts analyse the operational environment, the technical environment as well as staff planning routines to provide a deeper understanding of performance differences and to identify and exchange best practices.
Expected performance benefits	CAP+

Initiative #3	
Name	Framework for Cross-Border Business Continuity / Contingency
Description	Establish the appropriate framework at FABEC level supporting the development of cross-border business continuity or contingency procedures. FABEC ANSPs will check the requirements to support each other with bilateral arrangements in case of outages of an ACC (e.g. frequency outage, power failure, etc.). Some procedures are already in place. Langen ACC can deliver/ take over traffic at the border directly to/ from Liège Approach in case of an outage at Brussels ACC. The same is done with DSNA and Charleroi Approach.
Expected performance benefits	SAF+ CAP+ CEF+ ENV+

Initiative #4	
Name	Harmonisation of regulator framework for unmanned aircraft systems
Description	Initiative to harmonise separation standards to unmanned aircraft systems (UAS/ drones). In the framework of the initiative any kind of factors are analysed that may impair safety and operational performance. The objective is to avoid procedure diversification within FABEC and prepare a consolidated regulatory approach.
Expected performance benefits	CEF+

Initiative #5	
Name	RAD Optimisation Workshops
Description	The Route Availability Document (RAD) is a common reference document containing the policies, procedures and description for route and traffic orientation. The RAD is part of the European Route Network Improvement Plan (ERNIP). It also includes route network and free route airspace utilisation rules and availability. The RAD is also an Air Traffic Flow and Capacity Management (ATFCM) tool that is designed as a sole-source flight-planning document, which integrates both structural and ATFCM requirements, geographically and vertically. FABEC's CRM group organises regular meetings to optimise and harmonise the documents. Airspace users, NM representatives and FABEC's RAD coordinators optimise and harmonise RAD restrictions and increase understanding on users side.
Expected performance benefits	CAP+ ENV+

Initiative #6	
Name	FABEC Joint States/ ANSPs FUA Task Force
Description	The Task Force of State and ANSP experts, referred to as the joint FUA Task Force (JTF), supports the work of the Airspace Committee in developing an harmonised application of the ASM/FUA concepts within FABEC and in providing guidance to FABEC ANSPs on an harmonised application of FUA Level 2 and Level 3. The tool sub-group is focussing on the usage of available tools. The JTF is established with the general objectives of providing ASM/ FUA expertise to the AC and performing tasks for the AC in the area of ASM/FUA, with the end goal to develop proposals for the harmonisation of the application of ASM/ FUA concept at all three levels, in order to enhance airspace utilisation and contribute to performance and network improvements in particular in the FABEC core area and in cross-border areas of the FABEC airspace.
Expected performance benefits	CAP+ ENV+

Initiative #7	
Name	FABEC/Network Manager Airspace Design Coordination Group (FABEC/NM ADCG)
Description	For the mid-term, the NM Action Plan aims to tackle existing bottlenecks, address future capacity, and flight efficiency challenges, with a renewed airspace structure, in particular for the FABEC. The Airspace Design Coordination Group (ADCG) has been set up with the objective to make the link between the FABEC States and ANSPs bodies/structures (AC, SC OPS and ODG) and the NM RNDSG in charge of conducting the airspace study, on a seamless approach basis regardless of national borders. The new airspace structure will address current and future structural airspace bottlenecks and will include the new airspace requirements, which had to been declared by the States no later than May 2019. The implementation plan was postponed several times due to the COVID crisis but all potential projects are now included in the 'Airspace Catalogue', as annex to ERNIP part 2, even though with a status 'proposed'.
Expected performance benefits	CAP+ ENV+
Initiative #8	
Name	The Cooperative Optimisation of Boundaries, Routes and Airspace (COBRA)
Description	The two upper area control centres in Karlsruhe (DFS) and Maastricht (Eurocontrol) have completed an initiative to optimise the transfer of flights at the boundary of their areas of responsibility. The project is developing measures in the Central, East and West modules for the adjacent sectors along the geographical borders between Germany, Belgium, Luxembourg and France. The objective of the planned modifications is to reduce the complexity of air traffic in these airspaces for controllers. This will in turn optimise workflows, which will increase safety and airspace capacity as well as shorten the routes.
Expected performance benefits	SAF+ CAP+ ENV+
Initiative #9	
Name	Extended Arrival Management (XMAN)
Description	With the need to focus on activities which are directly answering current operational needs and the heavy constraints which the still ongoing COVID-19 crisis imposes on all ANSPs, FABEC ANSPs were forced to re-prioritise their FABEC XMAN Activities. As it remains an important initiative for when traffic recovers, most ANSPs continue with implementation as planned or with minor postponement. The maximum benefit for Airlines is therefore still expected to be substantial.
Expected performance benefits	CAP+ ENV+ CEF+
Initiative #10	
Name	Free Route Airspace (FRA)
Description	The project work on Direct Routings and Free Route is in a rolling status with a yearly update of the implementation report and implementation plan. The four involved FABEC ANSPs (MUAC, DFS, DSNA and Skyguide) will have FRA 24h by end 2025. Additional FRA improvements are also planned with several cross border operations for e.g. Karlsruhe/Munich/Zurich, Karlsruhe/MUAC, Karlsruhe/Vienna and Geneva/Zurich. MUAC has implemented 23/7/365 FRA several years ago and is now working on cross border free routes with a number of neighbouring ANSPs.
Expected performance benefits	CAP+ ENV+
Additional comments	
<p>Within FABEC, States are focusing their work in order to ensure that FABEC airspace management aims at supporting both the performance of operations within FABEC airspace, in particular defined RP3 targets, and the Military Mission Effectiveness achievement.</p> <p>The functional airspace block worked as facilitator for not just the abovementioned larger undertakings but also to many more smaller initiatives. Many initiatives are born when the CEOs, OPS directors, technical directors, the Head of ACC group or performance experts plan jointly future performance in their regular meetings. Studies, tests and deployment then, usually starts with one or two collaborating ANSPs and if successful are joined by the FABEC partners. FABEC offers a more comprehensive picture on Operational planning on this site: https://www.fabec.eu/opmap/</p>	

4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives

Details of synergies in terms of common infrastructure and common procurement

Generally speaking, it has to be noted that the financial impact of such common procurement or common infrastructure is hard to determine as soon as an alliance starts to act.

Practically, on a yearly basis, within FABEC SC TECH SYS collects the investment plans for CNS equipment of the FABEC partners in order to investigate possibilities for a common procurement. This already resulted in cooperation between FABEC partners on many technical projects and investment synergies are achieved.

Such technical synergies are listed in chapter 4.1.1 above.

4.2 - Deployment of SESAR Common Projects

4.2.1 - Common Project One (CP1)

CP1 ATM Functionality (CP1-AF) / Sub functionality (CP1-s-AF)	Recent and expected progress
CP1-AF1 - Extended AMAN and Integrated AMAN/DMAN in High-Density TMAs	
CP1-s-AF1.1 AMAN extended to en-route airspace	Ref. MPL3 Objectives ATC15.1 & ATC15.2: The existing basic AMAN will be upgraded/replaced during the midlife upgrade of the ATM system (planned in 2024) in order to prepare extended AMAN operations. The information exchange and bilateral working arrangements with adjacent centres are
CP1-s-AF1.2 AMAN/DMAN Integration	n/a
CP1-AF2 - Airport Integration and Throughput	
CP1-s-AF2.1 DMAN synchronised with predeparture sequencing	DMAN synchronised with predeparture sequencing is already in operational use for several years. Ref. MPL3 Objective AOP05: Airport CDM has been implemented in 2008 and extended to cater for adverse conditions in 2013. Electronic Flight Strips are already in use since the early 2000s.
CP1-s-AF2.2.1 Initial airport operations plan (iAOP)	Ref. MPL3 Objective AOP11: Implementation of initial AOP is achieved via a dedicated CINEA funded project (jointly with Brussels Airport Company). In the first half of 2021, updates were performed to the operational exchange of flight and MET data, and thereby ensuring full compliancy with the CP1
CP1-s-AF2.2.2 Airport operations plan (AOP)	updates of iAOP were performed during the first half of 2021, ensuring full compliancy with CP1 requirements
CP1-s-AF2.3 Airport safety nets	Ref. MPL3 Objective AOP11 (as well as AOP04.1 & AOP04.2): A-SMGCS Levels 1 & 2 and enhanced safety nets are fully implemented since 2016.
CP1-AF3 - Flexible Airspace Management and Free Route Airspace	
CP1-s-AF3.1 Airspace management and advanced flexible use of airspace	Ref. MPL3 Objectives AOM19.1 & AOM19.2 & AOM19.3 & AOM19.4: - LARA tool implemented and used to introduce civil booking since 07 March 2013. - Improvements to planning and allocation of airspace booking are ongoing.
CP1-s-AF3.2 Free route airspace	The required connectivity between FRA and TMAs is ensured by skyes by implementing specific (direct) routes.
CP1-AF4 - Network Collaborative Management	
CP1-s-AF4.1 Enhanced short-term ATFCM measures	Ref. MPL3 Objective FCM04.2: Implementation of STAM Phase 2 measures depends on the progress made at the side of Eurocontrol/Network Manager as this is done through the NM platform. The STAM measures will also make use of the information of the local traffic complexity tool, which is expected to
CP1-s-AF4.2 Collaborative NOP	Ref. MPL3 Objective INF08.1: A SWIM study was launched in 2020 resulting in the approval of a SWIM project, including budget and resources. It is planned to have SWIM implemented by the target date of CP1 (31/12/2025).
CP1-s-AF4.3 Automated support for traffic complexity assessment	Ref. MPL3 Objective FCM06: A local traffic complexity tool is being implemented. It is expected to become operational by end 2021.
CP1-s-AF4.4 AOP/NOP integration	Additional data/information exchange requirements (on top of those foreseen in the implementation of 'Collaborative NOP') are expected to be discussed with Brussels Airport Company jointly with discussions in relations to the implementation of extended AOP. Target date of this Sub-AF is December
CP1-AF5 - SWIM	
CP1-s-AF5.1 Common infrastructure components	Ref. MPL3 Objective COM12: New PENS implemented operationally in 2020. Participation to the CINEA funded common SWIM PKI project (led by Eurocontrol).
CP1-s-AF5.2 SWIM yellow profile technical infrastructure and specifications	Ref. MPL3 Objective INF08.1: A SWIM study was launched in 2020 resulting in the approval of a SWIM project, including budget and resources. It is planned to have SWIM implemented by the target date of CP1.
CP1-s-AF5.3 Aeronautical information exchange	Ref. information in relation to AF5.2. In addition: AIXM format is already in use for the majority of the AIM data (including the information for the EAD).
CP1-s-AF5.4 Meteorological information exchange	Ref. information in relation to AF5.2. In addition: IWXXM for the legacy ICAO messages (e.g. METAR, TAF & SIGMET) has been implemented in 2017.
CP1-s-AF5.5 Cooperative network information exchange	Ref. information in relation to AF5.2. In addition: a number of B2B services from the Network Manager are already implemented.

CP1-s-AF5.6 Flight information exchange (yellow profile)	Ref. information in relation to AF5.2.
CP1-AF6 - Initial Trajectory Information Sharing	
CP1-s-AF6.1 Initial air-ground trajectory information sharing	n/a for skeyes - ref. information from MUAC
CP1-s-AF6.2 Network Manager trajectory information enhancement	n/a for skeyes - ref. information from MUAC
CP1-s-AF6.3 Initial trajectory information sharing ground distribution	n/a for skeyes - ref. information from MUAC

4.3 - Change management

Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance

MUAC

Depending on its size, risk and/or exposure, a change may be managed as a project. In such a case, Strategy & Performance Management triggers the project initiation by an approved Idea Sheet (IDS), committing resources for this first stage, and approves the Project Management Plan (PMP) to allocate the necessary resources for the project execution.

In the event that a technical change (internally or externally triggered) would risk a negative impact on the network, the aim is to minimize the impact on Network Performance. For the vast majority of changes, the goal is always for airspace changes to have a positive network impact.

Skeyes

In the context of major changes to the functional systems (such as ATM system upgrades), skeyes identify all the necessary elements towards this change in a dedicated change management project. Aim is to have limited impacts on operational traffic, even during the transition phase of the change. Amongst others, skeyes will assess all the changes and impacts to different functional systems generated by this change. The internal safety management procedures will be followed, as will be the case for the risk assessment. The change is submitted for approval to the Belgian Supervisory Authority. With respect to different assessments, the human factors aspect (operational and technical staff) will be covered as well. The necessary elements to timely train operational and technical staff will be foreseen through a dedicated training project. Operational and technical staff will extensively participate - from the beginning - in the program in order to guarantee user requirements are correctly implemented in the change

SECTION 5: TRAFFIC RISK SHARING ARRANGEMENTS AND INCENTIVE SCHEMES

[5.1 - Traffic risk sharing parameters](#)

[5.1.1 Traffic risk sharing - En route charging zones](#)

[5.1.2 Traffic risk sharing - Terminal charging zones](#)

[5.2 - Capacity incentive schemes](#)

[5.2.1 - Capacity incentive scheme - Enroute](#)

5.2.1.1 Parameters for the calculation of financial advantages or disadvantages - Enroute

5.2.1.2 Rationale and justification - Enroute

[5.2.2 - Capacity incentive scheme - Terminal](#)

5.2.2.1 Parameters for the calculation of financial advantages or disadvantages - Terminal

5.2.2.2 Rationale and justification - Terminal

[5.3 - Optional incentives](#)

Annexes of relevance to this section

ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING

ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES

ANNEX K. OPTIONAL INCENTIVE SCHEMES

5.1 - Traffic risk sharing

5.1.1 Traffic risk sharing - En route charging zones

			Traffic risk-sharing parameters adapted?			
			Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Belgium-Luxembourg	Dead band	Risk sharing band				
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

5.1.2 Traffic risk sharing - Terminal charging zones

			Traffic risk-sharing parameters adapted?			
			Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Luxembourg - TCZ	Dead band	Risk sharing band				
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

5.2 - Capacity incentive schemes

5.2.1 - Capacity incentive scheme - Enroute

5.2.1.1 Parameters for the calculation of financial advantages or disadvantages - Enroute

Enroute	Expressed in	Value
Dead band Δ	fraction of min	± 0.030 min
Max bonus ($\leq 2\%$)	% of DC	0.50%
Max penalty (\geq Max bonus)	% of DC	0.50%
The pivot values for RP3 are	modulated	CRSTMP

skeyes

	2020	2021	2022	2023	2024
NOP reference values (mins of ATFM delay per flight)			0.12	0.13	0.12
Alert threshold (Δ Ref. value in fraction of min)			± 0.050	± 0.050	± 0.050
Performance Plan targets (mins of ATFM delay per flight)			0.12	0.13	0.12
Pivot values for RP3 (mins of ATFM delay per flight)*			0.10	0.10	0.10
Financial advantages / disadvantages	Dead band range		[0.065-0.125]	[0.073-0.133]	[0.065-0.125]
	Bonus sliding range		[0.045-0.065]	[0.053-0.073]	[0.045-0.065]
	Penalty sliding range		[0.125-0.145]	[0.133-0.153]	[0.125-0.145]

* When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2 below. The pivot values for year n have to be notified to the EC by 1 January n.



5.2.1.2 Rationale and justification - Enroute

Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3:	
a) In order to enable significant and unforeseen changes in traffic to be taken into account:	
a.1) The pivot value for year n IS the reference value from the November release of year n-1 of the NOP.	No
a.2) The pivot value for year n is informed by the November release of the year n-1 of the NOP and calculated according to the following principles and formulas:**	No
b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated.	
<p>The incentive scheme for the en route ATFM delay per flight KPI has been established in accordance with the requirements of Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky as well as Implementing Regulation (EU) 2020/1627 of 3 November 2020 on exceptional measures for the third reference period (2020-2024) of the single European sky performance and charging scheme due to the COVID-19 pandemic.</p> <p>The incentive scheme is based on the en route ATFM delay causes related to the codes C, R, S, T, M and P of the ATFCM user manual. It had already been decided in a FABEC context to focus on these delay causes in RP2 because ANSPs are supposed to be responsible for them and can influence them; though the reason for respective ATFM-delay might be considered irrelevant by the airspace users, Belgium is convinced that rewarding or penalising ANSPs for performance that is outside their influence does not incentivise good ANSP performance and might - in case of e.g. good weather - lead to windfall bonuses for ANSPs.</p> <p>In order to assure the correct application of the ATFM-coding, Belgium, in collaboration with the other FABEC states continue to apply a post-operation procedure, checking the correct application yearly on a sample basis.</p> <p>Considering the ratio of en route ATFM delay CRSTMP causes, the average CRSTMP-share of RP2 has been used.</p>	

** Refer to Annex I, if necessary.

5.2 - Capacity incentive schemes

5.2.1 - Capacity incentive scheme - Enroute

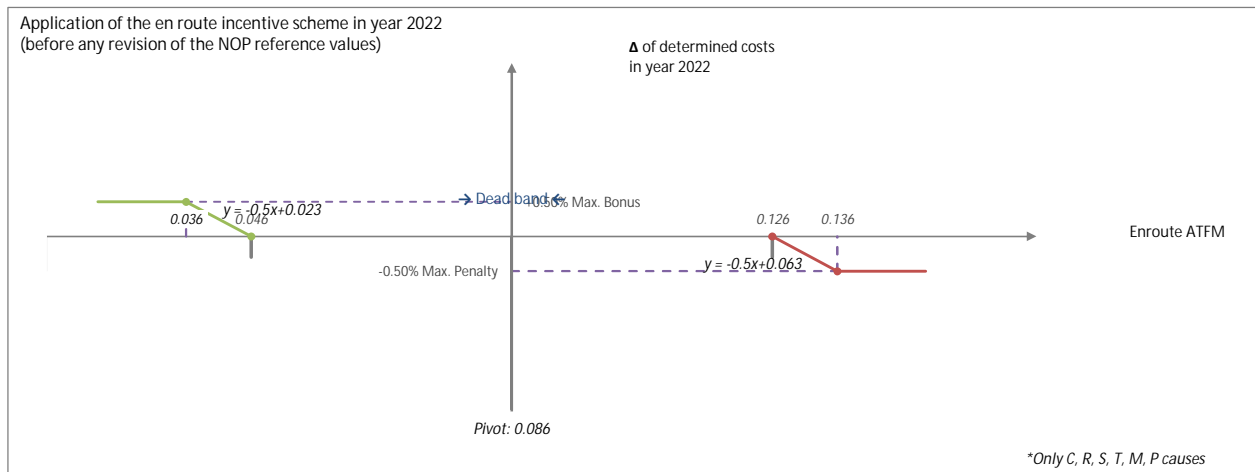
5.2.1.1 Parameters for the calculation of financial advantages or disadvantages - Enroute

Enroute	Expressed in	Value
Dead band Δ	fraction of min	± 0.040 min
Max bonus ($\leq 2\%$)	% of DC	0.50%
Max penalty (\geq Max bonus)	% of DC	0.50%
The pivot values for RP3 are	modulated	CRSTMP

MUAC

	2020	2021	2022	2023	2024
NOP reference values (mins of ATFM delay per flight)			0.14	0.14	0.14
Alert threshold (Δ Ref. value in fraction of min)			± 0.050	± 0.050	± 0.050
Performance Plan targets (mins of ATFM delay per flight)			0.14	0.14	0.14
Pivot values for RP3 (mins of ATFM delay per flight)*			0.086	0.086	0.086
Financial advantages / disadvantages	Dead band range		[0.046-0.126]	[0.046-0.126]	[0.046-0.126]
	Bonus sliding range		[0.036-0.046]	[0.036-0.046]	[0.036-0.046]
	Penalty sliding range		[0.126-0.136]	[0.126-0.136]	[0.126-0.136]

* When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2 below. The pivot values for year n have to be notified to the EC by 1 January n.



5.2.1.2 Rationale and justification - Enroute

Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3:	
a) In order to enable significant and unforeseen changes in traffic to be taken into account:	
a.1) The pivot value for year n IS the reference value from the November release of year n-1 of the NOP.	No
a.2) The pivot value for year n is informed by the November release of the year n-1 of the NOP and calculated according to the following principles and formulas:**	No
b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated.	
Yes	
<p>The incentive scheme for the en route ATFM delay per flight KPI has been established in accordance with the requirements of Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky as well as Implementing Regulation (EU) 2020/1627 of 3 November 2020 on exceptional measures for the third reference period (2020-2024) of the single European sky performance and charging scheme due to the COVID-19 pandemic.</p> <p>The incentive scheme is based on the en route ATFM delay causes related to the codes C, R, S, T, M and P of the ATFCM user manual. It had already been decided in a FABEC context to focus on these delay causes in RP2 because ANSPs are supposed to be responsible for them and can influence them; though the reason for respective ATFM-delay might be considered irrelevant by the airspace users, Belgium is convinced that rewarding or penalising ANSPs for performance that is outside their influence does not incentivise good ANSP performance and might - in case of e.g. good weather - lead to windfall bonuses for ANSPs.</p> <p>In order to assure the correct application of the ATFCM-coding, Belgium, in collaboration with the other FABEC states continue to apply a post-operation procedure, checking the correct application yearly on a sample basis.</p> <p>Considering the ratio of en route ATFM delay CRSTMP causes, the average CRSTMP-share of RP2 has been used.</p>	

** Refer to Annex I, if necessary.

5.2.2 - Capacity Incentive scheme - Terminal

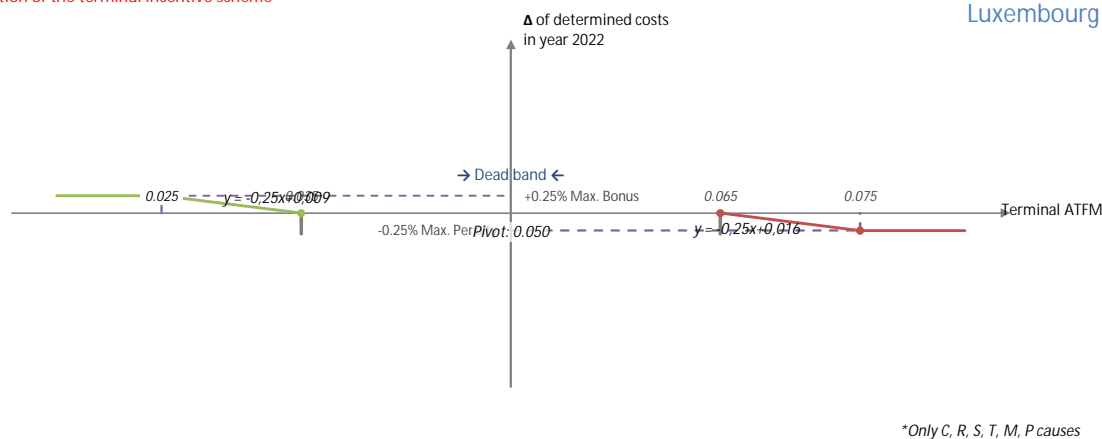
5.2.2.1 Parameters for the calculation of financial advantages or disadvantages - Terminal

Terminal	Expressed in	Value
Dead band Δ	%	$\pm 30\%$
Bonus/penalty range (% of pivot value)	%	$\pm 50\%$
Max bonus	% of DC	0.250%
Max penalty	% of DC	0.25%
The pivot values for RP3 are	modulated	CRSTMP

	2020	2021	2022	2023	2024
Performance Plan targets (mins of ATFM delay per flight)			0.05	0.05	0.05
Bonus/penalty range Δ (in fraction of min)			± 0.025	± 0.025	± 0.020
Pivot values for RP3 (mins of ATFM delay per flight)*			0.05	0.05	0.04
Financial advantages / disadvantages	Dead band range		[0.035-0.065]	[0.035-0.065]	[0.028-0.052]
	Bonus sliding range		[0.025-0.035]	[0.025-0.035]	[0.02-0.028]
	Penalty sliding range		[0.065-0.075]	[0.065-0.075]	[0.052-0.06]

* When modulation applies, these figures are only indicative as they will be updated annually on the basis of the methodology described in 5.2.1.2.a below. The pivot values for year n have to be notified to the EC by 1 January n .

Application of the terminal incentive scheme



5.2.2.2 Rationale and justification - Terminal

Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them**

N/A as only one terminal charging zones in Luxembourg exists.

** Refer to Annex I, if necessary.

Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3:

a) The pivot value for year n is modulated in order to enable significant and unforeseen changes in traffic to be taken into account and is based on the principles explained below:**

No

b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated.

The G.D. of Luxembourg decided to take into account CRSTMP delay causes only, as these are the only ones under its managerial control. Delay caused by weather conditions becomes less and less predictable, especially with regard to an increase in the frequency of extreme weather events in recent times. The pivot values have been calculated to be as close to the present values as possible taking into consideration the evolution of the national airport during RP3. The yearly median value for CRSTMP delays during the last 8 years (from January 2016 to September 2023) was 0.04 min/arrival. For those mentioned reasons, the pivot value for the remaining RP3 (2024) is set at 0.04 min/arrival. It has also to be highlighted that this pivot value for the terminal capacity is one of the most ambitious for all FABEC Terminal Areas

** Refer to Annex I, if necessary.

5.3 - Optional incentives

Total maximum bonus for all optional incentives (≤2%):	0.0%	Total maximum penalty for optional incentives (≤4%):	0.0%
Number of optional incentives	0		

SECTION 6: IMPLEMENTATION OF THE PERFORMANCE PLAN

[6.1 Monitoring of the implementation plan](#)

[6.2 Non-compliance with targets during the reference period](#)

6 - IMPLEMENTATION OF THE PERFORMANCE PLAN

6.1 Monitoring of the implementation plan

Description of the processes put in place by the NSA to monitor the implementation of the Performance Plan including the yearly monitoring of all KPIs and Pls defined in Annex I of the Regulation and a description of the data sources

Monitoring processes exist at FABEC and national level, and vary between different KPAs.

Capacity and environment performance is reported by the FABEC ANSPs' Performance Management Group (PMG) on a monthly basis. Reports are presented to the States' Financial and Performance Committee (FPC) which meets approximately 6 times per year. Additionally, quarterly or six-monthly meetings are held at national level with the two ANSPs. A monthly performance dashboard is in place at MUAC.

Monitoring of the safety KPI is limited to the annual monitoring process described below. Monitoring of Pls is done at national level.

Monitoring of cost efficiency and investments is performed at national level.

For the annual monitoring process, Belgium will continue to cooperate and coordinate in the FABEC context. FABEC has continued to use the process applied during RP2. The process is performed under the responsibility of the FPC:

- the FABEC ANSPs' Performance Management Group (PMG) on gathering operational performance information (capacity, environment)
- the FABEC States' Safety Performance and Risk Coordination (SPRC) Task Force and the ANSPs' focal points for EoSM for gathering and verifying safety performance data; If necessary, the ANSPs' Standing Committee on Safety will be consulted
- national NSAs for information on costs and investments

In all areas, identification of the main drivers for performance and in particular for deviations from planned performance will be part of the monitoring process.

6.2 Non-compliance with targets during the reference period

Description of the processes put in place and measures to be applied by the NSA to address the situation where targets are not reached during the reference period

In Belgium, the regular budget planning and annual reporting processes are used to monitor and verify the compliance with cost efficiency targets. Equally, the annual monitoring report on investments and cost-efficiency is used for this process.

Union-wide safety targets for the end of RP3 i.e. 2024 given by Commission implementing decision (EU) 2021/891 of 2 June 2021 are always born in mind by NSAs through the yearly monitoring process. The ANSPs individual targets for 2021-2023 are checked every year within the NSA assessment of the ANSPs self-assessment. Subject matter experts gather data during January each year and will counteract instantly in case an intermediate target is not reached and thus a non-compliance identified. For that purpose close cooperation between NSAs (SPRC TF / NSAC) and ANSPs (SC-SAF) at FABEC level has been established.

For capacity and environment performance, in addition to the national process, FABEC has developed the 'OPS performance process' which requires ANSPs to propose measures to improve performance if performance is not in line with targets. Remedial measures are initially proposed to the FPC, which will assess the proposals and provide advice to the FABEC Council to either accept the proposed remedial measures or request further improvements.

7 - ANNEXES

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)

ANNEX A.x - En route Charging Zone #x

ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)

ANNEX B.x - Terminal Charging Zone #x

ANNEX C. CONSULTATION

ANNEX D. LOCAL TRAFFIC FORECASTS

ANNEX E. INVESTMENTS

ANNEX F. BASELINE VALUES (COST-EFFICIENCY)

ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING

ANNEX H. RESTRUCTURING MEASURES AND COSTS

ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES

ANNEX J. OPTIONAL KPIS AND TARGETS

ANNEX K. OPTIONAL INCENTIVE SCHEMES

ANNEX L. JUSTIFICATION FOR SIMPLIFIED CHARGING SCHEME

ANNEX M. COST ALLOCATION

ANNEX N. CROSS-BORDER INITIATIVES

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

ANNEX S. INTERDEPENDENCIES

ANNEX T. OTHER MATERIAL

ANNEX U. VERIFICATION BY THE NSA OF THE COMPLIANCE OF THE COST BASE

ANNEX Z. CORRECTIVE MEASURES*

** Only as per Article 15(6) of the Regulation*

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

Belgium-Luxembourg

skeyes

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

1. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services. based on the list of facilities and services listed in ICAO Regional Air Navigation Plan. European Region (Doc 7754) as last amended. and a description of the methodology used for allocating those costs between different charging zones;

The methodology used for allocating costs is described in annex M of the FABEC performance plan.

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights. when exemptions are granted for VFR flights in accordance with Article 31(3). 31(4) and 31(5);

N/A

c) Criteria used to allocate costs between terminal and en route services. in accordance with Article 22(5);

The criteria used to allocate costs between terminal and en route services are described in annex M of the FABEC performance plan.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting. surface and upper-air observation networks. meteorological communication systems. data processing centres and supporting core research. training and administration;

skeyes operates its own meteorological services. These services are for aviation purposes only and do not serve meteorological requirements in general.

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

Meteorological costs of skeyes are fully allocated to civil aviation. The methodology used to allocate costs between terminal and en route services are described in annex M of the FABEC performance plan.

f) For each entity. description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1). including a description of the main factors explaining the planned variations over the reference period;

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

Determined costs by nature and by service

Entity: skeyes	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>Payroll costs consists of wages and their associated legal social charges. the cost of pension schemes and training costs.</p> <p>Payroll costs of skeyes increase for the following major reasons:</p> <ol style="list-style-type: none"> The investment in the recruitment and training of new ATCOs to address the wave of pre-retirement and to prepare for traffic recovery; the growing number of pre-retired ATCO and the associated charge over the RP3; The recruitments to hire the necessary technical and project resources for the roll out of the investment plan (cfr evolution of NBV of fixed assets) bound to compulsory replacement and regulations; inflation and indexation on wages.
of which. pension costs	
1.2 Other operating costs	<p>Other operating costs includes all company expenses which are neither included in payroll cost nor depreciation. The main cost types are: goods and general services provided by third parties. such as utilities. general supplies. rent. maintenance contracts. legal advices. external studies and consulting....</p> <p>Projects costs (Subject Matter Experts. external project management) and maintenance associated with new investments stand for the major reasons of the increase.</p>
1.3 Depreciation	<p>The fixed assets base is expected to increase significantly (67% increase in NBV over RP3) due to important CAPEX projects most of which are either for replacement and continuity (e.g. Surveillance Radars. Radio communication....) or for investing in a sustainable capacity (NextGen ATM). See details in the respective annex.</p>
1.4 Cost of capital	<p>The cost of capital is calculated by applying a Weighted Average Cost of Capital on the year average net book value of fixed assets and the year average net current assets (excl. any interest bearing or cash account).</p> <p>The allocation of the company fixed assets to the respective activity is based on their share of depreciation ensuing from the (externally audited) cost model ; the current assets and liabilities are allocated directly whenever possible (e.g. receivables or payables) or depending upon closest identifiable share of revenue for each activity. The correction mechanism has been exceptionally removed from the asset base in the calculation of the cost of capital due to covid circumstances (by decision of the Belgian Supervisory Authority after the stakeholders' consultation meeting).</p> <p>The WACC has been established with the capital asset pricing methodology. The cost of equity has been calculated based on the inputs (risk free rate, beta, market premium) received by Belgian Supervisory Authority after the stakeholders' consultation meeting. The cost of debt is based on the weighted average interest of the various loans.</p>
1.5 Exceptional items	N/A
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	<p>As a general rule. cost and investments are allocated to the specific Service directly as far as possible; the remaining companywide charges and investments that cannot be traced directly to a specific service are spread proportionally over all services.</p> <p>The main factor for the ATM costs increase is coming from the payroll: rising number of pre-retired ATCOs. recruitment and training efforts for their replacers and specific project management cost for ATM projects (NextGen ATM) . Also, wage evolution (inflation and indexation) for this core staff category are important causes for the underlying increase of the baseline.</p> <p>Although significant projects are present. the increase in the depreciation charged stays relatively confined and secondary to the payroll impact since most of the ATM projects take several years to realize and are will be rolled out after the RP3 period. Nevertheless. the cost of capital on those amounts increases along the period concurrently with the cash-out invested in the respective initiatives.</p>
2.2 Communication	<p>The improvement of the redundancy and resilience of the air-ground radio communication infrastructure . the replacement and the upgrade of the radio communication system and</p>

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

	the SWIM Gateway will generate additional depreciation charges. the roll-out starts pretty soon in the RP3 period ; technical staff will have to be hired for these projects.
2.3 Navigation	Renewal and rationalisation of the DVOR/DME network. Replacement of the Radio Direction Finder system and ILS systems used for approach operations.
2.4 Surveillance	The roll-out of new cooperative & non-cooperative radar surveillance systems together with the project staffing generate increasing costs over the period. As a matter of fact. technical staff is hired at the start of the period.
2.5 Search and rescue	N/A
2.6 Aeronautical Information	In line with historical trend ; No major change.
2.7 Meteorological services	Considering inflation. the cost of this service will slightly reduce over RP3
2.8 Supervision costs	Nihil for skeyes / in line with history
2.9 Other State costs	Nihil for skeyes / in line with history
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: skeyes. En route
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
Cf. §3.4.3 perf plan

g) For each entity. a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4). and. where current cost accounting is used. provision of comparable historical cost data;

Depreciation costs are based on historic cost data.

h) For each entity. description and underlying assumptions of each item of complementary information (point 3 of Table 1). including a description of the main factors explaining the variations over the reference period;

<skeyes>								
Costs of new and existing investments (see also performance plan item 2)								
3.10 Depreciation	Covered in item f) above							
3.11 Cost of capital	The cost of capital is calculated on the average book value NBV of the Total Fixed Assets base after investments and depreciation; there is no separate calculation/ageing for new investments.							
	Cost of Capital (000 EUR)		A2019	2020	2021	2022	2023	2024
	En route	P1	3.379	1.614	1.180	1.380	2.746	3.622
3.12 Cost of leasing	Nihil.							

Eurocontrol costs								
3.13 Eurocontrol costs (Euro)								
	Eurocontrol Costs (000 EUR)		A2019	2020	2021	2022	2023	2024
	En route	P1	12.365	16.493	20.396	12.741	12.807	12.841

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

3.14 Exchange rate (if applicable)	N/A
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i) For each entity. description of the assumptions used to compute the cost of capital (point 1.4 of Table 1). including the composition of the asset base. the return on equity. the average interest on debts and the shares of financing of the asset base through debt and equity;

<skeys> En route								
Average asset base								
3.1 NBV fixed assets	Average Net Book value of Fixed Assets (000 EUR)		A2019	2020	2021	2022	2023	2024
	En route	P1	73.451	75.149	77.122	92.732	110.889	125.777
	The closing NBV of Fixed assets is derived by allocating the company total NBV of assets to the respective charging zone on the base of the depreciation charge calculated by the costing model for each year. The methods and allocation rules used in the costing model have been assessed and validated by an external and independent auditor. The closing net book value are, quite traditionally, established by adding the investments and deducting the yearly depreciation charge from the opening balance. There are no write-off or removal of valued assets planned. For new investments, the depreciation charge starts as of the date of entry into operations (assets under constructions are not depreciated until they are released into production). The Average Net Book Value of Fixed Asset retained is the arithmetic mean between the year opening and the year closing balances established as described above.							
3.2 Adjustments total assets	None							

3.3 Net current assets	Closing positions are estimated first: the net current assets are calculated by deducting the current liabilities from the current assets and after excluding any interest bearing or cash account. As a covid measure, the correction mechanism is not included in the asset base. The evolution and the split of the various accounts within the net current assets receivables is based on the underlying revenue for the respective activity whenever or to the finest level possible (there is well delimited segmentation for the most material accounts) or with the global turnover in case no other better estimate is available.						
	The short-term receivable components are evolving in the same proportion as the revenue of the underlying activity and the estimated billing. Depending upon their nature. the short-term payables components are based on (i) the evolution of personnel. (ii) the evolution of cost and (iii) the evolution of CAPEX. Once all year closing positions have been estimated. year average between entry and closing points are retained for the calculation of cost of capital.						
	Average Net Current Assets (000 EUR)	A2019	2020	2021	2022	2023	2024
En route P1	11.894	2,811	-6,994	-12,584	-14,362	-12,153	

Cost of capital %
Based on BSA inputs (risk free rate, beta, market premium) for the Weighted Average Cost of Capital (WACC): The WACC rate evolves

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WACC rate		A2019	2020	2021	2022	2023	2024
En route	P1	4.43%	2.071%	1.682%	1.722%	2.845%	3.188%

The WACC is calculated according to the following formula:

$$WACC = C_e * (Equity / (Equity + Debt)) + C_d * (Debt / (Equity + Debt))$$

3.6 Return on equity	Return on equity		A2019	2020	2021	2022	2023	2024
	En route	P1	4.84%	2.20%	2.30%	2.50%	3.80%	3.80%
	The risk free rate is based upon the latest forecasts of the Belgian Federal Planning Bureau on the 10-year long-term interest rate. The Market risk premium was set at 4.40% based upon inputs of skeyes and stakeholders. The asset beta was set at 0.5 based upon inputs from skeyes and stakeholders and a comparison of similar companies within Belgium.							
			A2019	2020	2021	2022	2023	2024
	Risk free rate		3.70%	0%	0.10%	0.30%	1.60%	1.60%
	Market risk premium		2.57%	4.40%	4.40%	4.40%	4.40%	4.40%
	Asset beta		0.3	0.5	0.5	0.5	0.5	0.5

3.7 Average interest on debts	The company has received a financing facility from Eurocontrol in the Autumn 2020 and the Belgian Federal State in 2020 and 2021. The weighted average interest rate is diluted over time as the loan with the highest interest rate (Eurocontrol) is being reimbursed or diluted by the ones received from the Federal State ; the Eurocontrol loan must be completely reimbursed by March 2022.							
	Interest on debt		A2019	2020	2021	2022	2023	2024
	En route	P1	0.00%	0.99%	0.11%	0.05%	0.07%	0.13%

3.8 Share of financing through equity	Equity %		A2019	2020	2021	2022	2023	2024
	En route	P1	100%	89.31%	71.75%	68.27%	74.40%	83.31%
	Until 2019, the company was totally financed through equity ; the different loan facilities received to bridge the pandemics dilute the share of equity until 2022 when the peak indebtedness is reached and the situation then gradually recovers.							

j) Description of the determined costs of common projects (point 3.9 of Table 1).

The deployment of ATM functionalities as required by Commission implementing regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan are foreseen by skeyes in larger investment projects (e.g. Single Date Service Solution). The specific determined costs of common projects could not be estimated.

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2. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

2020-2021

General comment:

- 2020: there are no differences between the actual and the determined costs as the plan submitted end 2021 included 2020 Actual figures
- 2021-2022: Belgium-Lux re submitted its RP3 performance plan. In this update, 2021-2022 numbers are the planned numbers. The difference between actuals 2021-2022 and plan 2021-2022 is reported as an exceptional item in 2024.

RP3 Monitoring – Year 2020-2021	
ANSP: skeyes	
1.1 Staff costs	Actual En route staff costs represent 99% of the budget foreseen for 2020/2021.
1.2 Other operating costs	The other operating costs are 13% under the budget
1.3 Depreciation	The depreciation costs remain slightly below the budget: 99% of planned costs have materialized.
1.4 Cost of capital	The cost of capital is slightly lower than foreseen in the budget, mainly due to a lower fixed asset base.
1.5 Exceptional items	n/a

RP3 Monitoring – Year 2020-2021	
STATE/NSA: BSA-ANS	
The budget of BSA-ANS is fixed (but annually indexed) and determined by two Royal Decrees of 23 May 2006 and 24 March 2009. The amount is allocated to the respective en route and terminal cost bases based upon the notification of changes in the past related to each cost base.	
1.1 Staff costs	
1.2 Other operating costs	
1.3 Depreciation	
1.4 Cost of capital	
1.5 Exceptional items	

2022

RP3 Monitoring – Year 2022	
ANSP: skeyes	
1.1 Staff costs	Actual En route staff costs are 2% higher than foreseen for 2022 in the submitted performance plan (2022). Actual inflation for 2022 was 10,3% in comparison to 7,8% planned. As there is a system of automatic (mandatory) indexation of the salaries in Belgium, the inflation has an immediate impact on the staff cost level. Skeyes had in 2022 a one-off cost of 2M€ to cover the (discounted) costs for future hospitalisation insurance costs of retired and current staff after retirement.
1.2 Other operating costs	The other operating costs are 11.7% under the budget. The delay of certain projects has negatively impacted the involvement of external support, license costs, ...
1.3 Depreciation	The depreciation costs are in line with the budget.
1.4 Cost of capital	The cost of capital is lower than foreseen in the budget, mainly due to a lower fixed asset base.

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1.5 Exceptional items	n/a
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RP3 Monitoring – Year 2022	
STATE/NSA: BSA-ANS	
The budget of BSA-ANS is fixed (but annually indexed) and determined by two Royal Decrees of 23 May 2006 and 24 March 2009. The amount is allocated to the respective en route and terminal cost bases based upon the notification of changes in the past related to each cost base.	
1.1 Staff costs	
1.2 Other operating costs	
1.3 Depreciation	
1.4 Cost of capital	
1.5 Exceptional items	

b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan. for each year of the reference period;

Total number of service units Belgium-Lux	2020	2021	Total 2021/2022	2022
Forecast performance plan	1.080.873	1.161.104	3.268.633	2.107.529
Actuals (CRCO data)	1.080.873	1.166.899	3.263.075	2.096.176
Difference (in Total services units)	0	5.795	-5.558	-11.353
Difference (in %)	0	0,5%	-0,17%	-0,54%

2020-2021

- No difference for 2020
- 2021: Actual service units were 0.5% higher than foreseen in Statfor baseline scenario

2022

Actual service units were 0.5% lower than planned in the Performance plan / Statfor June 2022 baseline scenario.

c) Breakdown of the actual costs of common projects per individual project;

Project reference (as per Grant Agreement)	Project title	COSTS (OPEX+CAPEX) - ACTUALS								
		2014	2015	2016	2017	2018	2019	2020	2021	2022
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	20	141	23	21	1	2	150	0	0
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	147	45	47	4	0	0	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	3	8	53	97	0	0	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call			5	1	64	156	3	0	0
2017-EU-TM-0076-M 2017_062_AF	Traffic Complexity Assessment and Simulations Tool - TCAST					81	281	179	260	258
2017-EU-TM-0076-M 2017_084_AF	SWIM Common PKI and policies & procedures for establishing a Trust framework					5	7	3	7	3
TOTAL		170	193	128	122	151	445	335	267	261

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d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers. as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

2020-2021

Actual depreciation for 2020/2021 amounts to 99% of planned depreciations; a total difference of 272 k€ for En route, limited deviations per project.

2022

- The actual depreciations are in line with the planned depreciations (deviation of 31k€ or 0,4%).
- The cost of capital on fixed assets is 323 k€ lower than planned, mainly due to a lower asset base. Main projects that have impacted the asset base:
 - Remote Radio Sites :
New date for “entry into operation”: end 2023
Reason : delay caused by the impact of Covid & Ukraïne War on the availability and prices of materials (e.g. steel)
 - VCS Ultimate:
New date “entry into operation”: Q4 2025
Reason: delay with the tender execution
 - VRPS
New date “entry into operation”: Q3 2024
Reason: delay with the tender execution
 - Program ATM NextGen
New date “entry into operation” MLU 2 : Q2 and Q3 2024
Reason for variance: payment plan adjusted at contract signature
 - IT Infra / network services and datacenter
New date “entry into operation”: not available
Reason: delay with the tender procedure
 - WAN
New date “entry into operation”: Q4 2023
Reason for the delay: technical problems at supplier side

e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan. and approved by the national supervisory authority in accordance with Article 28(4).

2020-2022: not applicable

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ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones. in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

Not applicable:

Belgium and Luxembourg agreed to create one FIR (= charging zone) composed of Belgian airspace and Luxembourg airspace.

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

2020-2021

Exemptions are in full compliance with the EU charging regulation. Mandatory and voluntary exemptions are listed in the management contract between skeyes and the Belgian government.

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2020
Costs for exempted VFR flights	Not included in the cost base
Costs for exempted IFR flights (in '000 EUR)	2.612
Total costs for exempted flights (in '000 EUR)	2.612 (exempted IFR flights)

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2021.

	2021
Costs for exempted VFR flights	Not included in the cost base
Costs for exempted IFR flights	2.564
Total costs for exempted flights	2.564 (exempted IFR flights)

Description of the financing means covering the costs incurred for services provided to exempted flights in 2020-2021:

The financing means covering the costs incurred for services provided to exempted flights are described in the management contract between skeyes and the Federal State.

2022

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2022.

	2022
Costs for exempted VFR flights	Not included in the cost base
Costs for exempted IFR flights	1.788 k€
Total costs for exempted flights	1.788 k€ for exempted IFR flights

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Description of the financing means covering the costs incurred for services provided to exempted flights in 2022.

The financing means covering the costs incurred for services provided to exempted flights are described in the management contract between skeyes and the Federal State.

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

2020-2021

Actual traffic was in 2020-2021 0,3 % higher than foreseen in the performance plan, no traffic risk sharing applies for costs subject to traffic risk sharing.

The carry-over from traffic effects on costs not subject to traffic risk sharing amounts to 35 K€ to be reimbursed to the users in 2024 (instead of 2023) since the revised RP3 plan is not yet approved.

2022

Actual traffic was in 2022 0,5 % lower than foreseen in the performance plan, no traffic risk sharing applies for costs subject to traffic risk sharing.

The carry-over from traffic effects on costs not subject to traffic risk sharing amounts to 38 K€ to be recovered from the users in 2024.

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

(a) unforeseen changes in costs of new and existing investments: see item d) page 7

(b) unforeseen changes in costs referred to in the third subparagraph of Article 22(1): not relevant for "Table 2 skeyes", reported in "Table 2 NSA".

(c) (d) (e) There are no unforeseen and significant changes in pension costs, changes in interest rates on loans nor in national taxation law or other unforeseeable new cost items not covered in the performance plan but required by law.

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

For skeyes, actual costs of new and existing investments were €292k lower than planned. This amount will be returned to users in line with Article 28(4)(a).

Actual NSA costs were 27k€ lower than planned. This amount will be returned to users in line with Article 28(3) b and 28(5).

Differences in planned and actual costs for Eurocontrol Agency were -€ 191k, and this amount will be charged to users.

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f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);

Skeyes: not applicable

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

2020-2021

The actual application and relating financial advantages and disadvantages for 2020-2021 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3)).

2022

Not applicable

Modulation of charges

Belgium does not modulate en route charges.

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted. Preliminary figures - to be update after adoption of the RP3 performance plan.

i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;

N/A

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

N/A

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

SKEYES

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2018 adjustment mechanism – carried over to 2020 (1.530 k€):

1. **Inflation adjustment** (+2.049 K EUR): 2018 actual (cumulative) inflation index (118.2) was higher than the 2018 (cumulative) inflation index (116.0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 2.049 K EUR that was included in the unit rate of 2020.
2. **Financial incentive** (-538 K EUR): In 2018, the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxembourg of which 538 K EUR at charge of skeyes. This amount was included in the unit rate of 2020.
3. **Traffic adjustment** (+19 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2018 the actual total number of service units was slightly below (-0.2%) the forecast used in the Performance Plan. The under-recovery of +19 K EUR was included in the unit rate of 2020.

2019 adjustment mechanism – carried over to 2021 (2.859 k€):

1. **Inflation adjustment** (+1.870 K EUR): 2019 actual (cumulative) inflation index (119.6) was higher than the 2019 (cumulative) inflation index (117.6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 1.870 K EUR that is included in the unit rate of 2021.
2. **Financial incentive** (-528 K EUR): In 2019, the incentive scheme with regard to capacity resulted in a penalty amounting to 528 K EUR for Belgium-Luxembourg of which 528 K EUR at charge of skeyes. This amount is included in the unit rate of 2021.
3. **Traffic adjustment** (+321 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2019 the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +321 K EUR is included in the unit rate of 2021.
4. **Traffic risk sharing** (+1.196 K EUR): This adjustment relates to the costs subject to traffic risk sharing. In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +1.196 K EUR is included in the unit rate of 2021.

2020 adjustment mechanism – carried over to 2022:

1. **Traffic adjustment on adjustments from previous RPs** (+930 K EUR) (Art. 27(8) and 27(9)): In 2020 the actual total number of service units was lower (-60.8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 1.530 K EUR has been partially charged to the users. The balance (+930 K EUR) will be charged in 2022.

2021 adjustment mechanism – carried over to 2023:

1. **Traffic adjustment on adjustments from previous RPs** (+1.672 K EUR) (Art. 27(8) and 27(9)): In 2021 the actual total number of service units was lower (-58.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021”. Therefore the “2019 adjustment mechanism-carried over to 2021” under-recovery (cf. supra) of 2.859 K EUR has been partially charged to the users. The balance (+1.672 K EUR) will be charged in 2023.
1. **Traffic adjustment on adjustments from previous RPs 2020 - 2021** (-35 K EUR). This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In

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2020-2021 the actual total number of service units was above (+0.3%) the forecast used in the Performance Plan. The over-recovery of -35 K EUR originally included in the unit rate of 2023, is provisionally moved to 2024 (awaiting approval of PP).

2. **Traffic adjustment on adjustments from previous RPs 2022 (-19 K EUR).** *This adjustment relates to the costs subject to traffic risk sharing. In 2020-2021 the actual total number of service units was above (+0.3%) the forecast used in the Performance Plan. The over-recovery of -19 K EUR was originally included in the unit rate of 2023, is provisionally moved to 2024 (awaiting approval of PP).*

2024 adjustment mechanism:

Provisional figures under assumption that recovery starts in 2024 → to be confirmed after approval of performance plan.

Table 2 B - Calculation of the unit rate for year n (1)		2024
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	3.099,74
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 10,05
13.8	Other revenues (Art. 25(2)(i))	-
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	17.575,22

13.2. Inflation adjustment carried over from 2022

Inflation adjustment calculation		2022
2.1	Determined costs subject to inflation adjustment	133.661,0
2.2	Forecast inflation index - Table 1	115,6
2.3	Actual inflation index - Table 1	118,3
2.4	Actual / forecast total inflation index (in %)	2,3%
2.5	Inflation adjustment relating to year n (Art. 26)	3.099,7

13.7. Traffic adjustment

Traffic adjustments		
Traffic adjustment on adjustments from previous RPs 2022		-13
5.1	For determined costs not subject to traffic risk-sharing (Art. 27(8)) 2020/2021	-34,9
5.1	For determined costs not subject to traffic risk-sharing (Art. 27(8))2022	38.4
Total		-10.05

13.10. Revenue difference from temporary application of UR

The total amount from 2020-2023 will be spread on 7 years.

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2020-2021	Revenue difference - revision of UR 2020-2021	129.768				0	18.538
2022	Revenue difference - revision of UR 2022	-9.033				0	-1.290
2023	Revenue difference - revision of UR 2023	2.291					327
2024	Revenue difference - revision of UR 2024	0					
Total	Total revenue differences from temporary application of UR (Art. 29(5))	123.027	0	0	0	0	17.575

MUAC BELGIUM

2018 adjustment mechanism – carried over to 2020 :

1. **Inflation adjustment** (+940 K EUR): 2018 actual (cumulative) inflation index (118.2) was higher than the 2018 (cumulative) inflation index (116.0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 940 K EUR that was included in the unit rate of 2020.
2. **Financial incentive** (-261 K EUR): In 2018, the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxemburg of which 261 K EUR linked to MUAC performance (Belgium). This amount is at charge of skeyes as skeyes bears the financial risk linked to MUAC BE cost base. This amount was included in the unit rate of 2020.
3. **Traffic adjustment** (+1 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2018, the actual total number of service units was slightly below (-0.2%) the forecast used in the Performance Plan. The under-recovery of +1 K EUR was included in the unit rate of 2020 .

2019 adjustment mechanism – carried over to 2021 :

1. **Inflation adjustment** (+873 K EUR): 2019 actual (cumulative) inflation index (119.6) was higher than the 2019 (cumulative) inflation index (117.6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 873 K EUR that is included in the unit rate of 2021.
2. **Traffic adjustment** (+8 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +8 K EUR is included in the unit rate of 2021.
3. **Traffic risk sharing** (+604 K EUR): This adjustment relates to the costs subject to traffic risk sharing. In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +604 K EUR is included in the unit rate of 2021.
4. **Cost exempt:** Unforeseen changes in costs or revenues stemming from international agreements (+12.294 K EUR) - 2016+2017+2018+2019 adjustment mechanism – carried over to 2021
 1. **Support & pension cost MUAC** (+11.854 K EUR): uncontrollable costs based on the MCA-TF agreement of 12 November 2015 approved by the EUROCONTROL PC (on 8 December 2015) with regard to the support- and the pension-costs related to MUAC services. This amount is included in the unit rate of 2021.

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2. **Sharing keys MUAC (+440 K EUR):** In April 2014, the Budgetary and Financial Working Group agreed to use a fixed cost sharing key over RP2 as long as the cost-sharing key is not showing a deviation of more than 1 percent positive or negative, in which case the cost-sharing key might be adapted. In the determined costs of Belgium-Lux, the following sharing keys were used to forecast the MUAC cost base: sharing keys BE 31.3208% and LUX 0.9687%. As the deviation was more than 1 percent point from the agreed RP2 cost sharing keys, the 2019 keys have been adapted: the actual sharing keys were 31.5912% for Belgium and 0.9770% for Luxembourg. This amount is included in the unit rate of 2021.

2020 adjustment mechanism – carried over to 2022:

1. **Traffic adjustment on adjustments from previous RPs (+412 K EUR) (Art. 27(8) and 27(9)):** In 2020 the actual total number of service units was lower (-60.8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore, the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 678 K EUR has been partially charged to the users. The balance (+412 K EUR) will be charged in 2022.

2021 adjustment mechanism – carried over to 2023:

Traffic adjustment on adjustments from previous RPs (+ 8.060 K EUR) (Art. 27(8) and 27(9)): In 2021 the actual total number of service units was lower (-58.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021”. Therefore the “2019 adjustment mechanism-carried over to 2021” under-recovery (cf. supra) of 13.779 K EUR has been partially charged to the users. The balance (+8.060K EUR) will be charged in 2023.

2024 adjustment mechanism:

Traffic adjustment on adjustments from previous RPs 2022 : -6 K EUR.

NSA + EUROCONTROL AGENCY

2018 adjustment mechanism – carried over to 2020:

1. **Inflation adjustment (+278 K EUR):** 2018 actual (cumulative) inflation index (118.2) was higher than the 2018 (cumulative) inflation index (116.0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 278 K EUR that was included in the unit rate 2020.
2. **Traffic adjustment (+36 K EUR):** this adjustment relates to the costs not subject to traffic risk sharing (i.e. costs stemming from international agreements and costs incurred by the relevant national authorities). In 2018, the actual total number of service units was slightly below (-0.2%) the forecast used in the Performance Plan. The under-recovery of +36 K EUR was included in the unit rate of 2020.

2019 adjustment mechanism – carried over to 2021:

1. **Inflation adjustment (+260 K EUR):** 2019 actual (cumulative) inflation index (119.6) was higher than the 2019 (cumulative) inflation index (116.6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 260 K EUR that is included in the unit rate of 2021.
2. **Traffic adjustment (+562 K EUR):** this adjustment relates to the costs not subject to traffic risk sharing (i.e. costs stemming from international agreements and costs incurred

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by the relevant national authorities). In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +562 K EUR is included in the unit rate of 2021.

3. **Cost exempt:** Unforeseen changes in costs or revenues stemming from international agreements:

- a. 2015+2016+2017+2018+2019 adjustment mechanism – carried over to 2021:
Cost exempt (-4.754 K EUR): the sharing keys from PC 22/5/16 were used to forecast the Agency cost base in the determined costs of Belgium-Lux: i.e. sharing keys BE 2.2830% and LUX 0.0992%. The difference between the determined costs and the actual costs (due to the difference with the actual sharing keys) is considered as a negative cost item exempt from the cost-risk sharing mechanism and is included in the unit rate of 2021.

2020 adjustment mechanism – carried over to 2022:

Traffic adjustment on adjustments from previous RPs (+191 K EUR) (Art. 27(8) and 27(9)): In 2020 the actual total number of service units was lower (-60.8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 313 K EUR has been partially charged to the users. The balance (+191 K EUR) will be charged in 2022.

2022 adjustment mechanism – carried over to 2024:

Traffic adjustment on adjustments from previous RPs (-3 K EUR) (Art. 27(8) and 27(9)): In 2022 the PP total number of service units was lower (+0.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2022”. Therefore the “2020 adjustment mechanism-carried over to 2022” under-recovery (cf. supra) of 191 K EUR has been overcharged to the users. The correction (-3 K EUR) will be included in 2024.

2021 adjustment mechanism – carried over to 2023:

Traffic adjustment on adjustments from previous RPs (-2.300 K EUR) (Art. 27(8) and 27(9)): In 2021 the actual total number of service units was lower (-58.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021”. Therefore the “2019 adjustment mechanism-carried over to 2021” under-recovery (cf. supra) of -3.932 K EUR has been partially reimbursed to the users. The balance (- 2.300 K EUR) will be reimbursed in 2023.

**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.

Cfr. Section “2. Actual costs and unit costs . c)” for actuals costs of common projects.

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

Project reference (as per Grant Agreement)	Project title	COSTS (OPEX+CAPEX) - ACTUALS								
		2014	2015	2016	2017	2018	2019	2020	2021	2022
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	20	141	23	21	1	2	150	0	0
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	147	45	47	4	0	0	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	3	8	53	97	0	0	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call			5	1	64	156	3	0	0
2017-EU-TM-0076-M 2017_062_AF	Traffic Complexity Assessment and Simulations Tool - TCAST					81	281	179	260	258
2017-EU-TM-0076-M 2017_084_AF	SWIM Common PKI and policies & procedures for establishing a Trust framework					5	7	3	7	3
TOTAL		170	193	128	122	151	445	335	267	261

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

MUAC

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

1. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services. based on the list of facilities and services listed in ICAO Regional Air Navigation Plan. European Region (Doc 7754) as last amended. and a description of the methodology used for allocating those costs between different charging zones;

MUAC exclusively provides ATM services. and all relevant costs are allocated to the en route charging zones of the four MUAC States. A proportion of MUAC costs based on sharing keys agreed by the four MUAC States is allocated to the en route charging zone of the Belgium-Luxembourg.

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights. when exemptions are granted for VFR flights in accordance with Article 31(3). 31(4) and 31(5);

<...>

c) Criteria used to allocate costs between terminal and en route services. in accordance with Article 22(5);

MUAC only provides en route services. and costs are 100% allocated to the en route charging zone.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting. surface and upper-air observation networks. meteorological communication systems. data processing centres and supporting core research. training and administration;

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

f) For each entity. description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1). including a description of the main factors explaining the planned variations over the reference period;

Determined costs by nature and by service

Entity: MUAC

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

1. Detail by nature (in nominal terms)	
1.1 Staff costs	Remuneration of staff: as from 2020. the increase is mainly due to indexation of remuneration (in accordance with the EUROSTAT methodology applied in the European institutions). the progressive impact linked to taxation on pension (which was not included during RP2) . the additional ab initio intake and the salary package (called General Condition of Employment package) negotiated with ATCO in 2018 aiming at providing increased capacity through increased ATCO working time.
of which. pension costs	Following an agreement within the EUROCONTROL member states. the taxation on pension is progressively charged to the MUAC cost base (from 60% in 2020 to 100% in 2022)
1.2 Other operating costs	Stable over RP3
1.3 Depreciation	Decrease in 2021 due to end of depreciation of FDPS in 2020
1.4 Cost of capital	Stable over RP3
1.5 Exceptional items	none
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	All MUAC costs are ATM related.
2.2 Communication	
2.3 Navigation	
2.4 Surveillance	
2.5 Search and rescue	
2.6 Aeronautical Information	
2.7 Meteorological services	
2.8 Supervision costs	
2.9 Other State costs	
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: MUAC
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
<p>Pension costs are made of 2 elements:</p> <ul style="list-style-type: none"> - the employer contribution fixed as a proportion of the basic salary (currently fixed at 17.5% of basic salary). According to the latest actuarial studies. this contribution rate is expected to increase up to 20% during RP3. Due to the COVID crisis. this increase might be delayed to RP4. - the taxation on pension is progressively charged to MUAC cost base (see explanation above) : this taxation element is charged on a Pay as You Go basis to the former MUAC employee. Main assumptions taken are mortality tables. foreseen date of pension and tax pressure in the states where MUAC pensioners reside

g) For each entity. a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4). and. where current cost accounting is used. provision of comparable historical cost data;

MUAC set depreciation costs on the basis of historical costs.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

h) For each entity. description and underlying assumptions of each item of complementary information (point 3 of Table 1). including a description of the main factors explaining the variations over the reference period;

MUAC	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	Interest from bank loans at floating rates (EURIBOR 3 to 12 months + margin). The main factor explaining the variation is the evolution of EURIBOR which is expected to remain very low in the short term.
3.12 Cost of leasing	N/A

i) For each entity. description of the assumptions used to compute the cost of capital (point 1.4 of Table 1). including the composition of the asset base. the return on equity. the average interest on debts and the shares of financing of the asset base through debt and equity;

MUAC	
Average asset base	
3.1 NBV fixed assets	The NBV of assets has significantly decreased during RP2 due to the low investments made during that period. The NBV is expected to remain stable during the first years of RP3 and will slightly increase at the end of RP3 if large investment projects materialize (e.g. Phoenix project).
3.2 Adjustments total assets	
3.3 Net current assets	
Cost of capital %	
3.6 Return on equity	No equity
3.7 Average interest on debts	EURIBOR + margin of approx. 0.5 to 1%
3.8 Share of financing through equity	Full financing through bank loans (no equity)

j) Description of the determined costs of common projects (point 3.9 of Table 1).

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

2. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

2020-2021

General comment:

- 2020: there are no differences between the actual and the determined costs as the plan submitted end 2021 included 2020 Actual figures
- 2021-2022: Belgium-Lux re submitted its RP3 performance plan. In this update, 2021-2022 numbers are the planned numbers. The difference between actuals 2021-2022 and plan 2021-2022 is reported as an exceptional item in 2024.

RP3 Monitoring – Year 2020-2021	
<p>ANSP: MUAC</p> <p>As a preliminary note, it should be noted that part of the variations from one year to another is explained by the sharing keys used to distribute MUAC costs between the 4 Member States. For RP3, the states have decided to adjust these sharing keys annually, which could lead to significant variations.</p> <p>For info, the following sharing keys were used for Belgium and Luxembourg:</p> <p>In 2019: 31.5912% (BE) and 0.9770 % (LU) In 2020: 32.8462% (BE) and 1.0159% (LU) In 2021 : 32.9525% (BE) and 1.0192% (LU)</p> <p>While the sharing key for Belgium and Luxembourg increased significantly between 2019 and 2020 (+4%), it increased very slightly (+ 0.32%) between 2020 and 2021. Therefore, variations in costs between 2020 and 2021 for Belgium are mainly explained by actual variations in the whole MUAC cost base and not by variation in the sharing keys from one year to the other.</p> <p>The costs by category of expenditure shown below are total amounts for the whole of MUAC, not broken down into amounts for the individual states.</p>	
1.1 Staff costs	<p><u>Actual 2021 compared to revised RP3 (determined) plan 2021</u></p> <p>Actual Staff costs (159,855 K€) were higher than in the revised RP3 plan (156,779K€) – 102% outturn. The main reasons for the difference are:</p> <ul style="list-style-type: none"> • The inclusion of contributions to the Pension Fund (PBO sub account) which were not initially foreseen in the revised RP3 Plan • the non indexation of remuneration as at 01/07/2021 while a 2.5% increase had been foreseen (this element is not fully counterbalancing the pension contributions to the Pension Fund). <p><u>Actual 2021 compared to Actual 2020</u></p> <p>Actual 2021 (159,855 K€) are slightly higher than actual 2020 (157,248 K€) due to the contribution to the Pension Fund (PBO sub account) not fully counterbalanced by the no</p>

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

	indexation of remuneration as at 01/07/2021 and the reversal of a provision initially made in 2020 for a possible retroactive indexation of remuneration which finally did not occur.																																												
1.2 Other operating costs	<p><u>Actual 2021 compared to revised RP3 (determined) plan 2021</u></p> <p>The actual other operating costs (22,185 K€) is lower than the determined costs (24,950 K€) thanks to cost containment measures taken to respond to the COVID crisis, such as reduced ab initio trainings, freeze on recruitment, cancellation of nearly all travel costs, reduced external assistance</p> <p><u>Actual 2021 compared to Actual 2020</u></p> <p>The 2021 actual operating costs is lower than the 2020 actual costs mainly due to additional savings on training, travel cost, external assistance and communications</p> <table><tr><th></th><th>2020</th><th>2021</th><th>GAT variance (in €)</th></tr><tr><td>Staff related : training and travel costs</td><td>3,468,826.80</td><td>3,064,304.04</td><td>-404,522.76</td></tr><tr><td>External assistance</td><td>6,738,295.24</td><td>6,169,302.18</td><td>-568,993.06</td></tr><tr><td>Accommodation</td><td>3,911,138.03</td><td>4,202,850.19</td><td>291,712.16</td></tr><tr><td>Communications</td><td>1,738,448.04</td><td>1,327,888.83</td><td>-410,559.21</td></tr><tr><td>Data processing</td><td>6,424,504.00</td><td>6,667,448.05</td><td>242,944.05</td></tr><tr><td>General administration</td><td>333,587.26</td><td>387,120.70</td><td>53,533.44</td></tr><tr><td>Finance & Insurance</td><td>344,962.30</td><td>371,388.04</td><td>26,425.74</td></tr><tr><td>Unrecoverable VAT</td><td>5,175.71</td><td>8,249.37</td><td>3,073.66</td></tr><tr><td>Miscellaneous revenue</td><td>-32,356.12</td><td>-13,022.17</td><td>19,333.95</td></tr><tr><td>OPERATING COSTS</td><td>22,932,581.26</td><td>22,185,529.23</td><td>-747,052.03</td></tr></table>		2020	2021	GAT variance (in €)	Staff related : training and travel costs	3,468,826.80	3,064,304.04	-404,522.76	External assistance	6,738,295.24	6,169,302.18	-568,993.06	Accommodation	3,911,138.03	4,202,850.19	291,712.16	Communications	1,738,448.04	1,327,888.83	-410,559.21	Data processing	6,424,504.00	6,667,448.05	242,944.05	General administration	333,587.26	387,120.70	53,533.44	Finance & Insurance	344,962.30	371,388.04	26,425.74	Unrecoverable VAT	5,175.71	8,249.37	3,073.66	Miscellaneous revenue	-32,356.12	-13,022.17	19,333.95	OPERATING COSTS	22,932,581.26	22,185,529.23	-747,052.03
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1.3 Depreciation	<p><u>Actual 2021 compared to revised RP3 (determined) plan 2021</u></p> <p>The actual depreciation (5,920 K€) is lower than the depreciation included in the revised RP3 Plan (6,165 K€) mainly due to postponement/late delivery of some investment projects</p> <p><u>Actual 2021 compared to Actual 2020</u></p> <p>The 2021 actual depreciation (5,920 K€) is much lower than the 2020 actual depreciation (9,100 K€) mainly because of the end of depreciation in 2020 of the new FDPS system.</p>																																												
1.4 Cost of capital	<p><u>Actual 2021 compared to revised RP3 (determined) plan 2021</u></p> <p>The actual cost of capital (169 K€) is lower than the cost of capital included in the revised RP3 Plan (237 K€) mainly due to postponement/late delivery of some investment projects</p> <p><u>Actual 2021 compared to Actual 2020</u></p> <p>The 2021 actual cost of capital (169 K€) is slightly higher than the 2020 actual cost of capital (144 K€) mainly due to a slight increase of interest rates on the financial markets</p>																																												
1.5 Exceptional items	n.a.																																												

RP3 Monitoring – Year 2022	
ANSP: MUAC	
<p>As a preliminary note, it should be noted that part of the variations from one year to another is explained by the sharing keys used to distribute MUAC costs between the 4 Member States. For RP3, the states have decided to adjust these sharing keys annually, leading to significant annual variations.</p> <p>For info, the following sharing keys were used for the Belgium and Luxembourg :</p> <p>In 2019: 31.5912% and 0.9770% In 2020: 32.8462% and 1.0159%</p>	

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

<p>In 2021: 32.9525% and 1.0192% In 2022: 33,0822% and 1.0232%</p> <p>Between 2021 and 2022, the sharing key for the Belgium and Luxembourg increased by 0.4 %. = (33.0822/32.9525)-1.</p>	
1.1 Staff costs	<p>Actual 2022 compared to revised RP3 (determined) plan 2022</p> <p>MUAC BE actual Staff costs (61.704 K€) were much lower than determined costs in the revised RP3 plan (67,862 K€) 91% outturn. The main reasons for the difference are:</p> <ul style="list-style-type: none"> In its revised RP3 plan prepared in May 2022, Belgium included a provision for high inflation; however the indexation of remuneration was much lower than foreseen in the revised RP3 Plan – it is expected that inflation will hit only as from 2023 lower recruitment than foreseen, in particular for the SAS3 project. <p>Actual 2022 compared to Actual 2021</p> <p>MUAC BE actual 2022 (61,704 K€) are much higher than actual 2021 (52,676 K€) due to the inclusion as from 2022 of the tax compensation on pension (6,843 K€). Without this element, the increase would have been limited to 2,185 K€ (+4.1%) which is partly explained by the increased Belgian sharing key (+0.4%) and by indexation of remuneration due to inflation.</p>
1.2 Other operating costs	<p>Actual 2022 compared to revised RP3 (determined) plan 2022</p> <p>MUAC BE actual other operating costs (8,620 K€) is much lower than the determined costs (11,762 K€) is explained by</p> <ul style="list-style-type: none"> In its revised RP3 plan prepared in May 2022, Belgium included a provision for high inflation, however the impact of inflation on external contracts was much lower than foreseen in the revised RP3 Plan – it is expected that inflation will hit external contracts only as from 2023 cost containment measures taken to respond to the COVID crisis, such as reduced ab initio trainings, much reduced external assistance and travel costs <p>Actual 2022 compared to Actual 2021</p> <p>MUAC BE 2022 actual operating costs (8,620 K€) is much higher than the 2021 actual costs (7,311 K€) mainly due to inclusion as from 2022 of HQ support cost (1,036 K€). Without this element, the increase would have been limited to 273K€ (+3.7 %), which is partly due to the increase in the Belgian sharing key (+0.4%) and indexation of external contracts due to inflation.</p>
1.3 Depreciation	<p>Actual 2022 compared to revised RP3 (determined) plan 2022</p> <p>The actual depreciation (1,842 K€) is lower than the depreciation included in the revised RP3 Plan (2,069 K€) mainly due to postponement/late delivery of some investment projects (in particular the Dual System Architecture)</p> <p>Actual 2022 compared to Actual 2021</p> <p>The 2022 actual depreciation (1,842 K€) is slightly lower than the 2021 actual depreciation (1,951 K€) because of stable investments programme</p>
1.4 Cost of capital	<p>Actual 2022 compared to revised RP3 (determined) plan 2022</p> <p>The actual cost of capital (56 K€) is lower than the cost of capital included in the revised RP3 Plan (98 K€) mainly due to postponement/late delivery of some investment projects and the continued low interest on the financial markets.</p> <p>Actual 2022 compared to Actual 2021</p> <p>The 2022 actual cost of capital (56 K€) is stable compared to the 2021 actual cost of capital (56 K€)</p>

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

1.5 Exceptional items	none
b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan. for each year of the reference period;	

see above

c) Breakdown of the actual costs of common projects per individual project;
--

2020-2022

<...>

d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers. as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

For MUAC, the actual costs of the new and existing investments is at 88% of the determined costs and is explained by the postponement of a limited number of investment projects and the remaining low interest rates observed on the financial markets.

e) Description of the investment projects added. cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan. and approved by the national supervisory authority in accordance with Article 28(4).
--

2020-2021: not applicable

2022

In MUAC, no major investment was added, cancelled or replaced. Two projects (MUAC Dual System Architecture and New Access Control System) were facing some difficulties in procurement with induced a slight delay in the procedure.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones. in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

Not applicable:

Belgium and Luxembourg agreed to create one FIR (= charging zone) composed of Belgian airspace and Luxembourg airspace.

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

2020-2021

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2020
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

Description of the financing means covering the costs incurred for services provided to exempted flights in 2020.

<...>

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2021.

	2021
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

Description of the financing means covering the costs incurred for services provided to exempted flights in 2021

<...>

2022

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2022.

	2022
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

Description of the financing means covering the costs incurred for services provided to exempted flights in 2022.

<...>

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

2020-2022

<...>

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

2020-2022

<...>

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

2020-2022

<...>

f) Description of the other revenues. if any. broken down between the different categories indicated in Article 25(3);

2020-2022

<...>

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable. and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

2020-2022

The actual application and relating financial advantages and disadvantages for 2020-2022 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3)).

Modulation of charges

No modulation of en route charges.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

2020-2022

Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted. Preliminary figures - to be update after adoption of the RP3 performance plan.

i) Description of the cross-financing between en route charging zones. or between terminal charging zones. in accordance with point (e) of Article 15(2) of Regulation 550/2004;

N/A

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

N/A

<...>

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

2022

<...>

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project. as well as of public funds obtained from public authorities for these projects.

<...>

ADDITIONAL INFORMATION ANA

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

3. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services. based on the list of facilities and services listed in ICAO Regional Air Navigation Plan. European Region (Doc 7754) as last amended. and a description of the methodology used for allocating those costs between different charging zones;

For the Belgium – Luxembourg charging zone the determined costs of the respective services are the basis for cost allocation.

ANA costs are registered by nature and by type of service (AIS. ATC. C. N. S. MET. ELE. AER. PCH. SIS) based on ANA's analytical accounting.

As in RP2 the cost allocation keys applied vary according to the type of service.

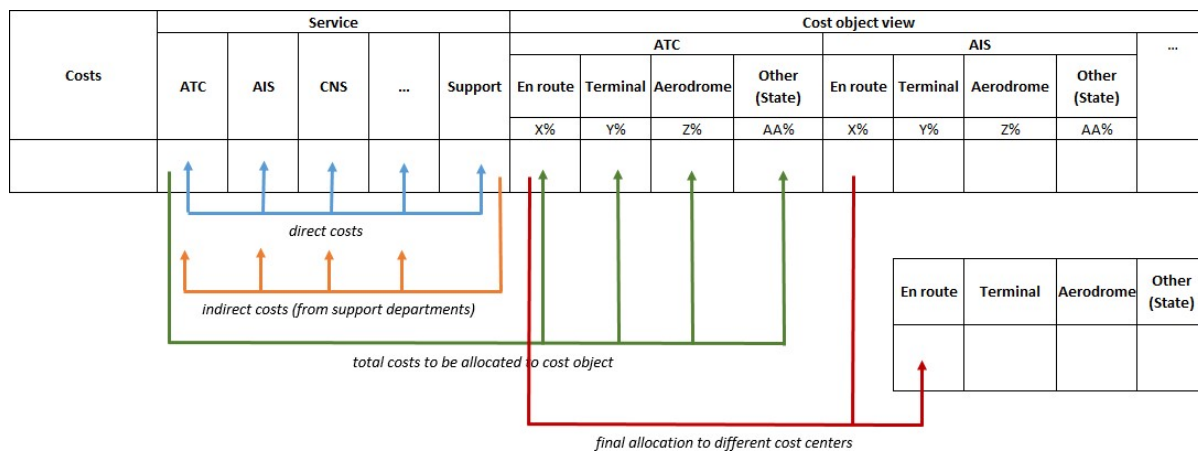
Cost allocation method

For the total cost calculation. in a first step ANA distinguishes between direct and indirect costs.

The direct costs result from the operational services ATC. AIS. NAV. COM. SUR. MET. SIS. ELE. AER and PCH. whereas the supporting services ADM. DIR. ENT. CERT. IT. RH/LEGAL and FIN are considered as indirect costs.

As a second step of the cost allocation methodology. those costs of the supporting services are allocated to each operational service. which finally results in its total costs. This distribution is done proportionally according to the share of direct costs in the operating services' total costs.

In the last step. those total costs are allocated to the different cost centers (En Route. Terminal. Aerodrome. Other). based on the applicable RP3 cost allocation key.



The revised allocation keys are based on the actual allocation keys. applicable for RP2. and reflect changes in the services provided and cost centers. Part of the staff and operational costs of AIS and MET services are carried by other authorities in Luxembourg. These costs are excluded of the cost base for ANSP services and therefore not charged to the users.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights. when exemptions are granted for VFR flights in accordance with Article 31(3). 31(4) and 31(5);

c) Criteria used to allocate costs between terminal and en route services. in accordance with Article 22(5);

The criteria for the allocation of costs between ER and Terminal ANS are similar to RP2. based on the actual efforts and costs for service provision observed in RP2.

Within the controlled airspace of Luxembourg, a limit of 20 kms around the ELLX Airport has been considered. in order to split the costs between “En Route” and “Terminal” services provided. Regarding the arrivals. the transfers of the aircraft are performed from approximately 60Nm inbound of Luxembourg Airport.

For the departing flights. transfers from TWR to APP are performed just after the aircraft is airborne according to the Standard Instrument Departure (SID). The “APP ATCO’s” ensure the climbing and the separation of traffic before handing over to the neighbouring “ACCs”.

In addition to these climbing and descending flights. the approach controls a considerable number of overflights above the Luxembourg territory and inside the area of responsibility of ANA.

For the “APP ATCO’s”. services provided outside of the 20 kms cylinder represent an important part of their workload.

According to the operational practices used in many European countries. Luxembourg has assigned the costs of the workload produced by those approach flights outside the 20 kms cylinder to the “En Route” cost base.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general (‘MET core costs’). MET core costs include general analysis and forecasting. surface and upper-air observation networks. meteorological communication systems. data processing centres and supporting core research. training and administration;

A share of 50% of MET costs are considered as “MET core costs” and therefore excluded of the ANSP cost base. As a consequence these costs are carried by the State.

Direct costs: Airport observation infrastructure. Aviation MET systems. Aviation MET Staff. Housing and Aviation MET costs incurred by MeteoLux dedicated operational services.

Core costs: Observation sensors. radar-. satellite-. surface (SYNOP)- observations. Numerical Weather Prediction System (including maintenance). MeteoLux overhead not directly allocated to aviation (staffing costs. several international contributions. training costs).

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

The allocation of MET costs between ANS and non-aeronautical is based on the different tasks provided by the MET department.

f) For each entity. description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1). including a description of the main factors explaining the planned variations over the reference period;

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Determined costs by nature and by service

Entity: ANA (Luxembourg ANSP)	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>A recent study on the airport capacity established by Eurocontrol demonstrates that the capacity of ELLX can increase significantly. Among all the recommendations, 2 are directly linked to the ANSP.</p> <p>The first one is related to the management of traffic on the movement area: in addition to improving the ground infrastructure, ANA is planning to implement a third position at the TWR (Ground Position), which will result in a decongestion of the TWR "AIR" frequency and de facto increase the capacity.</p> <p>The second one is to reduce lateral separation between aircraft in ELLX airspace: ANA plans to respond to the current and future significant traffic increase by implementing a third position at the approach, the feeder position, allowing the ANSP to increase the capacity within its small airspace.</p> <p>Indexation: according to Luxembourg state principles (career shifts, mobile salary scale)</p> <p>Additional staff in ATC: 3rd position in APP, anticipation of retirements of ATCOs.</p> <p>Before the pandemic crisis ANA planned with a staff increase in AIS: due to actual understaffing and additional tasks which will be financed by the state. Due to the pandemic ANA is forced to renounce on this additional staff.</p> <p>Before the pandemic crisis ANA planned with a staff increase in CNS: due to the need to catch-up (significant number of projects to be finished and realised during RP3) Due to the pandemic ANA is forced to renounce on this additional staff.</p>
of which, pension costs	The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.
1.2 Other operating costs	New maintenance contracts linked to the new systems and equipment to be implemented, additional need for training for ATCOs (new ATCOs and anticipation of retirements) and ATSEPs
1.3 Depreciation	<p>The historical cost accounting method is used, with a linear depreciation.</p> <p>Significant amount of ongoing projects to be operational during RP3 (> 13 Mio. EUR).</p> <p>New investment/projects amounting to more than 25 Mio. EUR planned for RP3, of which more than 2/3 are in the scope of the performance plan</p> <p>Please note: depreciation will continue to be carried by the State of Luxembourg throughout RP3 These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.4 Cost of capital	<p>Still 100% equity financed, decrease of return on equity rate from 2.78 % to 1.79%, mainly due to lower risk-free rate.</p> <p>Please note: Cost of capital will continue to be carried by the State of Luxembourg throughout RP3 These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.5 Exceptional items	N/A
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	3 rd position in APP, training costs, anticipation of retirements
2.2 Communication	Need to catch-up; therefore increase of depreciation amount
2.3 Navigation	Need to catch-up; therefore increase of depreciation amount
2.4 Surveillance	Need to catch-up; therefore increase of depreciation amount
2.5 Search and rescue	N/A
2.6 Aeronautical Information	Renunciation on additional staff in AIS due to the pandemic: despite actual understaffing related to several new tasks and new responsibilities

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2.7 Meteorological services	MET core cost are excluded and borne by the state during RP3
2.8 Supervision costs	N/A
2.9 Other State costs	N/A
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: National Supervisory Authority
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.

g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4). and, where current cost accounting is used, provision of comparable historical cost data;

h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;

ANA (Luxembourg ANSP)	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	Cost of capital rate = Cost of equity: 1.788% Formula: $\text{Cost of equity (Re)} = \text{Risk free rate of return} + \text{Equity beta} \times (\text{Market rate of return} - \text{Risk free rate of return})$ Assumptions for RP3: <ul style="list-style-type: none"> - Risk free rate: 0.0% - Equity risk premium: 5.96% - Equity beta: 0.3% - Share of financing through equity: 100%
3.12 Cost of leasing	N/A

Eurocontrol costs	
3.13 Eurocontrol costs (Euro)	< ... >

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3.14 Exchange rate (if applicable)	< ... >
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i) For each entity. description of the assumptions used to compute the cost of capital (point 1.4 of Table 1). including the composition of the asset base. the return on equity. the average interest on debts and the shares of financing of the asset base through debt and equity;

ANA (Luxembourg ANSP)	
Average asset base	
3.1 NBV fixed assets	Significant increase of the NBV during RP3. due to the finalisation of ongoing and new projects.
3.2 Adjustments total assets	
3.3 Net current assets	Recovery of the net current assets from 2021 on.
Cost of capital %	
3.6 Return on equity	1.788%
3.7 Average interest on debts	N/A
3.8 Share of financing through equity	100%

j) Description of the determined costs of common projects (point 3.9 of Table 1).

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
< ... >	< ... >				
< ... >	< ... >				
Total (Table 1 item 3.9)					

1. Actual costs and unit costs

a) For each entity and for each cost item. a description of the reported actual costs and the difference between those costs and the determined costs. for each year of the reference period;

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2020-2021

RP3 Monitoring – Year 2020-2021	
ANA (Luxembourg ANSP)	
1.1 Staff costs	The surplus in staff costs is mainly due to the, so far, higher success rate of ATC students, which is well above the expected 50%.
1.2 Other operating costs	The significant reduction of Other operating costs is mainly related lower overhead costs.
1.3 Depreciation	Due to budget constraints, ANA had to revise the investment plan which lead to project cancelations and postponements.
1.4 Cost of capital	The reduction in cost of capital is due to the significantly lower net current assets.
1.5 Exceptional items	N/A

RP3 Monitoring – Year 2020-2021	
STATE/NSA: <name>	
1.1 Staff costs	The actual staff costs are lower than the determined costs due to a postponement of recruitments.
1.2 Other operating costs	The actual other operating costs are also lower than the determined costs.
1.3 Depreciation	N/A
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

2022

RP3 Monitoring – Year 2022	
ANSP: ANA (Luxembourg ANSP)	
1.1 Staff costs	Since the decrease of CNS staff couldn't balance out the effect, that a series of ATCOs who reached the age to retire decided not to do so, we again witness a surplus in overall staff costs.
1.2 Other operating costs	The increase of Other operating costs is mainly related to higher overhead costs and unforeseen expert costs for the CNS service in order to respond to a series of unexpected departures of ATSEPs.
1.3 Depreciation	Due to budget constraints ANA had to revise the investment plan, which lead to project cancelations and postponements. Concerning 2022, those decision although don't have yet an impact on the costs. The lower depreciation amount is mainly due to the later capitalisation of two projects, the surveillance chain upgrade and the replacement of the WAN and LAN infrastructure.
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

RP3 Monitoring – Year 2022	
STATE/NSA: <name>	
1.1 Staff costs	<...>
1.2 Other operating costs	<...>
1.3 Depreciation	<...>
1.4 Cost of capital	<...>
1.5 Exceptional items	<...>

b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

charges as well as any differences between those units and the forecast set in the performance plan. for each year of the reference period;

2020-2021

Total number of service units Belgium-Lux	2020	2021	2022	Total 2021/2022
Forecast performance plan (Baseline Eurocontrol Statfor Oct 2021)	1.080.873	1.161.104	3.268.633	2.107.529
Actuals (CRCO data)	1.080.873	1.166.899	3.263.075	2.096.176
Difference (in Total services units)	0	5.795	-5.558	-11.353
Difference (in %)	0	0,5%	-0,17%	-0,54%

- No difference for 2020
- 2021: Actual service units were 0.5% higher than foreseen in Statfor baseline scenario

2022

Actual service units were 0.5% lower than planned in the Performance plan / Statfor June 2022 baseline scenario.

c) Breakdown of the actual costs of common projects per individual project;

2020-2021

[see above](#)

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
Total (Table 1 item 3.9)					

2022

[See above](#)

d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers. as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

2020-2021

[N/A](#)

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Reference Period 3 (2020-2024)**

2022

N/A

e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).

2020-2021

N/A

2022

N/A

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones. in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

Belgium and Luxembourg agreed to create one FIR (= charging zone) composed of Belgian airspace and Luxembourg airspace

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

2020-2021

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2020
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

Description of the financing means covering the costs incurred for services provided to exempted flights in 2020.

<...>

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2021
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

Description of the financing means covering the costs incurred for services provided to exempted flights in 2021

<...>

2022

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2022.

	2022
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	<...>
Total costs for exempted flights	<...>

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

Description of the financing means covering the costs incurred for services provided to exempted flights in 2022.

<...>

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

2020-2021

Actual traffic was in 2020-2021 0,3 % higher than foreseen in the performance plan, no traffic risk sharing applies for costs subject to traffic risk sharing.

The carry-over from traffic effects on costs not subject to traffic risk sharing amounts to 35 K€ to be reimbursed to the users in 2024 (instead of 2023) since the revised RP3 plan is not yet approved.

2022

Actual traffic was in 2022 0,5 % lower than foreseen in the performance plan, no traffic risk sharing applies for costs subject to traffic risk sharing.

The carry-over from traffic effects on costs not subject to traffic risk sharing amounts to 38 K€ to be recovered from the users in 2024.

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

2020-2022

<...>

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

For ANA, actual costs of new and existing investments were €160.4k lower than planned. This amount will be returned to users in line with Article 28(4)(a).

Actual pension costs were 30.3k€ lower than planned. This amount will be returned to users in line with Article 28(6).

Differences in planned and actual costs for Eurocontrol Agency (for BE/LUX) were -€ 191k, and this amount will be charged to users.

f) Description of the other revenues. if any. broken down between the different categories indicated in Article 25(3);

As regards the DC and DUC for all services it should be noted that a substantial and increasing part of the costs – cost of capital and investment costs - will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the “other revenues – national public funding” section. A total of more than 25 M€ in investments is planned in RP3. whereby around 2/3 can be allocated to ANS and are thus in the scope of the performance plan.

2020-2021

An amount of 2.101k€ has been borne by the State for 2020-2021.

2022

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

An amount of 2.969k€ has been borne by the State for 2022.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable. and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

Modulation of charges

2020-2021

The actual application and relating financial advantages and disadvantages for 2020-2021 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3)).

2022

N/A

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted. Preliminary figures - to be update after adoption of the RP3 performance plan.

i) Description of the cross-financing between en route charging zones. or between terminal charging zones. in accordance with point (e) of Article 15(2) of Regulation 550/2004;

N/A

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

N/A

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

ANA

2018 adjustment mechanism – carried over to 2020:

- **Inflation adjustment** (+123 K EUR): 2018 actual (cumulative) inflation index (118.2) was higher than the 2018 (cumulative) inflation index (116.0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 123 K EUR that will be charged to the users in 2020.
- **Traffic adjustment** (+2 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs. etc.). In 2018. the actual total number of service units was slightly below (-0.2%) the forecast used in the Performance Plan. The under- recovery of +2 K EUR will be charged in 2020 to the users.

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

2019 adjustment mechanism – carried over to 2021:

- **Inflation adjustment** (+112 K EUR): 2019 actual (cumulative) inflation index (119.6) was higher than the 2019 (cumulative) inflation index (117.6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 112 K EUR that will be charged to the users in 2021.
- **Traffic adjustment** (+31 K EUR and +68 K EUR): This adjustment relates to
 - The costs not subject to traffic risk sharing (i.e. MET costs. etc.). In 2019. the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under- recovery of +31 K EUR will be charged in 2021 to the users.
 - The costs subject to traffic risk sharing. In 2019. the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of +68 K EUR will be charged in 2021 to the users.

2020 adjustment mechanism – carried over to 2022:

- **Traffic adjustment on adjustments from previous RPs (+76 K EUR) (Art. 27(8) and 27(9)):** In 2020 the actual total number of service units was lower (-60.8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. This results in an under-recovery of 76 K EUR that will be charged to the users in 2022.

2021 adjustment mechanism – carried over to 2023:

- **Traffic adjustment on adjustments from previous RPs (+125 K EUR) (Art. 27(8) and 27(9)):** In 2021 the actual total number of service units was lower (-58.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021”. This results in an under-recovery of 125 K EUR that will be charged to the users in 2023.

2024 adjustment mechanism:

Traffic adjustment on adjustments from previous RPs 2022 : -1 K EUR.

MUAC LUXEMBOURG

2018 adjustment mechanism – carried over to 2020 :

- **Inflation adjustment** (+29 K EUR): 2018 actual (cumulative) inflation index (118.2) was higher than the 2018 (cumulative) inflation index (116.0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 29 K EUR that will be charged to the users in 2020.
- **Financial incentive** (-8 K EUR): In 2018. the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxemburg of which 8 K EUR linked to MUAC performance (Luxembourg). This amount is at charge of ANA as ANA bears the financial risk linked to MUAC LUXEMBOURG cost base. This amount will be reimbursed to the users in 2020.
- **Traffic adjustment** (-0.02 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2018. the actual total number of service units was slightly below (-0.2%) the forecast used in the Performance Plan. The over-recovery of -0.02 K EUR will be reimbursed to the users in 2020.

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

2019 adjustment mechanism – carried over to 2021 :

- **Inflation adjustment** (+27 K EUR): 2019 actual (cumulative) inflation index (119.6) was higher than the 2019 (cumulative) inflation index (117.6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 27 K EUR that will be charged to the users in 2021.
- **Traffic adjustment** (+0.24 K EUR and +17 K EUR): this adjustment relates to
 - The costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of 0.24 K EUR will be charged to the users in 2021.
 - The costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3.7%) the forecast used in the Performance Plan. The under-recovery of 17 K EUR will be charged to the users in 2021.

2020 adjustment mechanism – carried over to 2022:

- **Traffic adjustment on adjustments from previous RPs (+13 K EUR) (Art. 27(8) and 27(9)):** In 2020 the actual total number of service units was lower (-60.8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. This results in an under-recovery of 13 K EUR that will be charged to the users in 2022.

2021 adjustment mechanism – carried over to 2023:

- **Traffic adjustment on adjustments from previous RPs (+249 K EUR) (Art. 27(8) and 27(9)):** In 2021 the actual total number of service units was lower (-58.5%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021”. This results in an under-recovery of 249 K EUR that will be charged to the users in 2023.

Cost exempt: Unforeseen changes in costs or revenues stemming from international agreements

- 2016+2017+2018+2019 adjustment mechanism – carried over to 2021:
 - **Support & pension cost MUAC** (+367 K EUR): uncontrollable costs based on the MCA-TF agreement of 12 November 2015 approved by the EUROCONTROL PC (on 8 December 2015) with regard to the support- and the pension-costs related to MUAC services. The uncontrollable costs of RP2 shall be passed on to airspace users through a carry over to the following reference period (RP3).
 - **Sharing keys MUAC** (+14 k EUR): In April 2014, the Budgetary and Financial Working Group agreed to use a fixed cost sharing key over RP2 as long as the cost-sharing key is not showing a deviation of more than 1 percent positive or negative, in which case the cost-sharing key might be adapted. In the determined costs of Belgium-Lux, the following sharing keys were used to forecast the MUAC cost base: sharing keys BE 31.3208% and LUX 0.9687%. As the deviation was more than 1 percent point from the agreed RP2 cost sharing keys, the 2019 keys have been adapted: the actual sharing keys were 31.5912% for Belgium and 0.9770% for Luxembourg.
- 2024 adjustment mechanism:
- **Traffic adjustment on adjustments from previous RPs 2022 :** -0.18 K EUR.

**En-route Charging Zone <BE-LUX>
Reference Period 3 (2020-2024)**

**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project. as well as of public funds obtained from public authorities for these projects.

Project reference (as per Grant Agreement)	Project title	AMOUNT GRANTED						
		2014	2015	2016	2017	2018	2019	2020
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	9	61	10	9	0	1	66
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	64	19	20	2	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	1	3	23	42	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call	0	0	0	0	1	2	0
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST	0	0	0	0	27	94	59
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework	0	0	0	0	2	2	1
TOTAL		74	84	54	53	30	99	125

2022

<...>

Legend for the Check sheet									
TRUE	Cells highlighted in green indicate that the items checked are equal and different to 0								
TRUE	Cells highlighted in pale yellow indicate that the items entering the check are blank or 0								
FALSE	Cells highlighted in red indicate that the items checked are not equal								
FALSE	Cells highlighted in pale yellow indicate that one of the items entering the check is blank or 0								
#DIV/0	Cells highlighted in orange indicate formulae that resulted in error								
N/A	Cells highlighted in white with grey "N/A" indicate that the check is not applicable for the given combination of year and/or RP								
			Determined						
INFORMATION ON COSTS AND UNIT COSTS - TABLE 1			Rounding (dec. plcs)	2020	2021	2020/2021	2022	2023	2024
#	Item	Checks for Route TABLE 1 (consolidated)							
#001	4.2	Check that values in Table 1 Consolidated are sums of the same items across all the entities (in '000 NC) Total determined/actual costs (in '000 NC) Sum of Total determined/actual costs for all entities (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#002	1.6	Check the sum of costs by nature (in '000 NC) Total costs by nature (in '000 NC) Sum of items 1.1 to 1.5 (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#003	2.10	Check the sum of costs by service (in '000 NC) Total costs by service (in '000 NC) Sum of items 2.1 to 2.9 (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#004	2.10	Check that total costs by nature equals total costs by service (in '000 NC) Total costs by nature (in '000 NC) Total costs by service (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#100	5.1	Check that inflation rate is not negative Inflation rate	3	TRUE	TRUE		TRUE	TRUE	TRUE
				0.00%	0.90%		5.63%	2.64%	3.13%
#009	5.2	Check calculation of Determined/Actual inflation index (base 100 in 2017) Calculated price index Price Index	2	TRUE	TRUE		TRUE	TRUE	TRUE
				103.63	104.57		113.30	119.11	122.84
				103.63	104.57		113.30	119.11	122.84
#017b	5.5	Check calculation of the unit cost for RP3 Total costs real terms / Total service units Unit Cost	2	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				360.60	330.10	344.18	247.01	231.72	220.13
				360.60	330.10	344.18	247.01	231.72	220.13
#063	4.2	Check total costs after deduction of costs for exempted VFR Total determined/actual costs(in '000 NC) Total costs by service deducted by Costs for exempted VFR flights (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#067	4.2	Check the sum of costs by airports (in '000 NC) Total determined/actual costs in T1 Consolidated (in '000 NC) Sum of items 4.2 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
				14 886.778	15 998.271	30 885.049	14 758.082	15 289.170	15 808.863
#067_1.1	1.1	Check the sum of Staff costs by airports (in '000 NC) Staff costs in T1 Consolidated (in '000 NC) Sum of items 1.1 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				9 659.618	10 013.732	19 673.350	9 775.391	10 043.598	10 384.715
				9 659.618	10 013.732	19 673.350	9 775.391	10 043.598	10 384.715
#067_1.2	1.2	Check the sum of Other operating costs by airports (in '000 NC) Other operating costs in T1 Consolidated (in '000 NC) Sum of items 1.2 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				3 832.633	4 106.219	7 938.852	3 109.408	3 377.434	3 433.816
				3 832.633	4 106.219	7 938.852	3 109.408	3 377.434	3 433.816
#067_1.3	1.3	Check the sum of Depreciation by airports (in '000 NC) Depreciation in T1 Consolidated (in '000 NC) Sum of items 1.3 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				1 196.419	1 426.805	2 623.224	1 873.284	1 868.138	1 990.331
				1 196.419	1 426.805	2 623.224	1 873.284	1 868.138	1 990.331
#067_1.4	1.4	Check the sum of Cost of capital by airports (in '000 NC) Cost of capital in T1 Consolidated (in '000 NC) Sum of items 1.4 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				198.109	451.514	649.623	0.000	0.000	0.000
				198.109	451.514	649.623	0.000	0.000	0.000
#067_1.5	1.5	Check the sum of Exceptional items by airports (in '000 NC) Exceptional items in T1 Consolidated (in '000 NC) Sum of items 1.5 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				0.000	0.000	0.000	0.000	0.000	0.000
				0.000	0.000	0.000	0.000	0.000	0.000
#067_2.1	2.1	Check the sum of Air Traffic Management by airports (in '000 NC) Air Traffic Management in T1 Consolidated (in '000 NC) Sum of items 2.1 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				7 382.136	7 764.372	15 146.508	6 962.748	7 199.962	7 407.676
				7 382.136	7 764.372	15 146.508	6 962.748	7 199.962	7 407.676
#067_2.2	2.2	Check the sum of Communication by airports (in '000 NC) Communication in T1 Consolidated (in '000 NC) Sum of items 2.2 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				1 424.830	1 517.675	2 942.504	1 589.424	1 684.318	1 761.239
				1 424.830	1 517.675	2 942.504	1 589.424	1 684.318	1 761.239
#067_2.3	2.3	Check the sum of Navigation by airports (in '000 NC) Navigation in T1 Consolidated (in '000 NC) Sum of items 2.3 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				1 373.566	1 456.029	2 829.595	1 531.771	1 622.278	1 698.018
				1 373.566	1 456.029	2 829.595	1 531.771	1 622.278	1 698.018
#067_2.4	2.4	Check the sum of Surveillance by airports (in '000 NC) Surveillance in T1 Consolidated (in '000 NC) Sum of items 2.4 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				1 804.049	1 886.889	3 690.938	1 930.586	2 044.996	2 129.954
				1 804.049	1 886.889	3 690.938	1 930.586	2 044.996	2 129.954
#067_2.5	2.5	Check the sum of Search and Rescue by airports (in '000 NC) Search and Rescue in T1 Consolidated (in '000 NC) Sum of items 2.5 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				0.000	0.000	0.000	0.000	0.000	0.000
				0.000	0.000	0.000	0.000	0.000	0.000
#067_2.6	2.6	Check the sum of Aeronautical Information by airports (in '000 NC) Aeronautical Information in T1 Consolidated (in '000 NC) Sum of items 2.6 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				967.554	1 108.918	2 076.472	1 037.153	1 024.342	1 042.682
				967.554	1 108.918	2 076.472	1 037.153	1 024.342	1 042.682
#067_2.7	2.7	Check the sum of Meteorological services by airports (in '000 NC) Meteorological services in T1 Consolidated (in '000 NC) Sum of items 2.7 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				1 577.503	1 780.923	3 358.427	1 706.402	1 713.274	1 769.293
				1 577.503	1 780.923	3 358.427	1 706.402	1 713.274	1 769.293
#067_2.8	2.8	Check the sum of Supervision costs by airports (in '000 NC) Supervision costs in T1 Consolidated (in '000 NC) Sum of items 2.8 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				357.139	483.466	840.604	0.000	0.000	0.000
				357.139	483.466	840.604	0.000	0.000	0.000
#067_2.9	2.9	Check the sum of Other State costs by airports (in '000 NC) Other State costs in T1 Consolidated (in '000 NC) Sum of items 2.9 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				0.000	0.000	0.000	0.000	0.000	0.000
				0.000	0.000	0.000	0.000	0.000	0.000
#067b	5.3	Check the sum of costs by airports (in '000 NC) Total costs in real terms in T1 Consolidated (in '000 NC) Sum of items 5.3 for all airports (in '000 NC)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 426.430	15 402.852	29 829.282	13 245.680	13 135.564	13 239.595
				14 426.430	15 402.852	29 829.282	13 245.680	13 135.564	13 239.595
#	Item	Checks for Route Table 1 ANSP							
#002	1.6	Check the sum of costs by nature (in '000 NC) Total costs by nature (in '000 NC) - Note: (check sum for combined year 2020-2021) Sum of items 1.1 to 1.5 (in '000 NC) - Note: (check sum for combined year 2020-2021)	3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
				14 529.639	15 514.806	30 044.445	14 758.082	15 289.170	15 808.863
				14 529.639	15 514.806	30 044.445	14 758.082	15 289.170	15 808.863
#003	2.10								

#019	3.5	Check calculation of cost of capital pre-tax rate <i>Cost of capital pre tax rate (%)</i> <i>Cost of capital / total asset base (%)</i>
#020	3.8	Check proportion of financing through equity is coherent with components <i>Proportion of financing through equity calculated from components is (in %):</i> <i>Proportion of financing through equity is (in %):</i>
#018	3.4	Check total asset base (in '000 NC) <i>Sum of assets (in '000 NC)</i> <i>Total asset base (in '000 NC)</i>
#065	3.4	Check that no cost of capital is calculated if no asset base is reported <i>Total asset base (in '000 NC)</i> <i>Cost of capital (in '000 NC)</i>
#087	3.10	Check that depreciation in item 3.10 is the same as in item 1.3 (in '000 NC) <i>Depreciation - item 3.10 (in '000 NC) - Note: (check sum for combined year 2020-2021)</i> <i>Depreciation - item 1.3 (in '000 NC) - Note: (check sum for combined year 2020-2021)</i>
#088	3.11	Check that cost of capital in item 3.11 is calculated based on NBV of fixed assets (in '000 NC) <i>Cost of capital - item 3.11 (in '000 NC)</i> <i>NBV of fixed assets * WACC rate (in '000 NC)</i>

#	Item Checks for Route Table 1 NSA	
#002	1.6	Check the sum of costs by nature (in '000 NC) <i>Total costs by nature (in '000 NC)</i> <i>Sum of items 1.1 to 1.5 (in '000 NC)</i>
#003	2.10	Check the sum of costs by service (in '000 NC) <i>Total costs by service (in '000 NC)</i> <i>Sum of items 2.1 to 2.9 (in '000 NC)</i>
#004	2.10	Check that total costs by nature equals total costs by service (in '000 NC) <i>Total costs by nature (in '000 NC)</i> <i>Total costs by service (in '000 NC)</i>
#014 RP3	5.3	Check total costs into real terms (in '000 NC) RP3 <i>Total determined/actual costs after deduction of costs for exempted VFR flights / price index (in '000 NC)</i> <i>Total costs real terms (in '000 NC)</i>
#016	5.4	Check that Service Units are the same for all entities (in '000) <i>Total Service Units (NSA)</i> <i>Total Service Units (Consolidated)</i>
#017b	5.5	Check calculation of the unit cost for RP3 <i>Total costs real terms / Total service units</i> <i>Unit Cost</i>
#019	3.5	Check calculation of cost of capital pre-tax rate <i>Cost of capital pre tax rate (%)</i> <i>Cost of capital / total asset base (%)</i>
#020	3.8	Check proportion of financing through equity is coherent with components <i>Proportion of financing through equity calculated from components is (in %):</i> <i>Proportion of financing through equity is (in %):</i>
#018	3.4	Check total asset base (in '000 NC) <i>Sum of assets (in '000 NC)</i> <i>Total asset base (in '000 NC)</i>
#065	3.4	Check that no cost of capital is calculated if no asset base is reported <i>Total asset base (in '000 NC)</i> <i>Cost of capital (in '000 NC)</i>

3	TRUE	TRUE		TRUE	TRUE	TRUE
	1.800%	1.800%		0.000%	0.000%	0.000%
	1.800%	1.800%		0.000%	0.000%	0.000%
2	TRUE	TRUE		N/A	N/A	N/A
	100.00%	100.00%		N/A	N/A	N/A
	100.00%	100.00%		N/A	N/A	N/A
3	TRUE	TRUE		TRUE	TRUE	TRUE
	11 079.894	25 217.968		25 044.480	28 598.169	28 179.036
	11 079.894	25 217.968		25 044.480	28 598.169	28 179.036
3	TRUE	TRUE		TRUE	TRUE	TRUE
	11 079.894	25 217.968		25 044.480	28 598.169	28 179.036
	198.109	451.514		0.000	0.000	0.000
3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	1 196.419	1 426.805	2 623.224	1 873.284	1 868.138	1 990.331
	1 196.419	1 426.805	2 623.224	1 873.284	1 868.138	1 990.331
3	TRUE	TRUE		N/A	N/A	N/A
	259.979	267.993		N/A	N/A	N/A
	259.979	267.993		N/A	N/A	N/A
3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	357.139	483.466	840.604	0.000	0.000	0.000
	357.139	483.466	840.604	0.000	0.000	0.000
3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	357.139	483.466	840.604	0.000	0.000	0.000
	357.139	483.466	840.604	0.000	0.000	0.000
3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	357.139	483.466	840.604	0.000	0.000	0.000
	357.139	483.466	840.604	0.000	0.000	0.000
3	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	357.139	483.466	840.604	0.000	0.000	0.000
	357.139	483.466	840.604	0.000	0.000	0.000
2	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
	8.93	10.36	9.70	0.00	0.00	0.00
	8.93	10.36	9.70	0.00	0.00	0.00
3	N/A	N/A		N/A	N/A	N/A
	N/A	N/A		N/A	N/A	N/A
	N/A	N/A		N/A	N/A	N/A
2	N/A	N/A		N/A	N/A	N/A
	N/A	N/A		N/A	N/A	N/A
	N/A	N/A		N/A	N/A	N/A
3	TRUE	TRUE		TRUE	TRUE	TRUE
	0.000	0.000		0.000	0.000	0.000
	0.000	0.000		0.000	0.000	0.000
3	TRUE	TRUE		TRUE	TRUE	TRUE
	0.000	0.000		0.000	0.000	0.000
	0.000	0.000		0.000	0.000	0.000

Charging zone:

Luxembourg - TCZ

Reference Period 2					Reference Period 3				
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024

Table 1 - Total Costs and Unit Costs

Luxembourg - TCZ

Currency: Euro

All Entities

Determined costs - Performance Plan - RP3

Cost details	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	9 660	10 014	19 673	9 775	10 044	10 385
of which, pension costs	200	213	413	186	191	197
1.2 Other operating costs	3 833	4 106	7 939	3 109	3 377	3 434
1.3 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990
1.4 Cost of capital	198	452	650	0	0	0
1.5 Exceptional items	0	0	0	0	0	0
1.6 Total costs	14 887	15 998	30 885	14 758	15 289	15 809
Total % n/n-1	9.5%	7.5%		-7.8%	3.6%	3.4%
2. Detail by service (in nominal terms)						
2.1 Air Traffic Management	7 382	7 764	15 147	6 963	7 200	7 408
2.2 Communication	1 425	1 518	2 943	1 589	1 684	1 761
2.3 Navigation	1 374	1 456	2 830	1 532	1 622	1 698
2.4 Surveillance	1 804	1 887	3 691	1 931	2 045	2 130
2.5 Search and rescue	0	0	0	0	0	0
2.6 Aeronautical Information	968	1 109	2 076	1 037	1 024	1 043
2.7 Meteorological services	1 578	1 781	3 358	1 706	1 713	1 769
2.8 Supervision costs	357	483	841	0	0	0
2.9 Other State costs	0	0	0	0	0	0
2.10 Total costs	14 887	15 998	30 885	14 758	15 289	15 809
Total % n/n-1	9.5%	7.5%		-7.8%	3.6%	3.4%
3. Complementary information (in nominal terms)						
Average asset base						
3.1 Net book val. fixed assets	14 540	14 968		14 893	16 247	15 842
3.2 Adjustments total assets	0	0		0	0	0
3.3 Net current assets	-3 460	10 250		10 152	12 351	12 337
3.4 Total asset base	11 080	25 218		25 044	28 598	28 179
Cost of capital %						
3.5 Cost of capital pre tax rate						
3.6 Return on equity						
3.7 Average interest on debts						
3.8 Share of financing through equity						
Costs of common projects						
3.9 Common projects	0	0	0	0	0	0
Costs of new and existing investments						
3.10 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990
3.11 Cost of capital	260	268	528	0	0	0
3.12 Cost of leasing	0	0	0	0	0	0
Eurocontrol costs						
3.13 Eurocontrol costs (Euro)						
3.14 Exchange rate (if applicable)						
3.15 Eurocontrol costs (national currency)						
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)						
4.1 Costs for exempted VFR flights	0	0	0	0	0	0
4.2 Total determined/actual costs	14 887	15 998	30 885	14 758	15 289	15 809
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)						
5.1 Inflation %	0.00%	0.90%		5.63%	2.64%	3.13%
5.2 Inflation index (1)	103.6	104.6		113.3	119.1	122.8
5.3 Total costs real terms (2)	14 426	15 403	29 829	13 246	13 136	13 240
Total % n/n-1	9.4%	6.8%		-14.0%	-0.8%	0.8%
5.4 Total Service Units	40.0	46.7	86.7	53.6	56.7	60.1
Total % n/n-1	-28.6%	16.6%		14.9%	5.7%	6.1%
5.5 Unit cost in real terms prices (3)	360.60	330.10	344.18	247.01	231.72	220.13
Total % n/n-1	53.2%	-8.5%		-25.2%	-6.2%	-5.0%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Luxembourg - TCZ
Currency: Euro
ANA Luxembourg

Determined costs - Performance Plan - RP3							Actual costs - Reference Period 3					
Cost details	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)												
1.1 Staff	9 349	9 592	18 942	9 775	10 044	10 385	9 349	9 866	19 215	10 224		
of which, pension costs	178	182	360	186	191	197	178	170	348	128		
1.2 Other operating costs	3 786	4 044	7 830	3 109	3 377	3 434	3 786	3 212	6 998	3 368		
1.3 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990	1 196	1 300	2 496	1 473		
1.4 Cost of capital	198	452	650	0	0	0	198	202	400	0		
1.5 Exceptional items	0	0	0	0	0	0	0	0	0	0		
1.6 Total costs	14 530	15 515	30 044	14 758	15 289	15 809	14 530	14 581	29 110	15 064		
Total % n/n-1	11.3%	6.8%		-4.9%	3.6%	3.4%	11.3%	0.4%		3.3%		
2. Detail by service (in nominal terms)												
2.1 Air Traffic Management	7 382	7 764	15 147	6 963	7 200	7 408	7 382	7 580	14 962	7 472		
2.2 Communication	1 425	1 518	2 943	1 589	1 684	1 761	1 425	1 515	2 940	1 529		
2.3 Navigation	1 374	1 456	2 830	1 532	1 622	1 698	1 374	1 374	2 747	1 542		
2.4 Surveillance	1 804	1 887	3 691	1 931	2 045	2 130	1 804	1 511	3 315	1 738		
2.5 Search and rescue	0	0	0	0	0	0	0	0	0	0		
2.6 Aeronautical Information	968	1 109	2 076	1 037	1 024	1 043	968	975	1 942	1 054		
2.7 Meteorological services	1 578	1 781	3 358	1 706	1 713	1 769	1 578	1 626	3 204	1 730		
2.8 Supervision costs												
2.9 Other State costs												
2.10 Total costs	14 530	15 515	30 044	14 758	15 289	15 809	14 530	14 581	29 110	15 064		
Total % n/n-1	11.3%	6.8%		-4.9%	3.6%	3.4%	11.3%	0.4%		3.3%		
3. Complementary information (in nominal terms)												
Average asset base												
3.1 Net book val. fixed assets	14 540	14 968		14 893	16 247	15 842	14 540	15 042		14 163		
3.2 Adjustments total assets	0	0		0	0	0	0	0		0		
3.3 Net current assets	-3 460	10 250		10 152	12 351	12 337	-3 460	-3 729		1 787		
3.4 Total asset base	11 080	25 218		25 044	28 598	28 179	11 080	11 313		15 950		
Cost of capital %												
3.5 Cost of capital pre tax rate	1.79%	1.79%		0.00%	0.00%	0.00%	1.79%	1.79%		0.00%		
3.6 Return on equity	1.79%	1.79%		0.00%	0.00%	0.00%	1.79%	1.79%		0.00%		
3.7 Average interest on debts	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%		
3.8 Share of financing through equity	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%		100.00%		
Costs of common projects												
3.9 Common projects	0	0	0	0	0	0	0	0	0	0		
Costs of new and existing investments												
3.10 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990	1 196	1 300	2 496	1 473		
3.11 Cost of capital	260	268	528	0	0	0	260	269	529	0		
3.12 Cost of leasing	0	0	0	0	0	0	0	0	0	0		
Eurocontrol costs												
3.13 Eurocontrol costs (Euro)												
3.14 Exchange rate (if applicable)												
3.15 Eurocontrol costs (national currency)												
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)												
4.1 Costs for exempted VFR flights	0	0	0	0	0	0	0	0	0	0		
4.2 Total determined/actual costs	14 530	15 515	30 044	14 758	15 289	15 809	14 530	14 581	29 110	15 064		
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)												
5.1 Inflation %	0.00%	0.90%		5.63%	2.64%	3.13%	0.00%	3.50%		8.20%		
5.2 Inflation index (1)	103.6	104.6		113.3	119.1	122.8	103.6	107.3		116.1		
5.3 Total costs real terms (2)	14 069	14 919	28 989	13 246	13 136	13 240	14 069	13 696	27 765	13 184		
Total % n/n-1	11.3%	6.0%		-11.2%	-0.8%	0.8%	11.3%	-2.7%		-3.7%		
5.4 Total Service Units	40.0	46.7	86.7	53.6	56.7	60.1	40.0	45.4	85.4	54.1		
Total % n/n-1	-28.6%	16.6%		14.9%	5.7%	6.1%	-28.6%	13.4%		19.2%		
5.5 Unit cost in real terms prices (3)	351.67	319.74	334.48	247.01	231.72	220.13	351.67	301.89	325.21	243.87		
Total % n/n-1	55.8%	-9.1%		-22.7%	-6.2%	-5.0%	55.8%	-14.2%		-19.2%		

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Luxembourg - TCZ
Currency: Euro
NSA

Determined costs - Performance Plan - RP3							Actual costs - Reference Period 3					
Cost details	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)												
1.1 Staff	311	421	732	0	0	0	311	326	636	0		
of which, pension costs	22	31	53	0	0	0	22	23	45	0		
1.2 Other operating costs	47	62	109	0	0	0	47	44	91	0		
1.3 Depreciation	0	0	0	0	0	0	0	0	0	0		
1.4 Cost of capital	0	0	0	0	0	0	0	0	0	0		
1.5 Exceptional items	0	0	0	0	0	0	0	0	0	0		
1.6 Total costs	357	483	841	0	0	0	357	370	727	0		
Total % n/n-1	-34.6%	35.4%		-100.0%			-34.6%	3.6%		-100.0%		
2. Detail by service (in nominal terms)												
2.1 Air Traffic Management												
2.2 Communication												
2.3 Navigation												
2.4 Surveillance												
2.5 Search and rescue	0	0	0	0	0	0	0	0	0	0		
2.6 Aeronautical Information												
2.7 Meteorological services												
2.8 Supervision costs	357	483	841	0	0	0	357	370	727	0		
2.9 Other State costs	0	0	0	0	0	0	0	0	0	0		
2.10 Total costs	357	483	841	0	0	0	357	370	727	0		
Total % n/n-1	-34.6%	35.4%		-100.0%			-34.6%	3.6%		-100.0%		
3. Complementary information (in nominal terms)												
Average asset base												
3.1 Net book val. fixed assets	0	0		0	0	0	0	0		0		
3.2 Adjustments total assets	0	0		0	0	0	0	0		0		
3.3 Net current assets	0	0		0	0	0	0	0		0		
3.4 Total asset base	0	0		0	0	0	0	0		0		
Cost of capital %												
3.5 Cost of capital pre tax rate												
3.6 Return on equity	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%		
3.7 Average interest on debts	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%		
3.8 Share of financing through equity	0.00%	0.00%		0.00%	0.00%	0.00%	0.00%	0.00%		0.00%		
Costs of common projects												
3.9 Common projects	0	0	0	0	0	0	0	0	0	0		
Costs of new and existing investments												
3.10 Depreciation												
3.11 Cost of capital												
3.12 Cost of leasing												
Eurocontrol costs												
3.13 Eurocontrol costs (Euro)												
3.14 Exchange rate (if applicable)												
3.15 Eurocontrol costs (national currency)												
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)												
4.1 Costs for exempted VFR flights	0	0	0	0	0	0	0	0	0	0		
4.2 Total determined/actual costs	357	483	841	0	0	0	357	370	727	0		
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)												
5.1 Inflation %												
5.2 Inflation index (1)												
5.3 Total costs real terms (2)	357	483	841	0	0	0	357	370	727	0		
Total % n/n-1	-34.6%	35.4%		-100.0%			-34.6%	3.6%		-100.0%		
5.4 Total Service Units	40.0	46.7	86.7	53.6	56.7	60.1	40.0	45.4	85.4	54.1		
Total % n/n-1	-28.6%	16.6%		14.9%	5.7%	6.1%	-28.6%	13.4%		19.2%		
5.5 Unit cost in real terms prices (3)	8.93	10.36	9.70	0.00	0.00	0.00	8.93	8.15	8.52	0.00		
Total % n/n-1	-8.5%	16.1%		-100.0%			-8.5%	-8.7%		-100.0%		

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Luxembourg - TCZ
Currency: Euro
LUXEMBOURG/LUXEMBOURG

Determined costs - Performance Plan - RP3

Cost details	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	9 660	10 014	19 673	9 775	10 044	10 385
of which, pension costs	200	213	413	186	191	197
1.2 Other operating costs	3 833	4 106	7 939	3 109	3 377	3 434
1.3 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990
1.4 Cost of capital	198	452	650	0	0	0
1.5 Exceptional items	0	0	0	0	0	0
1.6 Total costs	14 887	15 998	30 885	14 758	15 289	15 809
Total % n/n-1	9.5%	7.5%		-7.8%	3.6%	3.4%
2. Detail by service (in nominal terms)						
2.1 Air Traffic Management	7 382	7 764	15 147	6 963	7 200	7 408
2.2 Communication	1 425	1 518	2 943	1 589	1 684	1 761
2.3 Navigation	1 374	1 456	2 830	1 532	1 622	1 698
2.4 Surveillance	1 804	1 887	3 691	1 931	2 045	2 130
2.5 Search and rescue	0	0	0	0	0	0
2.6 Aeronautical Information	968	1 109	2 076	1 037	1 024	1 043
2.7 Meteorological services	1 578	1 781	3 358	1 706	1 713	1 769
2.8 Supervision costs	357	483	841	0	0	0
2.9 Other State costs	0	0	0	0	0	0
2.10 Total costs	14 887	15 998	30 885	14 758	15 289	15 809
Total % n/n-1	9.5%	7.5%		-7.8%	3.6%	3.4%
3. Complementary information (in nominal terms)						
Average asset base						
3.1 Net book val. fixed assets	14 540	14 968		14 893	16 247	15 842
3.2 Adjustments total assets	0	0		0	0	0
3.3 Net current assets	-3 460	10 250		10 152	12 351	12 337
3.4 Total asset base	11 080	25 218		25 044	28 598	28 179
Cost of capital %						
3.5 Cost of capital pre tax rate	1.79%	1.79%		0.00%	0.00%	0.00%
3.6 Return on equity						
3.7 Average interest on debts						
3.8 Share of financing through equity						
Costs of common projects						
3.9 Common projects	0	0	0	0	0	0
Costs of new and existing investments						
3.10 Depreciation	1 196	1 427	2 623	1 873	1 868	1 990
3.11 Cost of capital	260	268	528	0	0	0
3.12 Cost of leasing	0	0	0	0	0	0
Eurocontrol costs						
3.13 Eurocontrol costs (Euro)						
3.14 Exchange rate (if applicable)						
3.15 Eurocontrol costs (national currency)						
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)						
4.1 Costs for exempted VFR flights	0	0	0	0	0	0
4.2 Total determined/actual costs	14 887	15 998	30 885	14 758	15 289	15 809
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)						
5.1 Inflation %	0.00%	0.90%		5.63%	2.64%	3.13%
5.2 Inflation index (1)	103.6	104.6		113.3	119.1	122.8
5.3 Total costs real terms (2)	14 426	15 403	29 829	13 246	13 136	13 240
Total % n/n-1	9.4%	6.8%		-14.0%	-0.8%	0.8%
5.4 Total Service Units	40.0	46.7	86.7	53.6	56.7	60.1
Total % n/n-1	-28.6%	16.6%		14.9%	5.7%	6.1%
5.5 Unit cost in real terms prices (3)	360.60	330.10	344.18	247.01	231.72	220.13
Total % n/n-1	53.2%	-8.5%		-25.2%	-6.2%	-5.0%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 2 - Unit rate calculation

Luxembourg - TCZ
Currency: Euro
All Entities

Reference Period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	30 885.0	14 758.1	15 289.2	15 808.9
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	26 771.6	12 884.8	13 421.0	13 818.5
2.2 Forecast inflation index - Table 1		113.30	119.11	122.84
2.3 Actual inflation index - Table 1		116.05		
2.4 Actual / forecast total inflation index (in %)		2.4%		
2.5 Inflation adjustment relating to year n (Art. 26)	351.2	313.4		
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))	-125.9	-400.5		
3.3 Competent authorities and qualified entities costs (Art. 28(5))	-113.5	0.0		
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))	-12.6	-58.3		
3.6 Interest on loans (Art. 28(6))	0.0	0.0		
3.7 Changes in law (Art. 28(6))	0.0	0.0		
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))	-252.0	-458.8		

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	26 686.0	13 051.7	13 575.9	14 039.6
4.2 % deviation % referred to in Article 27(2) and 27(5)				
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)				
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)				
4.5 % deviation referred to in Article 27(4)				
4.6 Forecast total service units (performance plan)	86.7	53.6	56.7	60.1
4.7 Actual total service units	85.4	54.1		
4.8 Actual / forecast total service units (in %)	-1.5%	0.8%		
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))	0.0	0.0		
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))	62.70	-13.95		
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))	-91.74	30.00		
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))	-29.0	16.0		

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))	-839.8	616.6		
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2	216.76	223.97	
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	5 694.2	-1 099.5	97.4	
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	0.0	0.0	0.0	0.0
10.2 National public funding (Art. 25(3)(a))	-3 885.6	-2 185.7	-2 197.5	-2 307.8
10.3 Commercial activities (Art. 25(3)(b))	0.0	0.0	0.0	0.0
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))	0.0	0.0	0.0	0.0
10.5 Total other revenues relating to year n (Art. 25(3))	-3 885.6	-2 185.7	-2 197.5	-2 307.8
Application of a lower unit rate				
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))	Footnote 3	0.0	0.0	0.0
12 Total adjustments relating to year n	1 039.0	-2 797.9	-2 100.0	-2 307.8

Table 2 B - Calculation of the unit rate for year n (1)				
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	30 885.05	14 758.08	15 289.17	15 808.86
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	- 869.31	-	351.25	313.36
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-	-	-	- 113.53
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	715.97	-	- 839.75	616.63
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 3 345.19	- 564.93	- 348.61	- 16.72
13.8 Other revenues (Art. 25(2)(i))	- 6 143.44	- 3 668.66	- 1 663.06	- 1 773.35
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	-	670.30
13.11 Grand total for the calculation of year n unit rate	21 243.1	10 524.5	12 789.0	15 505.6
13.12 Forecast total service units for year n (performance plan)	86.7	53.6	56.7	60.1
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	245.11	196.27	225.60	257.80
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0.00	0.00	0.00	0.00
14 Applicable unit rate for year n	245.11	196.27	225.60	257.80

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

4) Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020

Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021

Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2022

Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2023

Estimates made on assumption that actual TSUs
2023 are equal to revised forecast TSUs and that
the revised plan is adopted in 2023.

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 2 - Unit rate calculation

Luxembourg - TCZ
Currency: Euro
ANA Luxembourg

		Reference Period 3			
Table 2 A - Adjustments relating to year n		2020/2021	2022	2023	2024
A. Cost-sharing					
Determined costs					
1.1	Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	30 044.4	14 758.1	15 289.2	15 808.9
Inflation adjustment calculation					
2.1	Determined costs subject to inflation adjustment	26 771.6	12 884.8	13 421.0	13 818.5
2.2	Forecast inflation index - Table 1		113.3	119.1	122.8
2.3	Actual inflation index - Table 1		116.1		
2.4	Actual / forecast total inflation index (in %)		2.4%		
2.5	Inflation adjustment relating to year n (Art. 26)	351.2	313.4		
Differences between determined and actual costs referred to in Article 28(4) to 28(6)					
3.1	New and existing investments (Art. 28(4))	-125.9	-400.5		
3.3	Competent authorities and qualified entities costs (Art. 28(5))				
3.4	Eurocontrol costs (Art. 28(5))				
3.5	Pension costs (Art. 28(6))	-12.6	-58.3		
3.6	Interest on loans (Art. 28(6))	0.0	0.0		
3.7	Changes in law (Art. 28(6))	0.0	0.0		
3.8	Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))	-138.5	-458.8		
B. Traffic risk sharing					
Traffic risk sharing adjustment					
4.1	Determined costs subject to traffic risk sharing	26 686.0	13 051.7	13 575.9	14 039.6
4.2	% deviation % referred to in Article 27(2) and 27(5)	2%	2%	2%	2%
4.3	% additional revenue returned to users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.4	% loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.5	% deviation referred to in Article 27(4)	10%	10%	10%	10%
4.6	Forecast total service units (performance plan)	86.7	53.6	56.7	60.1
4.7	Actual total service units	85.4	54.1		
4.8	Actual / forecast total service units (in %)	-1.5%	0.8%		
4.9	Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))	0.0	0.0		
Traffic adjustments					
5.1	For determined costs not subject to traffic risk-sharing (Art. 27(8))	50.2	-14.0		
5.2	Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))	-79.2	30.0		
5.3	Traffic adjustments relating to year n (Art. 27(8) and 27(9))	-29.0	16.1		
C. Financial incentive schemes on capacity and environment					
Adjustments relating to financial incentives					
6.1	Financial incentives relating to capacity (Art. 11(3))				
6.2	Financial incentives relating to environment (Art. 11(4))				
6.3	Additional financial incentives relating to capacity (Art. 11(4))				
6.4	Financial incentives relating to year n (Art. 11(3) and 11(4))				
D. Other adjustments					
Modulation of charges					
7.1	Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))	-839.8	616.6		
Revision of the unit rate					
8.1	Temporary unit rate applied in year n	Footnote 2	216.87	224.11	
8.2	Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	5 743.7	-1 099.6	95.0	
Cross-financing between charging zones					
9.1	Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues					
10.1	Union assistance programmes (Art. 25(3)(a))	0.0	0.0		
10.2	National public funding (Art. 25(3)(a))	-3 045.0	-2 185.7	-2 197.5	-2 307.8
10.3	Commercial activities (Art. 25(3)(b))	0.0	0.0		
10.4	Revenues from contracts with airport operators (Art. 25(3)(c))	0.0	0.0		
10.5	Total other revenues relating to year n (Art. 25(3))	-3 045.0	-2 185.7	-2 197.5	-2 307.8
Application of a lower unit rate					
11.1	Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))	0.0	0.0		
12	Total adjustments relating to year n	2 042.7	-2 797.9	-2 102.4	-2 307.8

Table 2 B - Calculation of the unit rate for year n (1)		2020/2021	2022	2023	2024
13.1	Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	30 044.44	14 758.08	15 289.17	15 808.86
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	- 806.11	-	351.25	313.36
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-	-	-	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-	-	-	-
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-	-	-	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	715.97	-	- 839.75	616.63
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 3 345.19	- 556.64	- 340.90	- 16.61
13.8	Other revenues (Art. 25(2)(i))	- 5 300.53	- 3 670.97	- 1 663.06	- 1 773.35
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	-	677.02
13.11	Grand total for the calculation of year n unit rate	21 308.6	10 530.5	12 796.7	15 625.9
13.12	Forecast total service units for year n (performance plan)	86.7	53.6	56.7	60.1
13.13	Unit rate for year n as per Art. 25(2) (in national currency)	245.86	196.38	225.74	259.80
13.14	Reduction as per Art. 29(6), where applicable (in national currency)	0.00	0.00	0.00	0.00
14	Applicable unit rate for year n	245.86	196.38	225.74	259.80

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporarily in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporarily in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption that actual TSUs
2023 are equal to revised forecast TSUs and that
the revised plan is adopted in 2023.

Table 2 - Unit rate calculation

Luxembourg - TCZ
Currency: Euro
NSA

Reference Period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	840.6	-	-	-
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment				
2.2 Forecast inflation index - Table 1				
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))	-113.5	-		
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))	-113.5	-		

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing				
4.2 % deviation % referred to in Article 27(2) and 27(5)				
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)				
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)				
4.5 % deviation referred to in Article 27(4)				
4.6 Forecast total service units (performance plan)	86.7	53.6	56.7	60.1
4.7 Actual total service units	85.4	54.1		
4.8 Actual / forecast total service units (in %)	-1.5%	0.8%		
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))	12.6	0.0		
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))	-12.6	0.0		
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))	0.0	0.0		

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))	0.0	0.0		
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2	-0.11	-0.13	
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	-49.5	0.03	2.4	
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	0.0	0.0		
10.2 National public funding (Art. 25(3)(a))	-840.6	0.0		
10.3 Commercial activities (Art. 25(3)(b))	0.0	0.0		
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))	0.0	0.0		
10.5 Total other revenues relating to year n (Art. 25(3))	-840.6	0.0	0.0	0.0
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))	0.0	0.0		
12 Total adjustments relating to year n	-1 003.7	0.0	2.4	0.0

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	840.60	-	-	-
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	- 63.21	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-	-	-	- 113.53
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	-	- 8.29	- 7.71	- 0.11
13.8 Other revenues (Art. 25(2)(i))	- 842.91	2.31	-	-
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	-	- 6.72
13.11 Grand total for the calculation of year n unit rate	-65.5	-6.0	-7.7	-120.4
13.12 Forecast total service units for year n (performance plan)	86.7	53.6	56.7	60.1
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	-0.76	-0.11	-0.14	-2.00
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0.00	0.00	0.00	0.00
14 Applicable unit rate for year n	-0.76	-0.11	-0.14	-2.00

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption that actual TSUs
2023 are equal to revised forecast TSUs and that
the revised plan is adopted in 2023.

Table 3 - Complementary information on adjustments

Luxembourg - TCZ Currency: Euro All Entities								
Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP	
Inflation adjustment 2018	-409	-409	0	0	0	0	0	0
Inflation adjustment 2019	-460	0	-460	0	0	0	0	0
Total inflation adjustment up to 2019	-869	-409	-460	0	0	0	0	0
Inflation adjustment 2020-2021	351	0	0	0	351	0	0	0
Inflation adjustment 2022	313	0	0	0	0	113	0	0
Inflation adjustment 2023	0	0	0	0	0	0	0	0
Inflation adjustment 2024	0	0	0	0	0	0	0	0
Total inflation adjustment (Art. 26)*	-205	-409	-460	0	351	313	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0	0
Traffic risk sharing 2019	0	0	0	0	0	0	0	0
Total traffic risk sharing adjustments up to 2019	0	0	0	0	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0	0	0	0	0	0	0	0
Traffic risk sharing 2022	0	0	0	0	0	0	0	0
Traffic risk sharing 2023	0	0	0	0	0	0	0	0
Traffic risk sharing 2024	0	0	0	0	0	0	0	0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	0	0	0	0	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	-126	0	0	0	0	0	-126	0
Difference in investment costs 2022	-401	0	0	0	0	0	-401	0
Difference in investment costs 2023	0	0	0	0	0	0	0	0
Difference in investment costs 2024	0	0	0	0	0	0	0	0
Total adjustment relating to investment costs (Art. 28(4))	-526	0	0	0	0	0	-526	0
Difference in competent authorities and Q&S costs 2020-2021 (excl. meas.)	-114	0	0	0	0	0	-114	0
Difference in competent authorities and Q&S costs 2022	0	0	0	0	0	0	0	0
Difference in competent authorities and Q&S costs 2023	0	0	0	0	0	0	0	0
Difference in competent authorities and Q&S costs 2024	0	0	0	0	0	0	0	0
Total adjustment relating to competent authorities and Q&S costs (Art. 28(5))	-114	0	0	0	0	0	-114	0
Difference in Eurocontrol costs 2020-2021 (exceptional measures)	0	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2022	0	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2023	0	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2024	0	0	0	0	0	0	0	0
Total adjustment relating to Eurocontrol costs (Art. 28(5))	0	0	0	0	0	0	0	0
Difference in pension costs 2020-2021 (exceptional measures)	-13	0	0	0	0	0	-13	0
Difference in pension costs 2022	-58	0	0	0	0	0	-58	0
Difference in pension costs 2023	0	0	0	0	0	0	0	0
Difference in pension costs 2024	0	0	0	0	0	0	0	0
Total adjustment relating to pension costs (Art. 28(6))	-71	0	0	0	0	0	-71	0
Difference in interest on loans 2020-2021 (exceptional measures)	0	0	0	0	0	0	0	0
Difference in interest on loans 2022	0	0	0	0	0	0	0	0
Difference in interest on loans 2023	0	0	0	0	0	0	0	0
Difference in interest on loans 2024	0	0	0	0	0	0	0	0
Total adjustment relating to interest on loans (Art. 28(6))	0	0	0	0	0	0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0	0	0	0	0	0	0	0
Costs relating to change in law 2022	0	0	0	0	0	0	0	0
Costs relating to change in law 2023	0	0	0	0	0	0	0	0
Costs relating to change in law 2024	0	0	0	0	0	0	0	0
Total adjustment relating to change in law (Art. 28(6))	0	0	0	0	0	0	0	0
Cost exempt from cost sharing up to 2017	0	0	0	0	0	0	0	0
Cost exempt from cost sharing 2018	0	0	0	0	0	0	0	0
Cost exempt from cost sharing 2019	0	0	0	0	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	0	0	0	0	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0	0
Financial incentives year 2018	0	0	0	0	0	0	0	0
Financial incentives year 2019	0	0	0	0	0	0	0	0
Total financial incentives up to 2019	0	0	0	0	0	0	0	0
Financial incentives year 2022	0	0	0	0	0	0	0	0
Financial incentives year 2023	0	0	0	0	0	0	0	0
Financial incentives year 2024	0	0	0	0	0	0	0	0
Total financial incentives (Art. 11(3) and 13(4))*	0	0	0	0	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	0	0
Modulation of charges year 2018	327	327	0	0	0	0	0	0
Modulation of charges year 2019	389	389	389	0	0	0	0	0
Total modulation of charges up to 2019	716	327	389	0	0	0	0	0
Modulation of charges 2020-2021	-840	0	0	0	-840	0	0	0
Modulation of charges 2022	617	0	0	0	0	617	0	0
Modulation of charges 2023	0	0	0	0	0	0	0	0
Modulation of charges 2024	0	0	0	0	0	0	0	0
Total adjustment relating to modulation of charges (Art. 32(1))*	-223	327	389	0	-840	617	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0	0
Traffic adjustment 2018	-1 819	-1 819	0	0	0	0	0	0
Traffic adjustment 2019	-1 526	0	-1 526	0	0	0	0	0
Total traffic adjustments up to 2019	-3 345	-1 819	-1 526	0	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	-565	0	0	-565	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	-349	0	0	0	-349	0	0	0
Traffic adjustment on adjustments from previous RPs 2022	-4	0	0	0	0	-4	0	0
Traffic adjustment on adjustments from previous RPs 2023	0	0	0	0	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2024	0	0	0	0	0	0	0	0
Total traffic adjustment on adjustments from previous reference periods	-920	0	0	-565	-349	-4	-3	-3
Traffic adjustment 2020-2021 (exceptional measures)	-29	0	0	0	0	-29	0	0
Traffic adjustment 2022	16	0	0	0	0	16	0	0
Traffic adjustment 2023	0	0	0	0	0	0	0	0
Traffic adjustment 2024	0	0	0	0	0	0	0	0
Total traffic adjustment (Art. 27(8) and 27(9))*	-4 278	-1 819	-1 526	-565	-349	-17	-3	-3
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2022	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2023	0	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2024	0	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	0	0	0	0	0	0	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-3 886	-2 877	-3 266	2	322	322	1 631	1 631
Revenues received from national public funding in 2022	-2 186	0	0	-3 671	212	212	1 061	1 061
Revenues received from national public funding in 2023	-2 197	0	0	0	-2 197	0	0	0
Revenues received from national public funding in 2024	-2 308	0	0	0	0	-2 308	0	0
Total revenues received from national public funding (Art. 25(3)(a))*	-10 576	-2 877	-3 266	-3 669	-1 663	-1 773	2 672	2 672
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2022	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2023	0	0	0	0	0	0	0	0
Revenues from commercial activities in 2024	0	0	0	0	0	0	0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2018	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2019	0	0	0	0	0	0	0	0
Total revenues from contracts with airport operators up to 2019	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2020-2021	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2022	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2023	0	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2024	0	0	0	0	0	0	0	0
Total revenues from contracts with airport operators (Art. 25(3)(c))*	0	0	0	0	0	0	0	0
Revenue difference - revision of UR 2020-2021	5 694	0	0	0	0	813	4 881	4 881
Revenue difference - revision of UR 2022	-1 100	0	0	0	0	-157	-942	-942
Revenue difference - revision of UR 2023	97	0	0	0	0	14	84	84
Revenue difference - revision of UR 2024	0	0	0	0	0	0	0	0
Total revenue differences from temporary application of UR (Art. 29(5))	4 692	0	0	0	0	670	4 022	4 022
Cross-financing to (+) / from (-) other charging zone(s) 2020-2021	0	0	0	0	0	0	0	0
Cross-financing to (+) / from (-) other charging zone(s) relating to 2022	0	0	0	0	0	0	0	0
Cross-financing to (+) / from (-) other charging zone(s) relating to 2023	0	0	0	0	0	0	0	0
Cross-financing to (+) / from (-) other charging zone(s) relating to 2024	0	0	0	0	0	0	0	0
Total cross-financing to (+) / from (-) other charging zone(s)	0	0	0	0	0	0	0	0
Total adjustments	-10 585	-4 779	-4 863	-4 234	-2 500	303	6 094	6 094

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs
2023 are equal to revised forecast TSUs and that
the revised plan is adopted in 2023.

Table 3 - Complementary information on adjustments

Luxembourg - TCZ Currency: Euro ANA Luxembourg							
Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	-381	-381					
Inflation adjustment 2019	-425		-425				
Total inflation adjustment up to 2019	-806	-381	-425				
Inflation adjustment 2020-2021	351				351		
Inflation adjustment 2022	313					313	
Inflation adjustment 2023	0						0
Inflation adjustment 2024	0						0
Total inflation adjustment (Art. 26)*	-141	-381	-425	0	351	313	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	0	0	0	0	0	0	0
Total traffic risk sharing adjustments up to 2019	0	0	0	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0				0	0	
Traffic risk sharing 2022	0					0	
Traffic risk sharing 2023	0						0
Traffic risk sharing 2024	0						0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	0	0	0	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	-126				0	0	-126
Difference in investment costs 2022	-401					0	-401
Difference in investment costs 2023	0						0
Difference in investment costs 2024	0						0
Total adjustment relating to investment costs (Art. 28(4))	-526				0	0	-526
Difference in competent authorities and Q&S costs 2020-2021 (exc.meas.)							
Difference in competent authorities and Q&S costs 2022							
Difference in competent authorities and Q&S costs 2023							
Difference in competent authorities and Q&S costs 2024							
Total adjustment relating to competent authorities and Q&S costs (Art. 28(5))							
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)	-13				0	0	-13
Difference in pension costs 2022	-58					0	-58
Difference in pension costs 2023	0						0
Difference in pension costs 2024	0						0
Total adjustment relating to pension costs (Art. 28(6))	-71				0	0	-71
Difference in interest on loans 2020-2021 (exceptional measures)	0				0	0	0
Difference in interest on loans 2022	0					0	0
Difference in interest on loans 2023	0						0
Difference in interest on loans 2024	0						0
Total adjustment relating to interest on loans (Art. 28(6))	0				0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0				0	0	0
Costs relating to change in law 2022	0					0	0
Costs relating to change in law 2023	0						0
Costs relating to change in law 2024	0						0
Total adjustment relating to change in law (Art. 28(6))	0				0	0	0
Cost exempt from cost sharing up to 2017	0	0	0	0	0	0	0
Cost exempt from cost sharing 2018	0	0	0	0	0	0	0
Cost exempt from cost sharing 2019	0	0	0	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	0	0	0	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0
Financial incentives year 2018	0	0	0	0	0	0	0
Financial incentives year 2019	0	0	0	0	0	0	0
Total financial incentives up to 2019	0	0	0	0	0	0	0
Financial incentives year 2022	0						0
Financial incentives year 2023	0						0
Financial incentives year 2024	0						0
Total financial incentives (Art. 11(3) and 13(4))*	0	0	0	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	0
Modulation of charges year 2018	327	327	0	0	0	0	0
Modulation of charges year 2019	389	389	0	0	0	0	0
Total modulation of charges up to 2019	716	327	389	0	0	0	0
Modulation of charges 2020-2021	-840				-840		
Modulation of charges 2022	617					617	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	-493	327	389	0	-840	617	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	-1 819	-1 819	0	0	0	0	0
Traffic adjustment 2019	-1 526		-1 526	0	0	0	0
Total traffic adjustments up to 2019	-3 345	-1 819	-1 526	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	-557			-557			0
Traffic adjustment on adjustments from previous RPs 2021	-341				-341		0
Traffic adjustment on adjustments from previous RPs 2022	-4					-4	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	-904	0	0	-557	-341	-4	-2
Traffic adjustment 2020-2021 (exceptional measures)	-29				0	-29	
Traffic adjustment 2022	16					16	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	-4 262	-1 819	-1 526	-557	-341	-17	-2
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-3 045	-2 482	-2 818	0	322	322	1 631
Revenues received from national public funding in 2022	-2 186			-3 671	212	212	1 061
Revenues received from national public funding in 2023	-2 197				-2 197	0	0
Revenues received from national public funding in 2024	-2 308					-2 308	0
Total revenues received from national public funding (Art. 25(3)(a))*	-9 736	-2 482	-2 818	-3 671	-1 663	-1 773	2 672
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0	0	0
Revenues from commercial activities in 2022	0			0	0	0	0
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2018	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2019	0	0	0	0	0	0	0
Total revenues from contracts with airport operators up to 2019	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2020-2021	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2022	0			0	0	0	0
Revenues from contracts with airport operators in 2023	0				0	0	0
Revenues from contracts with airport operators in 2024	0					0	0
Total revenues from contracts with airport operators (Art. 25(3)(c))*	0	0	0	0	0	0	0
Revenue difference - revision of UR 2020-2021	5 744				0	621	4 933
Revenue difference - revision of UR 2022	-1 100				0	-117	-942
Revenue difference - revision of UR 2023	95					14	81
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	4 739	0	0	0	0	677	4 062
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	-9 504	-4 356	-4 380	-4 228	-2 492	183	6 134

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs
2023 are equal to revised forecast TSUs and that
the revised plan is adopted in 2023.

Table 3 - Complementary information on adjustments

Luxembourg - TCZ Currency: Euro NSA							
Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	-28	-28					
Inflation adjustment 2019	-35		-35				
Total inflation adjustment up to 2019	-63	-28	-35				
Inflation adjustment 2020-2021							
Inflation adjustment 2022							
Inflation adjustment 2023							
Inflation adjustment 2024							
Total inflation adjustment (Art. 26)*	-63	-28	-35	0	0	0	0
Traffic risk sharing up to 2017							
Traffic risk sharing 2018							
Traffic risk sharing 2019							
Total traffic risk sharing adjustments up to 2019							
Traffic risk sharing 2020-2021 (exceptional measures)							
Traffic risk sharing 2022							
Traffic risk sharing 2023							
Traffic risk sharing 2024							
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*							
Difference in investment costs 2020-2021 (exceptional measures)							
Difference in investment costs 2022							
Difference in investment costs 2023							
Difference in investment costs 2024							
Total adjustment relating to investment costs (Art. 28(4))							
Difference in competent authorities and Q&S costs 2020-2021 (excl. meas.)	-114				0	-114	
Difference in competent authorities and Q&S costs 2022						0	
Difference in competent authorities and Q&S costs 2023	0						0
Difference in competent authorities and Q&S costs 2024	0						0
Total adjustment relating to competent authorities and Q&S costs (Art. 28(5))	-114				0	-114	0
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)							
Difference in pension costs 2022							
Difference in pension costs 2023							
Difference in pension costs 2024							
Total adjustment relating to pension costs (Art. 28(6))							
Difference in interest on loans 2020-2021 (exceptional measures)							
Difference in interest on loans 2022							
Difference in interest on loans 2023							
Difference in interest on loans 2024							
Total adjustment relating to interest on loans (Art. 28(6))							
Costs relating to change in law 2020-2021 (exceptional measures)							
Costs relating to change in law 2022							
Costs relating to change in law 2023							
Costs relating to change in law 2024							
Total adjustment relating to change in law (Art. 28(6))							
Cost exempt from cost sharing up to 2017	0	0	0	0	0	0	0
Cost exempt from cost sharing 2018	0	0	0	0	0	0	0
Cost exempt from cost sharing 2019	0	0	0	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	0	0	0	0	0	0	0
Financial incentives year up to 2017							
Financial incentives year 2018							
Financial incentives year 2019							
Total financial incentives up to 2019							
Financial incentives year 2022							
Financial incentives year 2023							
Financial incentives year 2024							
Total financial incentives (Art. 11(3) and 13(4))*							
Modulation of charges up to 2017	0	0	0	0	0	0	0
Modulation of charges year 2018	0	0	0	0	0	0	0
Modulation of charges year 2019	0	0	0	0	0	0	0
Total modulation of charges up to 2019	0	0	0	0	0	0	0
Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	0	0	0	0	0	0	0
Traffic adjustment 2019	0	0	0	0	0	0	0
Total traffic adjustments up to 2019	0	0	0	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	-8			-8			
Traffic adjustment on adjustments from previous RPs 2021	-8				-8		
Traffic adjustment on adjustments from previous RPs 2022	-0.1					-0.1	
Traffic adjustment on adjustments from previous RPs 2023	-6.1						-6.1
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	-16	0	0	-8	-8	-0.1	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						
Total traffic adjustment (Art. 27(8) and 27(9))*	-16	0	0	-8	-8	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2022	0			0		0	
Revenues received from Union assistance programmes in 2023	0				0		0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(9)(a))*	0	0	0	0	0	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-841	-995	-448	2	0	0	0
Revenues received from national public funding in 2022	0				0		0
Revenues received from national public funding in 2023	0					0	
Revenues received from national public funding in 2024	0						0
Total revenues received from national public funding (Art. 25(9)(a))*	-841	-995	-448	2	0	0	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0	0	0
Revenues from commercial activities in 2022	0			0		0	
Revenues from commercial activities in 2023	0				0		0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(9)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2018	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2019	0	0	0	0	0	0	0
Total revenues from contracts with airport operators up to 2019	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2020-2021	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2022	0			0		0	
Revenues from contracts with airport operators in 2023	0				0		0
Revenues from contracts with airport operators in 2024	0					0	0
Total revenues from contracts with airport operators (Art. 25(9)(c))*	0	0	0	0	0	0	0
Revenue difference - revision of UR 2020-2021	-59				0	-7	-62
Revenue difference - revision of UR 2022	0.03				0	-0.02	0.03
Revenue difference - revision of UR 2023	2.4					-0.34	2.07
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	-47	0	0	0	0	-7	-40
Cross-financing to (+) / from (-) other charging zone(s) 2020-2021							
Cross-financing to (+) / from (-) other charging zone(s) relating to 2022							
Cross-financing to (+) / from (-) other charging zone(s) relating to 2023							
Cross-financing to (+) / from (-) other charging zone(s) relating to 2024							
Total cross-financing to (+) / from (-) other charging zone(s)							
Total adjustments	-1 081	-423	-483	-6	-8	-120	-40

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs

2023 are equal to revised forecast TSUs and that the revised plan is adopted in 2023.

a) RP3 revised cost-efficiency performance targets (IR 2020/1627)

Terminal charging zone Luxembourg - TCZ	Baseline 2019	RP3 revised cost-efficiency targets (determined 2020-2024)				2024 D
	2019 B	2020/2021 D	2022 D	2023 D	2024 D	vs. 2019 B
Total terminal costs in nominal terms (in national currency)	14 275 844	30 885 049	14 758 082	15 289 170	15 808 863	10.7%
Total terminal costs in real terms (in national currency at 2017 prices)	13 843 792	29 829 282	13 245 680	13 135 564	13 239 595	-4.4%
Total terminal costs in real terms (in EUR2017) ¹	13 843 792	29 829 282	13 245 680	13 135 564	13 239 595	-4.4%
YoY variation		115.5%	-55.6%	-0.8%	0.8%	
Total terminal Service Units (TNSU)	56 026	86 668	53 623	56 688	60 145	7.4%
YoY variation		54.7%	-38.1%	5.7%	6.1%	
Real terminal unit costs (in national currency at 2017 prices)	247.10	344.18	247.01	231.72	220.13	-10.9%
Real terminal unit costs (in EUR2017) ¹	247.10	344.18	247.01	231.72	220.13	-10.9%
YoY variation		39.3%	-28.2%	-6.2%	-5.0%	

National currency	EUR
¹ Average exchange rate 2017 (1 EUR=)	1.00

b) Information on the baseline values for the determined costs and the determined unit costs

Terminal charging zone Luxembourg - TCZ	Baseline 2019	Actuals 2019	2019 Baseline adjustments
	2019 B	2019 A	
Total terminal costs in nominal terms (in national currency)	14 275 844	13 598 057	677 787
Total terminal costs in real terms (in national currency at 2017 prices)	13 843 792	13 190 915	652 877
Total terminal costs in real terms (in EUR2017) ¹	13 843 792	13 190 915	652 877
Total terminal Service Units (TNSU)	56 026	56 026	0

Terminal Charging Zone Luxembourg

Reference Period 3 (2020-2024)

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

1. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;

For the Luxembourg terminal charging zone, the determined costs of the respective services are the basis for cost allocation.

ANA costs are registered by nature and by type of service (AIS, ATC, C, N, S, MET, ELE, AER, PCH, SIS) based on ANA's analytical accounting.

As in RP2 the cost allocation keys applied vary according to the type of service.

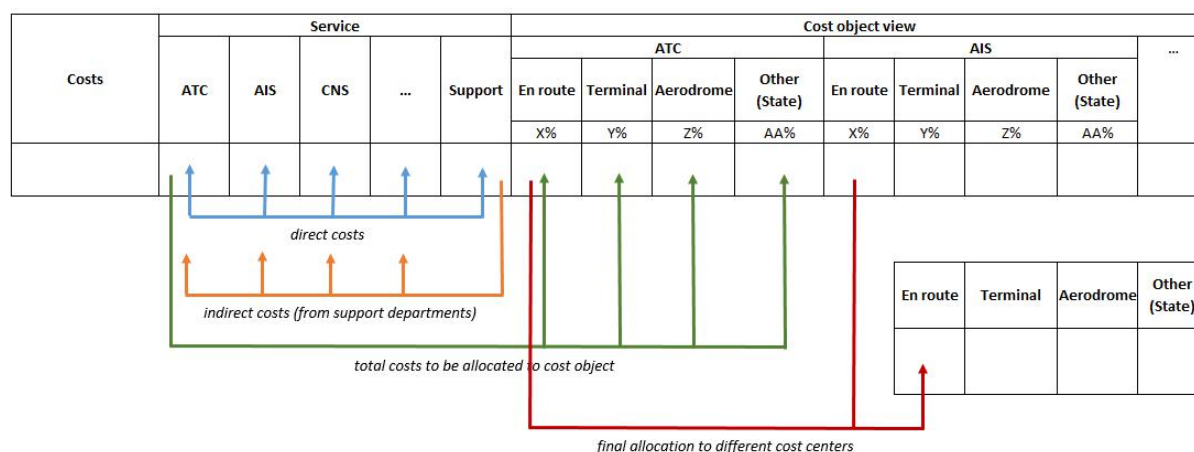
Cost allocation method

For the total cost calculation, in a first step ANA distinguishes between direct and indirect costs.

The direct costs result from the operational services ATC, AIS, NAV, COM, SUR, MET, SIS, ELE, AER and PCH, whereas the supporting services ADM, DIR, ENT, CERT, IT, RH/LEGAL and FIN are considered as indirect costs.

As a second step of the cost allocation methodology, those costs of the supporting services are allocated to each operational service, which finally results in its total costs. This distribution is done proportionally according to the share of direct costs in the operating services' total costs.

In the last step, those total costs are allocated to the different cost centers (En Route, Terminal, Aerodrome, Other), based on the applicable RP3 cost allocation key.



The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres. Part of the staff and operational costs of AIS and MET services are carried by other authorities in Luxembourg. These costs are excluded of the cost base for ANSP services and therefore not charged to the users.

Terminal Charging Zone Luxembourg

Reference Period 3 (2020-2024)

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);

VFR flights are not exempted

c) Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);

The criteria for the allocation of costs between ER and Terminal ANS are similar to RP2, based on the actual efforts and costs for service provision observed in RP2.

Within the controlled airspace of Luxembourg, a limit of 20 kms around the ELLX Airport has been considered, in order to split the costs between “En Route” and “Terminal” services provided.

Regarding the arrivals, the transfers of the aircraft are performed from approximately 60Nm inbound of Luxembourg Airport.

For the departing flights, transfers from TWR to APP are performed just after the aircraft is airborne according to the Standard Instrument Departure (SID). The “APP ATCO’s” ensure the climbing and the separation of traffic before handing over to the neighbouring “ACCs”.

In addition to these climbing and descending flights, the approach controls a considerable number of overflights above the Luxembourg territory and inside the area of responsibility of ANA.

For the “APP ATCO’s”, services provided outside of the 20 kms cylinder represent an important part of their workload.

According to the operational practices used in many European countries, Luxembourg has assigned the costs of the workload produced by those approach flights outside the 20 kms cylinder to the “En Route” cost base.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general (‘MET core costs’). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;

A share of 50% of MET costs are considered as “MET core costs” and therefore excluded of the ANSP cost base. As a consequence these costs are carried by the State.

Direct costs: Airport observation infrastructure, Aviation MET systems, Aviation MET Staff, Housing and Aviation MET costs incurred by MeteoLux dedicated operational services.

Core costs: Observation sensors, radar-, satellite-, surface (SYNOP)- observations, Numerical Weather Prediction System (including maintenance), MeteoLux overhead not directly allocated to aviation (staffing costs, several international contributions, training costs).

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

The allocation of MET costs between ANS and non-aeronautical is based on the different tasks provided by the MET department.

f) For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;

Terminal Charging Zone Luxembourg
Reference Period 3 (2020-2024)

Determined costs by nature and by service

Entity: ANA (Luxembourg ANSP)	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>A recent study on the airport capacity established by Eurocontrol demonstrates that the capacity of ELLX can increase significantly. Among all the recommendations, 2 are directly linked to the ANSP.</p> <p>The first one is related to the management of traffic on the movement area: in addition to improving the ground infrastructure, ANA is planning to implement a third position at the TWR (Ground Position), which will result in a decongestion of the TWR "AIR" frequency and de facto increase the capacity.</p> <p>The second one is to reduce lateral separation between aircraft in ELLX airspace: ANA plans to respond to the current and future significant traffic increase by implementing a third position at the approach, the feeder position, allowing the ANSP to increase the capacity within its small airspace.</p> <p>Indexation: according to Luxembourg state principles (career shifts, mobile scale)</p> <p>Additional staff in ATC: 3rd position in TWR and APP, anticipation of retirements of ATCOs</p> <p>Before the pandemic crisis ANA planned with a staff increase in AIS: due to actual understaffing and additional tasks which will be financed by the state. Due to the pandemic ANA is forced to renounce on this additional staff.</p> <p>The new staff cost forecast is based on individual salary and career planning for every agent and foresees a series of retirements without immediate replacements.</p>
of which, pension costs	<p>The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.</p>
1.2 Other operating costs	<p>New maintenance contracts linked to the new systems and equipment to be implemented, additional need for training for ATCOs (new ATCOs and anticipation of retirements, only in the first years of RP3) and ATSEPs.</p>
1.3 Depreciation	<p>The historical cost accounting method is used, with a linear depreciation.</p> <p>Significant amount of ongoing projects to be operational during RP3 (around 12 Mio. EUR).</p> <p>New investment/projects amounting to more than 25 Mio. EUR planned for RP3, of which more than 50% are in the scope of the performance plan.</p> <p>Please note: depreciation will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.4 Cost of capital	<p>Still 100% equity financed, decrease of return on equity rate from 2.78 % to 1.79%, mainly due to lower risk-free rate for 2020 and 2021. From 2022, the return on equity rate is set to zero.</p> <p>Please note: Cost of capital from the years 2020 and 2021 will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.5 Exceptional items	N/A
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	3 rd position in TWR and APP, training costs, anticipation of retirements
2.2 Communication	Need to catch-up; therefore increase of depreciation amount
2.3 Navigation	Need to catch-up; therefore increase of depreciation amount
2.4 Surveillance	Need to catch-up; therefore increase of depreciation amount
2.5 Search and rescue	N/A
Aeronautical	Renunciation on additional staff in AIS due to the pandemic: despite actual understaffing related to several new tasks and new responsibilities
2.6 Information	

2.7 Meteorological services	MET core cost are excluded and borne by the state during RP3
2.8 Supervision costs	N/A
2.9 Other State costs	N/A
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	
N/A	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Terminal Charging Zone Luxembourg Reference Period 3 (2020-2024)

Entity: National Supervisory Authority
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.

g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;

N/A

h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;

ANA (Luxembourg ANSP)	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	<p>Cost of capital rate = Cost of equity: 1.788% in 2020 and 2021 0% from 2022</p> <p>Formula: $\text{Cost of equity (Re)} = \text{Risk free rate of return} + \text{Equity beta} \times (\text{Market rate of return} - \text{Risk free rate of return})$</p> <p>Assumptions for RP3:</p> <ul style="list-style-type: none"> - Risk free rate: 0.0% - Equity risk premium: 5.96% - Equity beta: 0.3% - Share of financing through equity: 100%
3.12 Cost of leasing	n/a

Eurocontrol costs	
3.13 Eurocontrol costs (Euro)	n/a
3.1 4 Exchange rate (if applicable)	n/a

i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;

ANA (Luxembourg ANSP)	
Average asset base	
3. 1 NBV fixed assets	Significant increase of the NBV during RP3, due to the finalisation of ongoing and new projects.
3. 2 Adjustments total assets	
3. 3 Net current assets	Recovery of the net current assets from 2021 on
Cost of capital %	
3.6 Return on equity	1.788% for 2020 and 2021 – 0% from 2022

Terminal Charging Zone Luxembourg Reference Period 3 (2020-2024)

3.7 Average interest on debts	N/A
3.8 Share of financing through equity	100%

j) Description of the determined costs of common projects (point 3.9 of Table 1).

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
Total (Table 1 item 3.9)					

2. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

As the local cost-efficiency performance targets for RP3 are currently subject to revision as part of the draft performance plans to be submitted by Member States to the Commission by 1 October 2021, in line with the exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627 of 3 November 2020), the monitoring of the 2020 actual performance is carried out against the 2019 actual performance.

The main drivers for differences between actual data for 2020 and actual data for 2019 are presented for each item of cost by nature in the tables below.

RP3 Monitoring – Year 2020 vs. 2019	
ANA (Luxembourg ANSP)	
1.1 Staff costs	Increase in staff costs, mainly due to the recruitment of ATC trainees in 2019, before the pandemic-crisis. Nevertheless, one part of the cost increase is explained by the changes in the cost allocation keys.high.
1.2 Other operating costs	Slight decrease in other operating costs.
1.3 Depreciation	Ongoing prioritisation of projects due to the pandemic to reduce investment costs. A full analysis regarding the entire investment project portfolio is still ongoing with a potential for further cost savings. This analysis could lead to the cancellation and postponement of some projects. Furthermore, the decisions are strongly depending on the outcome of the ongoing negotiations for additional (unplanned) public funds due to the pandemic.
1.4 Cost of capital	Prioritisation of projects due to the pandemic to reduce capital costs. A full analysis regarding the entire investment project portfolio is still ongoing with a potential for further cost savings.
1.5 Exceptional items	

2020-2021

Please note that ANA annual accounts as of 31st of December 2021 are still subject to audit. ANA's actual costs for 2021 may still slightly change.

RP3 Monitoring – Year 2020-2021	
ANA (Luxembourg ANSP)	
1.1 Staff costs	The surplus in staff costs is mainly due to the recruitment of a significant number of ATCOs before the pandemic. In order to staff a third position in APP and in TWR as quick as possible and to anticipate a series of potential retirements as well as the usual 50% failure rate of ATC students, ANA hired a significant number of ATCOs. So far, the

	success rate of those ATC students is well above the expected 50% leading to higher salary costs for 2021 as initially planned. On the other hand, the higher success rate has a positive effect on training costs, which is reflected by a reduction of the other operating costs.
1.2 Other operating costs	The significant reduction of Other operating costs is mainly related to lower training costs and overhead costs.
1.3 Depreciation	Due to budget constraints, ANA had to revise the investment plan which lead to project cancelations and postponements. The main difference in comparison to the plan is related to the later capitalisation of the A-SMGCS project on December 31 only, although it was initially foreseen for mid-2021.
1.4 Cost of capital	The reduction in cost of capital is due to the significantly lower net current assets.
1.5 Exceptional items	N/A

RP3 Monitoring – Year 2020-2021	
NSA	
1.1 Staff costs	<...>
1.2 Other operating costs	<...>
1.3 Depreciation	<...>
1.4 Cost of capital	<...>
1.5 Exceptional items	<...>

2022

RP3 Monitoring – Year 2022	
ANSP: ANA (Luxembourg ANSP)	
1.1 Staff costs	Since the decrease of CNS staff couldn't balance out the effect, that a series of ATCOs who reached the age to retire decided not to do so, we again witness a surplus in overall staff costs.
1.2 Other operating costs	The increase of Other operating costs is mainly related to higher overhead costs and unforeseen expert costs for the CNS service in order to respond to a series of unexpected departures of ATSEPs.
1.3 Depreciation	Due to budget constraints ANA had to revise the investment plan, which lead to project cancelations and postponements. Concerning 2022, those decision although don't have yet an impact on the costs. The lower depreciation amount is mainly due to the later capitalisation of two projects, the surveillance chain upgrade and the replacement of the WAN and LAN infrastructure.
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;

2020 actual service units vs. 2019 actual service units

Actual traffic was in 2020 28,6% lower than in 2019 (in terms of service units).

2020-2021

Compared to performance plan, the number of service units were even 1,49% lower.
Figures provided by Eurocontrol were 0,61% higher.

2022

Compared to performance plan, the number of service units were 0,82% higher.
Figures provided by Eurocontrol were 0,52% higher.

c) Breakdown of the actual costs of common projects per individual project;

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
Total (Table 1 item 3.9)					

2022



d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

2020-2021

The main difference in comparison to the plan is related to the later capitalisation of the A-SMGCS project on December 31 only, although it was initially foreseen for mid-2021. As a consequence, no costs related to the aforementioned project are reflected in the actual depreciation costs.

2022

The lower depreciation amount is mainly due to the later capitalisation of two projects, the surveillance chain upgrade and the replacement of the WAN and LAN infrastructure.

e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4)..

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

2022



Terminal Charging Zone Luxembourg Reference Period 3 (2020-2024)

ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

n/a

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

n/a

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(1) and (2).

2022

<...>

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3).

2022

<...>

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3).

2022

<...>

f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);

As regards the DC and DUC for all services it should be noted that a substantial and increasing part of the costs – cost of capital, investment costs and the staff costs of the electro technical department - will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the “other revenues – national public funding” section. A total of more than 25 M€ in investments is planned in RP3, whereby more than 50% can be allocated to ANS and are thus in the scope of the performance plan.

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

2022

n/a

Modulation of charges

2020-2021

D factor

	2020	2021	2022	2023	2024
Flights D=1 total	18.943	22.566	34.756		
Flights D=1.5 total	456	352	268		
Flights D=2 total	108	91	75		
Flight number control (overall total)	19.507	23.009	35.099		

E factor

	2020	2021	2022	2023	2024
Flights E=0.9 total	6.306	7.521	13.805		
Flights E=1 total	5694	6487	8.480		
Flights E=1.25 total	4405	5236	8.835		
Flights E=1.5 total	3102	3765	3.979		
Flight number control (overall total)	19.507	23.009	35.099		

Calculation of the modulation

	2020
Unmodulated revenue	7.434.543,70
Actual modulated revenue	7.839.672,56
Over recoveries from modulation to be carried forward	-405.128,86

	2021
Unmodulated revenue	8.658.279,54
Actual modulated revenue	9.092.901,30
Over recoveries from modulation to be carried forward	-434.621,75

The actual application and relating financial advantages and disadvantages for 2020 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3)).

Under normal circumstances, the following principles would have been applied:

With the application of the new national regulation, "Règlement grand-ducal fixant le régime des redevances pour services de navigation aérienne", planned for 2020, ANA adopts the principles and calculation formula of the EU Regulation 2019/317 for the terminal charging scheme. Same as in RP2, ANA foresees a modulation of the TNC formula.

Modulation of TNC

The environmental efforts of airlines in terms of reduction of noise emission are honoured through a modulation scheme in accordance with Art 32 (b) of EU 2019/317.

TNC Charging Formula in place

The modulation formula used for the calculation of the TNC charge (below) applies for any aircraft:

$R = U \times (MTOW/50)^{0,7} \times E \times D \times \alpha$
--

Legend

R = TNC charge per departure aircraft

U = Unit rate (revised every year)
 MTOW = Maximum Take-off Weight of the aircraft expressed in tons
 E = Environmental factor
 D = Day flight coefficient
 α = adjustment coefficient

Weight factor “W”

$$W = (MTOW/50)^{0,7}$$

Calculation of acoustic factor “V”:

The acoustic factor “V” is used to define the environmental factor “E”.

The value “V” is obtained by dividing the difference between the aircraft maximum noise level value and the actual aircraft noise level value (cumulative noise values as shown on the aircraft noise certificate for lateral, approach, fly over, overflight or take-off noise levels, which has to be provided by the aircraft owner) by the number of aircraft engines.

If the owner has not provided a valid noise certificate, the aircraft will be classified in the Cat D aircraft category. The value “V” obtained refers to the aircraft category as defined below.

Aircraft categories in terms of “V”

Aircraft category Cat A (least noisiest category): $V \geq 10,0$

Aircraft category Cat B : $7,5 \leq V < 10,0$

Aircraft category Cat C : $5,0 \leq V < 7,5$

Aircraft category Cat D (noisiest category) : $V < 5,0$

Environmental factor “E”

Aircraft category Cat A : 0,90

Aircraft category Cat B : 1,00

Aircraft category Cat C : 1,25

Aircraft category Cat D : 1,50

Day flight coefficient “D”:

The factor applied is determined by the time (local) of the take-off.

Take-off (local time) 06:00:00 - 23:00:59 : 1,0

Take-off (local time) 23:01:00 - 00:00:59 : 1,5

Take-off (local time) 00:01:00 - 05:59:59 : 2,0

The modulation coefficient “α”:

Terminal Charging Zone Luxembourg Reference Period 3 (2020-2024)

The modulation of charges does not entail any overall change in revenue for the air navigation service provider. Deficit or excess recoveries result in an adjustment of the unit rate in year N + 2.

The value of the modulation coefficient α (alpha) for year N is calculated by the following formula:

$$\frac{\sum (U_{N-2} \times W_{N-2})}{\sum (U_{N-2} \times W_{N-2} \times E_{N-2} \times D_{N-2})}$$

The value α is therefore calculated by dividing the annual unmodulated income for year N-2 by the modulated income containing factors E and D (without the value α) for year N-2.

The modulation coefficient α (alpha) is set for an annual period starting on 1st January of the year and ending on 31st December of the same year. The value of the modulation coefficient α (alpha) is fixed by the ministerial regulation and published in the Official Journal of the Grand Duchy of Luxembourg in the year preceding its year of application.

2022

	2022
Unmodulated revenue	11.718.362,31
Actual modulated revenue	11.101.729,80
Under recoveries from modulation to be carried forward	616.632,51

g) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(4)).

2022

<...>

i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;

n/a

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

n/a

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

<...>

Terminal Charging Zone Luxembourg
Reference Period 3 (2020-2024)

**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION ON
COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

l) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.

n/a

Consultation Meeting on the revision of the performance plans of Belgium and Luxembourg - 31 August 2023

Participants:

Rory Sergison (IATA), Nadia Gerard (Brussels Airlines), Stephan Weidenhiller (Lufthansa), Mélissa Capizzi (EBAA), Lorenzo Van De Pol (DHL), Johan Decuyper (skeyes), Geoffray Robert (skeyes), Ilse Evenepoel (skeyes), John Santurbano (MUAC), Philippe De Coune (MUAC), Claudio Clori (ANA), Thierry Hirtz (ANA), Ralph Nickels (ANA), Pit Probst (ANA), Christine Paradis (ANA), Daniel Sousa (co-chair, LUX NSA), Sylvie Philppin (LUX CAA), Laurent Quesnel (co-chair, BE NSA), Pieter Verstreken (BE NSA), Nathalie Dejace (BE CAA), Sonja Van Nieuwenhuyze (BE CAA), Nicola Volta (PRB) Dario ... (PRB), Estelle Malavolti (PRB)

1. Welcome and introduction by heads of Belgian and Luxembourg NSA

Mr Quesnel opened the meeting on behalf of the Belgian and Luxembourgish NSA. He recalled that the current meeting was a pre-consultation as not all data are available yet. An independent review of the costs of skeyes and MUAC is not yet finalized. Therefore, a new consultation would be organized when all data would be available.

IATA recalled Art. 30 of Commission Implementing Regulation 2019/317 on the transparency of unit rates and the consultation mechanism: information for the meeting should be sent in due time (3 weeks in advance). Therefore, IATA considered this meeting as an update instead of an actual consultation (IATA).

BE NSA confirmed that the meeting could be called an update and not a consultation as an update would be given on the ongoing work.

2. Traffic and inflation scenario

BE NSA presented the traffic and inflation scenarios which were devised from the respective STATFOR (March 2023) and IMF (April 2023) scenarios. It was recalled that both scenarios were the default scenarios to be used. Regarding the traffic forecast, it was reminded that as of 2019 there was a change in the basis of the calculations. The distance included in the traffic forecast is since then based on the actual routes flown instead of the last filed flight plan.

No additional comments were formulated.

3. Overview of corrective measures included in Commission implementing Decision C(2023)3852 and proposed actions

- (a) Incorrect application of the respective legal provisions governing traffic risk sharing, cost risk sharing and incentive schemes in respect of MUAC

BE NSA stated that different options were still to be considered but at this moment in time no decision has been made.

No additional comments were formulated.

- (b) verification by the NSAs that the costs charged in RP2 for the cancelled and delayed investments in fixed assets are not double-charged to airspace users in the event that those investments materialize at later stage

BE NSA communicated that for MUAC an amount of 2 million was identified and that this amount could, subject to confirmation, be included as an exceptional cost (minus) in 2024 cost base.

Skeyes stated that for them, an amount of 5,1 Million Euro was identified. BE NSA replied that they would verify this amount.

- (c) Incorrect financing arrangements for the costs incurred for services provided in cross-border areas

BE NSA recalled that this finding is not fully under control of Belgium and Luxembourg nor BE and LUX NSA. Therefore, this issue will most likely not be resolved before the submission deadline, discussions are ongoing.

skeyes stated that this issue will be difficult to be solved before the end of RP3 but equally highlighted the need for a solution start of RP4.

Brussels Airlines asked a clarification on why this item is not under full control of Belgium and Luxembourg? The Belgian NSA replied cross border-sectors need to be to be discussed with the corresponding other states but that discussions were ongoing

- (d) Incorrect allocation of the approach costs between en route and terminal air navigation services in respect of skeyes

BE NSA indicated that this element is still under review and no decision has been taken at this moment. For information, the cost concerned for the approach amounted up to 14,8M€ in 2019.

No additional comments were formulated.

- (e) Lack of adequate justifications for excessive terminal cost-efficiency targets of Belgium Belgian government subsidies for terminal

BE NSA stated that on the level of the DUC, the terminal unit rate for EBBR is indeed 55% above the median level. However, if the annual subsidy would be taken into account, DUC would only be +/- 16% over the median level.

Skeyes indicated that in order to take into account this subsidy, it should be included in the performance plan in a structural way

Lufthansa stated that while this is correct, it still considered the costs of Brussels as too high, and that the subsidy should bring the DUC and also unit rate significantly below the average of comparable airports as for example Paris and Copenhagen. Therefore, Lufthansa called for more savings.

Skeyes questioned the statement of Lufthansa on the fact that the cost as too high.

In addition, Brussels Airlines stated that the subsidies mentioned are uncertain as they need to be approved each year. They were of the opinion that these subsidies must be automatically applied and then could be included in the performance plan.

- (f) Incorrect level of the maximum financial disadvantages in the incentive schemes of Belgium and Luxembourg supporting the achievement of en route and terminal capacity targets

BE NSA stated that in the past, the Commission argued based upon expert judgement of the PRB, that the current malus included in the incentive scheme does not have sufficient material impact. BE and LUX NSA disagree with the assessment and consider the current malus as having sufficient material impact as the current traffic situation is still not normalized.

In addition, No formal documentation on the expert judgement of the PRB was communicated.

No additional comments were formulated.

Additional elements (structural)

BE NSA presented additional elements which were considered to adjust the cost base in a structural way. At this moment in time no decision was being made. The following elements were presented:

- 2023
 - Effect update traffic and inflation forecast
 - +4,6M€
- 2024
 - Effect update traffic and inflation forecast
 - -1,9M€
 - Royal Decree DISPO (not finalized)
 - still in progress to be put into execution, state intervention of -0,9M€ estimated, depending on availability of volunteering ATCOs in Dispo
 - Review cost base skeyes
 - Effect unknown
- RP4
 - Review of MUAC cost sharing key
 - estimate: -9M€, but provisional as parameters are not yet known

Additional elements (one-off)

BE NSA presented additional elements which were considered to adjust the cost base. At this moment in time no decision was being made. The following elements were presented:

- 2023
 - Possible reduction of MUAC cost base due to inflation scenario used for 2023 or 2024
 - -6M€
- 2024
 - Unspent credits of of MUAC 2022 due to inflation scenario used for 2022
 - -9M€, can be included as an exceptional cost (minus)
 - Possible reduction of MUAC cost base due to inflation scenario used for 2024
 - -2M€

Lufthansa stated that it is good to see some movement in the cost base but stated that MUAC takes the big share of savings and that skeyes is lagging behind. Therefore, Lufthansa called upon skeyes to accelerate its cost reduction (equal to the efforts of MUAC) for 2024, and especially for RP4, for which the initial cost data already submitted for RP4 are not very encouraging.

BE NSA intervened to state that it is very difficult to make a one to one. While the efforts of MUAC should definitely not be underestimated, the figures are also the result of the inflation scenario which needed to be used for all ANSPs in the charging zone while those ANSPs used different parameters.

Skeyes stated that it was not pleased with the statement of Lufthansa and called upon Lufthansa to have a fair discussion. During the last few years substantial savings were already been made.

Lufthansa recalled that there was no agreement by the Commission yet on the Belgian-Luxembourg RP3 cost-efficiency figures, with RP4 looming around the corner. Therefore, a clear message should be sent.

Skeyes suggested to have a bilateral meeting directly with Lufthansa to discuss this element further.

4. En route: Actual Costs 2022 , 2024 unit rate and Determined Costs RP3

- Introduction by the Belgian and Luxembourg NSA

BE NSA gave an introduction by stating that the Cost base consists of the sum of the costs of all ANSPs active in the charging zone, together with the NSA and Eurocontrol costs.

Also, an explanation was given related to the actual costs of 2021 and that the difference under the cost risk between those and the determined costs was already included in the 2024 determined costs as a minus (-7.9M for skeyes, - 0.4M for MUAC). For 2022, the BE (and LUX) NSA intend to have the same approach when actual costs were below determined costs.

No additional comments were formulated.

- Traffic risk sharing

With regard to the traffic risk sharing mechanism, no deviation of the system as described in the legislation was proposed by BE and LUX NSA.

On the carry-over of the under-recoveries stemming from 2020 and 2021, art. 5 (4 & 5) of IR 2020/1627 gives the possibility to spread Carry-over over a period of 5 or 7 years. In the current proposal, BE and LUX NSA decided to include a carry-over spread over 7 years.

- Presentation of Skeyes

Skeyes gave an overview of its performance in 2022 and the execution of investments. The total cost base is 445 k€ or 0,3% lower than planned. Main explanations for the deviations are that Actual staff costs are 2,7% higher than planned mainly due to higher inflation: (10,3% actual vs. 7,8% planned) and Other operating costs which remain 12% under budget mainly due to a delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.

Skeyes indicated that it was able to revise its cost base for 2023 and 2024 with respectively 4.6 and 4.3 million euros (real terms). BE NSA indicated that they had not yet received this information and would verify the amounts.

Skeyes also stated that there was a difference of 0.4M€ between the actual and determined 2022 costs which could be included as an exceptional cost (minus) in 2024 as well as an amount of 5.1M€ of not executed investments in RP2 which could be deducted in the same way.

No additional comments were formulated.

- Presentation of MUAC

MUAC gave an overview of its performance during the last year and highlighted its main projects and programmes. The main factors impacting the execution of investments are supply chain delays and inflation. This last element creates difficulties for companies to submit replies to Calls for Tender when delivery will be weeks/months after the bid is submitted. This creates the risk of not having any bidders or a lack of competition. Additionally, the inflation puts additional pressure on salaries and the cost of goods and services.

Regarding the actual costs of 2022, there was an increase which was mainly due to the inclusion of tax compensation on pension and HQ support costs which were shifted from Part I of EUROCONTROL. Without this effect, the cost increase would have been limited to 3,5% in a context of high inflation.

MUAC also indicated that there was a difference in the actual vs. determined cost for 2022. For Belgium and Luxembourg, the MUAC actual costs are at 88,3% of the determined costs (nearly 10 million € below). This percentage is lower than for Germany and the Netherlands because Belgium and Luxembourg had already incorporated a higher inflation in the determined costs.

With regard to the determined costs 2023 and 2024, these are still under discussion. Potential measures were already presented in item 3.

Lufthansa thanked MUAC for the presentation but requested that for RP4 a MUAC-specific consultation would be organized to have a complete view. Today, there is fragmentation as MUAC is split over three consultations.

BE NSA replied that this is a possibility which could be taken into account but should first be discussed among the NSAs of the 4 MUAC states. In addition, the cost element of MUAC is included in each charging zone, and hence discussion on that level could also be seen as appropriate.

- Presentation of ANA

ANA presented an overview of its actual costs of 2022. Staff costs were higher than planned due to an increase in number of ATCOs and delayed retirements. Opex rose due to higher overhead costs. Depreciation lowered as the investment plan was revised.

Cost of capital and investment costs (depreciation), as well as the cost of the ELE staff - will continue to be carried by the State of Luxembourg throughout RP3.

As a result of a change in legislation pension costs decreased (it has become easier to obtain the “Civil servant” status, which is not subjected to pension cost). Therefore, ANA proposes to reimburse the difference to the airspace users in RP4 through the carry-forward adjustment.

No additional comments were formulated.

- State of costs

BE and LUX NSA presented the state costs which consisted of the NSA costs of Belgium And the general Eurocontrol costs (excluding MUAC).

As of 2022, the Luxembourg state decided to bear the NSA costs for the remainder of RP3.

The Belgian state decided to intervene in the Eurocontrol Part I costs and decided to bear 0.5M€ in 2023 and 3M€ in 2024.

No additional comments were formulated.

- 2024 unit rate

the current unit rate shown (€119.83) was provisional and did not yet include the changes proposed. For information, if all measures presented would be included, this would result in a unit rate of €114.01.

No additional comments were formulated.

5. Terminal: Actual Costs 2022, 2024 unit rate and Determined Costs RP3

- Traffic risk sharing

With regard to the traffic risk sharing mechanism, no deviation of the system as described in the legislation was proposed by BE NSA.

On the carry-over of the under-recoveries stemming from 2020 and 2021, art. Art. 5 (4 & 5) of IR 2020/1627 gives the possibility to spread Carry-over over a period of 5 or 7 years. In the current proposal, BE NSA decided to include a carry-over spread over 7 years.

No additional comments were formulated.

- Presentation of Skeyes

Skeyes presented the actual costs of 2022 and reported that the total cost base is 996 k€ or 3% lower than planned. Main explanations for the deviations are the Actual staff costs which are 1% lower than planned. Other operating costs remain 9% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses. Also Cost of capital is lower than planned, mainly due to a lower fixed asset base. The WACC percentage kept at 1,72% as planned.

With regard to the determined costs of 2023 and 2024, skeyes indicated that it was able to revise its cost base with respectively 4.6 and 4.3 million euros (real terms). BE NSA indicated that they had not yet received this information and would verify the amounts.

No additional comments were formulated.

- NSA costs

BE presented the NSA costs which were attributable to the charging zone of Brussels Airport.

No additional comments were formulated.

- 2023 unit rate

the current unit rate shown (€299.13) was still provisional. The annual subsidy which was granted in the past (+/- 25%) is not yet included.

6. Concluding remarks

- Brussels Airlines asked how will the revision of the performance plan will proceed as the deadline of 16 September comes nearer.

BE NSA: Timing is the problem for the performance plan, based on the information by Skeyes an update will be made. Data were not yet available because the compliance review was not finalized. Therefore, skeyes was not able to provide data in due course and as of today the NSAs did not receive the data.

Based upon the input of the Commission a second consultation after the submission deadline will be held (timeframe: beginning of October).

- Lufthansa points out that no final figures were given during the consultation and that CIR 2019/317 states that a full consultation is required. Airspace users have the right to be consulted and a consultation planned after the deadline makes it impossible to take into account our comments and input.

BE NSA: crucial issue is deadline. Due to the time constraints, NSAs were not able to provide the data beforehand. It is expected to consult the stakeholders after the submission of the performance plan to the Commission.

- IATA reiterates that this way of working is in their view not a correct consultation process. IATA expresses its concern on not having a full consultation because there is still no plan and also expressed concerns with regard to RP4, which is coming closer. IATA requests a consultation with users before submitting the plan to the Commission. Finally, IATA requests that the presentations are made available to the participants of the meeting.

BE NSA agrees with the statement made. The way of doing by Belgium does not follow the procedure defined by the relevant legislation, but also stated that the possibility to organize a consultation after the submission was advised by the Commission. The Commission also requested to organize an event before the submission and this is the reason why the meeting of today is held.

Mr. Quesnel, head of BE NSA thanked all participants for their attendance and inputs and closed the meeting.

Annex:

- Presentation BE and LUX NSA
- Presentation skewes
- Presentation MUAC
- Presentation ANA



FPS **MOBILITY AND TRANSPORT**
BELGIAN CIVIL AVIATION AUTHORITY



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
**Ministère de la Mobilité
et des Travaux publics**

Direction de l'aviation civile



Belgium-Luxembourg RP3 Consultation

31/08/2023



welcome

Introduction by heads of NSAs – Laurent Quesnel & Daniel De Sousa



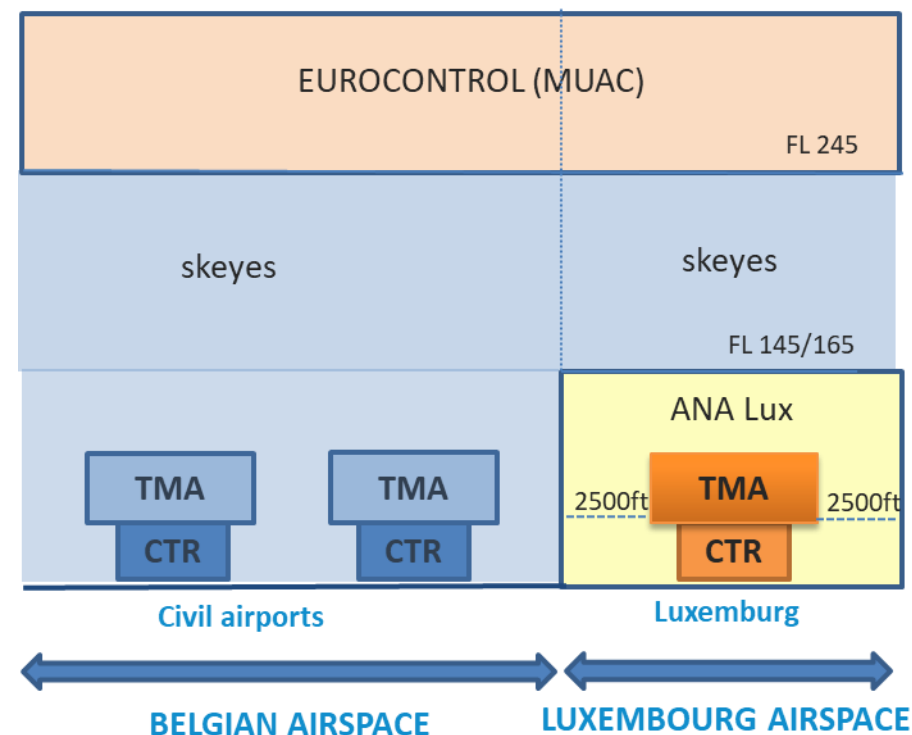
agenda

- Traffic and inflation scenario
 - Proposed scenario: STATFOR base (March 2023)
- Overview of findings and proposed actions
- En route Cost-efficiency: actual costs 2022, 2024 unit rate and determined costs RP3
 - skeyes
 - MUAC
 - ANA
 - NSA and Eurocontrol costs
- Terminal cost efficiency: actual costs 2022, 2024 unit rate and determined costs RP3
 - Skeyes
 - NSA costs
- Concluding remarks



Structure of BeLux airspace

- 3 ANSPs in the Belgium-Luxembourg en route charging zone
- Each ANSP has its own cost base



traffic + inflation scenario

En route + Brussels Airport



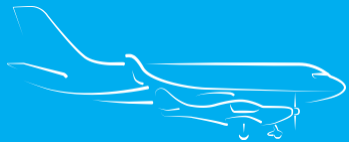
traffic scenario

- Proposed scenario: STATFOR Base from the March 2023 forecast
- En route: Adjusted to actual route flown, 3,13% deviation

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	1.240	1.275	1.249	541	639	1.023	1.160	1.244	-0,1%
IFR movements (yearly variation in %)		2,9%	-2,1%	-56,6%	18,0%	60,1%	13,4%	7,2%	
En route service units (thousands)	2.594	2.644	2.620	1.081	1.167	2.096	2.404	2.560	-0,5%
En route service units (yearly variation in %)		1,9%	-0,9%	-58,7%	8,0%	79,6%	14,7%	6,5%	

- Terminal (Brussels Airport)

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	116,1	114,9	114,6	45,7	57,1	87	96	104	-1,8%
IFR movements (yearly variation in %)		-1,1%	-0,3%	-60,1%	25,0%	52,6%	10,3%	8,7%	
Terminal service units (thousands)	157,8	161,1	162,3	72,9	93,8	131,5	146,2	161,0	-0,2%
Terminal service units (yearly variation in %)		2,1%	0,8%	-55,1%	28,7%	40,1%	11,3%	10,1%	



Inflation scenario

- IMF April 2023

	2022	2023	2024
Index	123,259	129,029	131,786
Percent change	10,334%	4,681%	2,136%

	2020	2021	2020/2021	2022	2023	2.024
5.1 Inflation %	0,40%	1,70%		7,80%	4,68%	2,14%
5.2 Inflation index (1)	103,94	105,71		113,95	119,3	121,8

Overview of findings and proposed actions

Commission implementing Decision C(2023)3852



findings

(a) Incorrect application of the respective legal provisions governing traffic risk sharing, cost risk sharing and incentive schemes in respect of MUAC

- Different options possible
- No financial effect



(b) verification by the NSAs that the costs charged in RP2 for the cancelled and delayed investments in fixed assets are not double-charged to airspace users in the event that those investments materialize at later stage

- Effect 2024:
 - Skeyes: to be determined
 - MUAC: -2M€
- Amounts could be included as an exceptional cost (minus) in 2024 cost base



(c) Incorrect financing arrangements for the costs incurred for services provided in cross-border areas

- Not fully under control of Belgium and Luxembourg nor BE and LUX NSA
- Will most likely not be resolved before the submission deadline, ongoing talks



(d) Incorrect allocation of the approach costs between en route and terminal air navigation services in respect of skeyes

- Finding is still under review, no decision taken yet
- For information, the cost concerned for the approach amounted up to 14,8M€ in 2019



(e) Lack of adequate justifications for excessive terminal cost-efficiency targets of Belgium

- Finding of the Commission does not take into account annual subsidy of +/- 25% via Royal Decree
 - If this subsidy would be taken into account, DUC would only be +/- 16% over the median, and not 55%.
- As skeyes still is conducting its review of the cost base (and operates on a company-wide level), a downwards revision is still expected



(f) Incorrect level of the maximum financial disadvantages in the incentive schemes of Belgium and Luxembourg supporting the achievement of en route and terminal capacity targets

- COM argues, based upon expert judgement of the PRB, that the current malus included in the incentive scheme does not have sufficient material impact
 - No formal documentation on the expert judgement was communicated
- BE and LUX NSA disagree with the assessment and consider the current malus as having sufficient material impact as the current traffic situation is still not normalized



Additional elements (structural)

- 2023
 - Effect update traffic and inflation forecast
 - +4,6M€
- 2024
 - Effect update traffic and inflation forecast
 - -1,9M€
 - Royal Decree DISPO (not finalized)
 - still in progress to be put into execution, state intervention of -0,9M€ estimated, depending on availability of volunteering ATCOs in Dispo
 - Review cost base skewes
 - Effect unknown
- RP4
 - Review of MUAC cost sharing key
 - estimate: -9M€, but provisional



Additional elements (one-off)

- 2023
 - Possible reduction of MUAC cost base due to inflation scenario used for 2023 or 2024
 - -6M€
- 2024
 - Unspent credits of MUAC 2022 due to inflation scenario used for 2022
 - -9M€, can be included as an exceptional cost (minus)
 - Possible reduction of MUAC cost base due to inflation scenario used for 2024
 - -2M€



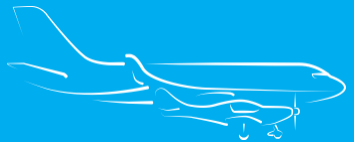
total

	2023	2024	RP4	Entity
Non-executed investments RP2		-2M€		Skeyes (?) MUAC (-2M€)
Update traffic and inflation forecast	+4,6M€	-1,9M€		STATFOR + IMF
RD DISPO		-0,9M€*		BE State
MUAC Sharing key			-9M€*	4 states
Reduction determined costs MUAC	-6M€	-2M€		MUAC
Unspent credits MUAC 2022		-9M€		MUAC
TOTAL	-1,4M€	-14,9M€ (- 15,8M€*)	-9M€*	

*final amounts unclear as some parameters are not yet known

En route Cost-Efficiency

Belgian-Luxembourg en route Charging zone



Introduction BE and LUX NSA

- Cost base consists of the sum of the costs of all ANSPs active in the charging zone + NSA and Eurocontrol costs

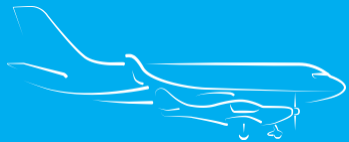
Entities	Allocated to En-route Determined Cost
skeyes	100% of en-route costs as determined by cost allocation
MUAC	32,90% (BEL) +1,02% (LUX) of MUAC overall cost base (2023)
ANA	100% of en-route costs as determined by cost allocation
NSA BEL and LUX	100% of en-route costs as determined by cost allocation
Eurocontrol	100% of BEL and LUX share of Eurocontrol costs (excl. MUAC)



2021 and 2022 actual vs. determined costs

- COM requested in 2022 to include 2021 determined costs in the Performance Plan
- Difference 2021 under cost risk already included in the 2024 determined costs as a minus
 - -7.929K for skeyes
 - -396K for ANA
- For 2022, where possible, same approach

Traffic risk sharing



Traffic risk sharing

Belgium-Luxembourg

Traffic risk-sharing parameters adapted?	no
--	----

	Dead band	Risk sharing band	Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

- Art. 5 (4 & 5) of IR 2020/1627: Carry-over can be spread over 5 or 7 years
- BE and LUX NSA included a carry-over spread over 7 years in the current proposal

Presentation skeys

Presentation MUAC

Presentation ANA

NSA and Eurocontrol costs



NSA costs

- Belgian NSA Costs are determined by two Royal decrees (23-5-2006 and 24-3-2009) and are included into the costbase
- Costs split over en route and five airports (only one included into the PP) based upon notification of changes related to each entity
- Luxembourg includes the NSA costs in accordance with the art. 22(1) of (EU) 2019/317 and art. 15(2) of (EC) 550/2004 (decision of the Ministry). As of 2022, the State of Luxembourg has decided to cover the NSA costs.

En route	2020	2021	2022	2023	2024
NSA BE	910	918	989	1023	1042
NSA LUX	175	142	0	0	0



Eurocontrol costs

- Based upon Eurocontrol cost base as presented during Standing Committee On Finance 38
- In 2020 and 2021, MUAC tax compensation and support costs are still included in the general budget via a special annex
- For 2023 (0,5M€) and 2024 (3M€), BE state decided to bear a part of the Eurocontrol Part I costs

En route	2020	2021	2022	2023	2024
Eurocontrol BE	16,354	19,303	13,090	13,189	11,277
Eurocontrol LUX	947	1,093	950	958	961



Unit rate 2024

- Provisional pending the approval of the performance plan by the Commission
- Excluding the measures proposed

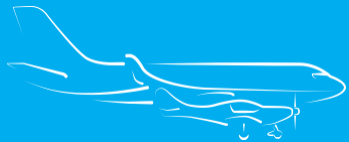
Table 2 B - Calculation of the unit rate for year n (1)		2024
13.1	Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	271.693,53
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	5.154,49
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	- 1.544,11
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 50,68
13.8	Other revenues (Art. 25(2)(i))	- 1.198,37
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	32.717,92
13.11	Grand total for the calculation of year n unit rate	306.772,8
13.12	Forecast total service units for year n (performance plan)	2.560,0
13.13	Unit rate for year n as per Art. 25(2) (in national currency)	119,83
13.14	Reduction as per Art. 29(6), where applicable (in national currency)	0,00
14	Applicable unit rate for year n	119,83

If measures proposed would be included, determined cost base would be reduced by 14,9M€, resulting in a unit rate of €114,01

BE terminal Cost-Efficiency

Belgium EBBR charging zone

Traffic risk sharing



Traffic risk sharing

Belgium EBBR

Traffic risk-sharing parameters adapted?

no

	Dead band	Risk sharing band	Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

- Art. 5 (4 & 5) of IR 2020/1627: Carry-over can be spread over 5 or 7 years
- BE NSA included a carry-over spread over 7 years in the current proposal

Presentation skeys

NSA costs



NSA costs

- Belgian NSA Costs are determined by two Royal decrees (23-5-2006 and 24-3-2009) and are included into the costbase
- Costs split over en route and five airports (only EBBR included into the PP) based upon notification of changes related to each entity

EBBR	2020	2021	2022	2023	2024
NSA BE	606	620	659	682	695



Unit rate 2023

- Provisional pending the approval of the performance plan by the Commission

Table 2 B - Calculation of the unit rate for year n (1)		2024
13.1	Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	43.811,47
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	804,77
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	- 26,83
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	287,62
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 157,45
13.8	Other revenues (Art. 25(2)(i))	-
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	2.860,74
13.11	Grand total for the calculation of year n unit rate	47.580,3
13.12	Forecast total service units for year n (performance plan)	159,1
13.13	Unit rate for year n as per Art. 25(2) (in national currency)	299,13
13.14	Reduction as per Art. 29(6), where applicable (in national currency)	0,00
14	Applicable unit rate for year n	299,13

- Annual subsidy in the past

Concluding remarks



FPS **MOBILITY AND TRANSPORT**
BELGIAN CIVIL AVIATION AUTHORITY



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
*Ministère de la Mobilité
et des Travaux publics*

Direction de l'aviation civile



End of the consultation



| www.mobilit.belgium.be



STAKEHOLDER CONSULTATION - SKEYES

31 August 2023

member of FABEC



Agenda



En-route

- I. Performance 2022**
- II. Performance outlook 2023**
- III. En route Actual costs 2022**
- IV. En route Determined costs 2023-2024**

I. PERFORMANCE 2022

Performance summary 2022



Traffic



Safety



Punctuality



Environment

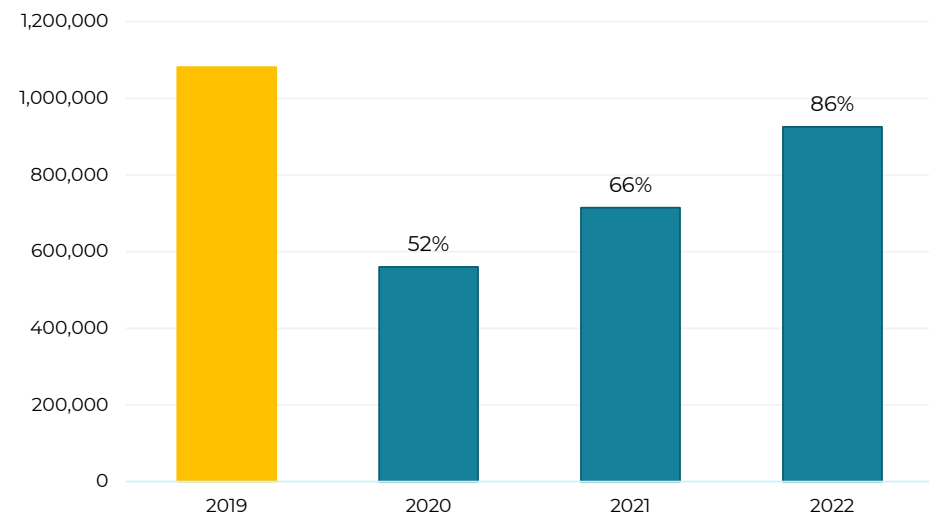
Performance summary 2022



Traffic

911,802 movements managed by skeyes

NUMBER OF MOVEMENTS CONTROLLED BY SKEYES



Performance summary 2022



Safety

0

category A
incident

1

category B
incident

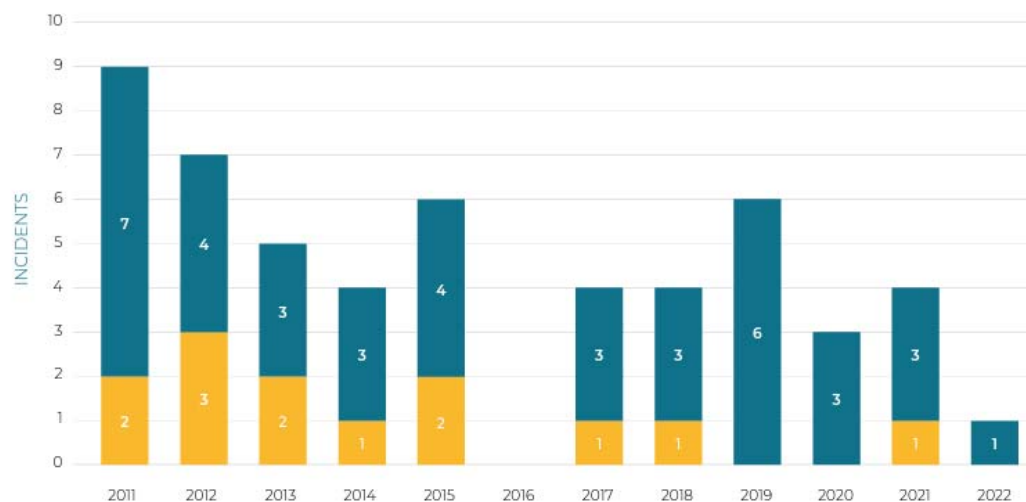
1,1

categories A and B incident
per million movements

0

category A incident per
million movements

CHANGE IN NUMBER OF CATEGORY A (SEVERE) AND B (MAJOR) INCIDENTS

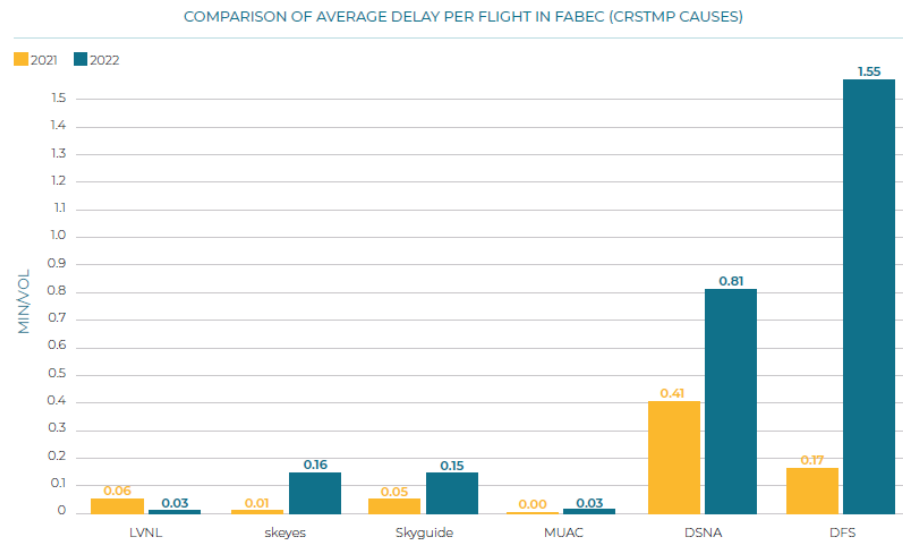


Performance summary 2022



Punctuality

98.8% of flights managed in a punctual manner



En-route: 0.16 min average delay per flight (CRSTMP causes)
Brussels Airport : 0.02 min average delay per flight (CRSTMP causes)

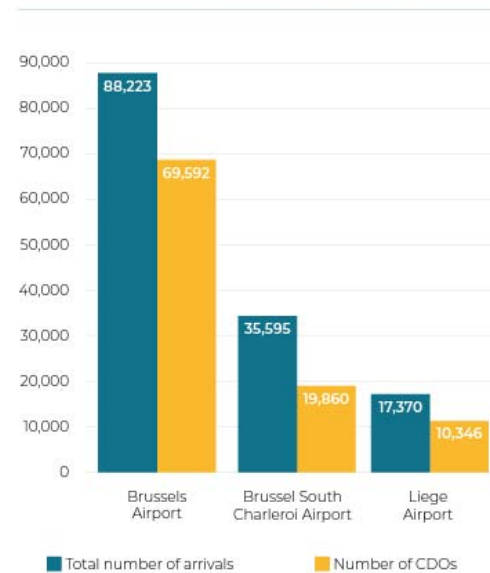
Performance summary 2022



Environment

70.7% of CDOs

NUMBER OF CDOs IN ABSOLUTE TERMS RELATIVE
TO NUMBER OF ARRIVALS IN 2022





Investments and projects realised in 2022

- **ACC**
 - Commissioning of ACC contingency platform
 - Validation of traffic complexity assessment and simulation tools (TCAST)
 - Flexible use of Airspace: Updated Airspace Use Plan
- **Airports**
 - Performance Based Navigation : RNP procedures at Liege Airport and Brussels Airport
 - Commissioning of Digital Tower simulator
 - Commissioning of A-SMGCS Brussels airport (renewal)
 - Commissioning of A-SMGCS Liege airport (new)
 - Commissioning of A-SMGCS Charleroi airport (new)

Pilots Projects in 2022



BURDI

DISPATCHER 3

II. PERFORMANCE OUTLOOK 2023

Performance summary: outlook Q1/Q2 2023



Traffic

461.518 movements (+3.9%)



Safety

0 incident A or B



Punctuality

0.08 min delay per flight CRSTMP

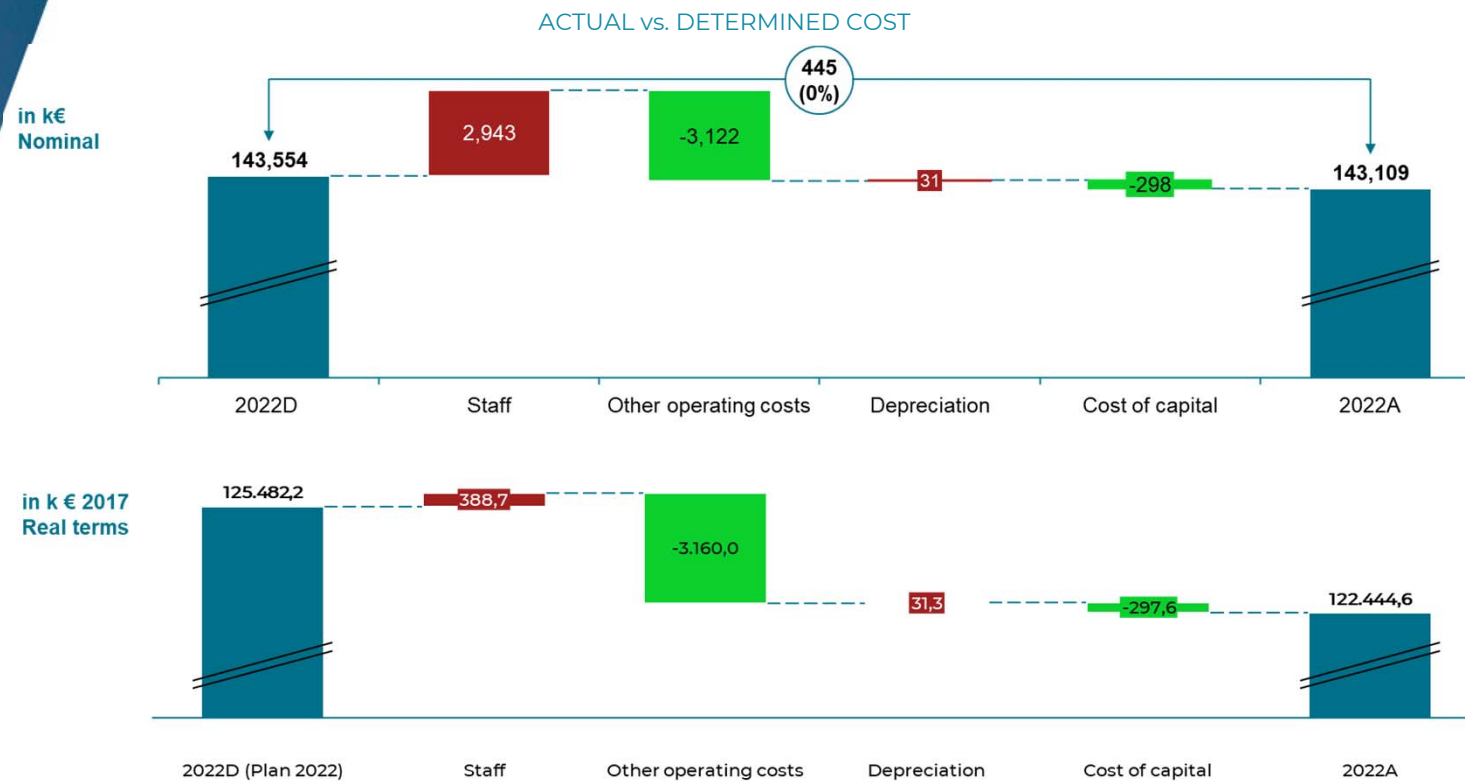


Environment

71.3% of CDOs

III. EN ROUTE ACTUAL COSTS 2022

En route actual costs 2022



99.7% of budget realisation



En route actual costs 2022

- ✓ **The total cost base is 445 k€ or 0,3% lower than planned**
- ✓ **Main explanations for the deviations**
 - Actual staff costs 2,7% higher than planned mainly due to higher inflation: 10,3% actual vs. 7,8% planned.
 - Other operating costs remain 12% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.
 - Planned depreciation is fully realized.
 - Cost of capital is lower than planned, mainly due to a lower fixed asset base. WACC percentage kept at 1,72% as planned.

IV. EN ROUTE DETERMINED COSTS 2023-2024

En-route determined costs 2023-2024

Revised cost base for the year 2023 and 2024 based on 2022 actuals

- Expected impact on the cost base : -4.3M€ from [skeyes](#)

REAL	RP3v5		RP3v6		Diff real	
Cost details	2023	2024	2023	2024	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	98,814	101,710	96,554	101,898	-2,261	188
1.2 Other operating costs	24,416	24,865	22,393	21,158	-2,023	-3,706
1.3 Depreciation	8,868	11,058	9,050	10,960	183	-99
1.4 Cost of capital	2,746	3,622	2,211	2,962	-535	-661
1.6 Total costs	134,844	141,255	130,209	136,977	-4,636	-4,278

Revised Investment plan

Investment program / project		Planned date of entry into operation July 2022	Rev. Planned date of entry into operation August 2023	Comments
ATM Next Generation (1 st phase)		2023/2024	2023/2024	This project will be delivered during RP3
Digital Towers		2025	2024	Decision to work with a Development platform in Steenokkerzeel to prepare the transition to the Center in Namur
Remote radio sites	Equipment centre	2022	2023	A delay has been caused by the time required to negotiate with the supplier that had to face huge increases of the price of steel and energy. The delivery of the 18 sites is now ongoing and following a good pace
	Remote radio sites	2024	2024	
Replacement of Radio Direction Finder		2026	2026	The project will be delivered during RP4
IT infrastructure	Network services	2024	as of 2022	This Program is delivering on a sequential mode as of 2022
	Datacentre	2024	as of 2022	This Program is delivering on a sequential mode as of 2022
	Security services	2024	as of 2022	This Program is delivering on a sequential mode as of 2022
Wide Area Networking (WAN)		2022	2023	The implementation of the WAN suffered from some delays due to technical issues at the side of the supplier. The project is now fully on track
Cooperative surveillance / ADS-b	Mode S St Hubert	2024	2024	This project is ongoing
	Mode S Bertem	2025	2024	This project is ongoing
	Mode-S Kleine	2025	2025	This project will be delivered during RP3
	WAM	2026	2027	This project will be delivered during RP4
SWIM Gateway	Upgrade ISAAC SR5	2023	2024	The project is ongoing and the transition is planned in Q3 2023
	SWIM Node	2024	2024	This project is ongoing and will be delivered next year
Replacement of ILS System		as of 2024	2023	ILS EBBR 19 has been put into operation in July 2023. ILS EBOS 26 is planned for next year
A-SMGCS EBBR	A-SMGCS (system)	2024	as of 2022	This project has been split up in three different projects. The upgrade of the MLAT has been realized in 2022 and the upgrade of the data fusion system is ongoing
	A-SMGCS 2 (Cameras)	2024	2022	
Voice communications	VCS-b HW Replacement	2023	2023	The project is ongoing
	VOIP Gateways	2025	2025	The project will be delivered during RP4
	VCS Ultimate	2024	2025	The tender procedure is taking longer than originally planned. The system will be implemented during RP4
Replacement Meteoradar		2024	2026	The tender procedure is taking longer than originally planned. The system will be implemented during RP4
DVOR/DME Replacement & Service		2021	2022	The project has been delivered with a short delay
Digitalisation of support services	Information Systems	as of 2023	as of 2022	The project has been delivered
Voice recording system		2023	2025	The tender procedure is taking longer than originally planned. The system will be implemented during RP4
Telephone system		2024	2024	This project is ongoing
A-SMGCS EBCI & EBLG	A-SMGCS EBCI	2023	2022	This project has been delivered during RP3
	A-SMGCS EBLG	2021	2022	This project has been delivered during RP3



Exceptional items 2024

Actuals 2022

Difference between actual costs and determined costs 2022 deducted from the cost base 2024

- Expected impact on the cost base 2024 : -0.4M€

Exceptional items 2024

CAPEX RP2

Depreciation costs charged in RP2 for projects delayed to RP3 deducted from the cost base 2024

- Expected impact on the cost base: ~5.1M€

Project

Vervanging ILS EBBR, EBLG, EBCI, EBOS, EBAW
Hardware en Software VRPS
Nieuw URS
Elektronicamateriaal zend- en ontvangstcentrum EBBR
CMS + RFC's
BARWIS Midlife upgrade
Uitrustings remote sites radiocommunicatie
Zenders / ontvangers vervanging A- en B-keten
Meteoradar
ILS EBBR
WAN
Vervanging VOR's/DME's
Mode S upgrade Bertem/St.Hubert + RFC's
Radar EBCI + RFC's
ILS EBLG

Agenda



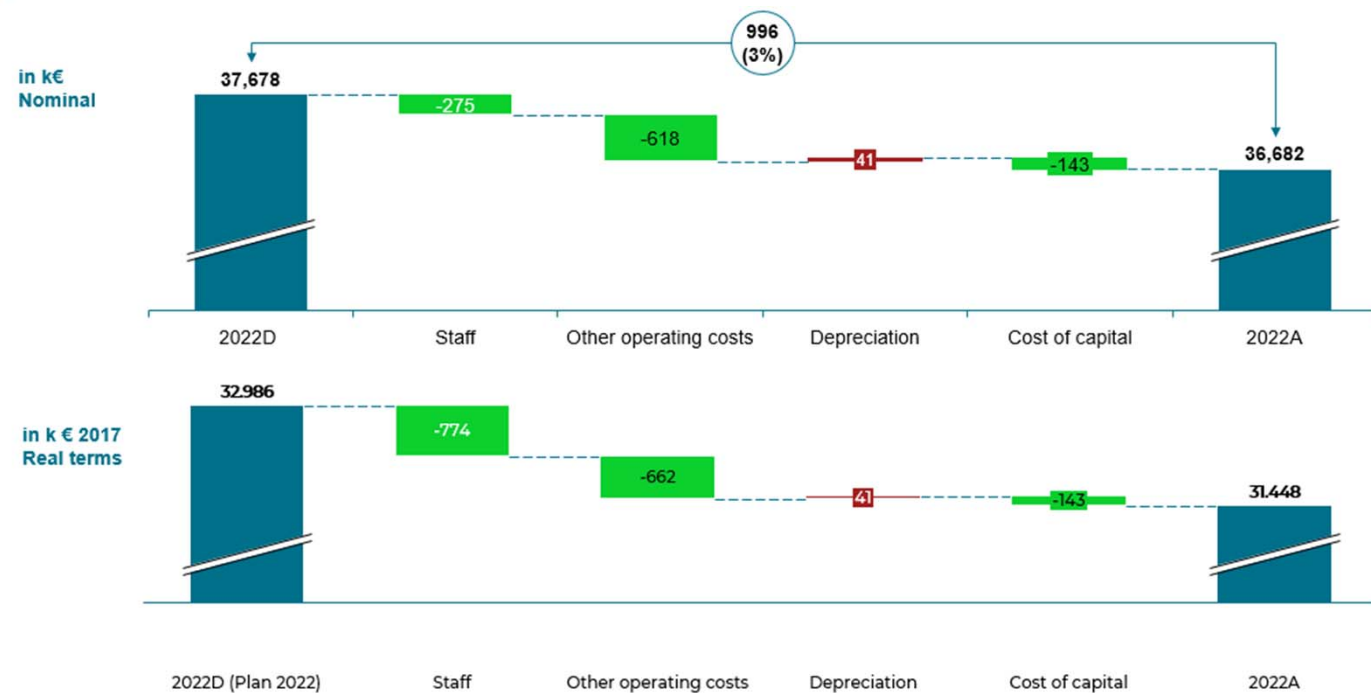
Terminal

- I. EBBR Actual costs 2022**
- II. EBBR Determined costs 2023-2024**

I. EBBR ACTUAL COSTS 2022

EBBR actual costs 2022

ACTUAL vs. DETERMINED COST



97.4% of budget realisation



EBBR actual costs 2022

- ✓ **The total cost base is 996 k€ or 3% lower than planned**
- ✓ **Main explanations for the deviations**
 - Actual staff costs 1% lower than planned.
 - Other operating costs remain 9% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.
 - Planned depreciation is fully realized.
 - Cost of capital is lower than planned, mainly due to a lower fixed asset base. WACC percentage kept at 1,72% as planned.

II. EBBR DETERMINED COSTS 2023-2024

EBBR determined costs 2023-2024

Revised cost base for the year 2023 and 2024 based on 2022 actuals

- Expected impact on the cost base : -1.4M€

REAL	RP3v5		RP3v6		Diff real	
Cost details	2023	2024	2023	2024	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	25,959	26,406	24,734	26,090	-1,225	-316
1.2 Other operating costs	6,357	6,293	6,011	5,804	-346	-489
1.3 Depreciation	2,796	3,787	2,689	3,365	-107	-423
1.4 Cost of capital	1,049	1,510	936	1,242	-113	-268
1.5 Exceptional items	0	-1,658	0	-1,597	0	61
1.6 Total costs	36,162	36,338	34,371	34,904	-1,791	-1,435

END

STAKEHOLDER CONSULTATION – MUAC

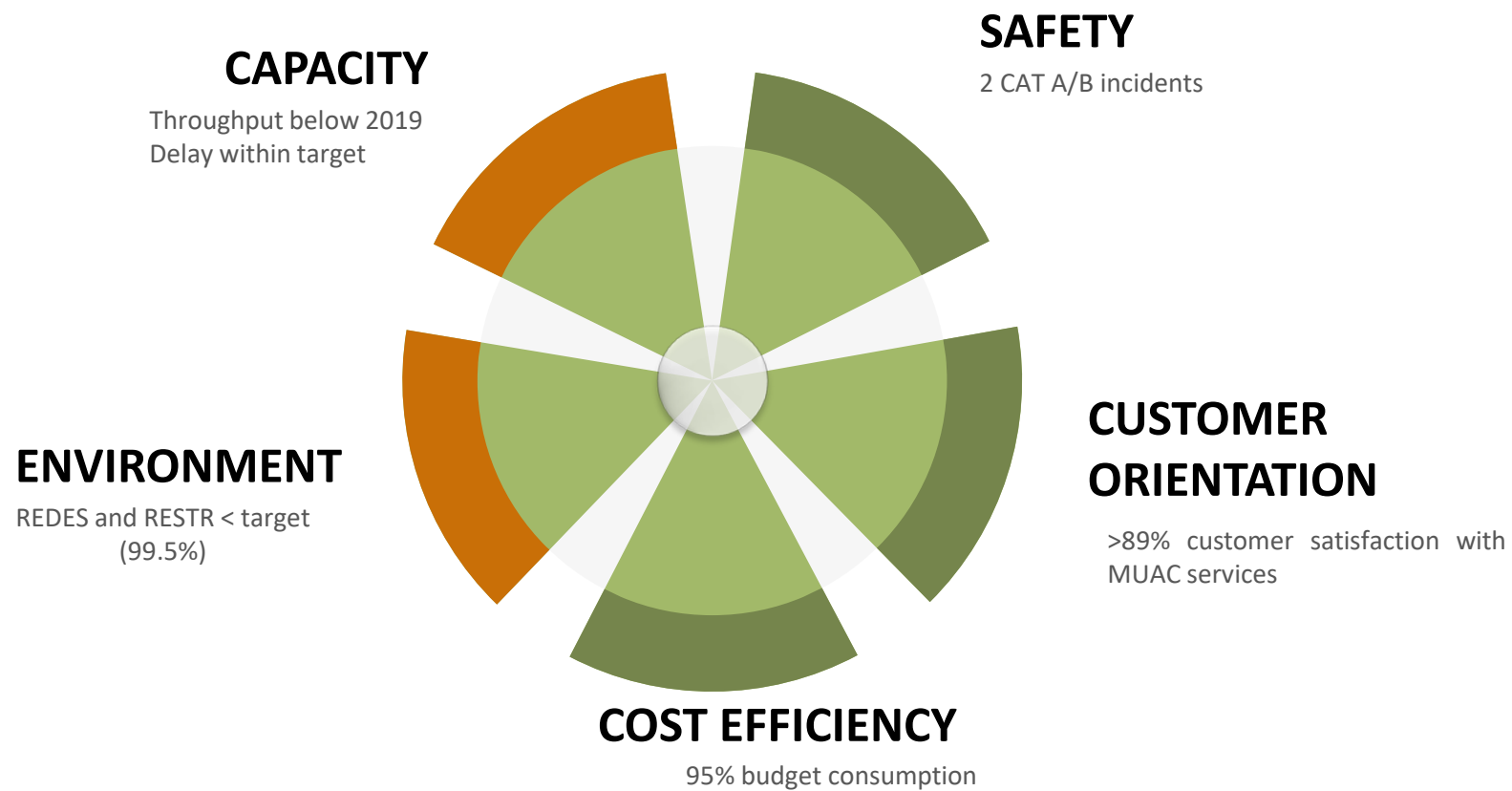
BELGIUM LUXEMBOURG – 31 AUGUST 2023

John Santurbano – Director MUAC

Philippe de Coune – Head of Finance and Procurement

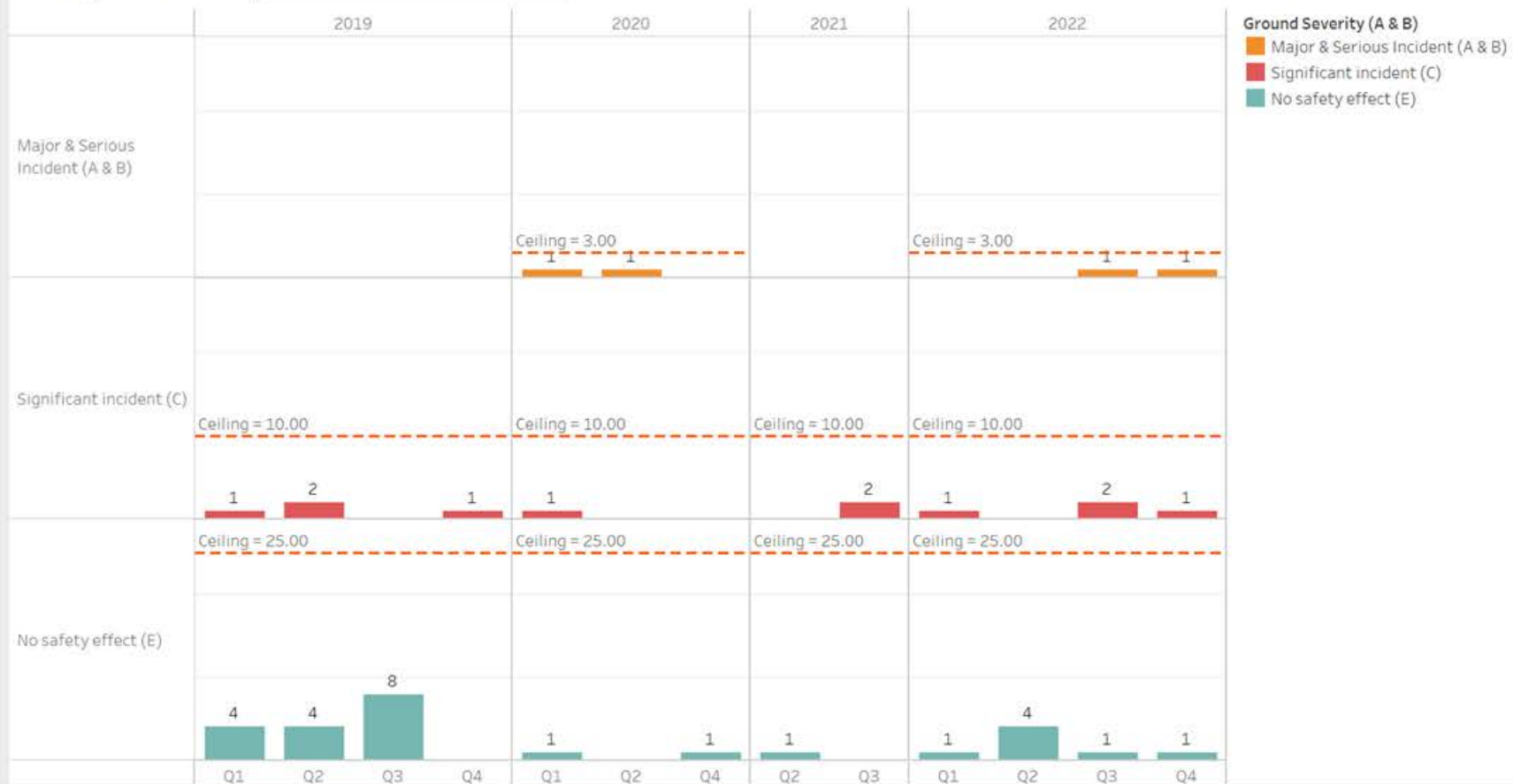
Performance and Projects

Performance Summary 2022



For MUAC, the most important safety goal is to ensure that, within its area of responsibility, it does not contribute to any accidents or separation infringements. In any case, have no more than 3 Class A/B severity incidents.

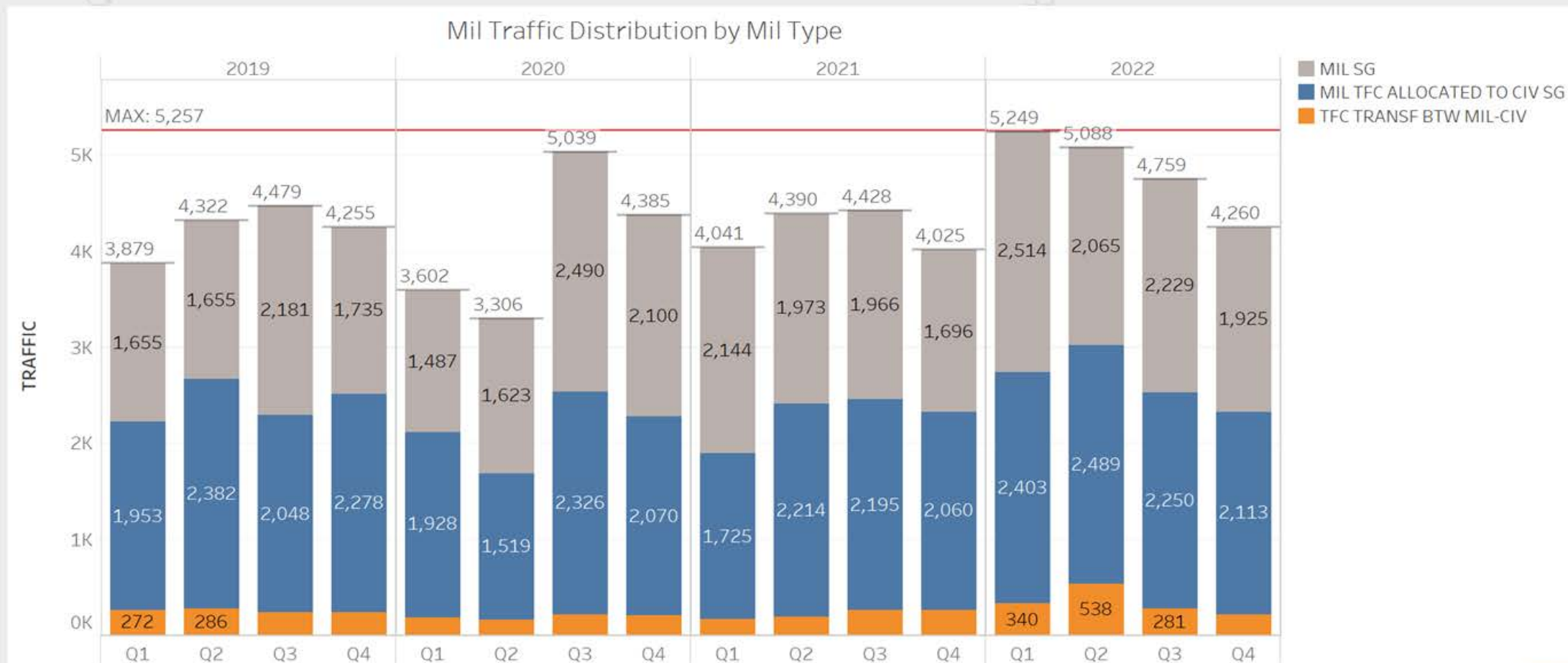
Ceiling RAT severity with MUAC contribution



2022 All Traffic		VS 2019	VS 2020	VS 2021
1,549,498		-17%	86%	65%
	2022 All Traffic	VS 2019	VS 2020	VS 2021
January	92,126	-34%	-31%	107%
February	88,527	-32%	-31%	158%
March	112,537	-24%	23%	171%
April	130,139	-16%	603%	181%
May	146,883	-10%	491%	181%
June	147,871	-11%	350%	114%
July	152,286	-14%	132%	55%
August	151,574	-12%	76%	39%
September	147,884	-12%	85%	33%
October	144,545	-13%	103%	23%
November	116,228	-16%	142%	11%
December	118,898	-15%	129%	10%
2022 Delay min		vs 2019	VS 2020	VS 2021
153,860		-51%	1320%	3734%
	2022 Delay min	VS 2019	VS 2020	VS 2021
January	78	-99%	-97%	
February	3,566	-59%	-35%	16109%
March	29,795	215%	1172%	
April	8,244	-69%		21038%
May	46,914	676%		
June	31,186	-63%		
July	6,520	-89%		889%
August	7,621	-85%	7521%	508%
September	13,507	-50%		8342%
October	2,074	-91%	207300%	82%
November	0	-100%		-100%
December	4,355	-46%		815%

MUAC MILITARY TRAFFIC

This chart shows Military Traffic Distribution in the MUAC Area.



IFR Traffic Movements, 01 Jan-31 Jul

2023

VS 2022

VS 2021

VS 2020

VS 2019

971,932

12%

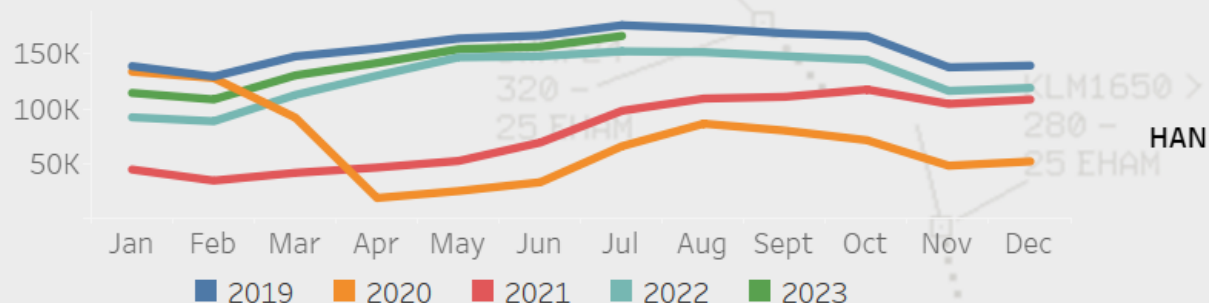
152%

495,602

-10%

	2023	VS 2022	VS 2021	VS 2020	VS 2019
Jan	114,330	24%	157%	-15%	-18%
Feb	108,415	22%	215%	-15%	-16%
Mar	130,400	16%	215%	42%	-12%
Apr	141,634	9%	206%	665%	-9%
May	154,289	5%	195%	520%	-6%
Jun	156,486	6%	126%	376%	-6%
Jul	166,378	9%	70%	153%	-6%

Evolution of Traffic in the MUAC Area (2019-2023)



IFR Traffic Movements per Sector Group - Jul/2023

BRU

Traffic : 83.879
vs Prev. Month: 5%

vs 2022: 13%
vs 2021: 74%
vs 2020: 169%
vs 2019: -4%

DEC

Traffic : 72.110
vs Prev. Month: 8%

vs 2022: 3%
vs 2021: 71%
vs 2020: 160%
vs 2019: -11%

Traffic : 71.468
vs Prev. Month: 7%

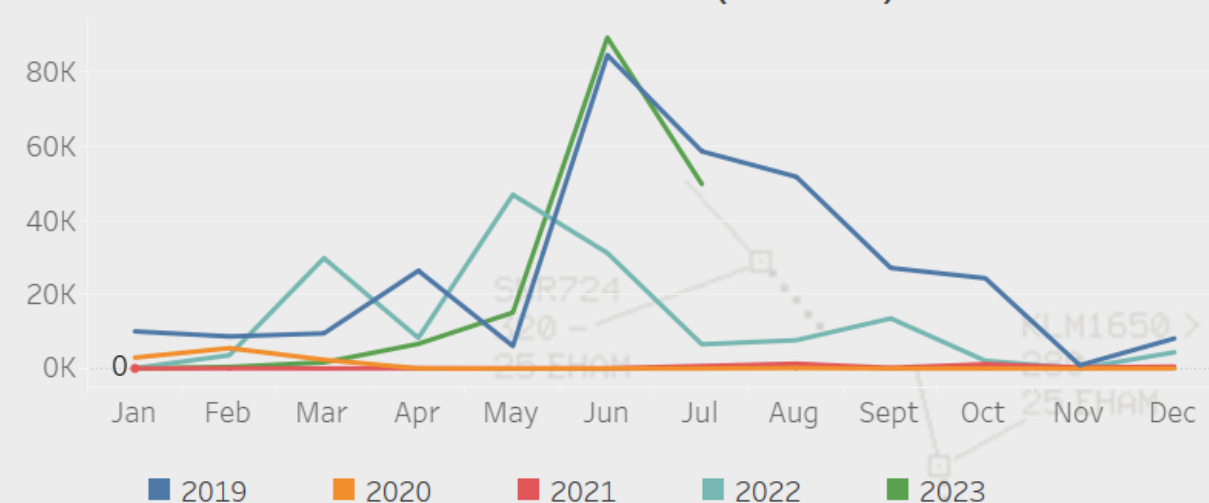
vs 2022: 5%
vs 2021: 65%
vs 2020: 140%
vs 2019: -4%

ATFM DELAY, 01 Jan-31 Jul

2023	vs 2022	vs 2021	vs 2020	vs 2019
161.195 min	28%	22288%	1401%	-22%

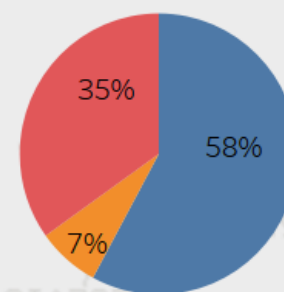
* period over period comparison

EVOLUTION OF ATFM DELAY IN THE MUAC AREA (2019-2023)

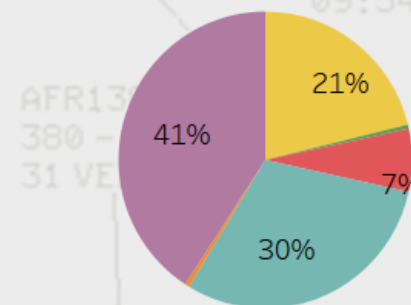


MUAC DELAY PER REASON PER SECTOR GROUP

BRU
DEC
HAN



C-ATC Capacity
M-Airspace Management
O-Other
P-Special Event
T-Equipment (ATC)
W-Weather

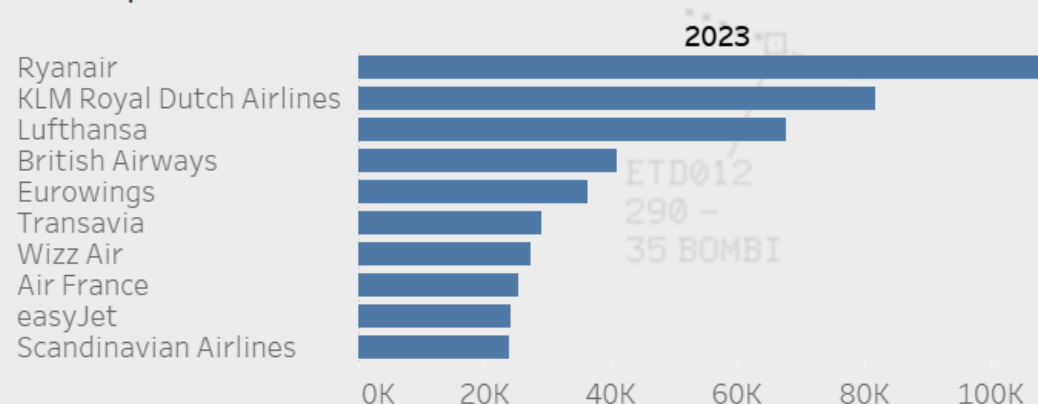


O- Other (July): System Maintenance on 12/07

STAKEHOLDER VIEW (01 Jan - 31Jul'2023)

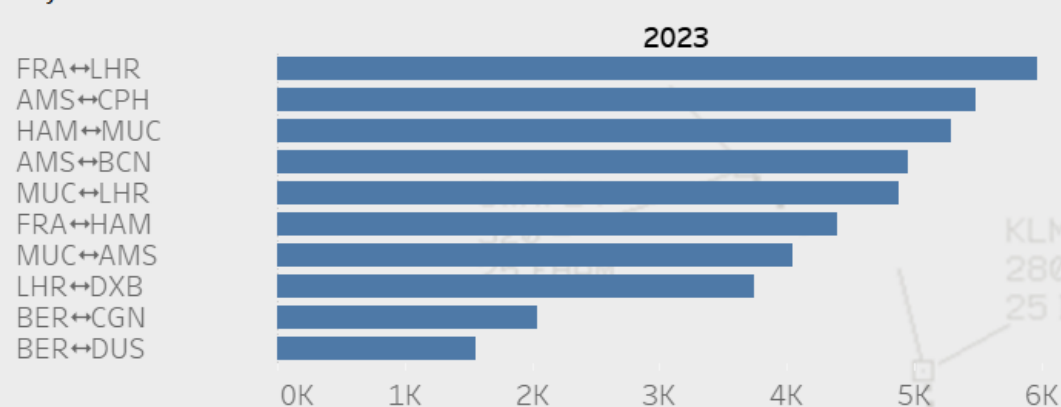
Only the top 10 in terms of flights are shown in the tables.

Aircraft Operators



	vs 2019	vs 2020	vs 2021	vs 2022
Ryanair	1%	162%	333%	13%
KLM Royal Dutch Airlines	-9%	98%	72%	11%
Lufthansa	-6%	109%	170%	12%
British Airways	-13%	130%	594%	43%
Eurowings	-25%	79%	284%	49%
Transavia	-7%	124%	196%	13%
Wizz Air	-7%	69%	199%	9%
Air France	-16%	80%	136%	11%
easyJet	-41%	141%	2571%	12%
Scandinavian Airlines	-17%	128%	369%	58%

City Pairs



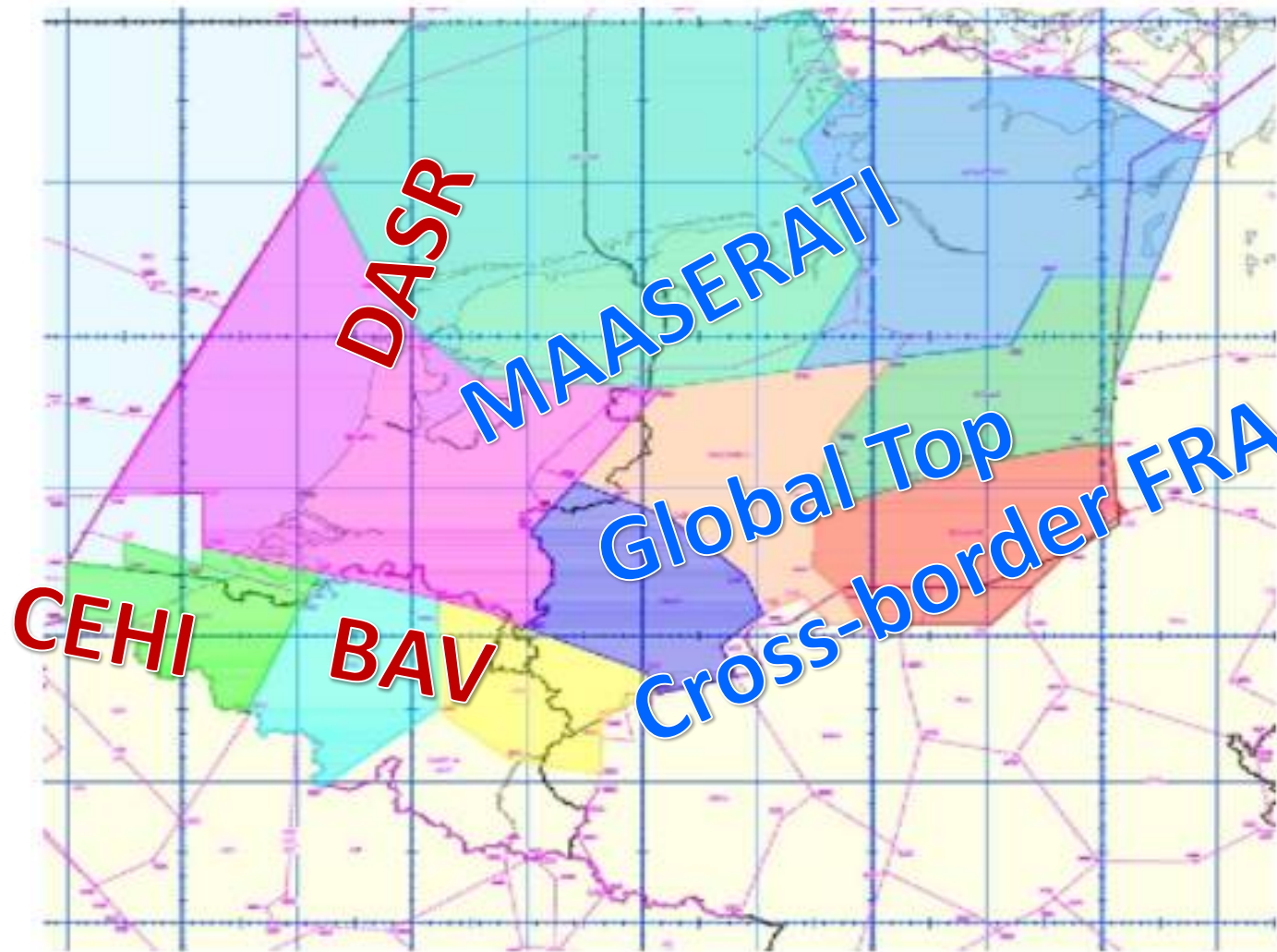
	vs 2019	vs 2020	vs 2021	vs 2022
FRA↔LHR	-14%	80%	255%	25%
AMS↔CPH	12%	140%	311%	18%
HAM↔MUC	-35%	30%	148%	10%
AMS↔BCN	2%	132%	140%	6%
MUC↔LHR	-15%	124%	802%	39%
FRA↔HAM	37%	86%	113%	20%
MUC↔AMS	-9%	94%	226%	23%
LHR↔DXB	3%	103%	156%	19%
BER↔CGN	-54%	-28%	47%	-21%
BER↔DUS	-62%	-36%	85%	-2%

MUAC MILITARY TRAFFIC

This chart shows Military Traffic Distribution in the MUAC Area.



Airspace Studies & Projects



- Projects
 - MAASERATI: operational
 - Global Top: operational
 - Cross-border FRA (with DFS)
- Studies:
 - CEHI (Central High)
 - Redesign of the UK/FR interface
 - with DSNA, NATS
 - DASR
 - with NL & DE MoT & MoD, LVNL, RNLAf, DFS, GAF
 - Belgian Airspace Vision (BAV)
 - With BE MoT & MoD

MUAC programmes

- MUAC is working on 3 threads:

CONOPS 2030

To remain best in class on operational performance: traditionally cost, capacity, productivity and delays, + customer preferences and environment

MADAP 2030

To increase the robustness and resilience of our technical systems.

ATM Data Services (ADSP)

To increase our service portfolio and thereby secure our independence (both technical and CONOPS)



CONOPS 2030 Programme: Objectives

0 Safe and sustainable operations at MUAC

1 "green operational concept" for which we want to be publicly recognized, on top of green infrastructure

2 2030 traffic handled with the same as today (i.e. 2021) amount of OPS room staff

3 Double (100% increase) the number of OPS room staff actively engaged into developments

4 Training time from ~6 to ~3 months for additional endorsement thanks to competency based training and advanced system support

5 Top layer sectors (FL 3xx+) in all MUAC airspace

6 100% traffic in top layer sectors (FL 3xx+) is CPDLC connected (best-equipped-best-served principle)

7 Non-complex CPDLC traffic in top layer sectors is controlled by an automation under ATCO supervision

8 Top layer sectors are manned by 1 ATCO (OC role) supported by the system, when situation and traffic levels permit

9 Sectors with complex traffic are manned flexibly (2-3 ATCOs) using advanced AC role & cross-sectors de-complexification process (AAPF)

10 AMC services / OAT services where feasible and mandated for full military stakeholders satisfaction

11 100% airspace users are able to express their preferences and those are taken into account with other constraints, incl. environmental impact

MADAP 2030

- Triggers:
 - Need to 'robustify' the systems with a view towards collaboration with partners
 - Move towards scalable cloud solutions
 - Internal surveys
- Ongoing:
 - Agile development:
 - Data Preparation System modernisation & AIRAC automation: preparing call for tenders
 - Flight Data Operator Renewal: design phase
 - Manpower Planning Suite: IOC in Jan '24
- New:
 - Controller Working Position Technology Study: to replace GUI toolkits
 - Cyber security: to review IT security risks and develop roadmap

ATM Data Services (ADSP): MAKAN

- Scope
 - Setting up a virtual infrastructure as two geo-redundant data centres, providing services and software solutions to MUAC and KUAC, and potentially 3rd party ATSUs, in 3 threads:
 - Reduce the OPS Gap between MUAC and KUAC
 - Implement a common system
 - Technological convergence (geo-redundant data centres, *cloud ready*)
- Costs
 - Each party covers own cost, unless effort is for one party only (e.g. iFMP)
- Timeline
 - Sept '22: PC approval
 - 2022 – 2023: implementation of first MUAC service, i.e. ATFCM/ASM services to KUAC → **iFMP@KUAC**
 - 2022 – 2028: CONOPS convergence to realise „best of both worlds“
 - 2023 – 2026: implementation of first KUAC service to MUAC
 - 2028 – 2030: common system at MUAC and KUAC based on virtual centre idea

MeDUSA (MUAC Dual System Architecture)

- Scope
 - An upgraded Fallback System to support the necessary OPS requirements for a safe transition from Primary high capacity to Fallback sustained capacity.
 - Provide the following additional functionalities on top of the currently existing:
 - Same look and feel for the ATCO's on the FLB-CWP as the PRI-CWP
 - Data Link communications (Logon & CPDLC)
 - OLDI out
- Cost
 - Effort: 7,000 md
 - CAPEX: 16 M€
- Timeline
 - Oct '21: Cooperation Agreement with SCL for FLB-FDPS (KAMI-FDPS)
 - Apr '22: Call for Tenders for FLB-CWP published
 - Q2.23: Contract Signature for FLB-CWP
 - Q4.26: MeDUSA IOC

PHOENIX

- Scope
 - New Operational Building achieving BREEAM NL Excellent certification level
 - New consoles designed to modern ergonomic standards and flexibly locatable in a brighter OPS Room
 - Improved training, test and local contingency infrastructure
- Benefits
 - Meet long-term business demands: additional sectors to handle peak traffic increase
 - Deliver future-proof operational services: new concepts and services, enable automation levels
 - Mitigate refurbishment risk
- Timeline
 - Initial presentation of the Programme in October 2020 (BFWG, MCG/99)
 - Two technical workshops for the MCG members (01/21 and 04/21)
 - Due to state of affairs in construction market and long response times, project timeline shifted:
 - 03/2023 – Delivery of the Architectural study
 - 09/2023 – The 3rd Technical Workshop for 4 States
 - 10/2023 – 4 States approval request
 - Operational use of new OPS Room: Q1.27
 - Programme finish: Q1.28

MUAC programmes

Group	Project	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Staff (MD)	OPEX	CAPEX	Grand Total
CONOPS2030 Programme	ARGOS											6130	0	0	6.130
	Best Equipped Best Served											78	0	0	78
	Contrails Avoidance											2112	0	0	2.112
	FOCUS (ATM Portal)											2839	0	0	2.839
	Full Civ-Mil Integration											226	0	0	226
	MUAC Upgraded Simulator Environment											4578	2642	104	7.324
	Optimised Sector Manning (OSM1)											993	0	0	993
	Traffic Prediction Improvement											2957	286	0	3.243
IOP Projects	ADS-C											3192	0	1423	4.615
	IOP-G Programme - First deployment											7723	0	20250	27.973
MADAP2030 Programme	MADAP 2030 Technical Consolidation											12890	4900	950	18.740
	Agile Transformation											2962	1035	339	4.336
	DPS Modernisation											3845	0	1500	5.345
	Manpower Planning Suite											4889	1150	0	6.039
	FDO Renewal											1866	0	0	1.866
MeDUSA Programme	MeDUSA Programme											7092	0	16400	23.492
Office & IT Infrastructure	Data Centre Modernisation											1605	1713	7203	10.520
	MOCA Cloud Services at MUAC											1095	192	196	1.483
	New Primary ATC LAN											438	0	1260	1.698
Phoenix Programme	PHOENIX											452	150	75630	76.232
Shared Services	ADaaS2 - Cluster deployment - Stage 1											267	163	10	440
	iFMP@KUAC											561	0	48	609
	MAKAN											5386	0	0	5.386
	SAS3											33930	0	25485	59.414
Voice Systems	Back-up Voice Communication System											595	0	9050	9.645
	New Voice Communication System											11393	0	6980	18.374
	Radio Direction Finder Extension											674	0	1861	2.535

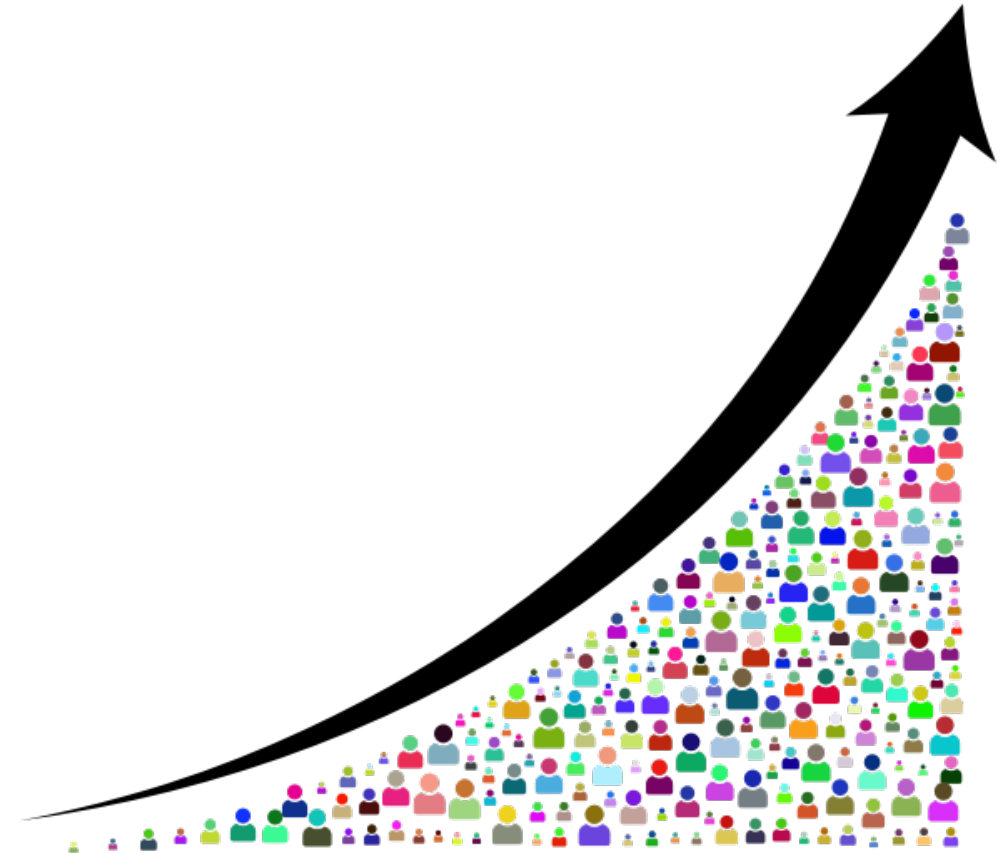
MUAC Programmes

Project

- MeDUSA – Upgraded fallback system
- ARGOS – ATC automation
- Contrails avoidance
- FLOGOS – Flow management automation
- FOCUS – Tailored B2B route improvements
- Civ/Mil integration
- Upgraded Simulator Environment
- Optimised sector manning
- Post Ops Analysis and BI
- Traffic prediction improvement
- Manpower planning suite
- ADS-C – downlinking the EPP to the ATCO
- IOP-G
- MADAP2030
- Agile transformation – software dev.
- Data Centre Modernisation
- Cloud services – Office IT
- New Primary ATC LAN
- Phoenix – new ops building
- ADSP – shared services
- Backup VCS
- New VCS
- RDF extension

Contribution

- Capacity / Business continuity
- Capacity / Cost efficiency
- Environment
- Capacity
- Capacity / Environment
- Capacity / Cost efficiency
- Cost efficiency
- Cost efficiency
- Capacity
- Capacity
- Cost efficiency
- Capacity / Safety
- On hold
- Business continuity / Cost efficiency
- Cost efficiency
- Cost efficiency / Environment
- Business continuity / Cost efficiency
- Business continuity
- Capacity / Business continuity
- Business continuity / Capacity
- Business continuity
- Business continuity
- Safety / Capacity



Main factors affecting plans

- Supply chain delays
 - IT equipment has a lead-time of minimum six months
- Inflation
 - Difficulty for companies to submit replies to Calls for Tender when delivery will be weeks/months after the bid is submitted
 - Risk of no bidders or of a lack of competition
 - Salary pressures
 - Cost of goods and services

Summary – performance & projects

- During and following the pandemic, all controllers were successfully reskilled to maintain competencies in accordance with the MUAC Traffic Recovery Plan and with the continued recruitment programme, staffing levels are on track for the coming years
- Cross training between the civil and military sector groups is ongoing to further increase the flexibility
- Artificial intelligence, automation, machine learning developments are key themes for innovation at MUAC
- Many levels of cooperation with stakeholders (Civ & Mil)
- Summer '23 going well (so far!)

Finance perspective

Evolution of MUAC Actual Costs 2021 - 2022

	2021		2022		Variance	
COSTS	€		€		€	%
<i>staff</i>	159 855 847		165 833 590		5 977 743	3.7%
<i>Tax compensation on pensions</i>	0		20 685 000		20 685 000	
STAFF COSTS	159 855 847		186 518 590		26 662 743	16.7%
<i>Operating costs</i>	22 185 529		23 094 859		909 329	4.1%
<i>HQ support costs</i>	0		2 961 993		2 961 993	
OPERATING COSTS	22 185 529		26 056 852		3 871 322	17.4%
DEPRECIATION	5 920 352		5 566 452		-353 900	-6.0%
COST OF CAPITAL	169 500		169 200		-300	-0.2%
TOTAL COSTS	188 131 229		218 311 094		30 179 865	16.0%
TOTAL COSTS (without tax compensation & HQ support)	188 131 229		194 664 101		6 532 872	3.5%

The increase is mainly due to the inclusion of tax compensation on pension and HQ support costs which were shifted from Part I of EUROCONTROL.

Without this effect, the cost increase would have been limited to 3,5% (in a context of high inflation)

Sharing keys & costs per charging zones

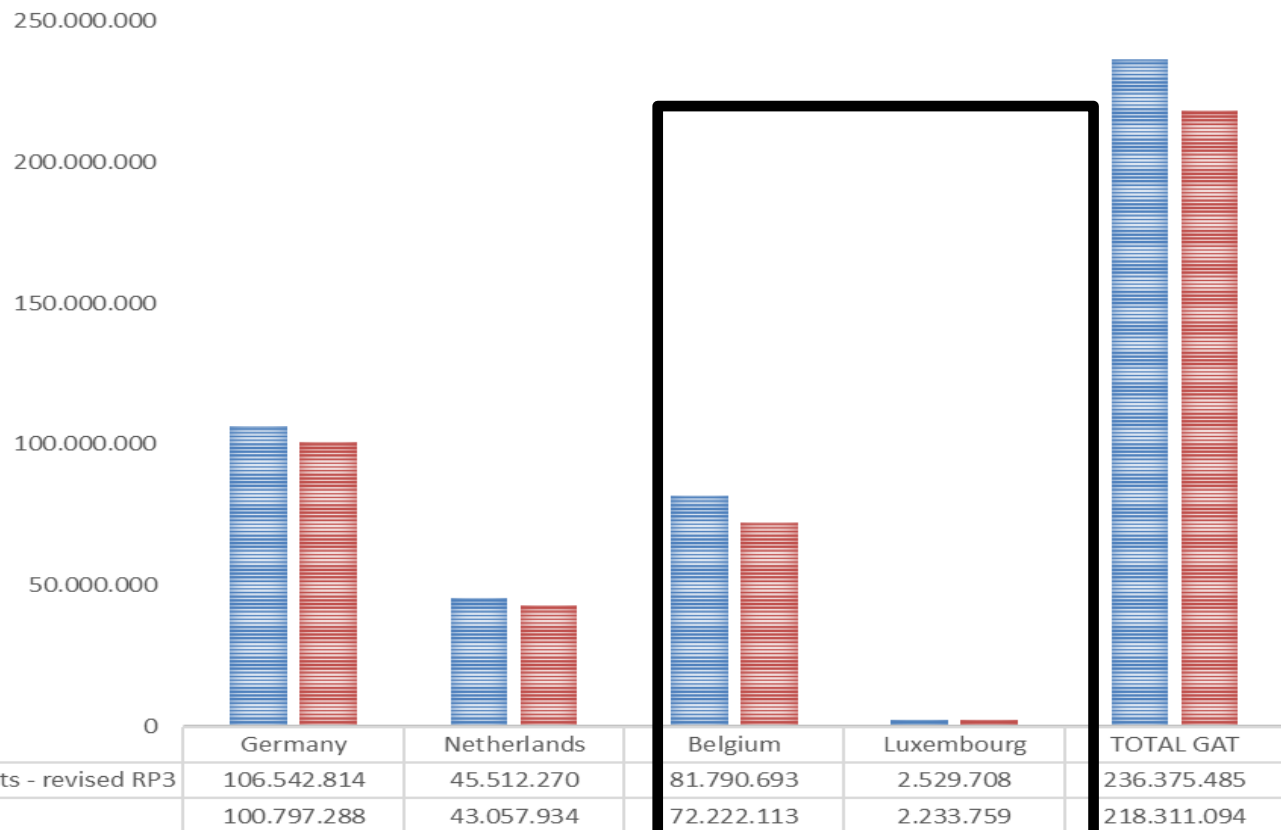
SHARING KEYS	2021	2022	Variance	
Germany	46.6140%	46.1714%	-0.9%	
Belgium	32.9525%	33.0822%	0.4%	
Luxembourg	1.0192%	1.0232%	0.4%	
Netherlands	19.4143%	19.7232%	1.6%	
TOTAL	100.0000%	100.0000%		
COSTS PER CHARGING ZONE	2021	2022	Variance	
	€	€	€	%
Germany	87 695 491	100 797 288	13 101 797	14.9%
Belgium	61 993 943	72 222 113	10 228 169	16.5%
Luxembourg	1 917 433	2 233 759	316 326	16.5%
Netherlands	36 524 361	43 057 934	6 533 572	17.9%
TOTAL	188 131 229	218 311 094	30 179 865	16.0%

The sharing keys between MUAC member states have slightly changed from 2021 to 2022

As a consequence, the cost increase is not the same for each of the 4 MUAC member states (ranging from 14,9% in Germany to 17,9% in the Netherlands)

2022 determined and actual costs per charging

**DETERMINED COST VS ACTUAL COSTS
PER MEMBER STATES**



For Belux, the MUAC actual costs are at 88,3% of the determined costs (nearly 10 million € below). This % is lower than for Germany and the Netherlands because Belux had already incorporated a higher inflation in the determined costs.

Difference in €	5.745.526	2.454.336	9.568.581	295.949	18.064.391
Actual/Determined in %	94,6%	94,6%	88,3%	88,3%	92,4%

Determined Costs vs Actual Costs 2021 -2022

Details by nature - Belgium

	Determined costs		Actual costs	
	2021	2022	2021	2022
Cost details				
1. Detail by nature (in nominal terms)				
1.1 Staff	51 662	67 862	52 676	61 704
of which, pension costs	4 469	12 576	6 168	12 037
1.2 Other operating costs	8 222	11 762	7 311	8 620
1.3 Depreciation	2 032	2 069	1 951	1 842
1.4 Cost of capital	78	98	56	56
1.5 Exceptional items	0	0	0	0
1.6 Total costs	61 994	81 791	61 994	72 222
Total % n/n-1	-0.4%	31.9%	-0.4%	16.5%

While a 31,9% increase from 2021 to 2022 was foreseen in the determined costs, the actual increase was limited to 16,5%, explained by

- inclusion of tax compensation & HQ support cost (+ 12,6 %)
- increased BE sharing keys (0,4%)
- the remaining 3,5% is mainly due to inflation on staff and operating costs

Zoom on Staff and Other operating costs

	Determined costs		Actual costs	
Cost details	2021	2022	2021	2022
1. Detail by nature (in nominal terms)				
1.1 Staff	51 662	67 862	52 676	61 704
of which, pension costs	4 469	12 576	6 168	12 037
1.2 Other operating costs	8 222	11 762	7 311	8 620

- The high inflation observed in Europe in 2022 did not impacted yet the staff cost. The increased in staff cost between 2021 and 2022 is mainly linked to increase in pension costs due to the inclusion of tax compensation on pensions.
- The same can be observed for other operating costs : external contracts (external assistance, security, cleaning, etc,) were not yet significantly impacted by inflation in 2022. The increase from 2021 to 2022 is mainly due to the inclusion of HQ support costs.

Zoom on Depreciation and Cost of capital 2021- 2022

	Determined costs		Actual costs	
Cost details	2021	2022	2021	2022
Costs of new and existing investments				
3.10 Depreciation	2 032	2 069	1 951	1 842
3.11 Cost of capital	78	98	56	56

In 2022, the actual depreciation and cost of capital (1,898 K€) is at 88% of their determined costs (2,167 K€)

Reasons for the variances are

- Slight delays in procurement of some equipment due to pressure on delivery : New Access Control System, New main and sub power distributors, Upgraded Simulators (MUSE)

Zoom on Cost of Capital

- Cost of Capital in RP3 (1,4 M€) represents a very small part of the costbase: only 0,1% of total costbase (1.096 M€)
- MUAC has no return on equity => all CAPEX financed through bank loans
- Assumption taken for RP3 : 0,44% of the NBV of fixed assets (compared to 0,72% for RP2)
- **Observed cost of capital in 2022 : 0,34%**

Total costs - Unit cost in real terms

					Without tax compensation & HQ support cost
Cost details	Determined costs		Actual costs		
	2021	2022	2021	2022	
4.2 Total determined/actual costs	61 994	81 791	61 994	72 222	64 399
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)					
5.1 Inflation %	1.70%	7.80%	3.20%	10.30%	10.30%
5.2 Inflation index (1)	105.7	115.6	107.3	118.3	118.3
5.3 Total costs real terms (2)	58 760	71 025	57 930	61 335	54 430
Total % n/n-1	-2.0%	20.9%	-3.4%	5.9%	-6.0%
5.4 Total Service Units	1 161.1	2 107.5	1 166.9	2 096.2	2 096.2
Total % n/n-1	7.4%	81.5%	8.0%	79.6%	79.6%
5.5 Unit cost in real terms prices (3)	50.61	33.70	49.64	29.26	25.97
Total % n/n-1	-8.8%	-33.4%	-10.5%	-41.1%	-47.7%

TOTAL COSTS : due to higher inflation than expected, the increase from 2021 to 2022, in real terms, is only 5.9% (versus 20.9% planned). Excluding tax compensation & HQ support cost, it would have decreased by 6%

UNIT COST : the 2022 unit cost in real terms is 29.26 € compared to 33.70 € as planned.

Determined Costs 2023-2024 – MUAC DE

Cost details		2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)						
1.1	Staff	51 662	103 312	67 862	72 260	75 121
	of which, pension costs	4 469	8 675	12 576	13 572	14 364
1.2	Other operating costs	8 222	15 754	11 762	10 797	10 453
1.3	Depreciation	2 032	5 021	2 069	2 458	2 639
1.4	Cost of capital	78	125	98	115	136
1.5	Exceptional items	0	0	0	0	0
1.6	Total costs	61 994	124 213	81 791	85 630	88 348
	Total % n/n-1	-0.4%		31.9%	4.7%	3.2%

After the significant increase observed in 2022 (+31.9% explained by the inclusion of HQ support cost and tax compensation), the foreseen increase in determined costs for 2023 and 2024 is limited to 4,7% and 3,2% respectively.

The 2023 and 2024 cost are still under discussion and a revised plan will be submitted in September 2023.

Actual Costs 2023-2024 – MUAC

In accordance with the salary indexation methodology applied in MUAC, inflation is affecting the staff costs in a progressive and smooth way and the impacts are spread over several years.

Many supplier contracts have been indexed as from 2023 in accordance with inflation observed in the Netherlands (+11,60%).

It can be expected that the actual costs for 2023 and 2024 will be higher than the determined costs.

Efforts are made to contain these increases as much as possible by applying scrutiny on new recruits and on other operating expenditure.

Summary – Financial perspective

- Cost increase from 2021 to 2022 is mainly explained by the inclusion of Tax compensation on pension and HQ support cost (shift from Part I of Eurocontrol).
- In real terms, cost increased by 5.9%. Without the impact described above, it would have decreased by 6%.
- In application of the salary indexation methodology, impact of inflation are smoothed and spread over several years.
- For 2023 and 2024, determined costs are still under discussion with EU.
- Scrutiny is applied to contain increases as much as possible.



User Consultation En Route RP3 (2020-2024)

ANA - Luxembourg

Brussels and MS Teams, 31 August 2022



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Administration de la navigation aérienne



Actual costs 2022

Actual costs 2022



Cost details	2022		
	Determined (in k€)	Actuals (in k€)	Difference (in k€)
1.1 Staff	5.103	5.350	247
1.2 Other operating costs	1.411	1.534	123
1.3 Depreciation	798	638	- 160
1.4 Cost of capital	-	-	-
1.5 Exceptional items	-	-	-
1.6 Total costs	7.312	7.522	210

- Increase of staff costs for 247 k€ : mainly due to an increase of the number of ATCO, as a few persons who could have retired decided to carry on working.
- Increase of Other operating costs for 123 k€ : mainly related to higher overhead costs and unforeseen expert costs for the CNS department in order respond to unexpected resignations of ATSEP.
- Due to budget constraints, ANA had to revise the investment plan which lead to project cancelations and postponements for a total amount of 160 k€.
- Cost of capital is nil, as the ANA is 100% equity financed

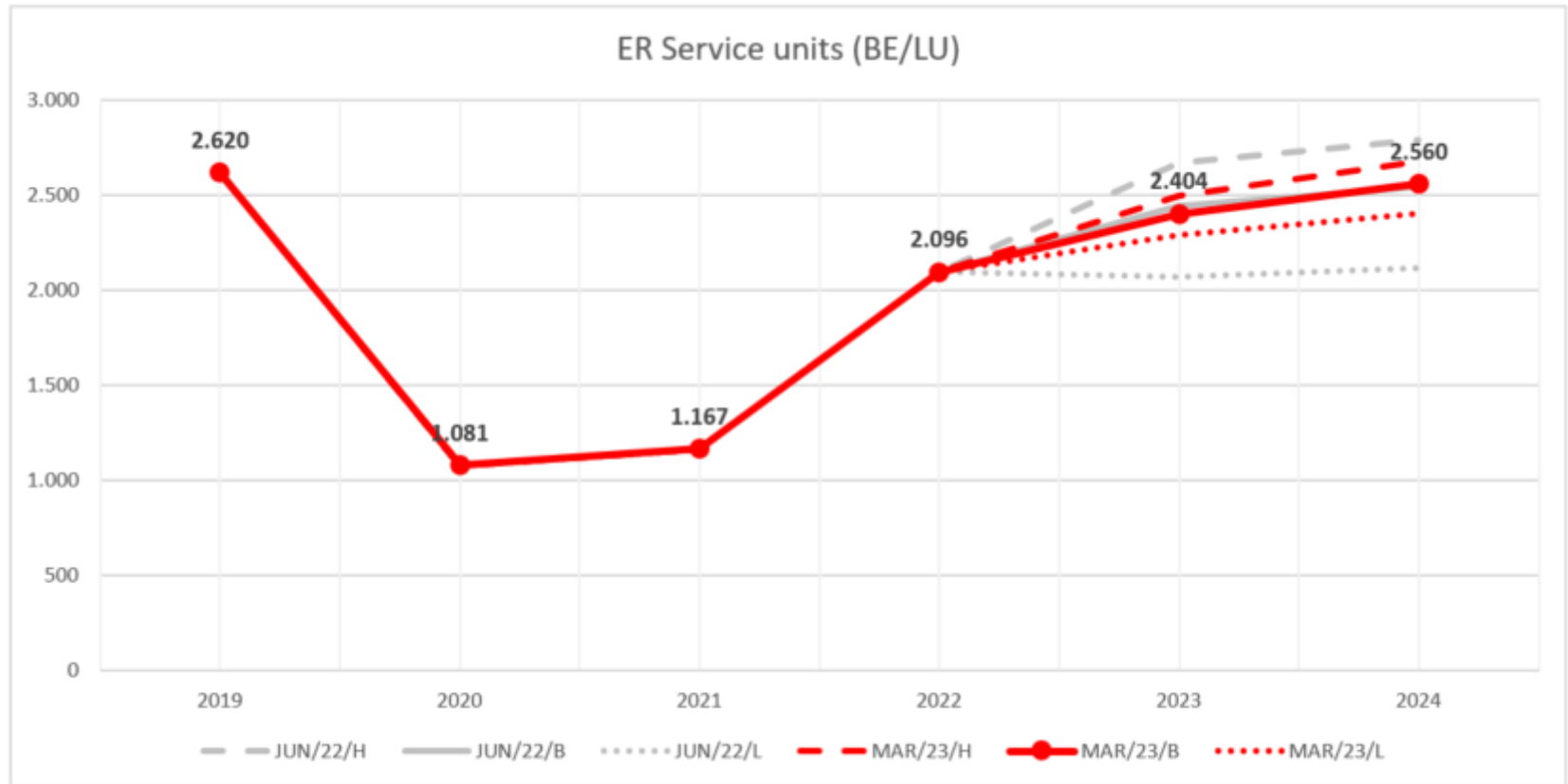


Traffic forecast update

Service units forecast (traffic scenario)



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG





Unit rate calculation



- **Cost of capital and investment costs (depreciation), as well as the cost of the ELE staff** - will continue to be carried by the State of Luxembourg throughout RP3 (other revenues – national public funding section).

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)	2020-2024 (in k€)
1.1 Staff	9.890	5.103	5.216	5.388	25.598
<i>of which, pension costs</i>	188	97	99	102	487
1.2 Other operating costs	3.656	1.411	1.561	1.586	8.213
1.3 Depreciation	1.146	798	791	828	3.563
1.4 Cost of capital	272	-	-	-	272
1.5 Exceptional items	-	-	-	396	- 396
1.6 Total costs	14.964	7.312	7.568	7.407	37.251



Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)	2020-2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407	37.251
Other revenues	- 1.854	- 2.969	- 1.217	- 1.198	- 7.238
Remaining cost	13.109	4.344	6.351	6.209	30.013



- The chargeable unit rate calculated for RP3 **before** carry forward adjustments (only ANSP part – Performance plan):

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407
Other revenues	- 1.854	- 2.969	- 1.217	- 1.198
Remaining costs	13.109	4.344	6.351	6.209
Total Service Units (forecast)	2.242	2.108	2.404	2.560
Unit rate (before carry-forward adjustments) (in €/SU)	5,85	2,06	2,64	2,43



- The chargeable unit rate calculated for RP3 **after** carry forward adjustments (only ANSP part – Performance plan):

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407
Other revenues	- 1.854	- 2.969	- 1.217	- 1.198
Remaining costs	13.109	4.344	6.351	6.209
13.2 Inflation adjustment : amount carried over to year n	235	-	102	151
13.3 Traffic risk sharing adjustment : amounts carried over to year n	68	-	-	-
13.7 Traffic adjustments : amounts carried over to year n	33	76	124	- 12
13.10 Difference in revenue from temporary application of unit rate	-	-	-	1.028
Chargeable costs	13.445	4.420	6.577	7.376
Total Service Units (forecast)	2.242	2.108	2.404	2.560
Unit rate (after carry-forward adjustments) (in €/SU)	6,00	2,10	2,74	2,88



- Pension cost : Variation between determined pension costs and actuals

	Pension cost (ER)				Total
	2020-21	2022	2023	2024	
Determined costs	188	97	99	102	
Actual costs	182	67			
	6	30			36

- Pension cost decrease as a result of a change in legislation : it has become easier to obtain the “Civil servant” status, which is not subjected to pension cost.
- Following the new legislation, the percentage of civil servant has increased, leading to a decrease of pension cost.

=> Proposal :

- We propose to reimburse the difference to the users in RP4 through the RP4 through the carry-forward adjustment.



- Investment cost : Variation between determined pension costs and actuals

	Investment cost (ER)				Total
	2020-21	2022	2023	2024	
Determined costs	1.359	798	791	828	
Actual costs	1.315	638			
Difference	43	160			204

- Due to budget constraints ANA had to revise the investment plan, which lead to project cancelations and postponements. Concerning 2022, those decision although don't have yet an impact on the costs. The lower depreciation amount is mainly due to the later capitalisation of two projects, the surveillance chain upgrade and the replacement of the WAN and LAN infrastructure.

=> Proposal:

- In Luxembourg, the investment costs are born by the State and offset via the "Other revenue" mechanism. As a result, no cost is incurred by the users.
- As the users have not been charged any investment cost, we propose not to make any reimbursement.



Thank you for your attention!

Pieter Verstreken

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Verzonden: dinsdag 12 september 2023 16:59
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Onderwerp: RP3 consultation BE-LUX

Dear stakeholder,

Due to technical issues, I couldn't attend the consultation meeting on August 31st. However, it is important to react on the so-called proposed actions by the European Commission like mentioned in the presentation and the document proposed by the Commission in the Single Sky Committee where they want to amend the DISPO functional availability regime applied in Belgium, in view of reducing its impact on the cost base of the Belgium-Luxembourg charging zone.

By proposing this, the European Commission is interfering directly into the social dialogue within skeyes. The dispo rules and legislation is a consequence of social negotiations and agreements of the past and these are until today of enormous importance to us. We also state that the European Commission has no role in social negotiations, neither can they oblige to change CBA's or agreements that are a consequence of the social agreements. In this matter, this is the case.

As biggest union in Belgium and at skeyes, we want to make clear that attempts to do so or attempts to attack agreements that were concluded with us, will have an immediate consequence and will initiate industrial action if needed. Hereby, we also inform all our colleague-unions on this topic.

In solidarity,

Kurt Callaerts

algemeen sectorverantwoordelijke Maritiem-Luchtvaart

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FPS MOBILITY AND TRANSPORT
BELGIAN CIVIL AVIATION AUTHORITY



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Direction de l'aviation civile

Annex C – BE/LUX – RP3 revision en route traffic scenario and cost efficiency stakeholder consultation – 18/08/2021

Minutes of the BeLux En-Route RP3 Stakeholder Consultation

Date: 18 August 2021

Location: videoconference held via Teams

Attendees:

Name	Organisation
Callaerts Kurt	ACV-CSC
Clarysse Kris	BSA-ANS (BE NSA)
Clori Claudio	ANA
De Coune Philippe	MUAC
Evenepoel Ilse	skeyes
Fischbach Pol	ANA
Gerard Nadia	Brussels Airlines
Gillardry Conor	Ryanair
Hidalgo Jose	NSA Luxembourg
Hirtz Thierry	ANA
Huet Denis	PRU
Jeeves Christopher	MUAC
Mervilde Lennert	VSOA
Ollongren Hans	PRB
Philippin Sylvie	NSA Luxembourg
Pille Stefan	TUEM
Platteau Joris	BSA-ANS (BE NSA)
Probst Pit	ANA
Puig Rochès Laura	EY on behalf EC
Reiter Marc	Ministry of Mobility and Public Works - Luxembourg
Robert Geoffray	skeyes
Schröder Björn	NSA Luxembourg
Sergison Rory	IATA
Snauwaert Vincent	TUI
Vanderscuren Stéphanie	skeyes
Vanheyste Patrick	BCAA
Verstreken Pieter	BSA-ANS (BE NSA)
Volker Dick	TUEM
Weidenhiller Stephan	Lufthansa group
Zandstra Johan	KLM

Chairpersons:

- Kris Clarysse, head of Belgian Supervisory Authority for Air Navigation Services (BSA-ANS)
- Björn Schröder, Luxembourg National Supervisory Authority (LUX NSA)

Moderator: Pieter Verstreken (BSA-ANS)

Secretary: Jose Hidalgo (Lux NSA)

1. Opening

Kris Clarysse opened the meeting and welcomed the participants.

This meeting addresses the En-route BE-LU cost-efficiency part of the Performance Plan, the FABEC part of the Performance Plan will be addressed in a separate meeting on 2 September 2021.

Floor was given to Björn Schraeder, who introduced himself and welcomed the participants.

Floor handed to Pieter Verstreken who would moderate the discussions and who introduced the participants.

Slides with main items of the agenda were presented:

En-route traffic scenario was presented. Lots of uncertainties on the evolution of traffic for the coming months are still present. An adjusted scenario based on the STATFOR forecast of May 2021 was chosen as a baseline. Charges are based on actual flown route as opposed to RP2 where the last filed flight plan was used as the distance indicator.

Traffic is close to the high prediction of Eurocontrol for the entire Eurocontrol area. However, the situation is not exactly the same for the BeLux en route charging zone. Although currently observed traffic for skeyes adheres to scenario 1, for MUAC a more modest 9 and 10% increase is observed, well below the projected scenario 1. There is a reticence to fully take onboard this current traffic increase by the BSA-ANS and LUX NSA, as it was also the case during last year that the traffic increased during summer prior to crashing afterwards.

European Commission has foreseen the opportunity to adapt the traffic forecast during the completeness verification process after the submission deadline of 1 October in order to use the most recent traffic forecast which will be published mid-October 2021. In this context, a sensitivity analysis is presented. Stephan Weidenhiller asked if this opportunity is also valid for the costs. Pieter Verstreken clarified that the adaptation is only allowed for the traffic forecasts, not for the costs.

Kurt Callaerts: For our organisation the initial implementation of the traffic risk sharing mechanism is not appropriate. Covid-19 has pushed it over the edge. Terrorism has been an issue in early 2000s and new risks will emerge. He hopes this message is passed to the EU Commission.

Introduction of the BE-LUX charging zones, establishment of the cost base and traffic risk sharing (TRS) mechanism. Regarding the TRS, the standard parameters are considered. The 2020-21 carry-over will be spread over 7 years.

2. Presentation by skeyes

Geoffray Robert presented the slides provided.

Stéphanie Vandescuren, responsible for the projects portfolio, covered the investments in RP3.

Resourcing presented by Geoffray Robert.

Q&A on presentation by skeyes:

Kurt Callaerts: review of strategic plan of skeyes is to have focus also on other aviation sectors that are not the core business of an ANSPs, like Skeydrone subsidiary. The introduction of RP1 was the origin of the financial problems suffered in 2010 due to the introduction of new EU Regulation. If the same issue is done now the same problems will reoccur. There is not a lot of progress perceived up to the last months, maybe SAS3 can create some momentum but as the unions are not involved in the project, they cannot see how it will turn out. Not clear what part of the cost is taken over by the military. Surveillance roadmap includes agreements with regional airports. However, the extent of those agreements is not clear. IT costs are reduced by replacing staff with consultants; doubt is raised on whether the targets will be achieved. It is perceived that not enough trainee ATCOs are being engaged. Concerning Entry Point North Belgium (EPNB) privatization of the training, it is questioned whether this is actually a cheaper solution, regardless whether it resulted in quitting the training center of Skeyes and it is seen as less efficient as fewer ATCOs are succeeding in their training. More investments on ATSEPs are also needed. Overall, he considers the staff costs underestimated not only the costs linked to Air Traffic Services (ATS).

Geoffray Robert: Only the costs for En-route are presented here, other costs are clearly separated in the accountability. Skeydrone is handled as a daughter company. The financial situation of the company deteriorated indeed in the period 2010-2015, but was eventually resolved. With regard to the airspace revision (vision) a partnership has been developed and SAS3 is moving. Loan from the government was received and nothing was transferred to defense. Regarding consultants, it is being discussed with the unions, it was explained that sometimes the right people with adequate qualifications cannot be found on the market and a consultant is needed to fill the gap. A Cost Benefit Analysis (CBA) for the training center was done in the past and it was decided to set up the joint venture as a consequence of the outcome of this CBA.

Nadia Gerard (Brussels Airlines – also on behalf of Belgian Air Transport Association): It is not clear what the contribution of the Belgian defense to the communication project is.

Stéphanie Vandescuren explained that a financial arrangement and financial balance with defense exists. All the costs are recorded and at the end of each year, the balance is established in order to invoice the rights costs to the right beneficiary.

Stephan Weidenhiller (Lufthansa):

Staff costs questions:

General remark- concern on the performance planning and statement on it not reaching the EU targets significantly. He pointed out that more flexibility was needed with regard to staff and recruitment costs.

What steps have been taken to address the increase in cost between 2019 and 2024, as the level of service units will most likely not be up to 2019 level before the end of RP3.

Skeyes: Investment cycle does not follow the same cycle as the performance plan and is always a long term exercise. Some investments were postponed when the Covid-19 crisis hit, but they cannot be delayed forever and skeyes will have to pick up the pace in order to avoid the same situation as in 2010 . Therefore, investments and the corresponding CAPEX spent will start to rise again in 2022.

What is the base scenario for staff planning?

What amount of ATCOs are required to be hired for training in order to reach the forecasted number of trained ATCOs?

Why 200 new ATCOs will be hired when 48% (aged 45 and older) of the current ATCO workforce will be leaving?

Skeyes: apart from the fact that a lot of ATCOs will retire, already a shortage of ATCOs existed. In order to be fully staffed, additional hirings are needed. Next to this, the current success rate is low. Many candidates are lost during the training process. One of the most important elements is the fact that skeyes, due to the high airspace complexity, needs highly qualified ATCOs with specific skills.

When will ATCOS be hired? When will they be ready? Are those numbers corrected already?

Why is the retirement cost not taken over by BE?

Why is the early retirement not covered by BE?

Why were contributions to the pension fund for the executive committee not stopped in 2020 and 2021, as airlines did?

Staffing plan is requested in more detail than a couple of columns, including the number of supporting staff. Basically, the number of ATS and supporting staff is not transparent.

Moreover, he questioned a few technical investments not being justified for the En-Route part of the Performance Plan.

Skeyes: regarding the ATCO's training, Geoffray Robert draws the attention on the fact that neither the training, neither the investments are strictly correlated with reference periods and traffic scenarios. It is needed to invest proactively in order to tackle the traffic in the subsequent years. Also important to note is that ATCOs are civil servants, and the fact that they have to be paid even when they are not in the OPS room anymore (>55y, gradually going up to 58 by 2030) is imposed by Royal Decree. Hence the cost has to borne by skeyes. Skeyes took note of the suggestion to (temporarily) stop the contribution for the pension fund for contractual members of the executive committee. More information will be sent in the post meeting documentation.

Rory Sergison (IATA) on staffing:

Critised the recent staff cost increase of 7% from 2019 to 2020 in "the current crisis". Belgium increased costs during the crisis. Not enough transparency to understand why this was the case. The 2019 plan submitted by Belgium did not make it through any of the checks performed by the PRB and Commission, although not rejected. Here we are looking again at a plan that looks like a plan to fail without justification. Why was the aging staff not addressed during RP2?

Why do we need to pay for this management decision in RP3?

What about the radar saturation?

ADS-B is it ground or space-based?

Is there an over-recruitment to not fall again into RP2 errors?

What is the failure rate? Why is it so high? It seems to be an anomaly, opposite to what will be reported by MUAC. Although it is not more complex than London TMA or AMS Schiphol.

Skeyes: the increase in staff costs can be explained by multiple elements. There were many recruitments in the course of 2019. Consequently, they were only in 2020 on the payroll for a full year for the first time. Next to this, the ATCO-hirings were not stopped due to the reasons already

described earlier. Lastly, the change in cost allocation method also resulted in a rise by shifting staff costs from the terminal to en route cost base.

Skeyes further recognizes that the current success rate is an issue and intends to work on it. Skeyes is aware that this rate is perceived as not good by the airlines' association. Solutions are being sought to better select prior to the training and to improve ab initio training.

How many people were recruited in 2019? Did people go directly into pay-roll? Did they go into a partial pay-roll?

Skeyes: It is not only ATCOs, also technicians. A break-down was promised to be provided after the meeting.

Volker Dick (Air Traffic Controllers European Unions Coordination - ATC EUC): General Remark- every 5-6 years we are talking about ATC controllers needed for peak traffic, when there is no peak traffic this can be used for training. He considers the current situation rather being an "understaffing" and that this could also lead to further capacity worsening.

Why are states and ANSPs unable to have a stable planning?

Johan Zandstra:

What is the productivity rate of the staff? how does it evolve and for which reasons? what is the correlation with the investments?

Skeyes: takes note of the point made, the productivity rate is increasing but it is rather difficult to make the link with the investments. The productivity increase today is more qualitative than quantitative.

Stephan Weidenhiller:

It is still not transparent how the staffing plan is working. Request the PRB to have a look into it.

Hire and failure rate not clear. Question is raised whether airspace users only pay for ATCOs that end up in the ops room or also the ones that do not make it through the training.

Increase of the OPEX in RP3. Why?

Skeyes: the increase in OPEX can be explained by the maintenance contracts related to the investments. If investments are increasing, costs of maintenance are also increasing. With regard to the ab initio's, those are paid as long as they follow the training programme. Should an ab initio not succeed, he or she will no longer be on the payroll of skeyes.

On investments: not all are present in the plan.

Cost sharing between regulated and unregulated and contribution of the Military is requested.

Digital towers should be Charleroi and Liege. Not clear why this affects En-route. And why are they only planned as contingency.

Skeyes: It is only contingency on a first instance. In the future the digital tower will be developed as the main and centralized position.

ILS systems are not part of En-route?

Skeyes: Investment part is ENRT because part of the ILS is used outside the 20km area. As described in the draft annex M which was delivered before the consultation, the cost allocation key determines that only costs related to equipment used within the 20km-cylinder will be charged to TNC. The remaining costs will be charged to en route.

Regional Airports, why are there costs allocated to En-route? This is not in the performance plan and there is question whether it is actually included in the calculations.

Skeyes: the investment plan presented is company-wide. No cost from the Charleroi and Liege's A-SMGCS are charged to the En-route charges.

Belgian NSA and PRB are requested to investigate further.

Cost of capital question will follow.

Connor Gillardy (Ryanair): Stated to be perplexed by the amount of unanswered topics.

Challenged the high training costs due to a significant number of ab-initio students to be trained at EPNB.

Loan by the Belgium government: more details are needed on the loan, interest rate, return on equity/capital.

Skeyes: When traffic collapsed, Skeyes asked for a loan as the liquidity situation at that time did put skeyes in a position that they could not pay for salaries anymore. The Belgian government decided to give a 20 million € loan for 2020, and an additional loan of 110 million € in 2021, to be reimbursed over 7 years. (post-meeting note: this should be 5 years, the reimbursement will start in December 2023)

Regarding the 7-year recovery, more information is required on how that decision was taken to come to the conclusion that it had to be 7 years instead of 5 years.

EPNB: training capacity sufficient to satisfy the needs? Will this be the final situation (skeyes performing trainings at EPNB)?

Luxembourg's costs are covered with public funding, is there a similar option for Belgium? If not why not?

Skeyes: It was a political decision to provide a loan as opposed to public funds.

Stephan Weidenhiller: if the Q&A is shortened by time-reasons, this will be deemed as an information session and not a consultation.

More information on the kind of loan and why it has not been restructured is required.

Loan number 3: why can they not be converted into liquidity to offset the 2020 and 2021 losses?

Skeyes: It is a political decision not to convert them.

3. MUAC presentation:

Christopher Jeeves: explained the slides in the presentation.

Philippe De Coune: covered the slides on financial topics.

Q&A on MUAC's presentation:

Stephan Weidenhiller:

Thanked MUAC for taking onboard some of the questions raised previously in the German and NL consultations.

Raised the question how MUAC should be considered in the Performance Scheme. Besides, the salary indexation is seen as a major issue.

Noted that the sharing keys are not finally agreed between the 4 states and this is a concern at this stage.

Pieter Verstreken: It is no secret that Belgium is not satisfied with the current sharing key as 26% of the traffic is handled in the Brussels sector, while Belgium has to bear 33% of the costs. The main reason for this is traffic complexity.

Johan Zandstra:

Huge cost is not acceptable and hampers the profitability of airlines.

Cost-containment measures are not detailed on the outcome. More details requested on the results of the cost-containment measure.

Christopher and Philippe (MUAC): On those items where MUAC has whole control, the cost has been reduced to the minimum. E.g.: Questioning whether contractors are needed, negotiating their costs.

However, there is not full control over all costs, especially on staff costs which are fully aligned with EC institutions.

Volker Dick:

The agreement between MUAC and staff is not yet approved by the 4 States. The cost containment measures are "window-dressing".

The sharing keys have no influence on the total costs, the result will be the same for the users.

MUAC is outside the perf. Scheme as co-financed by the states.

Stephan Weidenhiller: Agreed on that statement and as MUAC is outside the performance scheme, the losses of 2020 and 2021 cannot be claimed on 2023 and onwards. This needs to be followed up on the consultation process with the states.

4. ANA Lux presentation:

Pol Fischbach presented the slides. The calculation of unit rate presented is the worst case scenario. There are still ongoing discussions about an additional public funding.

The main driver of costs are personnel.

New infrastructure such as a Mode-S radar, a WAM system and VoIP communication infrastructure costs will be taken over by the Ministry of Transport.

Q&A:

Stephan Weidenhiller:

Expressed appreciation for the plan of Luxembourg to look for national public funding. Taking over 50% of the cost is a great example and would like to see this gesture extended to other states. This should be the way forward in this crisis.

3rd APP position: Is it planned to be included in 2023 (earliest)? Is it still the case or can it be delayed until the traffic reaches the 2019 levels?

Pit Probst: it is still planned for 2023.

Rory Sergison:

When will the negotiations between the Ministry of Transport and the Ministry of Finance on the public funding be completed? Will it be in time for the performance plan to be submitted in October?

Pol Fischbach: The decision is to be taken in September 2021, in time before the submission of the performance plan.

Volker Dick:

Regarding FABEC costs, why are they not added? Question to PRB: Who is paying for this?

Pol Fischbach: for ANA it is in the overhead. 40.000€ were paid last year by ANA for FABEC.

Christopher Jeeves: This costs amounted to 300.000€ for MUAC in 2020.

Pieter Verstreken on additional slides on NSA and Eurocontrol costs:

Björn Schröder: NSA costs taken over by the state from 2022 onwards.

Stephan Weidenhiller: Increase in staff cost between 2020 and 2021 in BE and LU cannot be explained by inflation.

Pieter Verstreken will come back later on that question.

Why the public funding is increasing from 2020 to 2024 in the excel file provided in preparation to this meeting?

This topic will be assessed and an answer will be provided in the post meeting documentation.

Concluding remarks:

Nadia Gerard: There are still unanswered questions that have an impact on costs. These answers are requested so that the discussions can be considered finalized before the deadline.

Stephan Weidenhiller: Agreed, this meeting cannot be regarded as a meaningful consultation. It can only be regarded as an information session. Belgium is to work on cost and make it in line with the European goals. Time has been wasted. This meeting is considered to be required again. To be noted by the PRB.

Pieter Verstreken: legally and formally this was a consultation as per the performance and charging regulation (2019/317). Pieter inquired on more clarity as to what questions are still open and asked skeyes which deadline could be feasible.

Geoffray Robert: the documentation including ATC staffing can be provided within 2 weeks. Pieter requested it before 27th August. Agreement was reached on 27 August.

Hans Ollongren: Thanked BSA-ANS and LUX NSA for allowing the PRB to participate in the meeting.

Rory Sergison: Considerable work is left to be done in order to meet the targets voted by the states by October. Significant work will need to be done in order to allow for the aviation sector to recover from the pandemic.

Pieter Verstreken thanked the participants and closed the meeting.



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Belgium-Luxembourg RP3 Consultation

En route – 18/08/2021



welcome

Introduction by heads of NSAs – Kris Clarysse & Björn Schröder



agenda

- En route traffic scenario
 - Proposed scenario: STATFOR base
 - Possibility to deviate after submission
- Cost-efficiency: actual costs 2020 and determined costs RP3
 - keyes
 - MUAC
 - ANA
 - NSA and Eurocontrol costs
- Concluding remarks

En route traffic scenario



En route traffic scenario

- At this moment, STATFOR Base is the proposed scenario
- Adjusted to actual route flown, 3,13% deviation

En route traffic forecast

STATFOR Base forecast MAY 2021 (Flight Plan 2017-19, Actual Route 2020-2024)

STATFOR Base forecast MAY 2021 (Flight Plan 2017-19, Actual Route 2020-2024)	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	1.240	1.275	1.249	541	621	880	1.005	1.126	-2,1%
IFR movements (yearly variation in %)		2,9%	-2,1%	-56,6%	14,6%	41,8%	14,2%	12,0%	
En route service units (thousands)	2.594	2.644	2.620	1.081	1.182	1.714	1.989	2.251	-3,0%
En route service units (yearly variation in %)		1,9%	-0,9%	-58,7%	9,3%	45,1%	16,0%	13,2%	



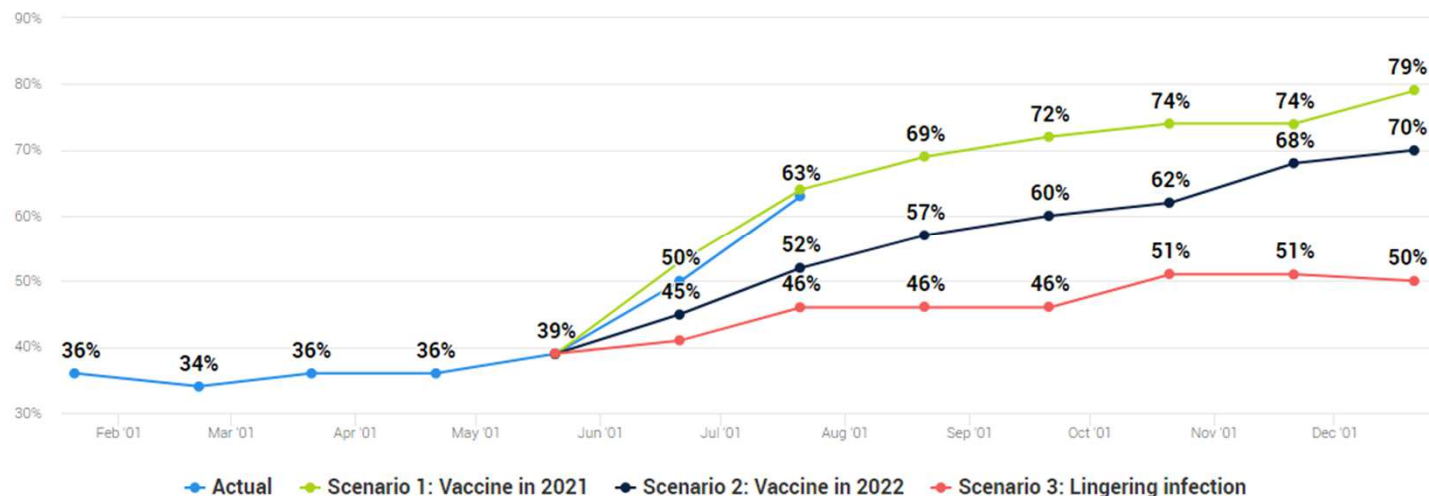
En route traffic scenario

- Important to have the most accurate forecast possible
- However, current uncertainties make it difficult to assess accuracy
- Commission provides the possibility to adapt the traffic forecast used based upon the STATFOR October 2021 forecast when conducting the Verification of completeness-check.



En route traffic scenario

EUROCONTROL Traffic Scenarios - 1 June 2021 (base year 2019)



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	skeyes 2019	skeyes 2021	skeyes %	Scenario 1
MAY	57,279	20,590	36%	39%
JUN	58,130	28,339	49%	50%
JUL	61,799	39,267	64%	63%

	MUAC 2019	MUAC 2021	MUAC %	Scenario 1
MAY	80,009	24,330	30%	39%
JUN	82,669	33,497	41%	50%
JUL	87,295	48,332	55%	63%



Sensitivity analysis

		2020	2021	2020/2021	2022	2023	2024
Total costs real terms		212.364	226.320	438.684	243.119	249.761	256.532
Sc. 3 (High)	SU	1.080,9	1.275,0	2.355,9	1.996,0	2.327,0	2.544,0
	DUC	196,47	177,51	186,21	121,80	107,33	100,84
Sc. 2 (Base)	SU	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0
	DUC	196,47	208,78	202,64	146,02	126,91	113,96
Sc. 1 (Low)	SU	1.080,9	895,0	1.975,9	1.285,0	1.462,0	1.645,0
	DUC	196,47	252,87	222,02	189,20	170,83	155,95

Delta vs. Sc. 2	2020	2021	2020/2021	2022	2023	2024
Sc. 3 (high)	-0	-31,27	-16,42	-24,21	-19,58	-13,13
Sc. 2 (base)	196,47	208,78	202,64	146,02	126,91	113,96
Sc. 1 (low)	+0	+44,09	+19,38	+43,18	+43,92	+41,98

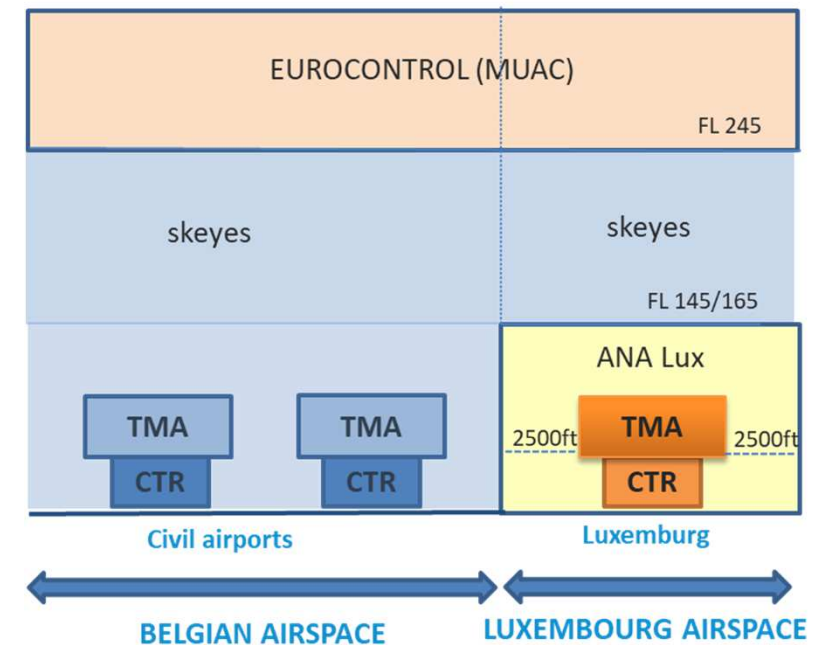
Cost-Efficiency

Belgian-Luxembourg en route Charging zone



Introduction BE and LUX NSA

- 3 ANSPs in the Belgium-Luxembourg en route charging zone
- Each ANSP has its own cost base





Introduction BE and LUX NSA

- Cost base consists of the sum of the costs of all ANSPs active in the charging zone + NSA and Eurocontrol costs

Entities	Allocated to En-route Determined Cost
skeyes	100% of en-route costs as determined by cost allocation
MUAC	32,95% (BEL) +1,02% (LUX) of MUAC overall cost base
ANA	100% of en-route costs as determined by cost allocation
NSA BEL and LUX	100% of en-route costs as determined by cost allocation
Eurocontrol	100% of BEL and LUX share of Eurocontrol costs (excl. MUAC)

Traffic risk sharing



Traffic risk sharing

Belgium-Luxembourg

Traffic risk-sharing parameters adapted?	no
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	Dead band	Risk sharing band	Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

- Art. 5 (4 & 5) of IR 2020/1627: Carry-over can be spread over 5 or 7 years
- BE and LUX NSA included a carry-over spread over 7 years in the current proposal

Presentation skeys

Presentation MUAC

Presentation ANA

NSA and Eurocontrol costs



NSA costs

- Belgian NSA Costs are determined by two Royal decrees (23-5-2006 and 24-3-2009) and are included into the costbase
- Costs split over en route and five airports (only one included into the PP) based upon notification of changes related to each entity
- Luxembourg includes the NSA costs in accordance with the art. 22(1) of (EU) 2019/317 and art. 15(2) of (EC) 550/2004 (decision of the Ministry). As of 2022, the State of Luxembourg has decided to cover the NSA costs.

En route	2020	2021	2022	2023	2024
NSA BE	910	930	948	965	982
NSA LUX	175	247	0	0	0



Eurocontrol costs

- Based upon Eurocontrol cost base as presented during last Standing Committee On Finance
- In 2020 and 2021, MUAC tax compensation and support costs are still included in the general budget via a special annex

En route	2020	2021	2022	2023	2024
Eurocontrol BE	16,354	19,303	12,045	12,043	12,074
Eurocontrol LUX	947	1,093	881	880	883

Concluding remarks



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End of the consultation



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SKEYES

User consultation – En route

18th August 2021

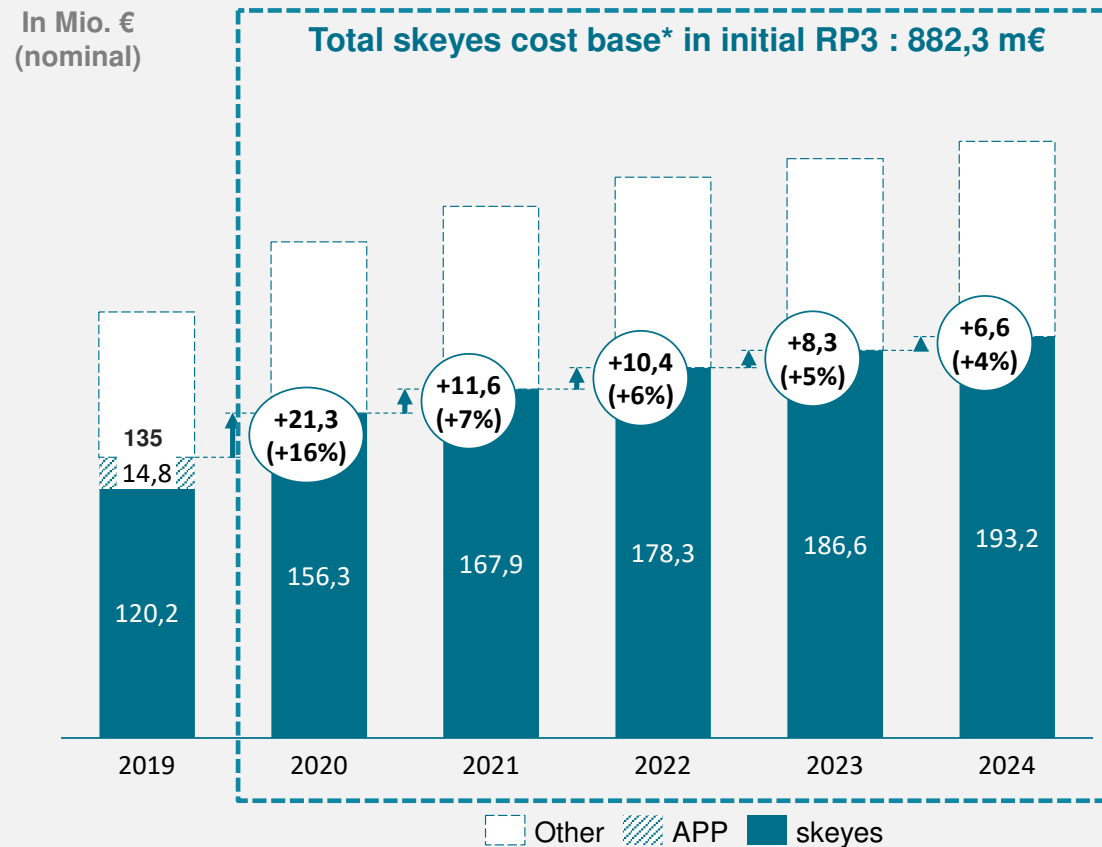
Key Takeaways

- ▶ Covid crisis forced skeyes to **review its strategic plan** and set clear business priorities to **safeguard operations and reduce costs**
- ▶ In light of the pandemic **significant cost savings were realized** in 2020 and 2021, but **structural investments** in human capital and critical infrastructure **remain necessary** and have been **rephased to limit the impact on the users**
- ▶ Skeyes is facing 3 major **challenges in RP3** : a **complex airspace**, an **aging ATCO population** and the end of life of critical **infrastructure**
- ▶ Therefore, **measures in RP3** are focused on the preparation for the future vision of the European airspace, sustaining the resource capacity and **ensuring business continuity** by investing in critical end-of-life infrastructure
- ▶ En route cost base 2020 below level of 2019 but increases in subsequent periods as a result of necessary measures.

RECAP: REVISED COST IN LIGHT OF COVID

RP3 initial submission (2019) reflected necessary recruitments and investment needs

skeyes ONLY



Baseline of initial RP3 submission reflected :

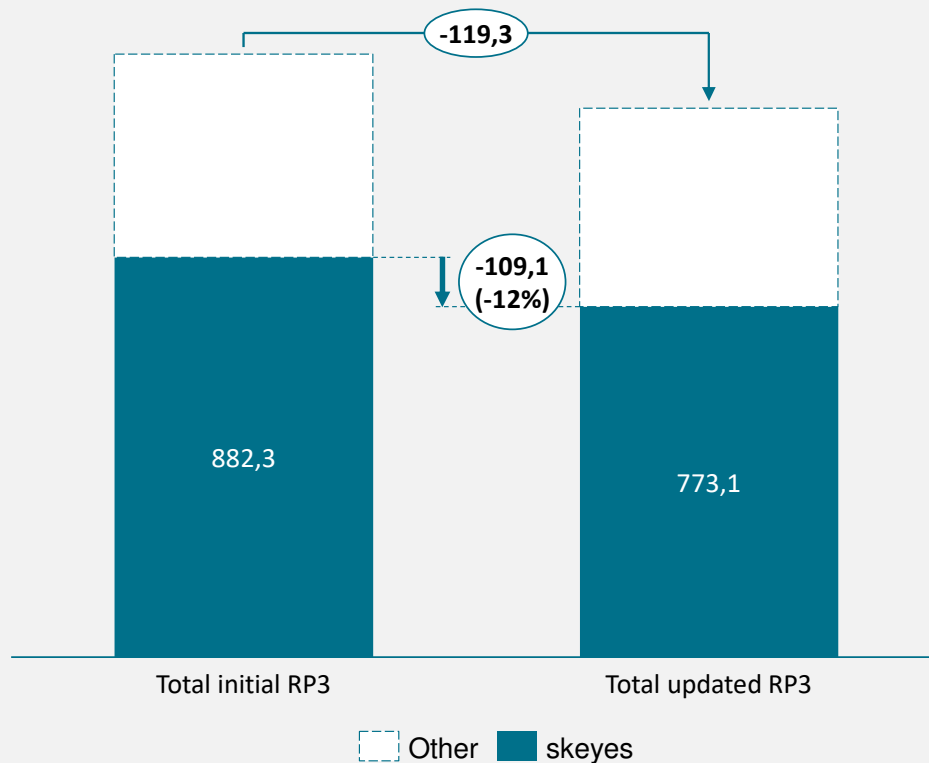
- As of 2020 revised allocation of approach costs
- Baseline of initial RP3 submission reflected necessary recruitments and investment needs to safeguard business continuity.
- Most efforts were foreseen at the beginning of the RP3 and reverted to a steady level at the end of RP3.

*Cost base is with exempted flights

Revised strategic plan in light of COVID led to a cost saving of €109m across RP3 (2020-2024) for skeyes



in Mio. €
(nominal)



Updated performance plan includes several cost containment measures:

- Reassessment of recruitment needs according to critical profiles.
- Investment plan review
- Review of SG&A spend

While also having to face additional Covid-related costs and under obligation to guarantee adequate service

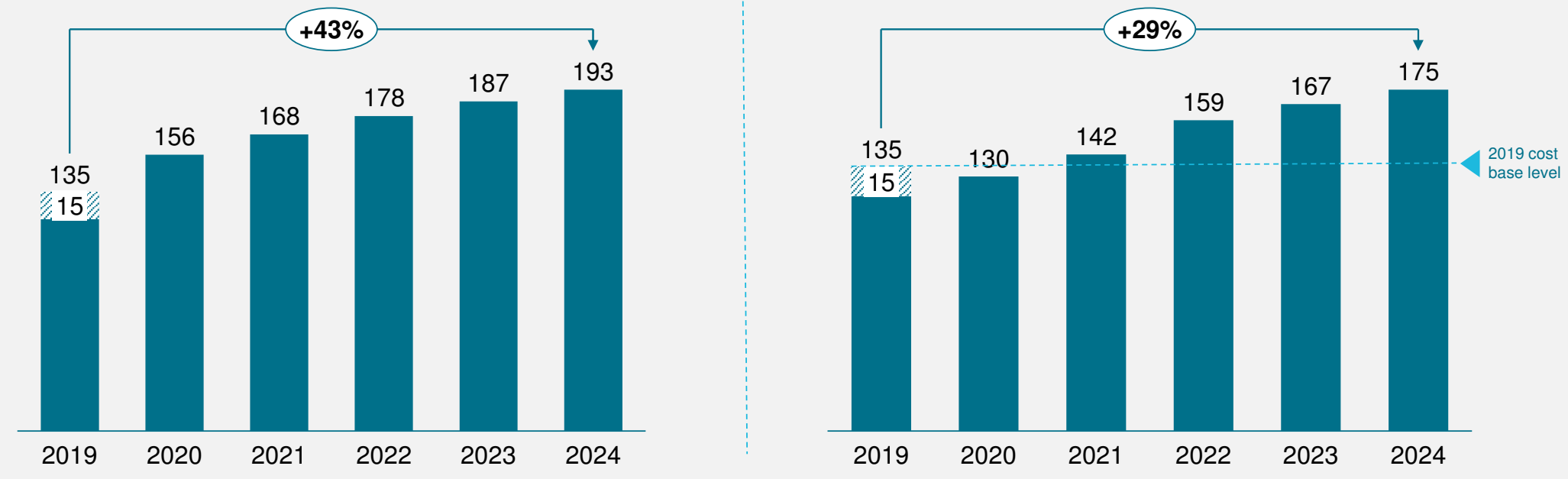
Reduction of en route cost base in 2020. Structural investments are still needed but are rephased in light of COVID

skeyes ONLY

in Mio. €
(nominal)

Initial submission:

Current submission:



- The Covid crisis has substantially disrupted the air transport industry. Skeyes reacted by **adapting its strategic plan** and **reviewing its priorities**. **Strategic investments and recruitments** were reviewed and/or rephased to limit the impact on users.
- However, these **structural investments remain necessary** to guarantee a sustainable capacity in RP3 and RP4.

*Cost base is with exempted flights

MAIN COST DRIVERS IN RP3

Three main cost factors are driving the increase in costs during RP3



Building capacity

Skeyes is investing to ensure it aligns with the future vision of European airspace whilst also increasing airspace capacity



Business continuity

Many of skeyes infrastructure are reaching their end of life during the RP3 period and require replacement to maintain operational capacity levels

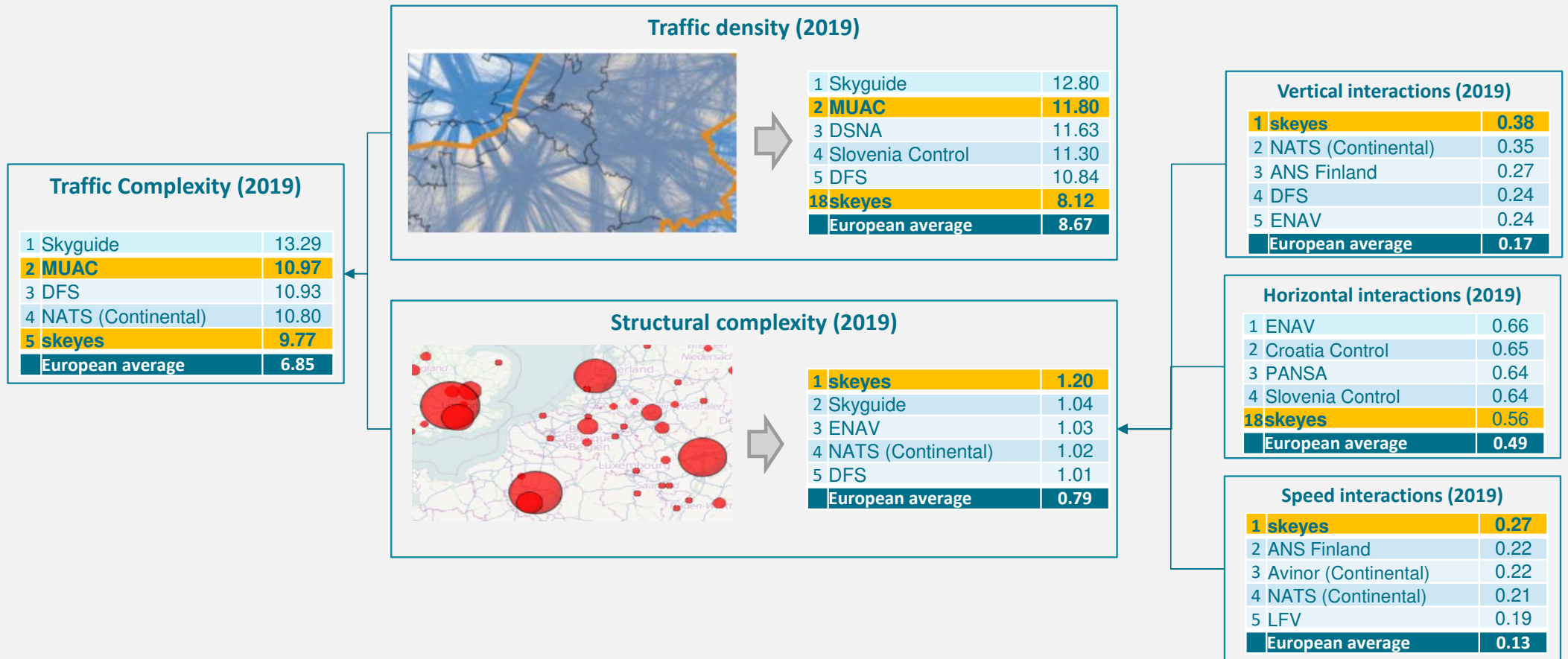


Resourcing

An aging ATCO population means hiring new ATCOs to support skeyes strategic initiatives and maintain capacity levels



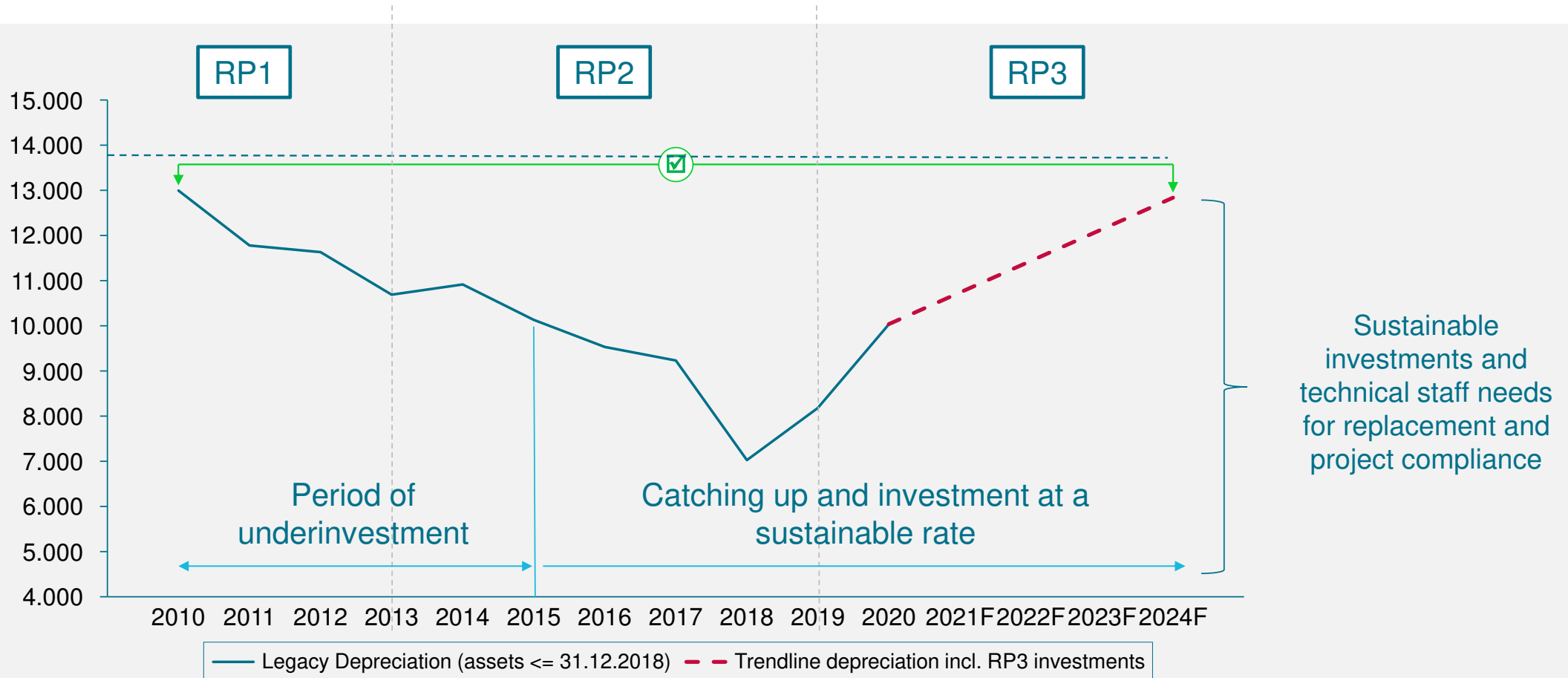
Building capacity: Air traffic complexity in the Belgian airspace leads to extra workload to keep aircraft separated while limiting delays



Source: Eurocontrol Traffic complexity scores Dec 2019



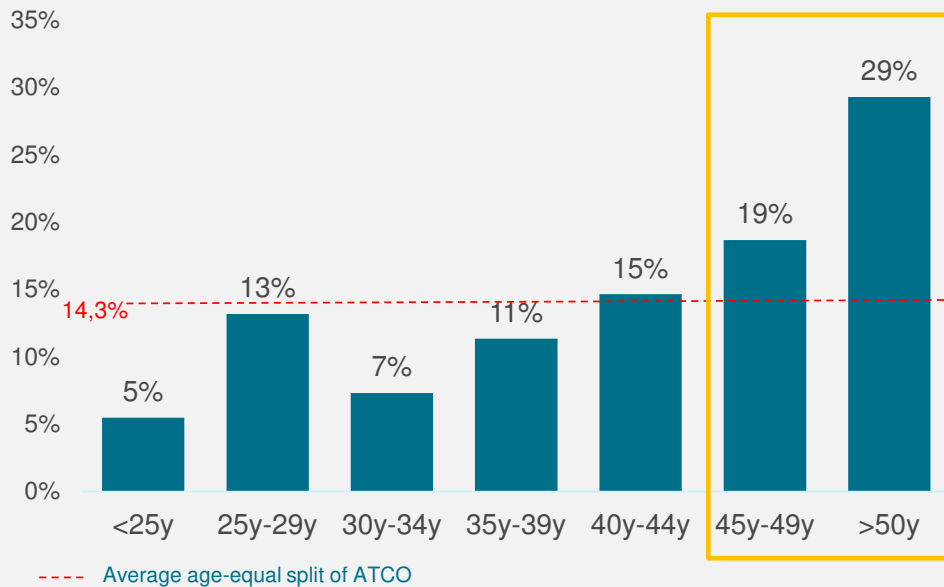
Business continuity: Skeyes has an ageing asset infrastructure that needs to be renewed





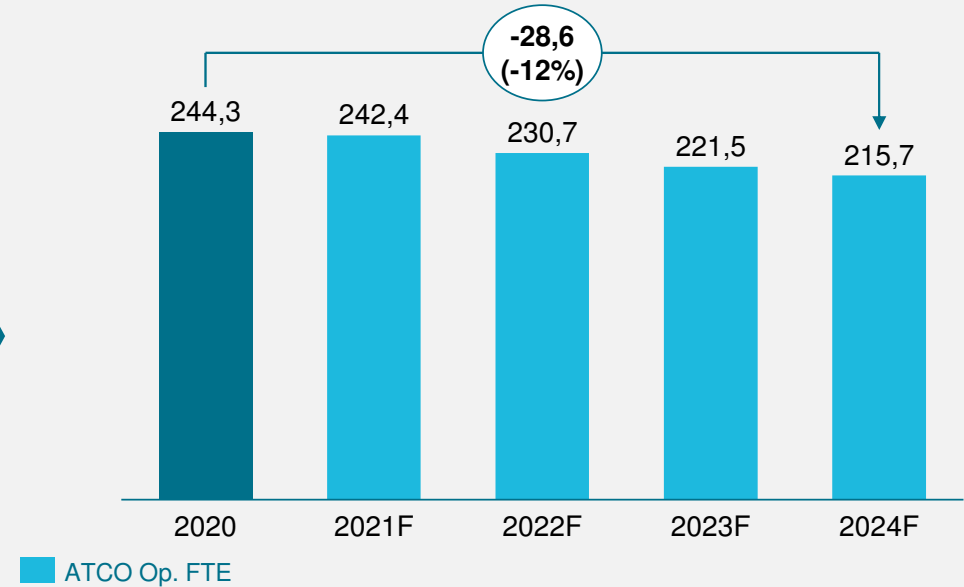
Resourcing: Aging structure of the ATCO population will lead to severe capacity restrictions in RP3 and RP4 if no action is taken

Skeyes' ATCOs per age category (12/2020)



- Nearly 30% of the total ATCO population will have to be replaced in the short term (y5) and nearly 50% in the middle term (5-10y)

Skeyes' ATCOs FTE development w/o new recruits



- Business continuity under severe pressure without strong investments in new ATCO population on the short term

MEASURES IN RP3

Skeyes is performing several measures to safeguard business continuity, facing aging structure and building the capacity for the future



Building capacity

Skeyes is investing to ensure it aligns with the future vision of European airspace whilst also increasing airspace capacity



Business continuity

Many of skeyes infrastructure are reaching their end of life during the RP3 period and require replacement to maintain operational capacity levels



Resourcing

An aging ATCO population means hiring new ATCOs to support skeyes strategic initiatives and maintain capacity levels



Building capacity: Belgian Airspace Vision 2030

Belgian Airspace Vision 2030

By 2030, the Belgian Airspace shall be considered as **one flexible and seamless volume**, fully integrated in the Single European Sky:

- The **airspace structure will be flexible and dynamic** allowing airspace users to fly their preferred trajectories with minimal constraints
- The airspace management will allow a **flexible use of airspace** tailored to the needs of the civil and military airspace users
- **Integrated civil-military Air Navigation Services** will be provided with a high reliability and efficiency



Belgian Airspace Vision 2030 translated into 2 strategic initiatives:



ATM NextGen:

Collaboration with EC/MUAC for the development of a shared ATM system being SAS3



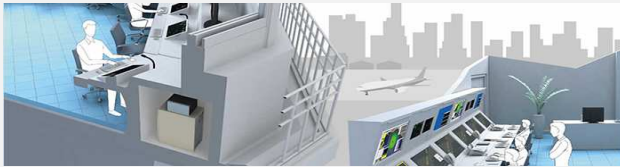
Civil-military integration:

Create synergies to increase capacity of the Belgian airspace through a unified airspace and flexible reservation system (FUA)



Building capacity: in line with the new airspace architecture, MUAC, skeyes and Belgian Defense are developing a shared ATM data solution

ATM Next Generation



RP3 KPI	Safety, Capacity, Cost-efficiency
Skeyes driver	Business continuity, Building capacity

Synopsis of investment

This project focuses on replacing the current ATM system with a single, integrated and harmonised airspace management system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.



Expected impact on service delivery

- ✓ **Increased efficiency and capacity** through an integrated and harmonised airspace management system.
- ✓ **Increased safety** through the deployment of an external contingency solution in the event of a system failure.
- ✓ **Cost-efficiency gains** through a strategic partnerships with MUAC and Belgium Defense.
- ✓ **The risk of not investing** will lead to the use of an aging ATM system and limited alignment to SES data service requirements.

Procurement process / synergies

Synergy with MUAC and Belgium Defense to reduce the operating and development cost of the ATM system.

Project status and RP3 financials

Status: Study phase

In € '000	2020	2021	2022	2023	2024	RP3	>2024	Total
ATM Next Gen	Planned date of entry: December 2027							
CAPEX	0	4,900	10,374	12,500	14,000	41,774	44,800	86,574



Building capacity: Civil and military integration will increase capacity and cost-efficiency in the Belgian airspace

CIV-MIL context



Create synergies to increase capacity of the Belgian airspace through a unified airspace and flexible reservation system (FUA)

Achieved / ongoing initiatives:

- Realise **co-location ATCC** Steenokkerzeel (achieved in 2019)
- Implement business continuity between both partners through **shared ATM system – SAS3**
- **Integration of air navigation services** not later than 2030



COST-EFFICIENCY

Synergy initiatives realized / to be realized through the integration of CIV-MIL **contribute to the cost-efficiency efforts of skeyes**



- **CIV and MIL Infrastructure for Air Navigation Services are being rationalized** avoiding duplication of investment and maintenance costs
- **CIV and MIL air navigation services will be progressively integrated** to improve cost-efficiency



DECARBONISATION

The **integration of CIV- MIL** contributes to a **more flexible use of airspace** and consequently, this **impacts the decarbonisation efforts of skeyes**

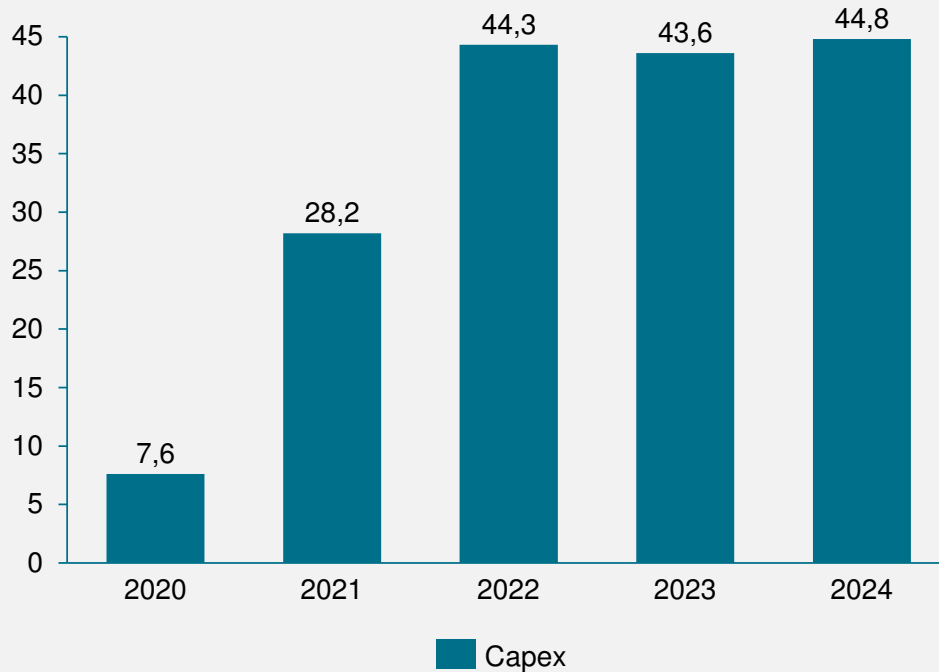


- The **airspace management will allow a flexible use of airspace** tailored to the needs of the CIV and MIL airspace users
- Any **airspace reservation for exclusive or specific use** shall be of a **temporary nature** and will be released as soon as the activity having caused its establishment ceases



Business continuity: Investments in critical end-of-life infrastructure are a key driver of the RP3 investment plan

in Mio.€



CAPEX plan during RP3 to support the replacement of aging infrastructure and support future airspace vision

- Vital ATM service provision infrastructure is reaching its end-of-life during RP3 and requires replacement, amounting to ~ € 170 M.
- Skeyes is using this opportunity to reassess its infrastructure, looking for opportunities to rationalise current infrastructure and implement systems supporting the future airspace vision of Europe.
- Skeyes has allocated a project management team to oversee the investment plan to ensure successful delivery of each program.
- These investments will ensure business continuity whilst also maintaining safety and operational capacity.



Business continuity: En route key investments in RP3

Remote Radio Sites



RP3 KPI	Safety, Capacity
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 “new” sites for Enroute and Approach.

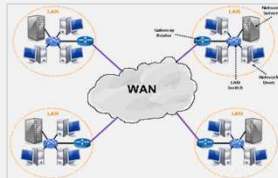
The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.

Expected impact on service delivery

- ✓ **Guaranteed safety and business continuity** of air navigation services for airspace users through continued and improved operational resilience.
- ✓ **Cost-efficiency gains** through partnership with Belgian Defence.
- ✓ Not investing risks the continued use of end-of-life infrastructure which could **impact safety and business continuity**.

CAPEX in € '000	2020	2021	2022	2023	2024	RP3	>2024	Total
Remote Radio Sites	108	3,316	6,355	1,960	1,600	13,339	0	13,339
Equipment Centre	85	105	2,302	752	0	3,245	0	3,245

Wide Area Network



RP3 KPI	Capacity, Cost-efficiency
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on creating a new Wide Area Network (WAN) to support all skeyes operational and business critical processes and related IT systems.

In particular, it will provide highly available, secure and scalable network connectivity to interconnect all skeyes locations (point of presence).

Expected impact on service delivery

- ✓ **Business continuity** of air navigation services through reduced data traffic disruption.
- ✓ **Cost reduction and efficiency gains** through the use of a more efficient, scalable network.
- ✓ Not investing risks having **no operational WAN** in 2022 and risks the **delivery of other skeyes projects** (e.g. Digital Towers and ATM NextGen)

CAPEX in € '000	2020	2021	2022	2023	2024	RP3	>2024	Total
WAN	25	4,412	2,348	586	0	7,371	0	7,371

Surveillance roadmap



RP3 KPI	Safety, Cost-efficiency
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on replacing existing Cooperative Sensors which are reaching end-of-life, and WAM with ADS-B.

The project comprises four investments in which the costs are shared with Belgian Defense: Cooperative Surveillance Sensors (St Hubert, Bertem and Ostend) and WAM.

Expected impact on service delivery

- ✓ **Guaranteed safety and business continuity** of air navigation services for airspace users through continued and improved operational resilience.
- ✓ **Cost-efficiency gains** through partnership with Belgian Defence.
- ✓ Not investing risks the continued use of end-of-life infrastructure which could **impact safety and business continuity**.

CAPEX in € '000	2020	2021	2022	2023	2024	RP3	>2024	Total
MODE-S – St Hubert	0	0	650	1,550	0	2,200	0	2,200
MODE-S – Bertem	0	0	320	400	900	1,620	0	1,620
MODE-S – Ostend	0	0	0	0	0	0	1,500	1,500
Mode-S - Kleine	0	0	0	0	600	600	0	600
WAM	0	0	0	0	2,400	2,400	1,600	4,000



Business continuity: CNS & MET enhancement investments

Project Title	Planned entry into operations	Cost € m		ER Allocation	EU KPI	Skeyes driver
		RP3	Total			
Voice recording	2023	1,485	1,650	72%	Safety, capacity	Business continuity
Remote Radio Sites						
Radio sites infrastructure	2024	13,339	13,339	74%	Safety, Capacity	Business continuity
Electronics equipment and centre	2022	3,245	3,245	71%		
Voice Communications						
VCS-b partial HW replacement	2023	2,450	2,450	77%	Safety	Business continuity
VCS Ultimate	2024	2,588	2,588	77%		
VOIP Gateways	2025	2,550	2,550	77%		
SWIM Gateway						
SWIM Node	2024	4,533	4,533	52%	Environment, Cost-efficiency, capacity	Business continuity
ISAAC SR5	2023	600	600	52%		Building capacity
Replacement DVOR/DME	2021	2,184	2,726	85%	Safety	Business continuity
					Cost-efficiency	Building capacity
Replacement RDF	2026	714	3,570	67%	Safety, capacity	Business continuity
Surveillance Sensors						
MODE-S - St Hubert	2024	1,500	1,500	99%	Safety, cost-efficiency	Business continuity
MODE-S – Bertem	2025	1,500	1,500	99%		
MODE-S – Ostend	2028	0	1,500	99%		
Wide Area Multilateration	2026	2,400	4,000	84%		
Replacement Meteoradar	2024	2,150	2,150	62%	Safety	Business continuity



Business continuity: Infrastructure enhancement investments

Project Title	Planned entry	Cost € m		ER Allocation	EU KPI	Skeyes driver
		RP3	Total			
Telephone system	2024	1,508	1,633	69%	Safety	Business continuity
Wide Area Networking (WAN)	2022	7,371	7,371	75%	Capacity, cost efficiency	Buisness continuity
IT Infrastructure						
Network services	2024	2,218	2,218	69%	Safety, cost efficiency, environment	Business continuity, Building capacity
Datacentre	2024	5,616	6,116	72%		
Security services	2024	1,257	1,377	72%		
Digitalisation of support services						
Workforce Management tools	2025	2,000	2,000	70%	Cost-efficiency	Business continuity, Building capacity
HRIS	2023	1,355	1,355	72%		
ERP	2023	1,573	1,573	67%		



Confidential information



Resourcing: Additional measures have been taken to increase capacity



Building up the training capacity

To support these extensive training needs, skeyes set up a **joint venture with Entry Point North (EPN)** to build up the training capacity and to reduce costs.



New career path for ATCO

Considering the wave of retirements in ACC, the **career path of ATCOs has been reviewed** in close collaboration with the unions to allow **new ATCO to access directly ACC** to accelerate the rejuvenation of the ACC controller pool.



Operational excellence

skeyes have implemented **more efficient rostering processes** allowing a better demand and capacity balancing and improving the resiliency of air traffic services.



Pension reform

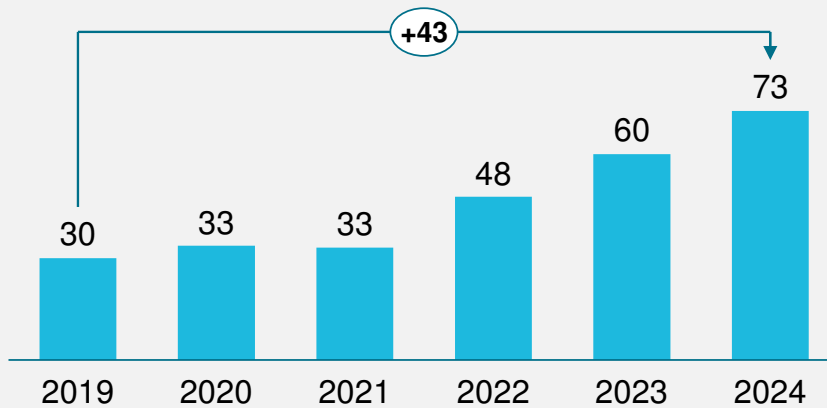
Historically, air traffic controllers were placed in DISPO from the age of 55 until the age of 60. As a result of a pension reform and a social agreement in 2016, the **age of DISPO will gradually be delayed** to 56 in 2020, 57 in 2025 and 58 in 2030.



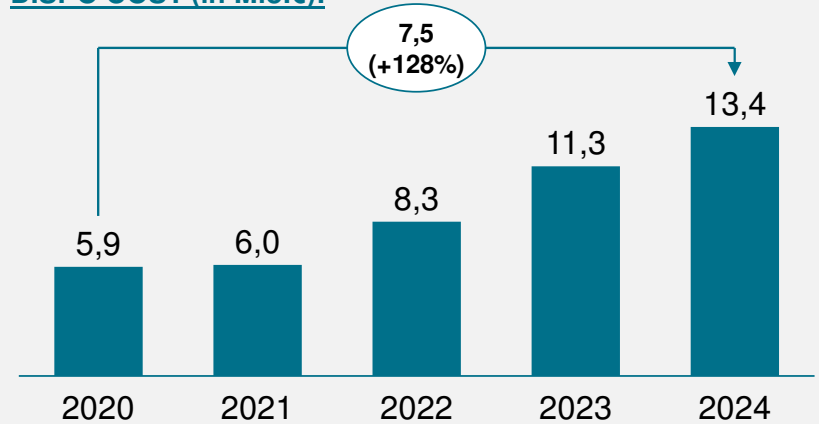
During RP3, staff & training costs will increase to offset DISPO departure and keep operational ATCO at sustainable level

DISPO

DISPO FTE:

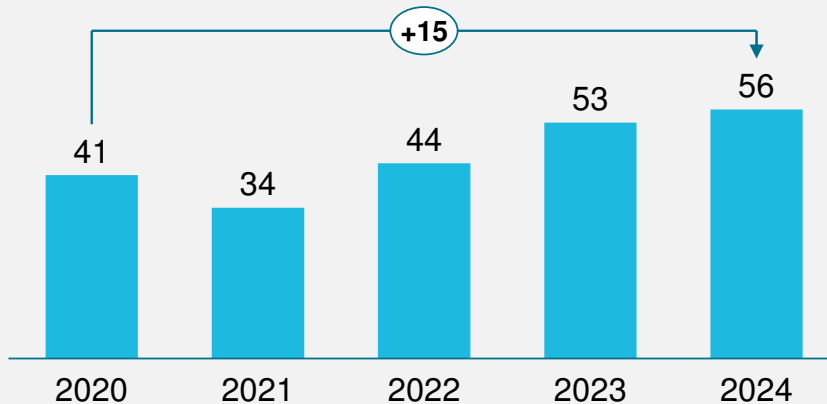


DISPO COST (in Mio.€):

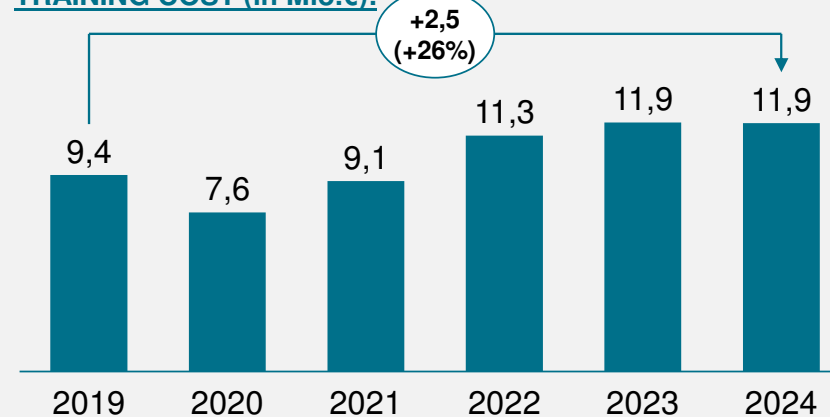


ATCO in training

ATCO in training FTE:



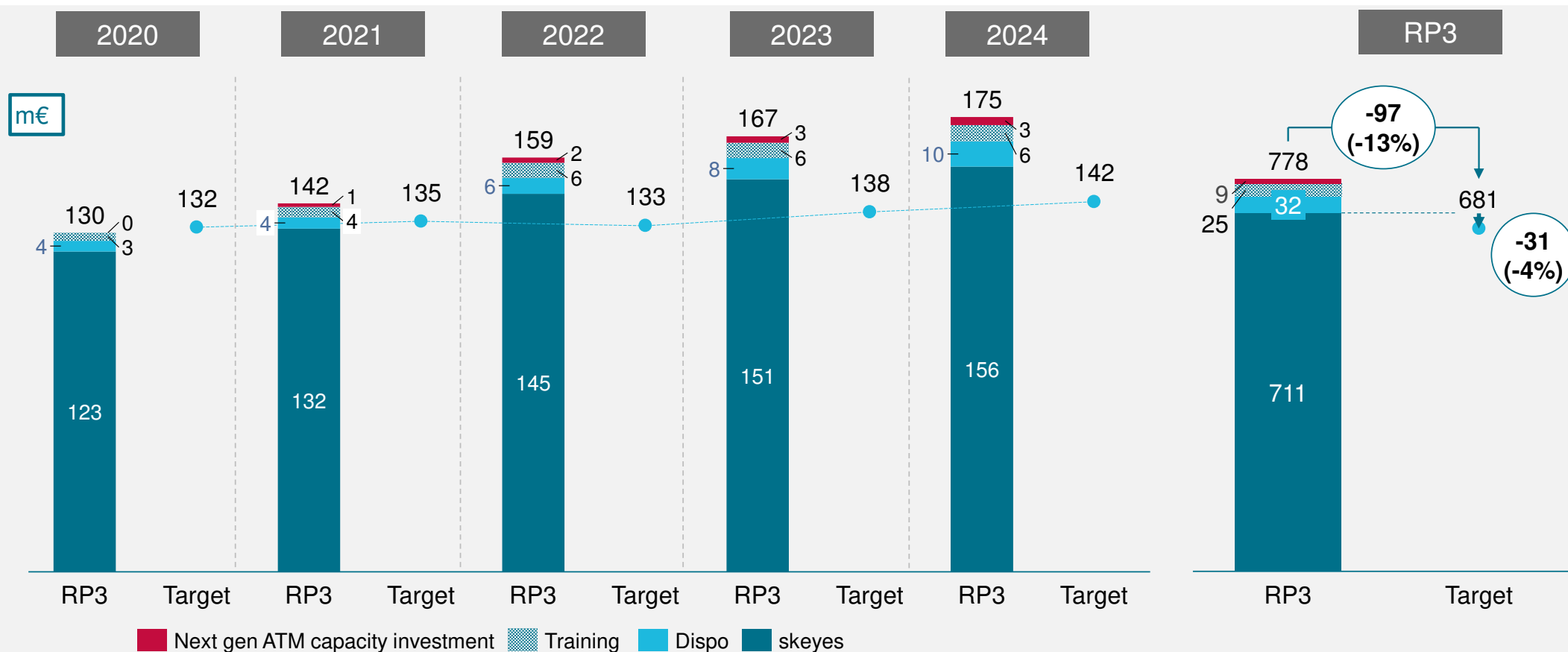
TRAINING COST (in Mio.€):



COST EVOLUTION

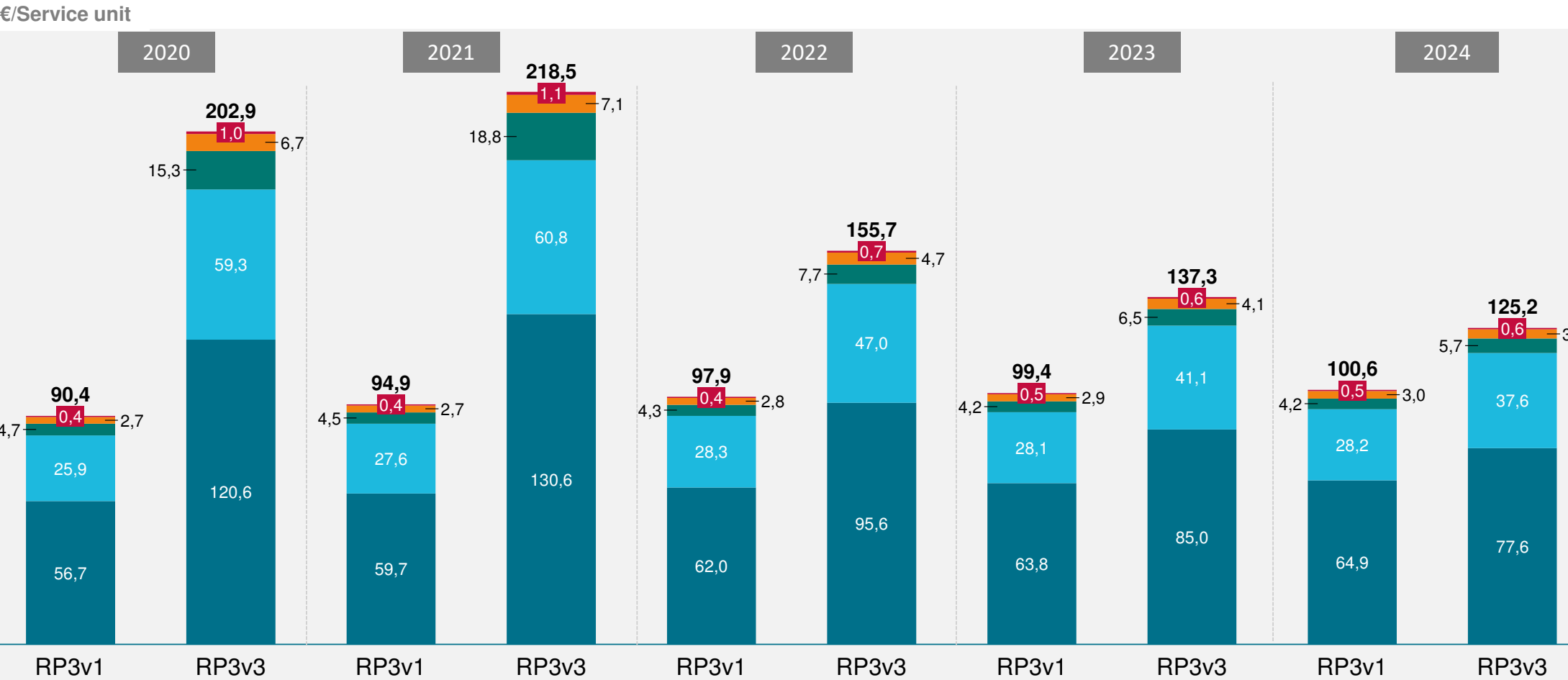
En-route skeyes cost base vs. own Target*

skeyes Only



*EU wide target applied to skeyes actual cost base 2019 after reclass of APP into en-route and after inflation
MUAC BE, MUAC LUX, BSA BE and ANALUX are removed from this cost base²

DUC en-route BEL/LUX (initial performance plan 2019 vs. revised performance plan 2021)



*Cost base is with exempted flights
** combined 2020/2021

BSA/NSA Lux ANALUX Eurocontrol MUAC Skeyes



The background features several intersecting teal lines of varying thicknesses. A horizontal bar with a teal-to-dark-teal gradient is positioned across the middle of the slide.

END

Stakeholder Consultation Meeting Belgium - Luxembourg

Maastricht Upper Area Control Centre

Chris Jeeves
Philippe de Coune
Strategy & Performance Management
18 August 2021

Agenda

1. Presentation of MUAC Projects and activities during RP3
2. MUAC costbase and investment plan: revised RP3

Background

- COVID-19
- Performance
- Civil/Military integration
- International collaboration

Recent MUAC innovations for the network

Project	Objectives & Benefits	Exposure
ATMP / FOCUS	Support XMAN trail (SESAR PJ25) and Customer Initiatives '18..'22 Closer relationship with airlines and neighbouring ANSPs to minimise impact of delays (>100,000 min saved by CI '18).	KUAC, RUAC, Skyguide, Airlines <i>Shortlisted for ATM Award 2020</i>
iFMP	Integrating traffic prediction, sector configuration / complexity / airspace management and man-power planning functions; full digital data exchange between ANSPs, airlines, FPSP and NM	SES Innovation Award for IOP 2019 Evaluation by NM and DFS
PABI	Sector Opening Table Architect (SOTA), improving sector planning and post-operational analysis with historic data	<i>Shortlisted for ATM Award 2020</i>
ARGOS	Increasing automation in support of EC and CC	Pilot automation project for EASA
ADSC	Pre-OPS Use of Extended Projected Profile (IOP-A) to compare with ATC 2D trajectory	ATM Award 2020 Enabling Technology
MUSE	Automated / remote ATCO training; self-training and scoring	<i>Shortlisted for ATM Award 2020</i>
RDF	Visualising the position of the RF caller on the CWP, increasing ATCO productivity	Included in SAS3

RP3 revised plan: revised focus

Since 2020, focus shifted from capacity to increased cooperation and partnerships with other ANSP's to try to improve long-term cost efficiency

- SAS3 provided to and financed by skeyes
- AdaaS2 – Cluster deployment Stage 1
- MAKAN : Maastricht Karlsruhe Network

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Staff (MD)	OPEX	CAPEX	Grand Total
ADaaS2 - Cluster deployment - Stage 1												4795	163	10	4.968
SAS3												29200	1700	28400	59.300
MAKAN												5386	0	0	5.386
															69.654

Other Cost efficiency projects

- Optimisation of operating costs by
 - Reduction of staffing requirement
 - Infrastructure rationalisation

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Staff (MD)	OPEX	CAPEX	Grand Total
System control co-location - Stage 2												702	48	500	1.250
Manpower Planning Suite												4008	1150	0	5.158
MOCA Cloud Services at MUAC												1014	304	0	1.318
MUAC Upgraded Simulator Environment												1047	2642	104	3.793

11.519

Project	Scope	Benefits	Timeline
System Control Co-location – Stage 2	Move System Control into the OPS Room. Update of the GCE with the new working conditions.	Optimise communication and understanding between System Control staff and Supervisor and ATCO teams.	O-Date: Jan 20
Manpower Planning Suite	Modernisation of MPS for strategic and pre-tactical planning phases. MPS v1 delivers a new framework and modernised Roster Tool. Further stages will migrate other MPS tools.	Ensure the high availability of the tools on the long term. Reduce the maintenance effort for MUAC. Enable new operational requirements.	MPS v1: Q4.22
MOCA Cloud Services at MUAC	Implement Microsoft Teams, Office365, OneDrive, Exchange Online, SharePoint Online, Project Server Online and Unified Communications (UC)	Reliable and secure communication, collaboration and productivity solution with full mobility and working capabilities to the end-users, from anywhere, anytime and on any device.	Teams, Office365: Q1.20 Online apps: Q2.21 UC: 2022
MUAC Upgraded Simulator Environment	Improvements of the real time simulation environment, both in preparation and execution of the exercises, at MUAC and from home	Workload reduction on ATCOs, training staff and pseudo pilots, self-training for ab-initios and potentially substantial reduction of the overall training costs and duration.	Remote training: Q2.20 Phased, until Q2.22

Airspace studies & projects



- Projects
 - MAASERATI: 25.03.21 ✓
 - COBRA (with DFS): 10.21 + 03.22
 - HANN Global Top: trials in Q4
- Studies:
 - BEAR
 - with DSNA, NATS
 - DASR
 - with NL & DE MoT & MoD, LVNL, RNLAf, DFS, GAF
 - Full Civ-Mil Integration

Capacity: aim is to be ready for the traffic recovery

- 2 categories, linked to delay categories:
 - ATC Capacity
 - ATC Staffing

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Staff (MD)	OPEX	CAPEX	Grand Total
Maastricht Sectorisation Review after Implem. of FRA												1516	0	0	1.516
ADS-C Pre-OPS use of EPP (IOP-A)												1789	0	1423	3.211
FOCUS (ATM Portal)												0	0	0	-
Traffic Prediction Improvement												2446	286	0	2.732
Radio Direction Finder Extension												544	0	1861	2.405
Post OPS Analysis and Intelligence												3392	3988	996	8.376
PHOENIX												7901	553	34735	43.189
ARGOS												1200	0	0	1.200
FLOGOS												0	1539	0	1.539
Advanced ATFCM/ASM Planning Function												236	0	0	236
Optimised Sector Manning (OSM1)												696	0	0	696

65.099

- A lot of the projects initiated in the period 2016-2021 (to tackle traffic congestion) will be concluded in 2021-2022
- ARGOS & FLOGOS are new research initiatives but scaled down following COVID crisis
- PHOENIX: see details on next slide

Capacity: PHOENIX programme overview

- Scope
 - New Operational Building, flexibly locatable in a brighter OPS Room
 - New Consoles designed to modern ergonomic standards
 - Improved training, test and local contingency infrastructure
 - Refurbished Training Environment
 - Refurbished Test & Contingency environment
- Benefits
 - Meet long-term business demands and deliver future-proof operational services
 - Additional sectors to handle peak traffic increase
 - Integration of new concepts and services
 - Enable automation levels
 - Mitigate refurbishment risk
- Timeline
 - Initial presentation of the Programme in October 2020 (BFWG, MCG/99)
 - Two technical workshops for the MCG members (01/21 and 04/21)
 - Launch architectural study: following MCG approval at MCG/100
 - Kick off: following the MCG approval at MCG/102, in Q2.22
 - Operational use of new OPS Room: Q4.26

Projects: Business continuity

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Staff (MD)	OPEX	CAPEX	Grand Total
New Voice Communication System												11245	0	6939	18.185
Detection of Simultaneous Transmissions												1452	243	0	1.695
CBN - Next Generation												512	180	40	732
Data Centre Modernisation												2065	1598	7103	10.765
Back-up Voice Communication System												280	0	8700	8.980
Refresh FDPS Platform												505	193	365	1.063
New Primary ATC LAN												445	0	1260	1.705
OPS Room Console Adaptations												649	0	700	1.349
IOP-G Programme - First deployment												7723	0	21000	28.723
MeDUSA												7363	0	13500	20.863
															94.059

- New Voice Communication System: operational since 2017 but some elements to be finalised in 2022
- Data Centre modernisation: energy savings, simplified and flexible server architecture
- IOPG: implementation postponed to RP4
- MeDUSA: upgraded fall back system – to avoid obsolescence and support the primary system capacity

Projects: Environment



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Staff (MD)	OPEX	CAPEX	Grand Total
Contrails Avoidance												418	0	0	418

418

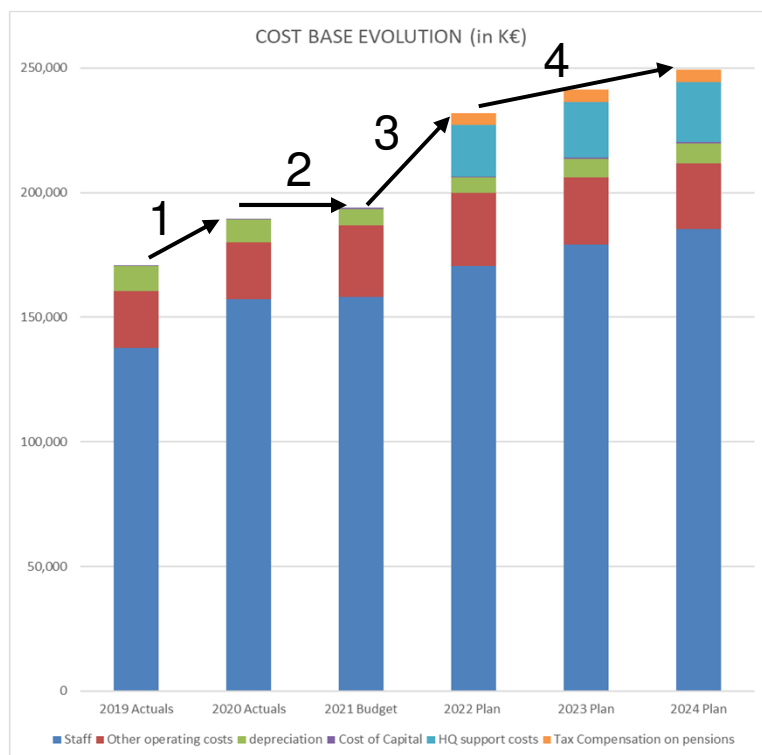
Project	Scope	Benefits	Timeline
Contrails Avoidance	Predict where atmospheric conditions would most likely favour the formation of aviation induced clouding (AIC) caused by contrails of aircraft and propose tactical strategies to avoid these.	This phase: evaluate meteorological models and tactical strategies to avoid AIC	Q1-Q4.21

Summary: projects & activities

MUAC was not idle during the COVID crisis:

- 90% of air traffic controllers used to accelerate various **cost efficiency and capacity enhancing initiatives and innovation** in remote test training platform (digitalisation), airspace (re)design, support to innovation, sustainability projects, SESAR validations & research
 - N.B. MUAC does not have access to a national furlough scheme
- 90% of controllers have been **reskilled** to maintain competencies – ready for the recovery
- **Cross training** between the **civil and military sector groups** to further increase the flexibility
- **Artificial intelligence, automation, machine learning** developments
- Increased **cooperation with other ANSPs** (skeyes, DFS, Dutch Airspace Revision etc.)

OVERVIEW COSTBASE



Over and above the salary indexation (see next slide) there are two drivers for costbase increases in RP3:

- 1. Increased staff costs:** GCE package for increased ATCO availability and restart of the ab initio intake programme
- 2. Stable costbase for 2020 – 2021**
- 3. Increase due to inclusion of external elements:** HQ support cost and taxation compensation on pensions (note that these costs already exist today)
- 4. Moderate increase from 2022 to 2024 due to salary indexation and increased tax compensation on pensions**

	RP3					
	2019 Actuals	2020 Actuals	2021 Budget	2022 Plan	2023 Plan	2024 Plan
Staff	137,598	157,248	158,067	170,519	179,030	185,531
Other operating costs	23,029	22,933	28,795	29,279	26,992	26,120
depreciation	9,849	9,101	6,640	6,246	7,445	8,021
Cost of Capital	217	144	497	493	558	622
Tax Compensation on pensions	0	0	0	20,685	22,415	24,124
HQ support costs	0	0	0	4,739	4,862	4,854
COSTBASE	170,692	189,426	193,999	231,961	241,302	249,272
Germany	78,731	83,201	90,431	109,148	114,861	118,546
Belgium	53,924	62,219	63,928	75,935	78,409	82,123
Luxembourg	1,668	1,924	1,977	2,349	2,425	2,540
Netherlands	36,370	42,081	37,664	44,529	45,606	46,063
COSTBASE	170,692	189,426	193,999	231,961	241,302	249,272

Allocation of costs between Member States :

For 2022-2024, sharing keys are not yet agreed between the states, therefore the amounts shown in pink are indicative only

GAT cost sharing keys and methodology currently in force

	2021	2022	2023	2024
Belgium	32.9525	32.7362	32.4943	32.9451
Luxembourg	1.0192	1.0125	1.0050	1.0189
Germany	46.6140	47.0546	47.6007	47.5567
Netherlands	19.4143	19.1967	18.9000	18.4793
TOTAL	100.0000	100.0000	100.0000	100.0000

Indicative sharing keys
for 2022-2024

The cost of MUAC are shared in accordance with the **number of controller personnel assigned to the control sectors** serving each of the parties expected to be in place on 1st January of the respective years .

For the DECO sector (serving the Dutch and German airspace), the **sector opening hours** for the 1 semester of the preceeding year is used a metric for the calculation.

For the Brussels Sector (serving the Belgian, Luxembourgian, French, Dutch and German airspace), the **number of controlled kilometres** for July of the preceeding year is used as metric for the calculation. The share between Belgium and Luxembourg is fixed at 97% and 3% respectively.

Reporting Tables : Table 1 Total Costs

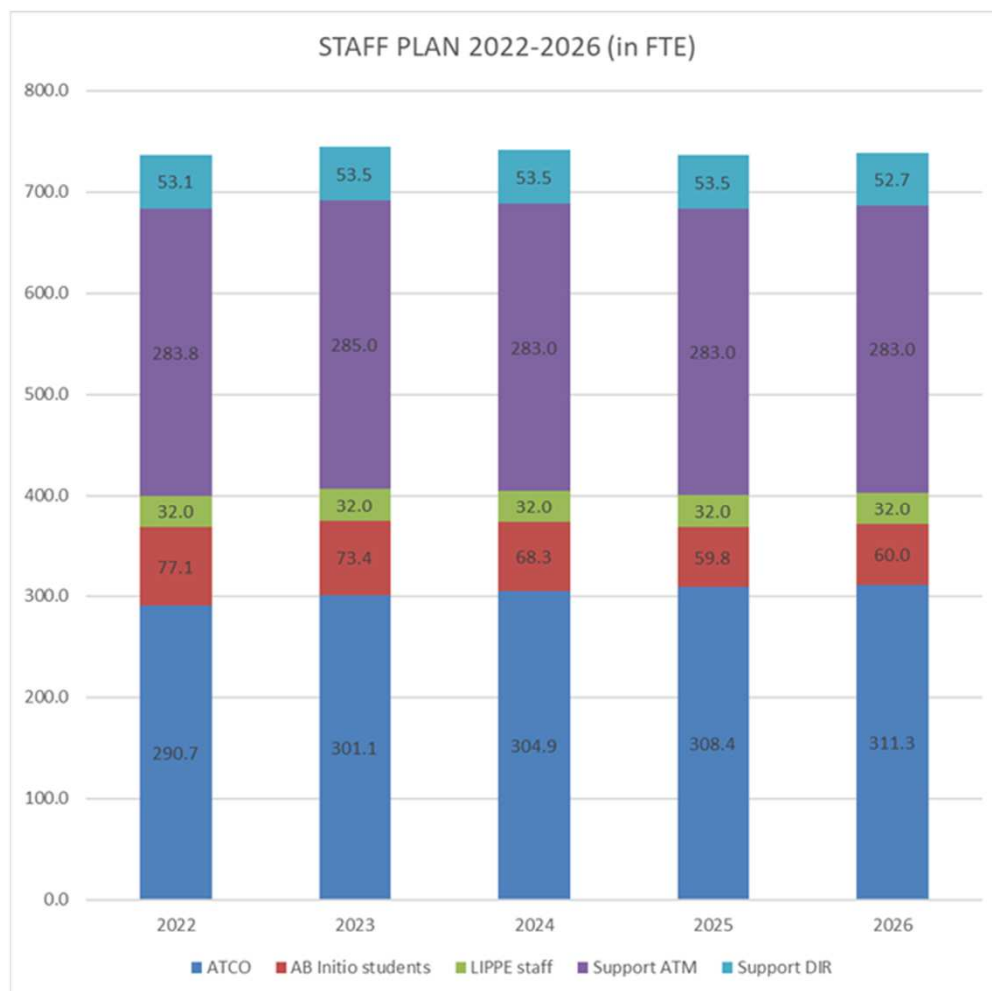
Belgium-Luxembourg
Currency: Euro
MUAC Belgium

Actual costs 2012-2019									Determined costs - Performance Plan - RP3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)														
1.1 Staff	36.430	35.391	38.124	35.793	38.076	39.307	40.842	45.687	51.650	52.087	103.737	62.593	65.458	69.070
of which, pension costs									4.206	4.470	8.676	11.471	12.171	13.079
1.2 Other operating costs	3.949	3.958	3.692	3.733	6.486	7.891	8.085	8.726	7.532	9.489	17.021	11.136	10.351	10.204
1.3 Depreciation	2.983	2.790	2.866	2.755	2.560	2.528	2.918	3.111	2.989	2.188	5.177	2.045	2.419	2.643
1.4 Cost of capital	216	183	163	140	113	70	92	44	47	164	211	162	181	205
1.5 Exceptional items							0		0	0	0	0	0	0
1.6 Total costs	43.578	42.322	44.846	42.421	47.235	49.796	51.937	57.568	62.219	63.928	126.147	75.936	78.409	82.122
Total % n/n-1		-2.9%	6.0%	-5.4%	11.3%	5.4%	4.3%	10.8%	8.1%	2.7%		18.8%	3.3%	4.7%

Belgium-Luxembourg
Currency: Euro
MUAC Luxembourg

Actual costs 2012-2019									Determined costs - Performance Plan - RP3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)														
1.1 Staff	1.127	1.095	1.179	1.107	1.178	1.216	1.263	1.413	1.597	1.611	3.209	1.938	2.025	2.138
of which, pension costs									130	138	268	355	376	404
1.2 Other operating costs	122	122	114	115	201	244	250	270	233	293	526	344	320	316
1.3 Depreciation	92	86	89	85	79	78	90	96	82	68	160	63	75	82
1.4 Cost of capital	7	6	5	4	3	2	3	1	1	5	7	5	6	6
1.5 Exceptional items									0	0	0	0	0	0
1.6 Total costs	1.348	1.309	1.387	1.312	1.461	1.540	1.606	1.780	1.924	1.977	3.902	2.349	2.425	2.540
Total % n/n-1		-2,9%	6,0%	-5,4%	11,3%	5,4%	4,3%	10,8%	8,1%	2,7%		18,8%	3,3%	4,7%

Focus on staff costs: number of FTE planned



Despite the increasing scope of MUAC tasks, the workforce is stable over the period 2022-2026:

- ATCO: slight increase due to very good success rate of ab initio. Sufficient staff are trained and available for the recovery (requested to provide 75% capacity in Summer '21)
- Ab Initio's: decrease due to fewer intakes following COVID crisis and increased pass rate
- Support: stable

STAFF PLAN	2022	2023	2024	2025	2026
Ab Initio students	77.1	73.4	68.3	59.8	60.0
ATCO	290.7	301.1	304.9	308.4	311.3
Support	336.9	338.5	336.5	336.5	335.7
LIPPE staff	32.0	32.0	32.0	32.0	32.0
Total MUAC FTE	736.6	745.0	741.6	736.7	739.0
% ATCO (ABIN-ATCO-LIPPE) vs TOTAL	54.3%	54.6%	54.6%	54.3%	54.6%

Focus on staff costs: indexation

- The salary indexation methodology is agreed by the 41 Eurocontrol States and is aligned to the method applied in the European institutions
 - change in net remuneration of central government civil servants for a sample of 11 EU member States
 - cost of living in the Netherlands
- Outcome of the indexation methodology is difficult to forecast
- Over the last 3 years, actual indexation was always (slightly) higher than planned
 - As of July 2020, the cumulative indexation is 2% higher than planned

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Summary overview: Investment Plan RP3

Project Description	Total CAPEX for the project (in K€)	2020 ACTUALS (in K€)	2021 BUDGET (in K€)	2022 PLAN (in K€)	2023 PLAN (in K€)	2024 PLAN (in K€)	Planned date of entry into operation
PHOENIX	34,375	4	213	312	1,063	1,475	Q4-2026
MeDUSA (MUAC Dual System Architecture)	13,500			3,500	3,000	3,000	Q4-2025
IOP-G Programme - First Deployment	21,000				2,000	3,000	2029
New Voice Communication System	6,939	707	400				2017 -2021
Back-up Voice Communication System	8,700	127	245	205	2,000	2,000	2027
Building maintenance & renovations	14,423	686	3,960	3,110	5,139	1,528	recurring
Data Centre Modernisation	7,103		3,313	3,048	742		2023
Radio Direction Finder Extension	1,861	467	300				2021
Maintenance Servers and workstations	recurrent	1,394	880	730	2,380	1,980	
Other investments		1,079	3,091	4,820	2,965	2,000	
TOTAL		4,464	12,402	15,725	19,289	14,983	

- N.B. CAPEX is funded directly from bank loans (see next slide)
- Some planned investments have been transferred to OPEX and achieved with internal staff effort
- Investment is stable between 15 and 20 million € per year
- Phoenix, MeDUSA, IOP-G, Back up Voice Communication have been **delayed** and will come into operation during RP4
 - ⇒ limited impact of the investment plan on the RP3 cost base
 - ⇒ Impact on operations is judged to be acceptable in the short term

Cost of Capital

- Cost of Capital in RP3 represents a very small part of the costbase : less than **0,2% of total costbase**
- MUAC has no equity => all CAPEX is financed through bank loans: **cost of equity is ZERO**
- One single treasury for EUROCONTROL
 - loans are drawn down to finance all EUROCONTROL CAPEX needs
 - interests paid to banks are apportioned within EUROCONTROL according to the relative NBV of fixed assets of each parts (NM, MUAC, etc.) at start of the year
- Floating rate loans (EURIBOR + margin): margins have slightly increased for new loans negotiated after 2008 financial crisis. Today, **the margins are around 0,4% up to 0,8 %**. If EURIBOR is negative, the basis is 0%,
- Following comments received, **revised assumptions taken for RP3**: 0,6% of the NBV of fixed assets (compared to 0,72% for RP2)

Expected project benefits



Lever	Activity	Effect	Timing
Demand balancing	Traffic Prediction Improvements	up to 2% sector capacity	2022+
Environment	Contrails avoidance trials	TBC - First results awaited in July/Aug	2023+
Sector Opening Times	Optimised sector manning	Improve on the ratio of 2 controllers per sector	2024+
Sector Opening Times	MUAC upgraded simulator environment	up to 300 shifts/year	2023+
Sector Opening Times	Manpower planning system	Roster efficiency improvements	2025+
Throughput	Advanced ATFCM/ASM Planning Function	up to 5% sector capacity	2023+
Throughput	Automation (augmenting controllers and ATFCM))	up to 5% sector capacity	2026+
Throughput	Airspace design improvements (COBRA, MASERATI etc.)	up to 2% sector capacity	2023+

- Automation in ATFCM is expected to bring both capacity enhancements and cost reductions over time. Project delayed by approx. 1 year due to COVID and associated budgetary limitations
- Conversely, some airspace design projects have been accelerated due to the increased ATCO availability

Cost containment measures

- Reduce ab initio intake from 36 to 18 per year (exact planning is regularly reviewed)
- Scrutinise all renewals of existing staff and retirement succession planning
- Negotiate with suppliers for external assistance
- Cancel low priority projects and activities
- Only launch new purchase requisitions for critical needs
- Reduction in non-essential staff training
- ‘Minus counter’ for ATCO working time
- N.B. Despite the above, no capacity issues are expected in the short term

Conclusion on Costbase & Investments

- MUAC is doing its utmost to limit costbase increase during RP3 by
 - limiting new recruitments to the minimum (only critical staff are replaced)
 - high scrutiny on OPEX expenditure:
 - All purchase requests > 2,000 € are reviewed and approved by management
 - Reducing investments or postponing them to RP4 (where it would not adversely affect performance)

- Costbase increase during RP3 mainly due to
 - New external developments
 - Tax compensation on pensions (staggered implementation from 20M€ in 2022 to 24M€ in 2024)
 - External HQ Support costs (5M€ as from 2022)
 - Salary indexation methodology



User Consultation En Route RP3 (2020-2024)

ANA - Luxembourg

Revised Draft Performance Plan on
cost efficiency

MS Teams, 18th August 2021



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DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Administration de la navigation aérienne



❑ Actuals 2020

- Actual Costs 2020 vs. Actual Costs 2019
- Main Cost Drivers
- Actual Costs 2020 vs. Planned Costs 2020

❑ Revised Performance Plan

- Revised vs. Initial Performance Plan RP3
- Revised Performance Plan RP3 vs. Actuals RP2
- Traffic/Service Units forecast
- Other revenues
- Chargeable unit rate 2022 (ANA part)
- Possibility of additional public funding

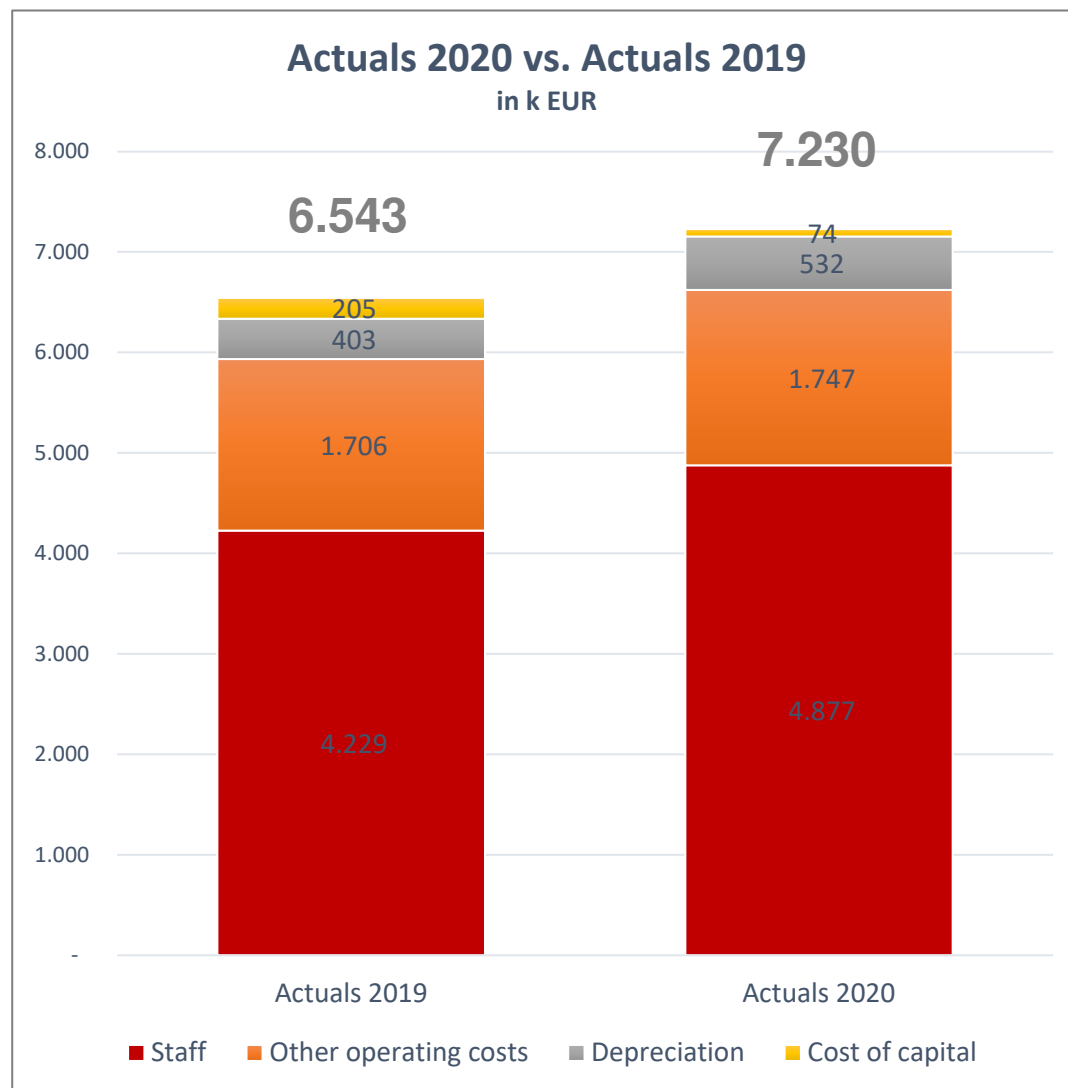


Actuals 2020

Actual Cost 2020 vs. Actual Cost 2019



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Deviations:

- + 647 k EUR Staff
- + 41 k EUR Operating costs
- + 129 k EUR Depreciation
- 131 k EUR Cost of Capital
- + 687 k EUR Total costs**

Main cost drivers:

- Staff cost increase mainly driven by ATC staff
- In 2019 17 additional employees have been approved → impact for 2020
- Decision for the 3rd position was based on high traffic increase

Main cost driver: ATC staff costs



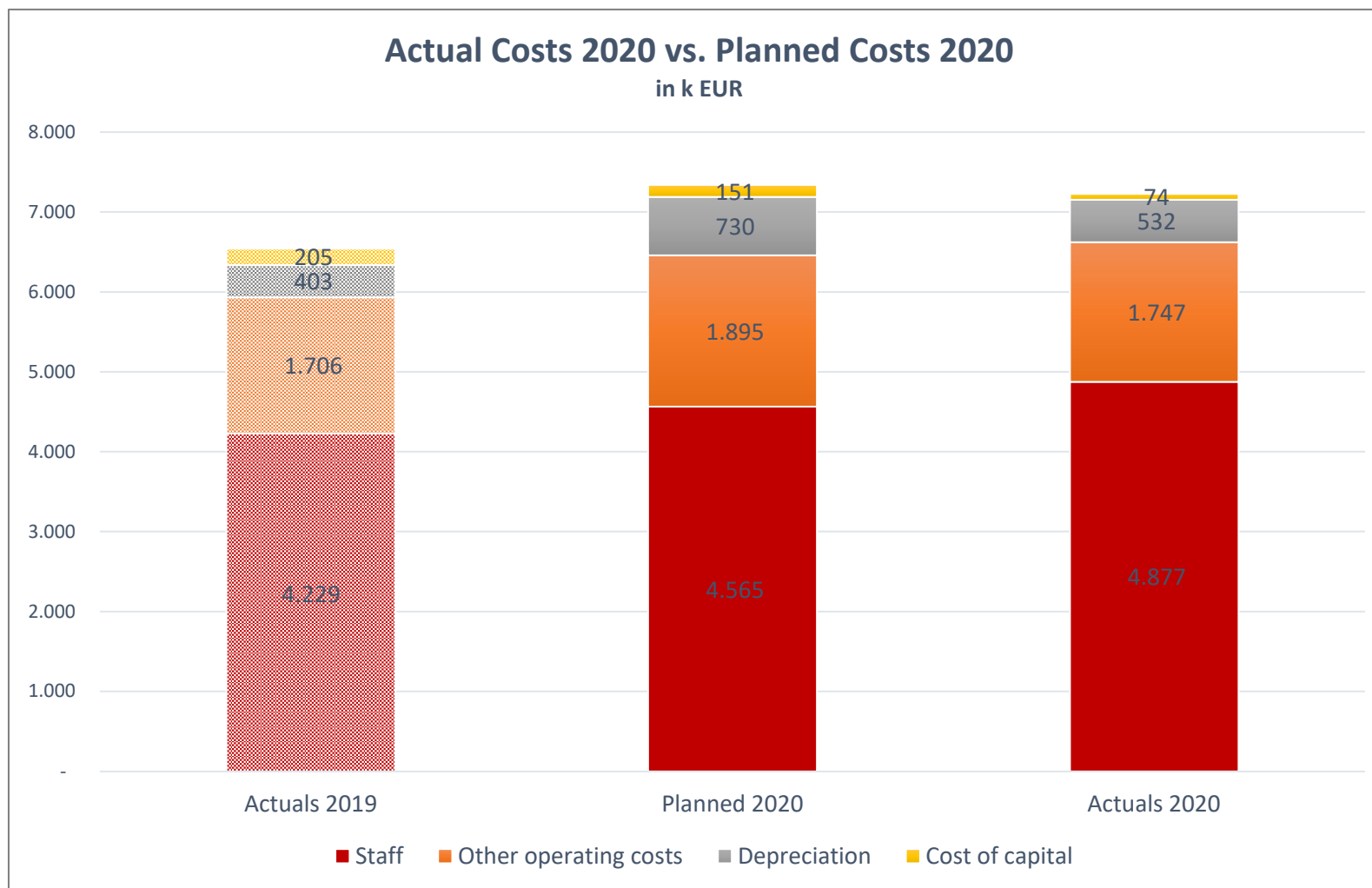
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- ❑ The project to implement a 3rd position in approach (APP) started in early 2019 and is still ongoing.
 - More posts had been approved in order to compensate the expected failure rate.
 - The failure rate isn't that high as expected (far below 50 %)
 - Civil servant status: A complex state procedure decides whether the posts are approved.
- ❑ The significant decrease of traffic in 2020 and 2021 due to the COVID-19 crisis was not predictable. We expect traffic return to the usual level.
- ❑ No sense to stop or cancel the project right now as the 3rd position was, from the beginning of the project, not foreseen to be staffed fulltime before beginning 2023 at the earliest.

Actual Costs 2020 vs. Planned Costs 2020



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Revised Performance Plan RP3

Revised Performance Plan RP3 vs. Actuals RP2



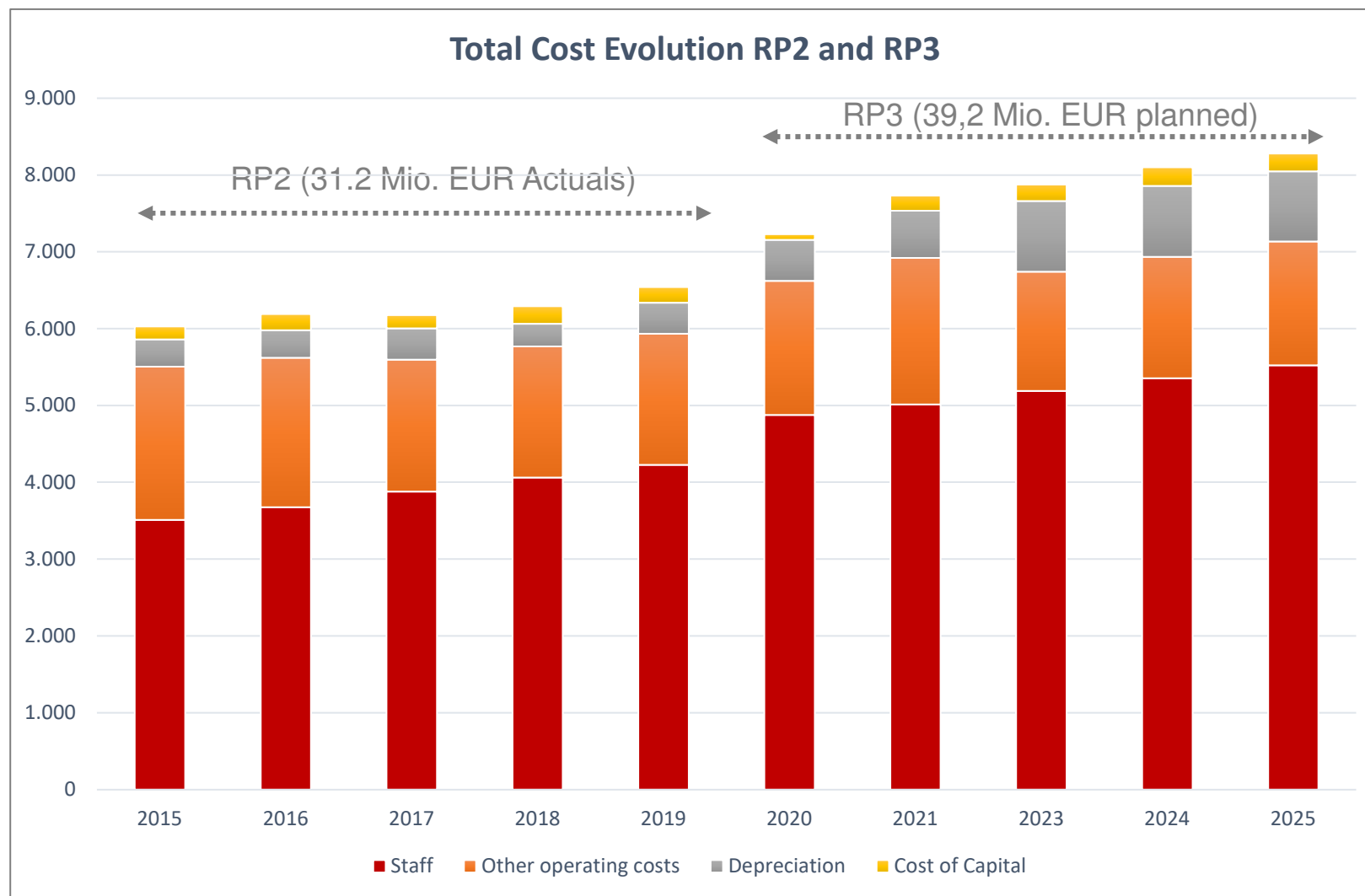
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Cost details	Actual costs - RP2					Determined costs - Revised Performance Plan RP3					RP3 vs. RP2	
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	in k EUR	in %
1. Detail by nature (in nominal terms)												
1.1 Staff	3.512	3.677	3.880	4.065	4.229	4.877	5.013	5.192	5.355	5.524	6.598	34%
of which, pension costs						93	95	99	102	105	494	
1.2 Other operating costs	1.996	1.945	1.719	1.705	1.706	1.747	1.909	1.552	1.582	1.612	-669	-7%
1.3 Depreciation	352	359	406	294	403	532	614	917	922	912	2.084	115%
1.4 Cost of capital	170	211	171	228	205	74	198	215	244	235	-18	-2%
1.5 Exceptional items												
1.6 Total costs	6.029	6.192	6.176	6.291	6.543	7.230	7.734	7.877	8.104	8.283	7.994	25,6%
2. Detail by service (in nominal terms)												
2.1 Air Traffic Management	2.825	2.919	2.690	3.093	2.860	3.724	3.903	3.763	3.880	3.996	4.880	34%
2.2 Communication (1)	203	523	596	478	649	564	598	708	715	736	872	36%
2.3 Navigation (1)	285	309	575	471	639	543	574	684	691	712	925	41%
2.4 Surveillance (1)	912	595	670	479	732	714	744	853	862	887	672	20%
2.5 Search and rescue					0	0	0	0	0	0	0	
2.6 Aeronautical Information (1)	1.225	1.261	1.098	1.078	988	1.111	1.269	1.228	1.288	1.265	511	9%
2.7 Meteorological services (1)	579	585	548	693	676	574	646	641	667	686	134	4%
2.8 Supervision costs												
2.9 Other State costs												
2.10 Total costs	6.029	6.192	6.176	6.291	6.543	7.230	7.734	7.877	8.104	8.283	7.994	26%
Total % n/n-1		2,7%	-0,3%	1,9%	4,0%		7,0%	1,9%	2,9%			
ATM % n/n-1		3,3%	-7,9%	15,0%	-7,5%		4,8%	-3,6%	3,1%			
CNS % n/n-1		2,0%	29,0%	-22,5%	41,5%		5,2%	17,2%	1,1%			

Total Cost Evolution RP2 and RP3



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Revised vs. Initial Performance Plan (RP3)



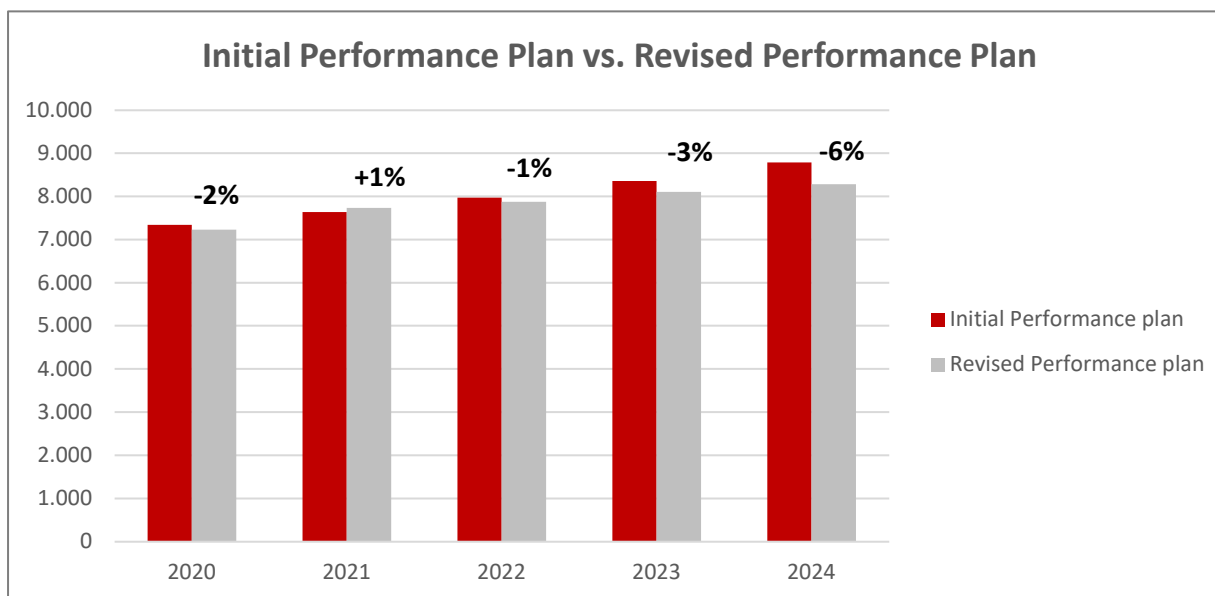
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	Determined costs - Initial Performance Plan RP3					Determined costs - Revised Performance Plan RP3					Revised vs. Initial PP	
Cost details	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	in k EUR	in %
1. Detail by nature (in nominal terms)												
1.1 Staff	4.565	4.731	4.958	5.209	5.377	4.877	5.013	5.192	5.355	5.524	1.121	5%
of which, pension costs						93	95	99	102	105		
1.2 Other operating costs	1.895	1.929	1.973	2.018	2.069	1.747	1.909	1.552	1.582	1.612	-1.483	-15%
1.3 Depreciation	730	806	859	928	1.124	532	614	917	922	912	-548	-12%
1.4 Cost of capital	151	168	183	199	216	74	198	215	244	235	50	5%
1.5 Exceptional items												
1.6 Total costs	7.340	7.634	7.973	8.355	8.786	7.230	7.734	7.877	8.104	8.283	-861	-2%
2. Detail by service (in nominal terms)												
2.1 Air Traffic Management	3.384	3.369	3.521	3.718	3.780	3.724	3.903	3.763	3.880	3.996	1.495	8%
2.2 Communication (1)	725	768	814	855	870	564	598	708	715	736	-710	-18%
2.3 Navigation (1)	705	748	796	837	853	543	574	684	691	712	-736	-19%
2.4 Surveillance (1)	723	764	809	848	863	714	744	853	862	887	53	1%
2.5 Search and rescue						0	0	0	0	0		
2.6 Aeronautical Information (1)	1.174	1.330	1.366	1.414	1.717	1.111	1.269	1.228	1.288	1.265	-840	-12%
2.7 Meteorological services (1)	629	655	667	683	703	574	646	641	667	686	-122	-4%
2.8 Supervision costs												
2.9 Other State costs												
2.10 Total costs	7.340	7.634	7.973	8.355	8.786	7.230	7.734	7.877	8.104	8.283	-861	-2%
Total % n/n-1		4,0%	4,4%	4,8%			7,0%	1,9%	2,9%			
ATM % n/n-1		-0,4%	4,5%	5,6%			4,8%	-3,6%	3,1%			
CNS % n/n-1		5,9%	6,1%	5,0%			5,2%	17,2%	1,1%			

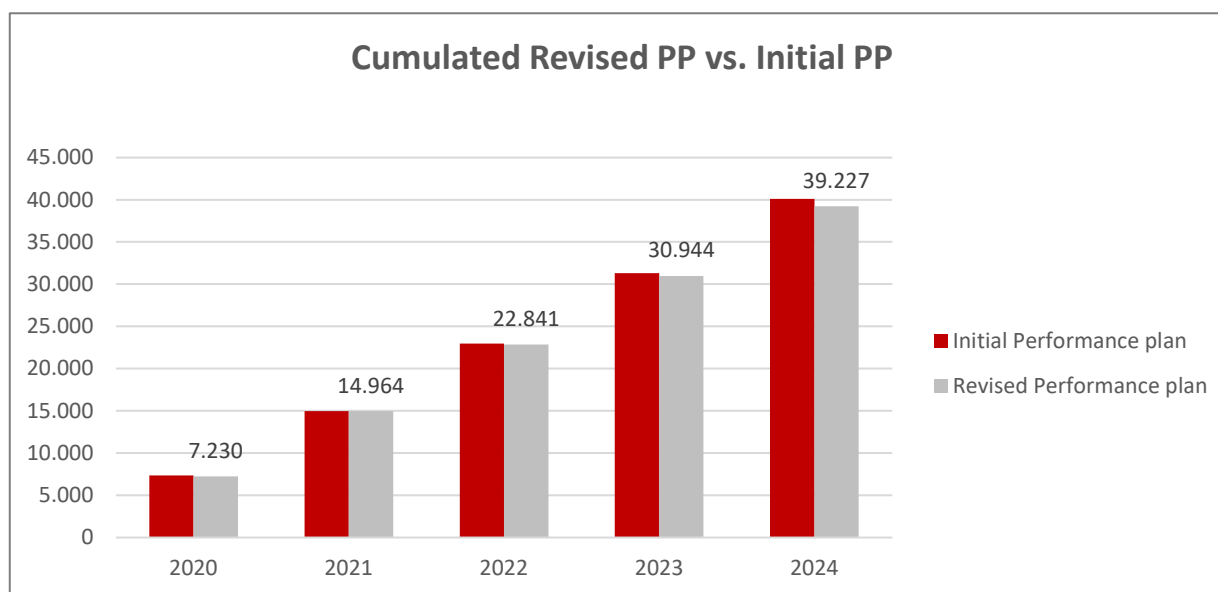
Revised vs. Initial Performance Plan (RP3)



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- Highest cost variance in 2024 (-500 k EUR)
- -750k EUR deviation between time period from 2021 – 2024



- Cumulated determined cost of 39 Mio. EUR for RP3 (-2% compared to initial performance plan)

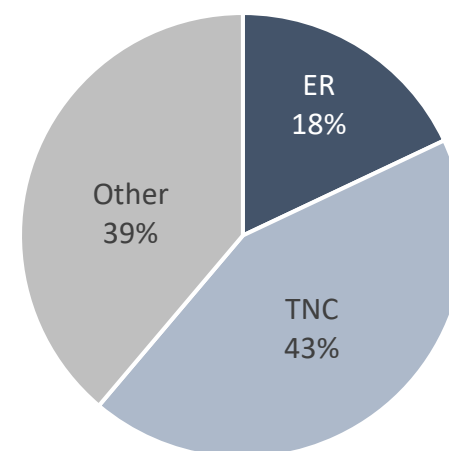
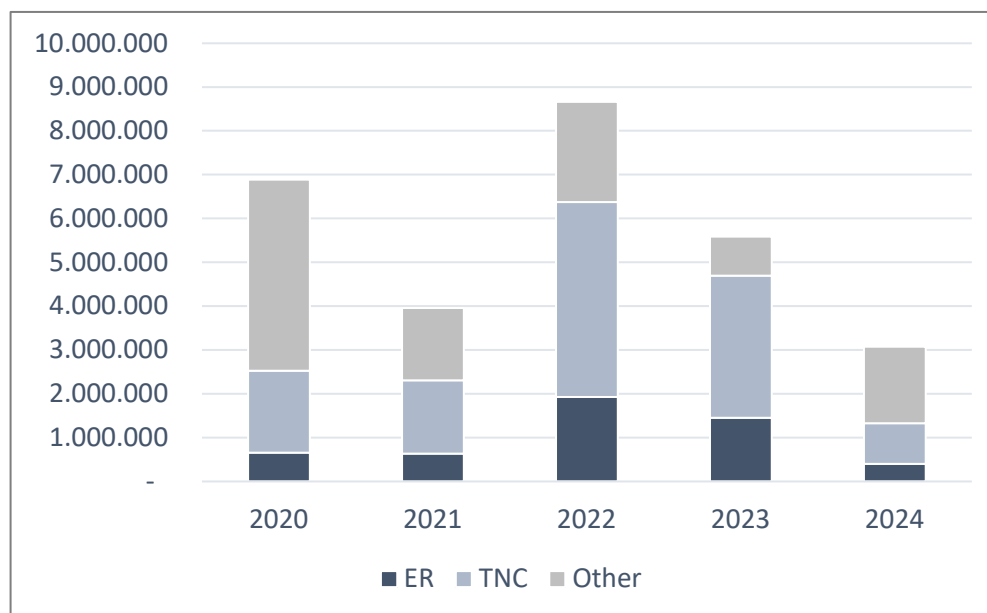
Investments and Projects Update



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Timeframe of planned investments during RP3:

	2020	2021	2022	2023	2024	RP3
ER	657.498	633.843	1.921.960	1.448.620	398.373	5.060.294
TNC	1.869.425	1.668.985	4.454.794	3.245.982	927.828	12.167.015
Other	4.356.811	1.651.821	2.286.689	889.441	1.747.841	10.932.604
Total	6.883.734	3.954.649	8.663.444	5.584.043	3.074.043	28.159.913
	24%	14%	31%	20%	11%	100%



Investments and Projects Update



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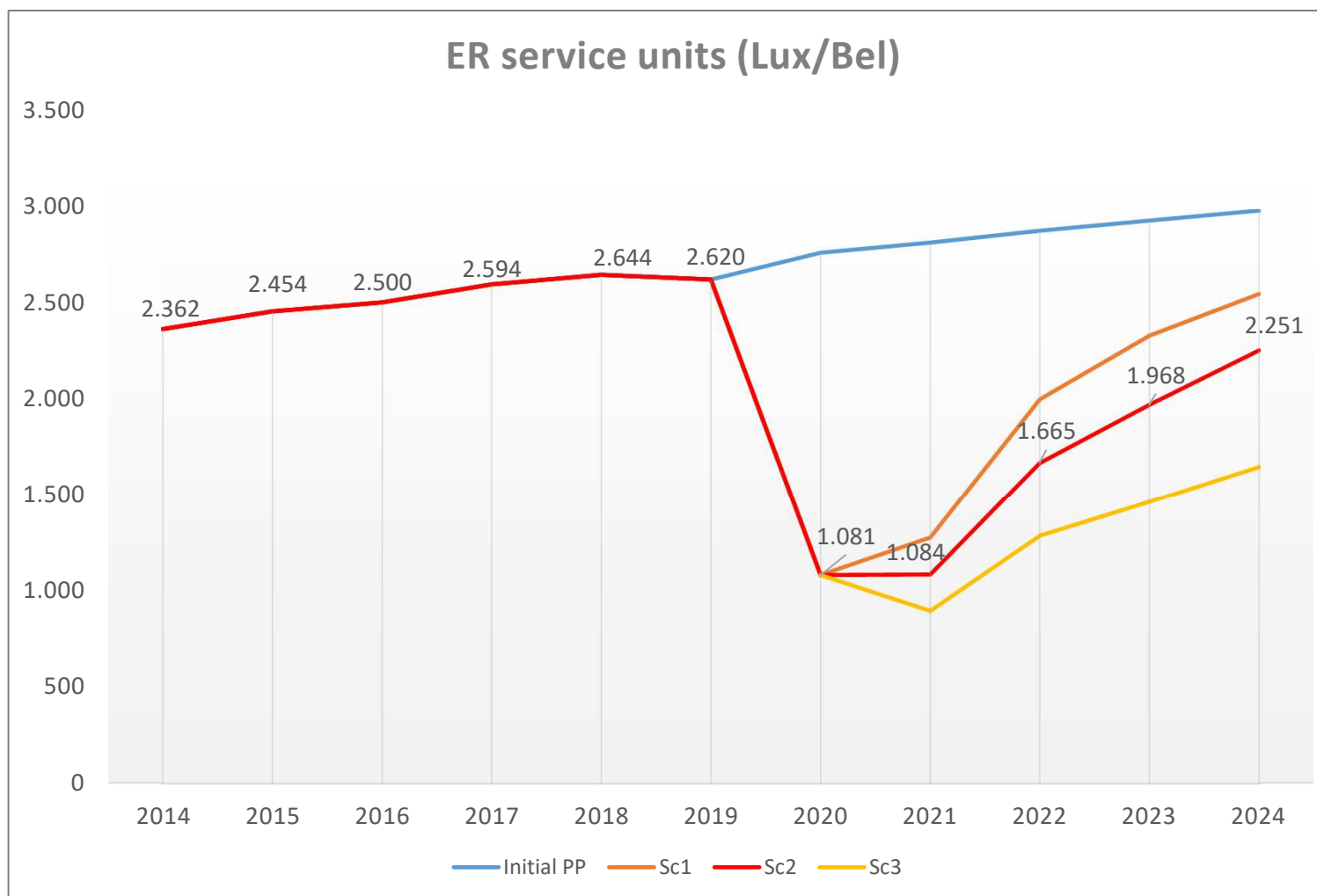
Example of planned investments:

Project Name	Investment costs				
	<2020	2020	Total 2021-2024	After 2024	Total
Surveillance chain upgrade	4.061.820	-	-	-	4.061.820
A-SMGCS	2.070.424	-	1.053.000	-	3.123.424
Projet Mode S interrogateur	-	-	3.000.000	-	3.000.000
Power Station North	-	-	1.375.000	1.375.000	2.750.000
New CCR's in new ELE stations	-	-	2.000.000	-	2.000.000
Projet Surveillance chain (nouv. modules)	-	-	1.900.000	-	1.900.000
Electrical Station for Gate 18 and stations 06 & 24	1.361.862	261.689	-	-	1.623.551
VCS	-	-	1.500.000	-	1.500.000
AIM data base	-	-	1.200.000	-	1.200.000
Lot 71 A-New ducts for medium voltage, fiber optic	710.988	229.543	173.063	-	1.113.594
Projet DVOR/DME LUX	-	-	700.000	-	700.000
Projet DVOR Diekirch	-	-	600.000	-	600.000
Lot 7: Rehabilitation of runway 06-24 by ANA & PCH	526.560	17.356	43.525	-	587.441
ALCMS update	-	-	494.826	-	494.826
Synergie-WEB Visualization & data integration meteo. tool	-	-	400.000	-	400.000
Approche 06 (lights + cabling + masts)	-	-	373.000	-	373.000
AWOS 2020	-	-	300.000	-	300.000

Service units forecast (traffic scenario)



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Other revenues (borne by the state)



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- **Cost of capital and investment costs (depreciation)**, as well as the **cost of the ELE staff** - will continue to be carried by the State of Luxembourg throughout RP3 (other revenues – national public funding section).

Determined costs - Revised Performance Plan RP3

Cost details	2020	2021	2022	2023	2024
1. Detail by nature (in nominal terms)					
1.1 Staff	4.877	5.013	5.192	5.355	5.524
of which, pension costs	93	95	99	102	105
1.2 Other operating costs	1.747	1.909	1.552	1.582	1.612
1.3 Depreciation	532	614	917	922	912
1.4 Cost of capital	74	198	215	244	235
1.5 Exceptional items					
1.6 Total costs	7.230	7.734	7.877	8.104	8.283

Not charged to the users:

- **3.9 Mio EUR** of depreciation cost
- **970 k EUR** cost of capital
- **245 k EUR** ELE staff costs

(in K€)	2020/2021	2022	2023	2024
Total determined costs	14.964	7.877	8.104	8.283
Other revenues	-1.854	-1.182	-1.217	-1.199
Remaining costs (Chargeable costs)	13.109	6.695	6.887	7.084

Chargeable unit rate 2022



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- ❑ The chargeable unit rate calculated for RP3 **before** carry forward adjustments (only ANSP part – Performance plan):

(in K€)	2020/2021	2022	2023	2024
Total determined costs	14.964	7.877	8.104	8.283
Other revenues	-1.854	-1.182	-1.217	-1.199
Remaining costs (Chargeable costs)	13.109	6.695	6.887	7.084
Total Service Units (forecast)	2.165	1.665	1.968	2.251
Total % n/n-1		-23,1%	18,2%	14,4%
Unit Cost (in €/SU)	6,06[*]	4,02	3,50	3,15
Total % n/n-1		-33,6%	-13,0%	-10,1%

* Unit rate as per Art. 25(2) applied temporary in 2020: 2,39 €/SU

* Unit rate as per Art. 25(2) applied temporary in 2021: 2,44 €/SU

Chargeable unit rate 2022



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DU GRAND-DUCHÉ DE LUXEMBOURG

- ❑ The calculated unit rate for 2022 **after** carry forward adjustments (only ANSP part – Performance plan):

(in K€)	2020/2021	2022	2023	2024
Total determined costs	14.964	7.877	8.104	8.283
Other revenues	-1.854	-1.182	-1.217	-1.199
Remaining costs (Chargeable costs)	13.109	6.695	6.887	7.084
<i>carry forward of inflation inflation adjustment N-2</i>	235	-	-	-
<i>carry forward of traffic adjustment N-2</i>	33	76	130	-
<i>carry forward traffic risk sharing adjustment</i>	68	-	-	-
<i>difference in revenue from temporary application of unit rate</i>	-	-	1.144	1.144
Chargeable costs	13.446	6.771	8.161	8.228
Total Service Units (forecast)	2.165	1.665	1.968	2.251
Total % n/n-1				
Unit Cost (in €/SU)	6,21[*]	4,07	4,15	3,66

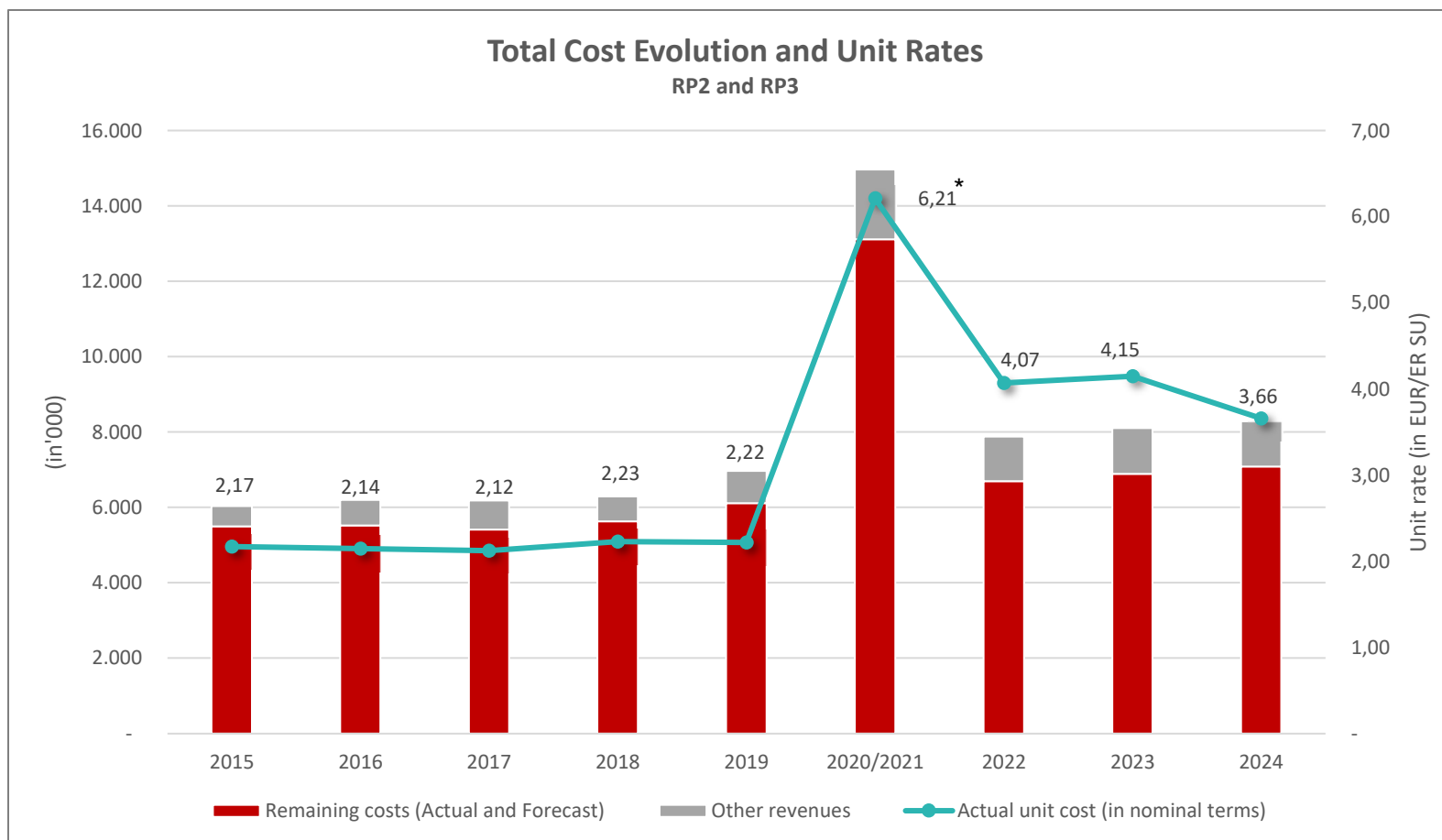
^{*} Unit rate as per Art. 25(2) applied temporary in 2020: 2,39 €/SU

^{*} Unit rate as per Art. 25(2) applied temporary in 2021: 2,44 €/SU

Actual/estimated unit rates for RP3



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* Unit rate as per Art. 25(2) applied temporary in 2020: 2,39 €/SU

* Unit rate as per Art. 25(2) applied temporary in 2021: 2,44 €/SU



Actual situation:

- ❑ Still ongoing discussion about additional public funding in order to reduce the ANA related unit rate
- ❑ Backing of the Ministry of Mobility and Public Works
- ❑ Depending on discussions with the Ministry of Finance
- ❑ Decision awaited for the beginning of September



Thank you for your attention!



FEDERALE OVERHEIDSDIENST
MOBILITEIT EN VERVOER

Documentation Belgium-Luxembourg en route RP3 Consultation

1.2 - Traffic Forecasts

1.2.1 - En route

En route Charging zone 1

Belgium-Luxembourg

En route traffic forecast

STATFOR Base forecast MAY 2021 (Flight Plan 2017-19, Actual Route 2020-2024)

STATFOR Base forecast MAY 2021 (Flight Plan 2017-19, Actual Route 2020-2024)

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	1.240	1.275	1.249	541	560	858	999	1.134	-1,9%
IFR movements (yearly variation in %)		2,9%	-2,1%	-56,6%	3,5%	53,2%	16,4%	13,6%	
En route service units (thousands)	2.594	2.644	2.620	1.081	1.084	1.665	1.968	2.251	-3,0%
En route service units (yearly variation in %)		1,9%	-0,9%	-58,7%	0,3%	53,5%	18,2%	14,4%	

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #1 - Belgium-Luxembourg

a) RP3 revised cost-efficiency performance targets (IR 2020/1627)

En route charging zone Name of the CZ	Baseline 2014	Baseline 2019	RP3 revised cost-efficiency targets (determined 2020-2024)				2024 D vs. 2014 B	2024 D vs. 2019 B
	2014 B	2019 B	2020/2021 D	2022 D	2023 D	2024 D		
Total en route costs in nominal terms (in national currency)	161.307.247	217.740.555	456.075.804	258.974.343	269.990.317	281.423.854	74,5%	29,2%
Total en route costs in real terms (in national currency at 2017 prices)	167.321.288	211.337.662	438.683.658	243.119.422	249.760.587	256.531.715	53,3%	21,4%
Total en route costs in real terms (in EUR2017) ¹	167.321.288	211.337.662	438.683.658	243.119.422	249.760.587	256.531.715	53,3%	21,4%
YoY variation			107,6%	-44,6%	2,7%	2,7%		
Total en route Service Units (TSU)	2.288.106	2.537.599	2.164.873	1.665.000	1.968.000	2.251.000	-1,6%	-11,3%
YoY variation			-14,7%	-23,1%	18,2%	14,4%		
Real en route unit costs (in national currency at 2017 prices)	73,13	83,28	202,64	146,02	126,91	113,96	55,8%	36,8%
Real en route unit costs (in EUR2017) ¹	73,13	83,28	202,64	146,02	126,91	113,96	55,8%	36,8%
YoY variation			143,3%	-27,9%	-13,1%	-10,2%		

National currency	EUR
¹ Average exchange rate 2017 (1 EUR=)	1,00

b) Information on the baseline values for the determined costs and the determined unit costs

En route charging zone Name of the CZ	Baseline 2014	Baseline 2019	Actuals 2014	Actuals 2019	2014 Baseline adjustments	2019 Baseline adjustments
	2014 B	2019 B	2014 A	2019 A		
Total en route costs in nominal terms (in national currency)	161.307.247	217.740.555	155.716.192	199.494.828	5.591.055	18.245.727
Total en route costs in real terms (in national currency at 2017 prices)	167.321.288	211.337.662	161.485.138	193.678.302	5.836.150	17.659.360
Total en route costs in real terms (in EUR2017) ¹	167.321.288	211.337.662	161.485.138	193.678.302	5.836.150	17.659.360
Total en route Service Units (TSU)	2.288.106	2.537.599	2.362.038	2.619.592	-73.932	-81.993

c) Detailed justifications for the adjustments to the baseline values

c.1) Adjustments to the 2014 baseline value for the determined costs

Number of adjustments	3
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Adjustment #1	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Cost base of ANA Luxembourg added	ANA Lux	ANSP	Staff	3.350.935	3.507.217	3.507.217
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014. The adjustment is mainly related to staff costs and other operating costs (+ depreciation, cost of capital)						

Adjustment #2	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Cost base of ANA Luxembourg added	ANA Lux	ANSP	Other operating	1.904.279	1.993.092	1.993.092
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014.						

Adjustment #3	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Cost base of ANA Luxembourg added	ANA Lux	ANSP	Depreciation	335.841	335.841	335.841
Description and justification of the adjustment						
In RP1, costs of ANA Luxembourg were not yet included in the cost base of BE-LUX. From RP2 (2015) onwards, this cost base was added. To make comparisons over years, this effect should be neutralized and the cost base of 2014 for ANA was added to the baseline value of 2014.						

Total adjustments to the 2014 baseline value for the determined costs	Costs nominal NC	Costs real NC	Costs EUR2017
	5.591.055	5.836.150	5.836.150

c.2) Adjustments to the 2014 service units

Impact of transition to actual route flown	Coefficient M2/M3	Source	Service units
	-3,13%	CRCO correction factor May 2019 (on 12 months)	-73.932

Other adjustment to the 2014 service units	No
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Total adjustments to the 2014 service units	-73.932
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c.3) Adjustments to the 2019 baseline value for the determined costs

Number of adjustments	5
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Adjustment #1	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Staff	11.088.105	10.710.289	10.710.289
Description and justification of the adjustment						
Change in the allocation of the approach costs						

Adjustment #2	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Other operating	2.690.238	2.598.571	2.598.571
Description and justification of the adjustment						
Change in the allocation of the approach costs						

Adjustment #3	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Change in APP allocation key	skeyes	ANSP	Depreciation	1.037.099	1.037.099	1.037.099
Description and justification of the adjustment						
Change in the allocation of the approach costs						

Adjustment #4	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base: inclusion of tax compensation and support costs	MUAC	ANSP	Staff	3.430.158	3.313.279	3.313.279
Description and justification of the adjustment						
<p>In EUROCONTROL, the remunerations of active staff are subject to an internal tax, while the pensions of retired staff are subject to national taxes in the countries where they reside. In 2005, the EUROCONTROL's Pension Fund was created whereby the pensions are financed through this Fund (from employer and employee contributions) and the tax compensation on pensions is financed on a pay as you go basis from the budget.</p> <p>In 2016, there was a growing concern from the 41 EUROCONTROL Member States that the tax compensation on the income tax for ex MUAC staff members should be financed from the 4 MUAC States instead of the 41 EUROCONTROL Member States. This led to an agreement whereby the share of this cost is progressively (over a period of 7 years from 2016 to 2022) borne by the 4 States. The agreement was embedded in Decision n°128 of the Permanent Commission. In accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016, these costs have been included between 2016 and 2021 in a Special Annex (to the general budget of EUROCONTROL) in a staggered approach (10% in 2016, 20% in 2017, 30% in 2018, 40% in 2019, 60% in 2020, 80% in 2021). As from 2022, these costs will be included at 100% in MUAC (Part III) General Budget and thus the MUAC Cost Base.</p> <p>In 2019, the tax compensation amounted to 17.553.719 EUR, 40% of which were attributed to the MUAC special annex (EUROCONTROL Part IV) and 60% thereof to the EUROCONTROL General Budget (Part I); the Belgian share within MUAC for 2019 was 31,5912%, the Luxembourg share within MUAC for 2019 was 0,9770%.</p> <p>In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly.</p> <p>NOTE: due to the staggered approach, part of the adjustment was already included in the 2019 actual costs. Only the difference is reported here.</p>						

Adjustment #5	Entity name	Entity type	Nature	Costs nominal NC	Costs real NC	Costs EUR2017
Adjustment of cost base: inclusion of Eurocontrol HQ support costs	MUAC	ANSP	Other operating	17	16	16
Description and justification of the adjustment						
<p>Under the same discussions between the 4 MUAC States and the 41 EUROCONTROL Member States, an agreement embedded in Decision n° 128 of the Permanent Commission was concluded as relates the allocation to Part III (MUAC) of the costs for support services delivered by other units of the Agency to MUAC. Similarly, the 4 states agreed to include these costs in a Special Annex (Part IV), in accordance with the Declaration of the National Contracting Parties to the Maastricht Agreement dated 19-04-2016. There is no progressive approach for these costs and they are supported directly at 100% by the 4 MUAC states. As from 2022 these costs will be included at 100% in MUAC (Part III) General Budget.</p> <p>In 2019, the HQ support costs amounted to 4.514.080 EUR, included by 100% into the MUAC Special Annex (Part IV); the German share within MUAC for 2019 was 46,1244 %.</p> <p>In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly.</p> <p>NOTE: This part was (almost completely) already included in the 2019 actual costs. It is still incorporated in the baseline in order to have a consistent approach among the MUAC states.</p>						

Total adjustments to the 2019 baseline value for the determined costs	Costs nominal NC	Costs real NC	Costs EUR2017
	18.245.617	17.659.254	17.659.254

c.4) Adjustments to the 2019 service units

Impact of transition to actual route flown	Coefficient M2/M3	Source	Service units
	-3,13%	CRCO correction factor May 2019 (on 12 months)	-81.993

Other adjustment to the 2019 service units	No
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Total adjustments to the 2019 service units	-81.993
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d) Description and justification of the consistency between local and Union-wide cost-efficiency targets

Despite cost containment measures resulting in a reduction of ca. 121 m€ compared to the initial submission in 2019 (-9%), the local cost-efficiency targets differ from the EU wide target. These differences are driven by specific challenges related to the provision of air navigation services in Belgian airspace :

-Belgium/Luxembourg's airspace is one of the most complex airspace leading to higher workload for ATCOs for a same volume of air traffic. Strong efforts are made by ANSPs to reduce this complexity through leveraging on partnership, civil-military integration and technical defragmentation

-skeyes must address a wave of pre-retirement during RP3 and RP4 by investing in recruitments and training to prepare the recovery and to avoid a devastating impact for airspace capacity.

-skeyes must invest in vital ATM service provision infrastructure, which will reach its end-of-life during RP3 and use this opportunity to rationalize the current infrastructure and implement systems which support the future airspace vision of Europe.

-MUAC must invest in capacity and is bound by the social agreement concluded in 2019

Aside these specific challenges, an agreement between the Eurocontrol MS leads to the transfer of costs from the Eurocontrol cost base to the MUAC cost base, leading to an increase of unit rate in the Be/Lux charging zone. (cf. Annex R)

** Refer to Annex R, if necessary.*

e) Where a deviation from the Union-wide performance targets is observed, please indicate if the NSA considers those deviations to be necessary and proportionate under:

Additional costs of measures necessary to achieve the capacity targets for RP3	Yes	Detailed in part 3.4.6 of the performance plan
Restructuring costs planned for RP3	Click to select	

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS

Following the COVID crisis and the collapse of traffic, one-off cost-cutting measures have been taken by the ANSPs (recruitment freeze, revision of investment plans, revision of supplier contracts, etc.). However, these one-off measures will not lead to structural efficiency gains. In line with the Belgian Airspace Vision 2030, ANSPs active in Belgian airspace have taken various initiatives to improve efficiency in a structural way (civil-military integration, defragmentation of ATM systems, dynamic airspace use etc.). These long-term initiatives are being developed and deployed but the benefits will only be tangible in several years. (cf. annex R)

** Refer to Annex R, if necessary.*

g) Findings of the verification by the NSA (under Art. 22(7) of IR 2019/317) of the compliance of the cost base for charges with the requirements of Article 15(2) of Reg. 550/2004 and Article 22 of IR 2019/317, and where applicable identification of corrections applied to the cost base as a result of this verification

** Refer to Annex U, if necessary.*

3.4.6 - Additional determined costs related to measures necessary to achieve the en route capacity targets - Belgium-Luxembourg

Additional costs of measures necessary to achieve the capacity targets for RP3?	Yes
If yes, number of ANSPs concerned	2

a) Overall description of the measures necessary to achieve the en-route capacity targets for RP3, which induce additional costs

<p>skeyes:</p> <p>To prepare for the expected resumption of air traffic during RP3, skeyes must ensure its ATCO capacity is maintained at appropriate levels. Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3 and RP4. To compensate, additional ATCOs shall be recruited and trained to ensure skeyes operational capacity is retained. Furthermore, skeyes intends to replace its ATM system with a single, integrated and harmonised airspace management system with MUAC and BEL DEF to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.</p> <p>MUAC:</p> <p>In 2019, an agreement was closed on new general conditions on employment, which increases ATCO availability in order to mitigate the gap between staff availability and traffic demand.</p> <p>The PABI project aims to optimize further the planning of daily operations.</p>
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b) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3

Number of capacity measures, which induce additional costs	4
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Measure #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	3.067	4.016	7.083	5.841	5.855	6.238
<p>Description and justification of the additional determined costs of the measure</p> <p>(skeyes) To prepare for the expected resumption of air traffic during RP3, skeyes must ensure its ATCO capacity is maintained at appropriate levels. Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3. To compensate, additional ATCOs shall be recruited and trained to ensure a sustainable capacity. The amounts supra represent the external cost of initial certification training for new ATCO in order to replace departing ATCO's ; the total over the RP3 period is 25m€ which is 3.2% of skeyes' cost base En route over RP3.</p>						

Measure #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	0	1.380	1.380	2.010	2.518	3.098
<p>Description and justification of the additional determined costs of the measure</p> <p>skeyes intends to replace its ATM system with a single, integrated and harmonised airspace management system with MUAC and BEL DEF to support the integration of civil and military ATM services and to improve capacity and operational efficiencies. The amounts supra represent the cost of external support required for the program NextGen ATM (project management, experts...)</p>						

Measure #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	2.303	2.990	5.292			
<p>Description and justification of the additional determined costs of the measure</p> <p>(MUAC) GCE Package : The measure aims to increase ATCO availability in order to mitigate the gap between staff availability and traffic demand. Key measures of the proposal include: an increase in annual working time for newly recruited ATCO staff; the replacement of stand-by shifts (where staff are off duty but on call) by flex shifts (where the shifts have to be worked within a certain time window); the possibility to contract additional working days for staff currently in post; more flexible working time planning on an annual basis; the possibility to transfer leave days to a lifetime working time account, freeing up additional working days in the short to medium term; the possibility to increase working time with the consent of the ATCO, including extension of the retirement age to 60 years; and an increase in the basic salary scales of O grades by 10.75% over a two-year period.</p>						

Measure #4	2020D	2021D	2020/2021D	2022D	2023D	2024D
Associated additional costs (nominal terms in '000 national currency)	370	510	879			
<p>Description and justification of the additional determined costs of the measure</p> <p>(MUAC) Post-OPS Analysis and BI (PABI): the scope of this project consists of enhancing the Post-OPS Analysis process and tooling at MUAC, in order to further optimise the planning of daily operations, and in this context to develop Business Intelligence facilities that not only allows the efficient creation of KPI monitoring and reporting workflows and dashboards, but also allows users to perform data mining in a self-service manner. The additional insights gained from properly consolidated MUAC performance data will improve the cost-efficiency not only of the ATM operations directly, but also of the ATM system and operational concepts development strategies, thereby securing the stability and long-term sustainability of MUAC services. In accordance with OPS ATFCM requirements timeline, PABI is estimated to provide a slight amount of additional capacity and some CRSTMP delay reduction by avoiding over-regulation, and a better determination of the necessary amount of excess ATCOs to cover the unforeseen.</p>						

2020D	2021D	2020/2021D	2022D	2023D	2024D
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Total additional costs of measures ('000 national currency)	5.740	8.895	13.755	7.851	8.372	9.336
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c) Detailed information on the additional costs of measures necessary to achieve the capacity targets for RP3 by nature by ANSP

**Additional costs of measures necessary to achieve the capacity targets for RP3
(nominal terms in '000 national currency)**

Belgium-Luxembourg	2020D	2021D	2020/2021D	2022D	2023D	2024D
Staff						
of which, pension costs			-			
Other operating costs	3.067	5.396	8.463	7.851	8.372	9.336
Depreciation			-			
Cost of capital			-			
Exceptional items			-			
Total additional costs of measures	3.067	5.396	8.463	7.851	8.372	9.336

Belgium-Luxembourg	2020D	2021D	2020/2021D	2022D	2023D	2024D
Staff	2.364	3.261	5.625			
of which, pension costs			-			
Other operating costs	309	238	547			
Depreciation			-			
Cost of capital			-			
Exceptional items			-			
Total additional costs of measures	2.673	3.499	6.172	-	-	-

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total additional costs of measures ('000 national currency)	5.740	8.895	14.635	7.851	8.372	9.336

Additional comments
The amounts supra represent the external cost of initial certification training for new ATCO in order to replace departing ATCO's ; the total over the RP3 period is 25m€ which is 3.2% of skeyes' cost base En route over RP3. The additional staff cost contains the salary charge of DISPO (unoperational ATCO). The other operating costs represent the cost of external support for the ATM NextGen program and the initial certification training for new ATCO.

d) Demonstration that the deviation from the Union-wide targets is exclusively due to the additional determined costs related to measures necessary to achieve the performance targets in capacity

Together with the replacement of end of life equipments, the recruitment and training of new ATCO and the ATM next gem are mandatory to safeguard business continuity and capacity over RP3. This is developed more in depth in the annexes E and R.
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5.1 - Traffic risk sharing

5.1.1 Traffic risk sharing - En route charging zones

Belgium-Luxembourg			Traffic risk-sharing parameters adapted?		no	
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

Table 1 - Total Costs and Unit C

Belgium-Luxembourg
Currency: Euro
All Entities

Actual costs 2012-2019									Determined costs - Performance Plan - RP3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)														
1.1 Staff	112.555	108.395	110.939	114.735	114.825	121.484	128.785	139.511	152.772	159.468	312.240	180.382	188.512	197.004
of which, pension costs	0	0	0	0	0	0	0	0	18.851	20.068	38.919	28.637	29.811	31.379
1.2 Other operating costs	24.858	34.650	25.942	28.726	34.807	40.431	39.827	44.564	46.638	56.473	103.111	54.611	54.992	55.747
1.3 Depreciation	14.707	13.567	13.873	13.326	12.529	12.244	10.329	11.790	13.649	11.908	25.557	12.733	14.475	16.474
1.4 Cost of capital	6.674	5.696	4.961	3.966	4.228	4.203	4.584	3.629	6.200	8.968	15.168	11.248	12.012	12.199
1.5 Exceptional items	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.6 Total costs	158.794	162.309	155.716	160.753	166.388	178.362	183.525	199.495	219.259	236.817	456.076	258.974	269.990	281.424
Total % n/n-1		2,2%	-4,1%	3,2%	3,5%	7,2%	2,9%	8,7%	9,9%	8,0%		9,4%	4,3%	4,2%
2. Detail by service (in nominal terms)														
2.1 Air Traffic Management	113.738	120.532	110.068	116.737	122.266	134.582	136.769	148.676	167.317	178.315	345.632	202.567	211.087	220.352
2.2 Communication	10.146	9.632	9.903	9.603	9.425	9.128	9.962	11.460	13.370	14.809	28.179	19.045	20.532	22.125
2.3 Navigation	5.262	4.287	4.908	4.251	4.450	4.303	4.853	5.531	4.940	5.147	10.088	5.528	5.919	6.061
2.4 Surveillance	5.071	4.616	6.798	4.053	4.903	6.138	6.426	7.153	5.494	5.799	11.294	6.296	6.538	6.828
2.5 Search and rescue	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.6 Aeronautical Information	3.186	3.367	3.345	4.724	4.419	4.066	4.003	4.301	3.023	3.361	6.384	3.450	3.480	3.451
2.7 Meteorological services	8.003	6.835	7.484	8.218	7.818	7.274	8.320	9.002	7.536	7.812	15.348	8.400	8.663	8.783
2.8 Supervision costs	1.225	1.351	1.365	1.403	1.460	1.465	1.486	1.008	1.085	1.177	2.263	948	965	982
2.9 Other State costs	12.163	11.690	11.845	11.765	11.647	11.406	11.706	12.365	16.493	20.396	36.889	12.741	12.807	12.841
2.10 Total costs	158.794	162.309	155.716	160.753	166.388	178.362	183.525	199.495	219.259	236.817	456.076	258.974	269.990	281.424
Total % n/n-1		2,2%	-4,1%	3,2%	3,5%	7,2%	2,9%	8,7%	9,9%	8,0%		9,4%	4,3%	4,2%
3. Complementary information (in nominal terms)														
Average asset base														
3.1 Net book val. fixed assets	104.268	97.744	88.463	77.803	77.555	72.965	76.562	79.381	98.331	100.848		119.618	140.446	155.623
3.2 Adjustments total assets	0	0	0	0	0	0	0	0	0	0		0	0	0
3.3 Net current assets	8.237	6.995	8.288	15.223	16.877	15.707	14.975	13.332	60.212	173.189		239.388	215.007	169.986
3.4 Total asset base	112.505	104.739	96.751	93.026	94.432	88.672	91.537	92.714	158.543	274.038		359.005	355.452	325.609
Cost of capital %														
3.5 Cost of capital pre tax rate														
3.6 Return on equity														
3.7 Average interest on debts														
3.8 Share of financing through equity														
Costs of common projects														
3.9 Common projects	0	0	0	193	122	121	1	2	331	0	331	0	0	0
Costs of new and existing investments														
3.10 Depreciation									13.649	11.908	25.557	12.733	14.475	16.474
3.11 Cost of capital									3.485	2.981	6.466	3.372	4.337	5.440
3.12 Cost of leasing									0	0	0	0	0	0
Eurocontrol costs														
3.13 Eurocontrol costs (Euro)														
3.14 Exchange rate (if applicable)														
3.15 Eurocontrol costs (national currency)	12.140	11.666	11.822	11.765	11.647	11.406	11.706	12.365	16.493	20.396	36.889	12.741	12.807	12.841
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)														
4.1 Costs for exempted VFR flights	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.2 Total determined/actual costs	158.794	162.309	155.716	160.753	166.388	178.362	183.525	199.495	219.259	236.817	456.076	258.974	269.990	281.424
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)														
5.1 Inflation %	2,61%	1,20%	0,50%	0,60%	1,80%	2,20%	2,30%	1,20%	0,40%	1,70%		1,90%	1,80%	1,80%
5.2 Inflation index (1)	93,9	95,1	95,5	96,1	97,8	100,0	102,3	103,5	103,9	105,7		107,7	109,7	111,6
5.3 Total costs real terms (2)	166.795	169.054	161.485	166.017	169.392	178.362	180.030	193.678	212.364	226.320	438.684	243.119	249.761	256.532
Total % n/n-1		1,4%	-4,5%	2,8%	2,0%	5,3%	0,9%	7,6%	9,6%	6,6%		7,4%	2,7%	2,7%
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%
5.5 Unit cost in real terms prices (3)	74,74	74,24	68,37	67,65	67,76	68,77	68,10	73,93	196,47	208,78	202,64	146,02	126,91	113,96
Total % n/n-1		-0,7%	-7,9%	-1,1%	0,2%	1,5%	-1,0%	8,6%	165,7%	6,3%		-30,1%	-13,1%	-10,2%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

TSU = Statfor MAY 2021

Inflation % = IMF APRIL 2021

Table 1 - Total Costs and Unit Co

Belgium-Luxembourg
Currency: Euro
Skeyes

Actual costs 2012-2019																Determined costs - Performance Plan - RP3					Actual costs - Reference Period 3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024						
1. Detail by nature (in nominal terms)																										
1.1 Staff	74.137	70.967	70.685	73.307	70.836	76.020	81.544	87.453	93.836	99.875	193.711	109.983	115.038	119.635	93.836											
of which, pension costs									14.422	15.365	29.787	16.712	17.163	17.793	14.422											
1.2 Other operating costs	8.283	18.495	9.901	10.731	14.125	18.768	17.666	21.218	20.360	24.090	44.450	28.574	29.664	30.501	20.360											
1.3 Depreciation	11.631	10.690	10.918	10.133	9.532	9.231	7.026	8.180	10.035	9.039	19.073	9.708	11.059	12.838	10.035											
1.4 Cost of capital	6.451	5.508	4.793	3.652	3.900	3.960	4.261	3.379	6.077	8.601	14.678	10.865	11.580	11.752	6.077											
1.5 Exceptional items							0		0	0	0	0	0	0	0											
1.6 Total costs	100.503	105.661	96.297	97.823	98.393	107.978	110.497	120.231	130.307	141.605	271.912	159.130	167.341	174.727	130.307											
Total % n/n-1		5,1%	-8,9%	1,6%	0,6%	9,7%	2,3%	8,8%	8,4%	8,7%		12,4%	5,2%	4,4%	8,4%											
2. Detail by service (in nominal terms)																										
2.1 Air Traffic Management	68.812	76.901	63.836	70.179	70.651	80.556	80.132	86.468	99.449	108.507	207.957	120.527	126.415	131.743	99.449											
2.2 Communication	10.146	9.632	9.903	9.399	8.902	8.532	9.484	10.811	12.806	14.211	27.017	18.337	19.818	21.391	12.806											
2.3 Navigation	5.262	4.287	4.908	3.966	4.141	3.728	4.382	4.892	4.397	4.573	8.970	4.844	5.230	5.351	4.397											
2.4 Surveillance	5.071	4.616	6.798	3.142	4.308	5.468	5.947	6.421	4.781	5.056	9.836	5.442	5.677	5.943	4.781											
2.5 Search and rescue							0	0	0	0	0	0	0	0	0											
2.6 Aeronautical Information	3.186	3.367	3.345	3.499	3.157	2.968	2.925	3.313	1.912	2.092	4.004	2.221	2.200	2.195	1.912											
2.7 Meteorological services	8.003	6.835	7.484	7.639	7.234	6.726	7.626	8.326	6.962	7.166	14.127	7.759	8.001	8.103	6.962											
2.8 Supervision costs																										
2.9 Other State costs	24	24	24																							
2.10 Total costs	100.503	105.661	96.297	97.823	98.393	107.978	110.497	120.231	130.307	141.605	271.912	159.130	167.341	174.727	130.307											
Total % n/n-1		5,1%	-8,9%	1,6%	0,6%	9,7%	2,3%	8,8%	8,4%	8,7%		12,4%	5,2%	4,4%	8,4%											
																0,00	-	0,00	0,00	-	0,00	-	0,00			
3. Complementary information (in nominal terms)																										
Average asset base																										
3.1 Net book val. fixed assets	104.268	97.744	88.463	75.476	73.770	70.618	71.451	73.451	75.149	77.122		92.732	110.889	125.777	75.149											
3.2 Adjustments total assets									0	0		0	0	0	0											
3.3 Net current assets	8.237	6.995	8.288	11.448	13.074	11.893	11.889	11.894	61.962	168.114		234.337	208.860	163.846	61.962											
3.4 Total asset base	112.505	104.739	96.751	86.923	86.844	82.511	83.340	85.345	137.112	245.235		327.069	319.749	289.623	137.112											
Cost of capital %																										
3.5 Cost of capital pre tax rate	5,73%	5,26%	4,95%	4,20%	4,49%	4,80%	5,11%	3,96%	4,43%	3,51%		3,32%	3,62%	4,06%	4,43%											
3.6 Return on equity	6,01%	5,33%	4,95%	4,20%	4,49%	4,80%	5,11%	3,96%	4,84%	4,84%		4,84%	4,84%	4,84%	4,84%											
3.7 Average interest on debts	3,03%	3,03%	2,98%	0,00%	0,00%	0,00%	0,00%	0,00%	0,99%	0,11%		0,05%	0,07%	0,13%	0,99%											
3.8 Share of financing through equity	90,70%	96,90%	100,20%	100,00%	100,00%	100,00%	100,00%	100,00%	89,31%	71,75%		68,27%	74,40%	83,31%	89,31%											
Costs of common projects																										
3.9 Common projects				193	122	121	1	2	331	0	331	0	0	0	331											
Costs of new and existing investments																										
3.10 Depreciation									10.035	9.039	19.073	9.708	11.059	12.838	10.035											
3.11 Cost of capital									3.331	2.705	6.036	3.080	4.016	5.104	3.331											
3.12 Cost of leasing									0	0	0	0	0	0	0											
Eurocontrol costs																										
3.13 Eurocontrol costs (Euro)																										
3.14 Exchange rate (if applicable)																										
3.15 Eurocontrol costs (national currency)																										
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)																										
4.1 Costs for exempted VFR flights									0	0	0	0	0	0	0											
4.2 Total determined/actual costs	100.503	105.661	96.297	97.823	98.393	107.978	110.497	120.231	130.307	141.605	271.912	159.130	167.341	174.727	130.307											
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)																										
5.1 Inflation %	2,61%	1,20%	0,50%	0,60%	1,80%	2,20%	2,30%	1,20%	0,40%	1,70%		1,90%	1,80%	1,80%	0,40%											
5.2 Inflation index (1)	93,9	95,1	95,5	96,1	97,8	100,0	102,3	103,5	103,9	105,7		107,7	109,7	111,6	103,9											
5.3 Total costs real terms (2)	105.819	110.301	100.056	101.218	100.263	107.978	108.266	116.528	125.976	134.911	260.887	149.203	154.599	159.085	125.976											
Total % n/n-1		4,2%	-9,3%	1,2%	-0,9%	7,7%	0,3%	7,6%	8,1%	7,1%		10,6%	3,6%	2,9%	8,1%											
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0	1.080,9											
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%	-58,7%											
5.5 Unit cost in real terms prices (3)	47,42	48,44	42,36	41,24	40,11	41,63	40,95	44,48	116,55	124,46	120,51	89,61	78,56	70,67	116,55											
Total % n/n-1		2,2%	-12,6%	-2,6%	-2,8%	3,8%	-1,6%	8,6%	162,0%	6,8%		-28,0%	-12,3%	-10,0%	162,0%											

Costs and asset base items in '000 - Service units in '000
(1) Inflation index - Base 100 in 2017
(2) Determined costs (performance plan) and actual costs in real terms
(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Co

Belgium-Luxembourg
Currency: Euro
ANA Luxembourg

Actual costs 2012-2019																Determined costs - Performance Plan - RP3						Actual costs - Reference Period 3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024		2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)																											
1.1 Staff				3.512	3.677	3.880	4.065	4.229	4.877	5.013	9.890	5.184	5.292	5.451		4.877											
of which, pension costs									93	95	188	99	101	104		93											
1.2 Other operating costs				1.996	1.945	1.719	1.705	1.706	1.747	1.909	3.656	1.554	1.584	1.614		1.747											
1.3 Depreciation				352	359	406	294	403	532	614	1.146	917	922	912		532											
1.4 Cost of capital				170	211	171	228	205	74	198	272	215	244	235		74											
1.5 Exceptional items							0		0	0	0	0	0	0		0											
1.6 Total costs				6.029	6.192	6.176	6.291	6.543	7.230	7.734	14.964	7.871	8.043	8.212		7.230											
Total % n/n-1					2,7%	-0,3%	1,9%	4,0%	10,5%	7,0%		1,8%	2,2%	2,1%		10,5%											
2. Detail by service (in nominal terms)																											
2.1 Air Traffic Management				2.825	2.919	2.690	3.093	2.860	3.724	3.903	7.627	3.755	3.837	3.947		3.724											
2.2 Communication				203	523	596	478	649	564	598	1.162	708	713	734		564											
2.3 Navigation				285	309	575	471	639	543	574	1.117	684	689	710		543											
2.4 Surveillance				912	595	670	479	732	714	744	1.457	854	860	885		714											
2.5 Search and rescue							0	0	0	0	0	0	0	0		0											
2.6 Aeronautical Information				1.225	1.261	1.098	1.078	988	1.111	1.269	2.380	1.229	1.280	1.256		1.111											
2.7 Meteorological services				579	585	548	693	676	574	646	1.221	641	663	680		574											
2.8 Supervision costs																											
2.9 Other State costs																											
2.10 Total costs				6.029	6.192	6.176	6.291	6.543	7.230	7.734	14.964	7.871	8.043	8.212		7.230											
Total % n/n-1					2,7%	-0,3%	1,9%	4,0%	10,5%	7,0%		1,8%	2,2%	2,1%		10,5%											
3. Complementary information (in nominal terms)																											
Average asset base																											
3.1 Net book val. fixed assets				2.328	3.785	2.347	5.111	5.930	5.897	5.984		6.966	7.487	6.969		5.897											
3.2 Adjustments total assets									0	0		0	0	0		0											
3.3 Net current assets				3.775	3.803	3.814	3.086	1.439	-1.751	5.076		5.051	6.146	6.140		-1.751											
3.4 Total asset base				6.103	7.588	6.161	8.197	7.369	4.147	11.060		12.017	13.634	13.109		4.147											
Cost of capital %																											
3.5 Cost of capital pre tax rate				2,78%	2,78%	2,78%	2,78%	2,78%	1,79%	1,79%		1,79%	1,79%	1,79%		1,79%											
3.6 Return on equity				2,78%	2,78%	2,78%	2,78%	2,78%	1,79%	1,79%		1,79%	1,79%	1,79%		1,79%											
3.7 Average interest on debts									0,00%	0,00%		0,00%	0,00%	0,00%		0,00%											
3.8 Share of financing through equity				100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%		100,00%	100,00%	100,00%		100,00%											
Costs of common projects																											
3.9 Common projects				0	0	0	0	0	0	0	0	0	0	0		0											
Costs of new and existing investments																											
3.10 Depreciation									532	614	1.146	917	922	912		532											
3.11 Cost of capital									105	107	212	125	134	125		105											
3.12 Cost of leasing									0	0	0	0	0	0		0											
Eurocontrol costs																											
3.13 Eurocontrol costs (Euro)																											
3.14 Exchange rate (if applicable)																											
3.15 Eurocontrol costs (national currency)																											
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)																											
4.1 Costs for exempted VFR flights									0	0	0	0	0	0		0											
4.2 Total determined/actual costs	0	0	0	6.029	6.192	6.176	6.291	6.543	7.230	7.734	14.964	7.871	8.043	8.212		7.230											
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)																											
5.1 Inflation %	2,61%	1,20%	0,50%	0,60%	1,80%	2,20%	2,30%	1,20%	0,40%	1,70%		1,90%	1,80%	1,80%		0,40%											
5.2 Inflation index (1)	93,9	95,1	95,5	96,1	97,8	100,0	102,3	103,5	103,9	105,7		107,7	109,7	111,6		103,9											
5.3 Total costs real terms (2)	0	0	0	6.252	6.316	6.176	6.162	6.341	6.979	7.360	14.339	7.388	7.437	7.476		6.979											
Total % n/n-1					1,0%	-2,2%	-0,2%	2,9%	10,1%	5,5%		0,4%	0,7%	0,5%		10,1%											
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0		1.080,9											
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%		-58,7%											
5.5 Unit cost in real terms prices (3)	0,00	0,00	0,00	2,55	2,53	2,38	2,33	2,42	6,46	6,79	6,62	4,44	3,78	3,32		6,46											
Total % n/n-1					-0,8%	-5,7%	-2,1%	3,9%	166,7%	5,2%		-34,6%	-14,8%	-12,1%		166,7%											

Costs and asset base items in '000 - Service units in '000
(1) Inflation index - Base 100 in 2017
(2) Determined costs (performance plan) and actual costs in real terms
(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Belgium-Luxembourg
Currency: Euro
MUAC Belgium

Actual costs 2012-2019									Determined costs - Performance Plan - RP3						Actual costs - Reference Period 3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)																				
1.1 Staff	36.430	35.391	38.124	35.793	38.076	39.307	40.842	45.687	51.650	52.087	103.737	62.593	65.458	69.070	51.650					
of which, pension costs									4.206	4.470	8.676	11.471	12.171	13.079	4.206					
1.2 Other operating costs	3.949	3.958	3.692	3.733	6.486	7.891	8.085	8.726	7.532	9.489	17.021	11.136	10.351	10.204	7.532					
1.3 Depreciation	2.983	2.790	2.866	2.755	2.560	2.528	2.918	3.111	2.989	2.188	5.177	2.045	2.419	2.643	2.989					
1.4 Cost of capital	216	183	163	140	113	70	92	44	47	164	211	162	181	205	47					
1.5 Exceptional items							0		0	0	0	0	0	0	0					
1.6 Total costs	43.578	42.322	44.846	42.421	47.235	49.796	51.937	57.568	62.219	63.928	126.147	75.936	78.409	82.122	62.219					
Total % n/n-1		-2,9%	6,0%	-5,4%	11,3%	5,4%	4,3%	10,8%	8,1%	2,7%		18,8%	3,3%	4,7%	8,1%					
2. Detail by service (in nominal terms)																				
2.1 Air Traffic Management	43.578	42.322	44.846	42.421	47.235	49.796	51.937	57.568	62.219	63.928	126.147	75.936	78.409	82.122	62.219					
2.2 Communication									0	0	0	0	0	0	0					
2.3 Navigation									0	0	0	0	0	0	0					
2.4 Surveillance									0	0	0	0	0	0	0					
2.5 Search and rescue									0	0	0	0	0	0	0					
2.6 Aeronautical Information									0	0	0	0	0	0	0					
2.7 Meteorological services									0	0	0	0	0	0	0					
2.8 Supervision costs																				
2.9 Other State costs																				
2.10 Total costs	43.578	42.322	44.846	42.421	47.235	49.796	51.937	57.568	62.219	63.928	126.147	75.936	78.409	82.122	62.219					
Total % n/n-1		-2,9%	6,0%	-5,4%	11,3%	5,4%	4,3%	10,8%	8,1%	2,7%		18,8%	3,3%	4,7%	8,1%					
3. Complementary information (in nominal terms)																				
Average asset base																				
3.1 Net book val. fixed assets									16.766	17.210		19.322	21.407	22.191	16.766					
3.2 Adjustments total assets									0	0		0	0	0	0					
3.3 Net current assets									0	0		0	0	0	0					
3.4 Total asset base									16.766	17.210		19.322	21.407	22.191	16.766					
Cost of capital %																				
3.5 Cost of capital pre tax rate									0,28%	0,95%		0,84%	0,85%	0,92%	0,28%					
3.6 Return on equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
3.7 Average interest on debts									0,28%	0,95%		0,84%	0,85%	0,92%	0,28%					
3.8 Share of financing through equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
Costs of common projects																				
3.9 Common projects							0	0	0	0	0	0	0	0	0					
Costs of new and existing investments																				
3.10 Depreciation									2.989	2.188	5.177	2.045	2.419	2.643	2.989					
3.11 Cost of capital									47	164	211	162	181	205	47					
3.12 Cost of leasing									0	0	0	0	0	0	0					
Eurocontrol costs																				
3.13 Eurocontrol costs (Euro)																				
3.14 Exchange rate (if applicable)																				
3.15 Eurocontrol costs (national currency)																				
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)																				
4.1 Costs for exempted VFR flights									0	0	0	0	0	0	0					
4.2 Total determined/actual costs	43.578	42.322	44.846	42.421	47.235	49.796	51.937	57.568	62.219	63.928	126.147	75.936	78.409	82.122	62.219					
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)																				
5.1 Inflation %	2,61%	1,20%	0,50%	0,60%	1,80%	2,20%	2,30%	1,20%	0,40%	1,70%		1,90%	1,80%	1,80%	0,40%					
5.2 Inflation index (1)	93,9	95,1	95,5	96,1	97,8	100,0	102,3	103,5	103,9	105,7		107,7	109,7	111,6	103,9					
5.3 Total costs real terms (2)	46.182	44.363	46.796	44.018	48.215	49.796	50.837	55.714	59.975	60.602	120.577	70.654	71.734	73.863	59.975					
Total % n/n-1		-3,9%	5,5%	-5,9%	9,5%	3,3%	2,1%	9,6%	7,6%	1,0%		16,6%	1,5%	3,0%	7,6%					
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0	1.080,9					
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%	-58,7%					
5.5 Unit cost in real terms prices (3)	20,70	19,48	19,81	17,94	19,29	19,20	19,23	21,27	55,49	55,91	55,70	42,43	36,45	32,81	55,49					
Total % n/n-1		-5,9%	1,7%	-9,5%	7,5%	-0,5%	0,2%	10,6%	160,9%	0,8%		-24,1%	-14,1%	-10,0%	160,9%					

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Belgium-Luxembourg
Currency: Euro
MUAC Luxembourg

Actual costs 2012-2019									Determined costs - Performance Plan - RP3						Actual costs - Reference Period 3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)																				
1.1 Staff	1.127	1.095	1.179	1.107	1.178	1.216	1.263	1.413	1.597	1.611	3.209	1.936	2.025	2.136	1.597					
of which, pension costs									130	138	268	355	376	404	130					
1.2 Other operating costs	122	122	114	115	201	244	250	270	233	293	526	344	320	316	233					
1.3 Depreciation	92	86	89	85	79	78	90	96	92	68	160	63	75	82	92					
1.4 Cost of capital	7	6	5	4	3	2	3	1	1	5	7	5	6	6	1					
1.5 Exceptional items									0	0	0	0	0	0	0					
1.6 Total costs	1.348	1.309	1.387	1.312	1.461	1.540	1.606	1.780	1.924	1.977	3.902	2.349	2.425	2.540	1.924					
Total % n/n-1		-2,9%	6,0%	-5,4%	11,3%	5,4%	4,3%	10,8%	8,1%	2,7%		18,8%	3,3%	4,7%	8,1%					
															1.924.376,55					
2. Detail by service (in nominal terms)																				
2.1 Air Traffic Management	1.348	1.309	1.387	1.312	1.461	1.540	1.606	1.780	1.924	1.977	3.902	2.349	2.425	2.540	1.924					
2.2 Communication									0	0	0	0	0	0	0					
2.3 Navigation									0	0	0	0	0	0	0					
2.4 Surveillance									0	0	0	0	0	0	0					
2.5 Search and rescue									0	0	0	0	0	0	0					
2.6 Aeronautical Information									0	0	0	0	0	0	0					
2.7 Meteorological services									0	0	0	0	0	0	0					
2.8 Supervision costs																				
2.9 Other State costs																				
2.10 Total costs	1.348	1.309	1.387	1.312	1.461	1.540	1.606	1.780	1.924	1.977	3.902	2.349	2.425	2.540	1.924					
Total % n/n-1		-2,9%	6,0%	-5,4%	11,3%	5,4%	4,3%	10,8%	8,1%	2,7%		18,8%	3,3%	4,7%	8,1%					
3. Complementary information (in nominal terms)																				
Average asset base																				
3.1 Net book val. fixed assets									519	532		598	662	686	519					
3.2 Adjustments total assets									0	0		0	0	0	0					
3.3 Net current assets									0	0		0	0	0	0					
3.4 Total asset base									519	532		598	662	686	519					
Cost of capital %																				
3.5 Cost of capital pre tax rate									0,28%	0,95%		0,84%	0,85%	0,92%	0,28%					
3.6 Return on equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
3.7 Average interest on debts									0,28%	0,95%		0,84%	0,85%	0,92%	0,28%					
3.8 Share of financing through equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
Costs of common projects																				
3.9 Common projects							0	0	0	0	0	0	0	0	0					
Costs of new and existing investments																				
3.10 Depreciation									92	68	160	63	75	82	92					
3.11 Cost of capital									1	5	7	5	6	6	1					
3.12 Cost of leasing									0	0	0	0	0	0	0					
Eurocontrol costs																				
3.13 Eurocontrol costs (Euro)																				
3.14 Exchange rate (if applicable)																				
3.15 Eurocontrol costs (national currency)																				
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)																				
4.1 Costs for exempted VFR flights									0	0	0	0	0	0	0					
4.2 Total determined/actual costs	1.348	1.309	1.387	1.312	1.461	1.540	1.606	1.780	1.924	1.977	3.902	2.349	2.425	2.540	1.924					
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)																				
5.1 Inflation %	2,61%	1,20%	0,50%	0,60%	1,80%	2,20%	2,30%	1,20%	0,40%	1,70%		1,90%	1,80%	1,80%	0,40%					
5.2 Inflation index (1)	93,9	95,1	95,5	96,1	97,8	100,0	102,3	103,5	103,9	105,7		107,7	109,7	111,6	103,9					
5.3 Total costs real terms (2)	1.428	1.372	1.447	1.361	1.491	1.540	1.572	1.723	1.855	1.874	3.729	2.185	2.219	2.284	1.855					
Total % n/n-1		-3,9%	5,5%	-5,9%	9,5%	3,3%	2,1%	9,6%	7,7%	1,0%		16,6%	1,5%	3,0%	7,7%					
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0	1.080,9					
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%	-58,7%					
5.5 Unit cost in real terms prices (3)	0,64	0,60	0,61	0,55	0,60	0,59	0,59	0,66	1,72	1,73	1,72	1,31	1,13	1,01	1,72					
Total % n/n-1		-5,9%	1,7%	-9,5%	7,5%	-0,5%	0,2%	10,6%	160,9%	0,8%		-24,1%	-14,1%	-10,0%	160,9%					

Costs and asset base items in '000 - Service units in '000
(1) Inflation index - Base 100 in 2017
(2) Determined costs (performance plan) and actual costs in real terms
(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 1 - Total Costs and Unit Costs

Belgium-Luxembourg
Currency: Euro
NSA + Eurocontrol Agency

Actual costs 2012-2019									Determined costs - Performance Plan - RP3						Actual costs - Reference Period 3					
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2020/2021	2022	2023	2024	2020	2021	2020/2021	2022	2023	2024
1. Detail by nature (in nominal terms)																				
1.1 Staff	861	942	951	1.016	1.057	1.062	1.072	729	812	881	1.693	687	699	712	812					
of which, pension costs									0	0	0	0	0	0	0					
1.2 Other operating costs	12.504	12.075	12.235	12.151	12.050	11.809	12.120	12.643	16.766	20.692	37.458	13.002	13.073	13.112	16.766					
1.3 Depreciation									0	0	0	0	0	0	0					
1.4 Cost of capital									0	0	0	0	0	0	0					
1.5 Exceptional items									0	0	0	0	0	0	0					
1.6 Total costs	13.365	13.017	13.186	13.168	13.107	12.871	13.193	13.372	17.578	21.573	39.151	13.689	13.772	13.824	17.578					
Total % n/n-1		-2,6%	1,3%	-0,1%	-0,5%	-1,8%	2,5%	1,4%	31,5%	22,7%		-36,5%	0,6%	0,4%	31,5%					
2. Detail by service (in nominal terms)																				
2.1 Air Traffic Management																				
2.2 Communication																				
2.3 Navigation																				
2.4 Surveillance																				
2.5 Search and rescue									0	0	0	0	0	0						
2.6 Aeronautical Information																				
2.7 Meteorological services																				
2.8 Supervision costs	1.225	1.351	1.365	1.403	1.460	1.465	1.486	1.008	1.085	1.177	2.263	948	965	982	1.085					
2.9 Other State costs	12.140	11.666	11.822	11.765	11.647	11.406	11.706	12.365	16.493	20.396	36.889	12.741	12.807	12.841	16.493					
2.10 Total costs	13.365	13.017	13.186	13.168	13.107	12.871	13.193	13.372	17.578	21.573	39.151	13.689	13.772	13.824	17.578					
Total % n/n-1		-2,6%	1,3%	-0,1%	-0,5%	-1,8%	2,5%	1,4%	31,5%	22,7%		-36,5%	0,6%	0,4%	31,5%					
3. Complementary information (in nominal terms)																0				
Average asset base																				
3.1 Net book val. fixed assets									0	0		0	0	0	0					
3.2 Adjustments total assets									0	0		0	0	0	0					
3.3 Net current assets									0	0		0	0	0	0					
3.4 Total asset base									0	0		0	0	0	0					
Cost of capital %																				
3.5 Cost of capital pre tax rate									#####	#####		#####	#####	#####	#####					
3.6 Return on equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
3.7 Average interest on debts									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
3.8 Share of financing through equity									0,00%	0,00%		0,00%	0,00%	0,00%	0,00%					
Costs of common projects																				
3.9 Common projects																				
Costs of new and existing investments																				
3.10 Depreciation																				
3.11 Cost of capital																				
3.12 Cost of leasing																				
Eurocontrol costs																				
3.13 Eurocontrol costs (Euro)	12.140	11.666	11.822	11.765	11.647	11.406	11.706	12.365	16.493	20.396		12.741	12.807	12.841	16.493					
3.14 Exchange rate (if applicable)											36.889									
3.15 Eurocontrol costs (national currency)	12.140	11.666	11.822	11.765	11.647	11.406	11.706	12.365	16.493	20.396		12.741	12.807	12.841	16.493					
4. Total costs after deduction of costs for services to exempted flights (in nominal terms)																				
4.1 Costs for exempted VFR flights											0									
4.2 Total determined/actual costs	13.365	13.017	13.186	13.168	13.107	12.871	13.193	13.372	17.578	21.573	39.151	13.689	13.772	13.824	17.578					
5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)																				
5.1 Inflation %																				
5.2 Inflation index (1)																				
5.3 Total costs real terms (2)	13.365	13.017	13.186	13.168	13.107	12.871	13.193	13.372	17.578	21.573	39.151	13.689	13.772	13.824	17.578					
Total % n/n-1		-2,6%	1,3%	-0,1%	-0,5%	-1,8%	2,5%	1,4%	31,5%	22,7%		-36,5%	0,6%	0,4%	31,5%					
5.4 Total Service Units	2.231,5	2.277,0	2.362,0	2.454,2	2.500,0	2.593,7	2.643,6	2.619,6	1.080,9	1.084,0	2.164,9	1.665,0	1.968,0	2.251,0	1.080,9					
Total % n/n-1		2,0%	3,7%	3,9%	1,9%	3,7%	1,9%	-0,9%	-58,7%	0,3%		53,6%	18,2%	14,4%	-58,7%					
5.5 Unit cost in real terms prices (3)	5,99	5,72	5,58	5,37	5,24	4,96	4,99	5,10	16,26	19,90	18,08	8,22	7,00	6,14	16,26					
Total % n/n-1		-4,5%	-2,3%	-3,9%	-2,3%	-5,3%	0,6%	2,3%	218,6%	22,4%		-58,7%	-14,9%	-12,2%	218,6%					

Costs and asset base items in '000 - Service units in '000
(1) Inflation index - Base 100 in 2017
(2) Determined costs (performance plan) and actual costs in real terms
(3) Determined unit costs (performance plan) and actual unit costs in real terms

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
All Entities

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	456.075,8	258.974,34	269.990,32	281.423,85
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	376.199,2	221.304,5	229.731,9	238.927,8
2.2 Forecast inflation index - Table 1		107,72	109,66	111,63
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	401.576,3	236.885,5	247.554,9	258.817,1
4.2 % deviation % referred to in Article 27(2) and 27(5)				
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)				
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)				
4.5 % deviation referred to in Article 27(4)				
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	254.199,8			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	-2.376,4	0,0	0,0	0,0
10.2 National public funding (Art. 25(3)(a))	-2.101,6	-1.447,0	-1.500,2	-1.490,6
10.3 Commercial activities (Art. 25(3)(b))	0,0	0,0	0,0	0,0
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	-4.478,0	-1.447,0	-1.500,2	-1.490,6
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))	0,0	0,0	0,0	0,0
12 Total adjustments relating to year n	249.721,8	-1.447,0	-1.500,2	-1.490,6

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	456.075,80	258.974,34	269.990,32	281.423,85
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	6.560,08	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	1.886,74	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	7.920,03	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	- 1.335,47	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	977,96	1.621,87	8.198,25	-
13.8 Other revenues (Art. 25(2)(i))	- 2.101,35	- 1.447,25	- 3.876,68	- 1.490,61
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	36.314,26	36.314,26
13.11 Grand total for the calculation of year n unit rate	469.983,8	259.149,0	310.626,1	316.247,5
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	217,10	155,65	157,84	140,49
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00	0,00	0,00
14 Applicable unit rate for year n	217,10	155,65	157,84	140,49
	13.908	175	40.636	34.824

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(i))
(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)
Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)
Reduction as per Art. 29(6) applied in 2021 (in national currency)

4) Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020
Forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2021

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022.

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
Skeyes

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	271.912,3	159.130,1	167.341,0	174.726,5
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	238.160,5	138.557,0	144.702,1	150.136,3
2.2 Forecast inflation index - Table 1		107,7	109,7	111,6
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	257.784,9	151.371,4	159.340,4	166.623,7
4.2 % deviation % referred to in Article 27(2) and 27(5)	2%	2%	2%	2%
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.5 % deviation referred to in Article 27(4)	10%	10%	10%	10%
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	145.931,3			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))				
10.2 National public funding (Art. 25(3)(a))				
10.3 Commercial activities (Art. 25(3)(b))				
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	0,0	0,0	0,0	0,0
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))				
12 Total adjustments relating to year n	145.931,3	0,0	0,0	0,0

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	271.912,34	159.130,08	167.340,96	174.726,54
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	3.918,53	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	1.195,59	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	- 1.066,05	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	339,61	930,47	1.755,98	-
13.8 Other revenues (Art. 25(2)(i))	-	-	-	-
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	20.847,33	20.847,33
13.11 Grand total for the calculation of year n unit rate	276.300,0	160.060,6	189.944,3	195.573,9
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	127,63	96,13	96,52	86,88
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00		
14 Applicable unit rate for year n	127,63	96,13	96,52	86,88

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(i))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
ANA Luxembourg

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	14.963,7	7.870,7	8.042,8	8.212,0
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	13.545,4	6.738,0	6.876,3	7.065,2
2.2 Forecast inflation index - Table 1		107,7	109,7	111,6
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	13.743,1	7.229,2	7.380,0	7.531,7
4.2 % deviation % referred to in Article 27(2) and 27(5)	2%	2%	2%	2%
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.5 % deviation referred to in Article 27(4)	10%	10%	10%	10%
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	8.010,8			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))				
10.2 National public funding (Art. 25(3)(a))	-1.854,3	-1.181,8	-1.216,5	-1.198,4
10.3 Commercial activities (Art. 25(3)(b))				
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	-1.854,3	-1.181,8	-1.216,5	-1.198,4
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))				
12 Total adjustments relating to year n	6.156,4	-1.181,8	-1.216,5	-1.198,4

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	14.963,71	7.870,66	8.042,76	8.211,98
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	235,12	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	68,50	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	-	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	32,60	75,82	129,99	-
13.8 Other revenues (Art. 25(2)(i))	- 1.854,35	- 1.181,77	- 1.216,51	- 1.198,37
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	1.144,39	1.144,39
13.11 Grand total for the calculation of year n unit rate	13.445,6	6.764,7	8.100,6	8.158,0
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	6,21	4,06	4,12	3,62
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00		
14 Applicable unit rate for year n	6,21	4,06	4,12	3,62

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
MUAC Belgium

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	126.146,7	75.936,3	78.409,4	82.121,9
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	120.758,3	73.729,1	75.808,9	79.274,5
2.2 Forecast inflation index - Table 1		107,7	109,7	111,6
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	126.146,7	75.936,3	78.409,4	82.121,9
4.2 % deviation % referred to in Article 27(2) and 27(5)	2%	2%	2%	2%
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.5 % deviation referred to in Article 27(4)	10%	10%	10%	10%
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	69.965,0			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	-1.931,1			
10.2 National public funding (Art. 25(3)(a))				
10.3 Commercial activities (Art. 25(3)(b))				
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	-1.931,1	0,0	0,0	0,0
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in year n (Art. 29(6))				
12 Total adjustments relating to year n	68.033,9	0,0	0,0	0,0

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	126.146,69	75.936,28	78.409,40	82.121,92
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	1.812,93	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	603,97	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	12.294,32	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	- 261,34	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	7,36	412,23	8.466,55	-
13.8 Other revenues (Art. 25(2)(i))	-	-	- 1.931,08	-
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	9.995,00	9.995,00
13.11 Grand total for the calculation of year n unit rate	140.603,9	76.348,5	94.939,9	92.116,9
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	64,95	45,85	48,24	40,92
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00		
14 Applicable unit rate for year n	64,95	45,85	48,24	40,92

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
MUAC Luxembourg

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	3.901,6	2.348,6	2.425,1	2.539,8
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment	3.735,0	2.280,4	2.344,7	2.451,7
2.2 Forecast inflation index - Table 1		107,7	109,7	111,6
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing	3.901,6	2.348,6	2.425,1	2.539,8
4.2 % deviation % referred to in Article 27(2) and 27(5)	2%	2%	2%	2%
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)	70%	70%	70%	70%
4.5 % deviation referred to in Article 27(4)	10%	10%	10%	10%
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	2.164,0			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	-59,7			
10.2 National public funding (Art. 25(3)(a))				
10.3 Commercial activities (Art. 25(3)(b))				
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	-59,7	0,0	0,0	0,0
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))				
12 Total adjustments relating to year n	2.104,3	0,0	0,0	0,0

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	3.901,61	2.348,61	2.425,09	2.539,80
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	56,07	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	18,68	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	380,13	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	- 8,08	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	0,23	12,75	261,79	-
13.8 Other revenues (Art. 25(2)(i))	-	-	- 59,72	-
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	309,15	309,15
13.11 Grand total for the calculation of year n unit rate	4.348,6	2.361,4	2.936,3	2.848,9
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	2,01	1,42	1,49	1,27
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00		
14 Applicable unit rate for year n	2,01	1,42	1,49	1,27

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(i))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022

Table 2 - Unit rate calculation

Belgium-Luxembourg
Currency: Euro
NSA + Eurocontrol Agency

Reference period 3

Table 2 A - Adjustments relating to year n	2020/2021	2022	2023	2024
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A. Cost-sharing

Determined costs				
1.1 Determined costs in nominal terms - VFR excl. - Table 1 (Art. 22)	39.151,4	13.688,7	13.772,1	13.823,6
Inflation adjustment calculation				
2.1 Determined costs subject to inflation adjustment				
2.2 Forecast inflation index - Table 1				
2.3 Actual inflation index - Table 1				
2.4 Actual / forecast total inflation index (in %)				
2.5 Inflation adjustment relating to year n (Art. 26)				
Differences between determined and actual costs referred to in Article 28(4) to 28(6)				
3.1 New and existing investments (Art. 28(4))				
3.3 Competent authorities and qualified entities costs (Art. 28(5))				
3.4 Eurocontrol costs (Art. 28(5))				
3.5 Pension costs (Art. 28(6))				
3.6 Interest on loans (Art. 28(6))				
3.7 Changes in law (Art. 28(6))				
3.8 Differences between determined and actual costs relating to year n (Art. 28(4) to 28(6))				

B. Traffic risk sharing

Traffic risk sharing adjustment				
4.1 Determined costs subject to traffic risk sharing				
4.2 % deviation % referred to in Article 27(2) and 27(5)				
4.3 % additional revenue returned to users referred to in Article 27(3) and 27(5)				
4.4 % loss of revenue borne by airspace users referred to in Article 27(3) and 27(5)				
4.5 % deviation referred to in Article 27(4)				
4.6 Forecast total service units (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
4.7 Actual total service units				
4.8 Actual / forecast total service units (in %)				
4.9 Traffic risk sharing adjustment relating to year n (Art. 27(2) to 27(5))				
Traffic adjustments				
5.1 For determined costs not subject to traffic risk-sharing (Art. 27(8))				
5.2 Adjustments to year n unit rate not subject to traffic risk-sharing (Art. 27(9))				
5.3 Traffic adjustments relating to year n (Art. 27(8) and 27(9))				

C. Financial incentive schemes on capacity and environment

Adjustments relating to financial incentives				
6.1 Financial incentives relating to capacity (Art. 11(3))				
6.2 Financial incentives relating to environment (Art. 11(4))				
6.3 Additional financial incentives relating to capacity (Art. 11(4))				
6.4 Financial incentives relating to year n (Art. 11(3) and 11(4))				

D. Other adjustments

Modulation of charges				
7.1 Adjustment to ensure revenue neutrality for modulation of charges in year n (Art. 32(1))				
Revision of the unit rate				
8.1 Temporary unit rate applied in year n	Footnote 2			
8.2 Difference in revenue due to the temporary application of unit rate in year n (Art. 29(5))	28.128,7			
Cross-financing between charging zones				
9.1 Cross-financing to (-) / from (+) other charging zone(s) relating to year n				
Other revenues				
10.1 Union assistance programmes (Art. 25(3)(a))	-385,6			
10.2 National public funding (Art. 25(3)(a))	-247,2	-265,3	-283,7	-292,2
10.3 Commercial activities (Art. 25(3)(b))				
10.4 Revenues from contracts with airport operators (Art. 25(3)(c))				
10.5 Total other revenues relating to year n (Art. 25(3))	-632,9	-265,3	-283,7	-292,2
Application of a lower unit rate	Footnote 3			
11.1 Loss of revenue relating to the application of a lower unit rate in n (Art. 29(6))				
12 Total adjustments relating to year n	27.495,8	-265,3	-283,7	-292,2

Table 2 B - Calculation of the unit rate for year n (1)	2020/2021	2022	2023	2024
13.1 Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	39.151,45	13.688,72	13.772,12	13.823,61
13.2 Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	537,44	-	-	-
13.3 Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-	-	-	-
13.4 Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	- 4.754,43	-	-	-
13.5 Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-	-	-	-
13.6 Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-	-	-	-
13.7 Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	598,17	190,60	- 2.416,05	-
13.8 Other revenues (Art. 25(2)(i))	- 247,00	- 265,48	- 669,37	- 292,23
13.9 Cross-financing between charging zones (Art. 25(2)(j))	-	-	-	-
13.10 Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	-	-	4.018,38	4.018,38
13.11 Grand total for the calculation of year n unit rate	35.285,6	13.613,8	14.705,1	17.549,8
13.12 Forecast total service units for year n (performance plan)	2.164,9	1.665,0	1.968,0	2.251,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)	16,30	8,18	7,47	7,80
13.14 Reduction as per Art. 29(6), where applicable (in national currency)	0,00	0,00		
14 Applicable unit rate for year n	16,30	8,18	7,47	7,80

Costs, revenues and other amounts in '000 - Service units in '000

(1) Including adjustments relating to previous reference periods (Art. 25(2)(l))

(2) Unit rate as per Art. 25(2) applied temporary in 2020 (in national currency)

Unit rate as per Art. 25(2) applied temporary in 2021 (in national currency)

3) Reduction as per Art. 29(6) applied in 2020 (in national currency)

Reduction as per Art. 29(6) applied in 2021 (in national currency)

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) c

Estimates made on assumption
that actual TSUs 2021 are equal to
forecast and that the
revised plan is adopted in 2022

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
All Entities

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2.024	After RP
Inflation adjustment 2018	3.418	3.418	0	0	0	0	0
Inflation adjustment 2019	3.142	0	3.142	0	0	0	0
Total inflation adjustment up to 2019	6.560	3.418	3.142	0	0	0	0
Inflation adjustment 2020-2021	0	0	0	0	0	0	0
Inflation adjustment 2022	0	0	0	0	0	0	0
Inflation adjustment 2023	0	0	0	0	0	0	0
Inflation adjustment 2024	0	0	0	0	0	0	0
Total inflation Adjustment (Art. 26)*	6.560	3.418	3.142	0	0	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	1.887	0	1.887	0	0	0	0
Total traffic risk sharing adjustments up to 2019	1.887	0	1.887	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Traffic risk sharing 2022	0	0	0	0	0	0	0
Traffic risk sharing 2023	0	0	0	0	0	0	0
Traffic risk sharing 2024	0	0	0	0	0	0	0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	1.887	0	1.887	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Difference in investment costs 2022	0	0	0	0	0	0	0
Difference in investment costs 2023	0	0	0	0	0	0	0
Difference in investment costs 2024	0	0	0	0	0	0	0
Total adjustment relating to investment costs (Art. 28(4))	0	0	0	0	0	0	0
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)	0	0	0	0	0	0	0
Difference in competent authorities and QEs costs 2022	0	0	0	0	0	0	0
Difference in competent authorities and QEs costs 2023	0	0	0	0	0	0	0
Difference in competent authorities and QEs costs 2024	0	0	0	0	0	0	0
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2022	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2023	0	0	0	0	0	0	0
Difference in Eurocontrol costs 2024	0	0	0	0	0	0	0
Total adjustment relating to Eurocontrol costs (Art. 28(5))	0	0	0	0	0	0	0
Difference in pension costs 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Difference in pension costs 2022	0	0	0	0	0	0	0
Difference in pension costs 2023	0	0	0	0	0	0	0
Difference in pension costs 2024	0	0	0	0	0	0	0
Total adjustment relating to pension costs (Art. 28(6))	0	0	0	0	0	0	0
Difference in interest on loans 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Difference in interest on loans 2022	0	0	0	0	0	0	0
Difference in interest on loans 2023	0	0	0	0	0	0	0
Difference in interest on loans 2024	0	0	0	0	0	0	0
Total adjustment relating to interest on loans (Art. 28(6))	0	0	0	0	0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Costs relating to change in law 2022	0	0	0	0	0	0	0
Costs relating to change in law 2023	0	0	0	0	0	0	0
Costs relating to change in law 2024	0	0	0	0	0	0	0
Total adjustment relating to change in law (Art. 28(6))	0	0	0	0	0	0	0
Cost exempt from cost sharing up to 2017	3.312	0	3.312	0	0	0	0
Cost exempt from cost sharing 2018	1.586	0	1.586	0	0	0	0
Cost exempt from cost sharing 2019	3.022	0	3.022	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	7.920	0	7.920	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0
Financial incentives year 2018	-807	-807	0	0	0	0	0
Financial incentives year 2019	-528	0	-528	0	0	0	0
Total financial incentives up to 2019	-1.335	-807	-528	0	0	0	0
Financial incentives year 2022	0	0	0	0	0	0	0
Financial incentives year 2023	0	0	0	0	0	0	0
Financial incentives year 2024	0	0	0	0	0	0	0
Total financial incentives (Art. 11(3) and 11(4))*	-1.335	-807	-528	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	0
Modulation of charges year 2018	0	0	0	0	0	0	0
Modulation of charges year 2019	0	0	0	0	0	0	0
Total modulation of charges up 2019	0	0	0	0	0	0	0

Modulation of charges 2020-2021	0	0	0	0	0	0	0
Modulation of charges 2022	0	0	0	0	0	0	0
Modulation of charges 2023	0	0	0	0	0	0	0
Modulation of charges 2024	0	0	0	0	0	0	0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	56	56	0	0	0	0	0
Traffic adjustment 2019	922	0	922	0	0	0	0
Total traffic adjustments up to 2019	978	56	922	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	1.622	0	0	1.622	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	8.198	0	0	0	8.198	0	0
Traffic adjustment on adjustments from previous RPs 2022	0	0	0	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2023	0	0	0	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2024	0	0	0	0	0	0	0
Total traffic adjustment on adjustments from previous reference periods	9.820	0	0	1.622	8.198	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0	0	0	0	0	0	0
Traffic adjustment 2022	0	0	0	0	0	0	0
Traffic adjustment 2023	0	0	0	0	0	0	0
Traffic adjustment 2024	0	0	0	0	0	0	0
Total traffic adjustment (Art. 27(8) and 27(9))*	10.798	56	922	1.622	8.198	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	-2.376	0	0	0	-2.376	0	0
Revenues received from Union assistance programmes in 2022	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2023	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2024	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	-2.376	0	0	0	-2.376	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-2.102	-880	-1.221	0	0	0	0
Revenues received from national public funding in 2022	-1.447	0	0	-1.447	0	0	0
Revenues received from national public funding in 2023	-1.500	0	0	0	-1.500	0	0
Revenues received from national public funding in 2024	-1.491	0	0	0	0	-1.491	0
Total revenues received from national public funding (Art. 25(3)(a))*	-6.539	-880	-1.221	-1.447	-1.500	-1.491	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0	0	0
Revenues from commercial activities in 2022	0	0	0	0	0	0	0
Revenues from commercial activities in 2023	0	0	0	0	0	0	0
Revenues from commercial activities in 2024	0	0	0	0	0	0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2018	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2019	0	0	0	0	0	0	0
Total revenues from contracts with airport operators up to 2019	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2020-2021	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2022	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2023	0	0	0	0	0	0	0
Revenues from contracts with airport operators in 2024	0	0	0	0	0	0	0
Total revenues from contracts with airport operators (Art. 25(3)(c))*	0	0	0	0	0	0	0
Revenue difference - revision of UR 2020-2021	254.200	0	0	0	36.314	36.314	181.571
Revenue difference - revision of UR 2022	0	0	0	0	0	0	0
Revenue difference - revision of UR 2023	0	0	0	0	0	0	0
Revenue difference - revision of UR 2024	0	0	0	0	0	0	0
Total revenue differences from temporary application of UR (Art. 29(5))	254.200	0	0	0	36.314	36.314	181.571
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021	0	0	0	0	0	0	0
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022	0	0	0	0	0	0	0
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023	0	0	0	0	0	0	0
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024	0	0	0	0	0	0	0
Total cross-financing to (-) / from (+) other charging zone(s)	0	0	0	0	0	0	0
Total adjustments	271.113	1.786	12.122	175	40.636	34.824	181.571

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
Skeyes

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	2.049	2.049					
Inflation adjustment 2019	1.870		1.870				
Total inflation adjustment up to 2019	3.919	2.049	1.870				
Inflation adjustment 2020-2021	0				0		
Inflation adjustment 2022	0					0	
Inflation adjustment 2023	0						0
Inflation adjustment 2024	0						0
Total inflation Adjustment (Art. 26)*	3.919	2.049	1.870	0	0	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	1.196		1.196	0	0	0	0
Total traffic risk sharing adjustments up to 2019	1.196	0	1.196	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0				0	0	
Traffic risk sharing 2022	0					0	
Traffic risk sharing 2023	0						0
Traffic risk sharing 2024	0						0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	1.196	0	1.196	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	0				0		0
Difference in investment costs 2022	0					0	0
Difference in investment costs 2023	0						0
Difference in investment costs 2024	0						0
Total adjustment relating to investment costs (Art. 28(4))	0				0	0	0
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)							
Difference in competent authorities and QEs costs 2022							
Difference in competent authorities and QEs costs 2023							
Difference in competent authorities and QEs costs 2024							
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))							
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)	0				0		0
Difference in pension costs 2022	0					0	0
Difference in pension costs 2023	0						0
Difference in pension costs 2024	0						0
Total adjustment relating to pension costs (Art. 28(6))	0				0	0	0
Difference in interest on loans 2020-2021 (exceptional measures)	0				0		0
Difference in interest on loans 2022	0					0	0
Difference in interest on loans 2023	0						0
Difference in interest on loans 2024	0						0
Total adjustment relating to interest on loans (Art. 28(6))	0				0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0				0		0
Costs relating to change in law 2022	0					0	0
Costs relating to change in law 2023	0						0
Costs relating to change in law 2024	0						0
Total adjustment relating to change in law (Art. 28(6))	0				0	0	0
Cost exempt from cost sharing up to 2017	0	0	0	0	0	0	0
Cost exempt from cost sharing 2018	0	0	0	0	0	0	0
Cost exempt from cost sharing 2019	0		0	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	0	0	0	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0
Financial incentives year 2018	-538	-538					
Financial incentives year 2019	-528		-528				
Total financial incentives up to 2019	-1.066	-538	-528	0	0	0	0
Financial incentives year 2022	0					0	
Financial incentives year 2023	0						0
Financial incentives year 2024	0						0
Total financial incentives (Art. 11(3) and 11(4))*	-1.066	-538	-528	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	
Modulation of charges year 2018	0	0	0	0	0	0	
Modulation of charges year 2019	0		0	0	0	0	
Total modulation of charges up 2019	0	0	0	0	0	0	

Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	19	19	0	0	0	0	0
Traffic adjustment 2019	321		321	0	0	0	0
Total traffic adjustments up to 2019	340	19	321	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	930			930	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	1.756				1.756	0	0
Traffic adjustment on adjustments from previous RPs 2022	0					0	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	2.686	0	0	930	1.756	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	3.026	19	321	930	1.756	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	0		0	0	0	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	0	0	0	0	0	0	0
Revenues received from national public funding in 2022	0			0	0	0	0
Revenues received from national public funding in 2023	0				0	0	0
Revenues received from national public funding in 2024	0					0	0
Total revenues received from national public funding (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0		
Revenues from commercial activities in 2022	0			0	0	0	
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017							
Revenues from contracts with airport operators in 2018							
Revenues from contracts with airport operators in 2019							
Total revenues from contracts with airport operators up to 2019							
Revenues from contracts with airport operators in 2020-2021							
Revenues from contracts with airport operators in 2022							
Revenues from contracts with airport operators in 2023							
Revenues from contracts with airport operators in 2024							
Total revenues from contracts with airport operators (Art. 25(3)(c))*							
Revenue difference - revision of UR 2020-2021	145.931				20.847	20.847	104.237
Revenue difference - revision of UR 2022	0				0	0	0
Revenue difference - revision of UR 2023	0					0	0
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	145.931	0	0	0	20.847	20.847	104.237
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	153.005	1.530	2.858	930	22.603	20.847	104.237

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
ANA Luxembourg

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	123	123					
Inflation adjustment 2019	112		112				
Total inflation adjustment up to 2019	235	123	112				
Inflation adjustment 2020-2021	0				0		
Inflation adjustment 2022	0					0	
Inflation adjustment 2023	0						0
Inflation adjustment 2024	0						0
Total inflation Adjustment (Art. 26)*	235	123	112	0	0	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	68		68	0	0	0	0
Total traffic risk sharing adjustments up to 2019	68	0	68	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0				0	0	
Traffic risk sharing 2022	0					0	
Traffic risk sharing 2023	0						0
Traffic risk sharing 2024	0						0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	68	0	68	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	0				0		0
Difference in investment costs 2022	0					0	0
Difference in investment costs 2023	0						0
Difference in investment costs 2024	0						0
Total adjustment relating to investment costs (Art. 28(4))	0				0	0	0
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)							
Difference in competent authorities and QEs costs 2022							
Difference in competent authorities and QEs costs 2023							
Difference in competent authorities and QEs costs 2024							
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))							
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)	0				0		0
Difference in pension costs 2022	0					0	0
Difference in pension costs 2023	0						0
Difference in pension costs 2024	0						0
Total adjustment relating to pension costs (Art. 28(6))	0				0	0	0
Difference in interest on loans 2020-2021 (exceptional measures)	0				0		0
Difference in interest on loans 2022	0					0	0
Difference in interest on loans 2023	0						0
Difference in interest on loans 2024	0						0
Total adjustment relating to interest on loans (Art. 28(6))	0				0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0				0		0
Costs relating to change in law 2022	0					0	0
Costs relating to change in law 2023	0						0
Costs relating to change in law 2024	0						0
Total adjustment relating to change in law (Art. 28(6))	0				0	0	0
Cost exempt from cost sharing up to 2017	0	0	0	0	0	0	0
Cost exempt from cost sharing 2018	0	0	0	0	0	0	0
Cost exempt from cost sharing 2019	0		0	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	0	0	0	0	0	0	0
Financial incentives year up to 2017							
Financial incentives year 2018							
Financial incentives year 2019							
Total financial incentives up to 2019							
Financial incentives year 2022	0					0	
Financial incentives year 2023	0						0
Financial incentives year 2024	0						0
Total financial incentives (Art. 11(3) and 11(4))*	0	0	0	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	
Modulation of charges year 2018	0	0	0	0	0	0	
Modulation of charges year 2019	0		0	0	0	0	
Total modulation of charges up 2019	0	0	0	0	0	0	

Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	2	2	0	0	0	0	0
Traffic adjustment 2019	31		31	0	0	0	0
Total traffic adjustments up to 2019	33	2	31	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	76			76	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	130				130	0	0
Traffic adjustment on adjustments from previous RPs 2022	0					0	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	206	0	0	76	130	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	238	2	31	76	130	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-1.854	-880	-974	0	0	0	0
Revenues received from national public funding in 2022	-1.182			-1.182	0	0	0
Revenues received from national public funding in 2023	-1.217				-1.217	0	0
Revenues received from national public funding in 2024	-1.198					-1.198	0
Total revenues received from national public funding (Art. 25(3)(a))*	-5.451	-880	-974	-1.182	-1.217	-1.198	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0		
Revenues from commercial activities in 2022	0			0	0	0	
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017							
Revenues from contracts with airport operators in 2018							
Revenues from contracts with airport operators in 2019							
Total revenues from contracts with airport operators up to 2019							
Revenues from contracts with airport operators in 2020-2021							
Revenues from contracts with airport operators in 2022							
Revenues from contracts with airport operators in 2023							
Revenues from contracts with airport operators in 2024							
Total revenues from contracts with airport operators (Art. 25(3)(c))*							
Revenue difference - revision of UR 2020-2021	8.011				1.144	1.144	5.722
Revenue difference - revision of UR 2022	0				0	0	0
Revenue difference - revision of UR 2023	0					0	0
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	8.011	0	0	0	1.144	1.144	5.722
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	3.102	-755	-763	-1.106	58	-54	5.722

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
MUAC Belgium

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	940	940					
Inflation adjustment 2019	873		873				
Total inflation adjustment up to 2019	1.813	940	873				
Inflation adjustment 2020-2021	0				0		
Inflation adjustment 2022	0					0	
Inflation adjustment 2023	0						0
Inflation adjustment 2024	0						0
Total inflation Adjustment (Art. 26)*	1.813	940	873	0	0	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	604		604	0	0	0	0
Total traffic risk sharing adjustments up to 2019	604	0	604	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0				0	0	
Traffic risk sharing 2022	0					0	
Traffic risk sharing 2023	0						0
Traffic risk sharing 2024	0						0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	604	0	604	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	0				0		0
Difference in investment costs 2022	0					0	0
Difference in investment costs 2023	0						0
Difference in investment costs 2024	0						0
Total adjustment relating to investment costs (Art. 28(4))	0				0	0	0
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)							
Difference in competent authorities and QEs costs 2022							
Difference in competent authorities and QEs costs 2023							
Difference in competent authorities and QEs costs 2024							
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))							
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)	0				0		0
Difference in pension costs 2022	0					0	0
Difference in pension costs 2023	0						0
Difference in pension costs 2024	0						0
Total adjustment relating to pension costs (Art. 28(6))	0				0	0	0
Difference in interest on loans 2020-2021 (exceptional measures)	0				0		0
Difference in interest on loans 2022	0					0	0
Difference in interest on loans 2023	0						0
Difference in interest on loans 2024	0						0
Total adjustment relating to interest on loans (Art. 28(6))	0				0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0				0		0
Costs relating to change in law 2022	0					0	0
Costs relating to change in law 2023	0						0
Costs relating to change in law 2024	0						0
Total adjustment relating to change in law (Art. 28(6))	0				0	0	0
Cost exempt from cost sharing up to 2017	5.328	0	5.328	0	0	0	0
Cost exempt from cost sharing 2018	2.882	0	2.882	0	0	0	0
Cost exempt from cost sharing 2019	4.085		4.085	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	12.294	0	12.294	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0
Financial incentives year 2018	-261	-261					
Financial incentives year 2019	0		0				
Total financial incentives up to 2019	-261	-261	0	0	0	0	0
Financial incentives year 2022	0					0	
Financial incentives year 2023	0						0
Financial incentives year 2024	0						0
Total financial incentives (Art. 11(3) and 11(4))*	-261	-261	0	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	
Modulation of charges year 2018	0	0	0	0	0	0	
Modulation of charges year 2019	0		0	0	0	0	
Total modulation of charges up 2019	0	0	0	0	0	0	

Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	-1	-1	0	0	0	0	0
Traffic adjustment 2019	8		8	0	0	0	0
Total traffic adjustments up to 2019	7	-1	8	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	412			412	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	8.467				8.467	0	0
Traffic adjustment on adjustments from previous RPs 2022	0					0	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	8.879	0	0	412	8.467	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	8.886	-1	8	412	8.467	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	-1.931	0	0	0	-1.931	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	-1.931	0	0	0	-1.931	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	0		0	0	0	0	0
Revenues received from national public funding in 2022	0			0	0	0	0
Revenues received from national public funding in 2023	0				0	0	0
Revenues received from national public funding in 2024	0					0	0
Total revenues received from national public funding (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0		
Revenues from commercial activities in 2022	0			0	0	0	
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017							
Revenues from contracts with airport operators in 2018							
Revenues from contracts with airport operators in 2019							
Total revenues from contracts with airport operators up to 2019							
Revenues from contracts with airport operators in 2020-2021							
Revenues from contracts with airport operators in 2022							
Revenues from contracts with airport operators in 2023							
Revenues from contracts with airport operators in 2024							
Total revenues from contracts with airport operators (Art. 25(3)(c))*							
Revenue difference - revision of UR 2020-2021	69.965				9.995	9.995	49.975
Revenue difference - revision of UR 2022	0				0	0	0
Revenue difference - revision of UR 2023	0					0	0
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	69.965	0	0	0	9.995	9.995	49.975
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	91.370	678	13.780	412	16.530	9.995	49.975

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
MUAC Luxembourg

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	29	29					
Inflation adjustment 2019	27		27				
Total inflation adjustment up to 2019	56	29	27				
Inflation adjustment 2020-2021	0				0		
Inflation adjustment 2022	0					0	
Inflation adjustment 2023	0						0
Inflation adjustment 2024	0						0
Total inflation Adjustment (Art. 26)*	56	29	27	0	0	0	0
Traffic risk sharing up to 2017	0	0	0	0	0	0	0
Traffic risk sharing 2018	0	0	0	0	0	0	0
Traffic risk sharing 2019	19		19	0	0	0	0
Total traffic risk sharing adjustments up to 2019	19	0	19	0	0	0	0
Traffic risk sharing 2020-2021 (exceptional measures)	0				0	0	
Traffic risk sharing 2022	0					0	
Traffic risk sharing 2023	0						0
Traffic risk sharing 2024	0						0
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*	19	0	19	0	0	0	0
Difference in investment costs 2020-2021 (exceptional measures)	0				0		0
Difference in investment costs 2022	0					0	0
Difference in investment costs 2023	0						0
Difference in investment costs 2024	0						0
Total adjustment relating to investment costs (Art. 28(4))	0				0	0	0
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)							
Difference in competent authorities and QEs costs 2022							
Difference in competent authorities and QEs costs 2023							
Difference in competent authorities and QEs costs 2024							
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))							
Difference in Eurocontrol costs 2020-2021 (exceptional measures)							
Difference in Eurocontrol costs 2022							
Difference in Eurocontrol costs 2023							
Difference in Eurocontrol costs 2024							
Total adjustment relating to Eurocontrol costs (Art. 28(5))							
Difference in pension costs 2020-2021 (exceptional measures)	0				0		0
Difference in pension costs 2022	0					0	0
Difference in pension costs 2023	0						0
Difference in pension costs 2024	0						0
Total adjustment relating to pension costs (Art. 28(6))	0				0	0	0
Difference in interest on loans 2020-2021 (exceptional measures)	0				0		0
Difference in interest on loans 2022	0					0	0
Difference in interest on loans 2023	0						0
Difference in interest on loans 2024	0						0
Total adjustment relating to interest on loans (Art. 28(6))	0				0	0	0
Costs relating to change in law 2020-2021 (exceptional measures)	0				0		0
Costs relating to change in law 2022	0					0	0
Costs relating to change in law 2023	0						0
Costs relating to change in law 2024	0						0
Total adjustment relating to change in law (Art. 28(6))	0				0	0	0
Cost exempt from cost sharing up to 2017	165	0	165	0	0	0	0
Cost exempt from cost sharing 2018	89	0	89	0	0	0	0
Cost exempt from cost sharing 2019	126		126	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	380	0	380	0	0	0	0
Financial incentives year up to 2017	0	0	0	0	0	0	0
Financial incentives year 2018	-8	-8					
Financial incentives year 2019	0		0				
Total financial incentives up to 2019	-8	-8	0	0	0	0	0
Financial incentives year 2022	0					0	
Financial incentives year 2023	0						0
Financial incentives year 2024	0						0
Total financial incentives (Art. 11(3) and 11(4))*	-8	-8	0	0	0	0	0
Modulation of charges up to 2017	0	0	0	0	0	0	
Modulation of charges year 2018	0	0	0	0	0	0	
Modulation of charges year 2019	0		0	0	0	0	
Total modulation of charges up 2019	0	0	0	0	0	0	

Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	-0,02	-0,02	0	0	0	0	0
Traffic adjustment 2019	0,24		0,24	0	0	0	0
Total traffic adjustments up to 2019	0,23	-0,02	0,24	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	13			13	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	262				262	0	0
Traffic adjustment on adjustments from previous RPs 2022	0					0	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	275	0	0	13	262	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	275	0	0	13	262	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	-60	0	0	0	-60	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	-60	0	0	0	-60	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	0	0	0	0	0	0	0
Revenues received from national public funding in 2022	0			0	0	0	0
Revenues received from national public funding in 2023	0				0	0	0
Revenues received from national public funding in 2024	0					0	0
Total revenues received from national public funding (Art. 25(3)(a))*	0	0	0	0	0	0	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0		
Revenues from commercial activities in 2022	0			0	0	0	
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017							
Revenues from contracts with airport operators in 2018							
Revenues from contracts with airport operators in 2019							
Total revenues from contracts with airport operators up to 2019							
Revenues from contracts with airport operators in 2020-2021							
Revenues from contracts with airport operators in 2022							
Revenues from contracts with airport operators in 2023							
Revenues from contracts with airport operators in 2024							
Total revenues from contracts with airport operators (Art. 25(3)(c))*							
Revenue difference - revision of UR 2020-2021	2.164				309	309	1.546
Revenue difference - revision of UR 2022	0				0	0	0
Revenue difference - revision of UR 2023	0					0	0
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	2.164	0	0	0	309	309	1.546
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	2.826	21	426	13	511	309	1.546

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 3 - Complementary information on adjustments

Belgium-Luxembourg
Currency: Euro
NSA + Eurocontrol Agency

Complementary information on adjustments	Amounts	2020	2021	2022	2023	2024	After RP
Inflation adjustment 2018	278	278					
Inflation adjustment 2019	260		260				
Total inflation adjustment up to 2019	537	278	260				
Inflation adjustment 2020-2021							
Inflation adjustment 2022							
Inflation adjustment 2023							
Inflation adjustment 2024							
Total inflation Adjustment (Art. 26)*	537	278	260				
Traffic risk sharing up to 2017							
Traffic risk sharing 2018							
Traffic risk sharing 2019							
Total traffic risk sharing adjustments up to 2019							
Traffic risk sharing 2020-2021 (exceptional measures)							
Traffic risk sharing 2022							
Traffic risk sharing 2023							
Traffic risk sharing 2024							
Total traffic risk sharing adjustment (Art. 27(2) to 27(5))*							
Difference in investment costs 2020-2021 (exceptional measures)							
Difference in investment costs 2022							
Difference in investment costs 2023							
Difference in investment costs 2024							
Total adjustment relating to investment costs (Art. 28(4))							
Difference in competent authorities and QEs costs 2020-2021 (exc.meas.)	0				0		
Difference in competent authorities and QEs costs 2022	0					0	
Difference in competent authorities and QEs costs 2023	0						0
Difference in competent authorities and QEs costs 2024	0						0
Total adjustment relating to competent authorities and QEs costs (Art. 28(5))	0				0	0	0
Difference in Eurocontrol costs 2020-2021 (exceptional measures)	0				0		
Difference in Eurocontrol costs 2022	0					0	
Difference in Eurocontrol costs 2023	0						0
Difference in Eurocontrol costs 2024	0						0
Total adjustment relating to Eurocontrol costs (Art. 28(5))	0				0	0	0
Difference in pension costs 2020-2021 (exceptional measures)							
Difference in pension costs 2022							
Difference in pension costs 2023							
Difference in pension costs 2024							
Total adjustment relating to pension costs (Art. 28(6))							
Difference in interest on loans 2020-2021 (exceptional measures)							
Difference in interest on loans 2022							
Difference in interest on loans 2023							
Difference in interest on loans 2024							
Total adjustment relating to interest on loans (Art. 28(6))							
Costs relating to change in law 2020-2021 (exceptional measures)							
Costs relating to change in law 2022							
Costs relating to change in law 2023							
Costs relating to change in law 2024							
Total adjustment relating to change in law (Art. 28(6))							
Cost exempt from cost sharing up to 2017	-2.181	0	-2.181	0	0	0	0
Cost exempt from cost sharing 2018	-1.385	0	-1.385	0	0	0	0
Cost exempt from cost sharing 2019	-1.189		-1.189	0	0	0	0
Total adjustment relating to cost exempt from previous RPs	-4.754	0	-4.754	0	0	0	0
Financial incentives year up to 2017							
Financial incentives year 2018							
Financial incentives year 2019							
Total financial incentives up to 2019							
Financial incentives year 2022							
Financial incentives year 2023							
Financial incentives year 2024							
Total financial incentives (Art. 11(3) and 11(4))*							
Modulation of charges up to 2017	0	0	0	0	0	0	
Modulation of charges year 2018	0	0	0	0	0	0	
Modulation of charges year 2019	0		0	0	0	0	
Total modulation of charges up 2019	0	0	0	0	0	0	

Modulation of charges 2020-2021	0				0		
Modulation of charges 2022	0					0	
Modulation of charges 2023	0						0
Modulation of charges 2024	0						0
Total adjustment relating to modulation of charges (Art. 32(1))*	0	0	0	0	0	0	0
Traffic adjustment up to 2017	0	0	0	0	0	0	0
Traffic adjustment 2018	36	36	0	0	0	0	0
Traffic adjustment 2019	562		562	0	0	0	0
Total traffic adjustments up to 2019	598	36	562	0	0	0	0
Traffic adjustment on adjustments from previous RPs 2020	191			191	0	0	0
Traffic adjustment on adjustments from previous RPs 2021	-2.416				-2.416	0	0
Traffic adjustment on adjustments from previous RPs 2022	0					0	0
Traffic adjustment on adjustments from previous RPs 2023	0						0
Traffic adjustment on adjustments from previous RPs 2024	0						0
Total traffic adjustment on adjustments from previous reference periods	-2.225	0	0	191	-2.416	0	0
Traffic adjustment 2020-2021 (exceptional measures)	0				0		
Traffic adjustment 2022	0					0	
Traffic adjustment 2023	0						0
Traffic adjustment 2024	0						0
Total traffic adjustment (Art. 27(8) and 27(9))*	-1.627	36	562	191	-2.416	0	0
Revenues received from Union assistance programmes up to 2017	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2018	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2019	0	0	0	0	0	0	0
Total revenues received from Union assistance programmes up to 2019	0	0	0	0	0	0	0
Revenues received from Union assistance programmes in 2020-2021	-386	0	0	0	-386	0	0
Revenues received from Union assistance programmes in 2022	0			0	0	0	0
Revenues received from Union assistance programmes in 2023	0				0	0	0
Revenues received from Union assistance programmes in 2024	0					0	0
Total revenues received from Union assistance programmes (Art. 25(3)(a))*	-386	0	0	0	-386	0	0
Revenues received from national public funding up to 2017	0	0	0	0	0	0	0
Revenues received from national public funding in 2018	0	0	0	0	0	0	0
Revenues received from national public funding in 2019	0	0	0	0	0	0	0
Total revenues received from national public funding up to 2019	0	0	0	0	0	0	0
Revenues received from national public funding in 2020-2021	-247		-247	0	0	0	0
Revenues received from national public funding in 2022	-265			-265	0	0	0
Revenues received from national public funding in 2023	-284				-284	0	0
Revenues received from national public funding in 2024	-292					-292	0
Total revenues received from national public funding (Art. 25(3)(a))*	-1.088	0	-247	-265	-284	-292	0
Revenues from commercial activities up to 2017	0	0	0	0	0	0	0
Revenues from commercial activities in 2018	0	0	0	0	0	0	0
Revenues from commercial activities in 2019	0	0	0	0	0	0	0
Total revenues from commercial activities up to 2019	0	0	0	0	0	0	0
Revenues from commercial activities in 2020-2021	0	0	0	0	0		
Revenues from commercial activities in 2022	0			0	0	0	
Revenues from commercial activities in 2023	0				0	0	0
Revenues from commercial activities in 2024	0					0	0
Total revenues from commercial activities (Art. 25(3)(b))*	0	0	0	0	0	0	0
Revenues from contracts with airport operators up to 2017							
Revenues from contracts with airport operators in 2018							
Revenues from contracts with airport operators in 2019							
Total revenues from contracts with airport operators up to 2019							
Revenues from contracts with airport operators in 2020-2021							
Revenues from contracts with airport operators in 2022							
Revenues from contracts with airport operators in 2023							
Revenues from contracts with airport operators in 2024							
Total revenues from contracts with airport operators (Art. 25(3)(c))*							
Revenue difference - revision of UR 2020-2021	28.129				4.018	4.018	20.092
Revenue difference - revision of UR 2022	0				0	0	0
Revenue difference - revision of UR 2023	0					0	0
Revenue difference - revision of UR 2024	0						0
Total revenue differences from temporary application of UR (Art. 29(5))	28.129	0	0	0	4.018	4.018	20.092
Cross-financing to (-) / from (+) other charging zone(s) 2020-2021							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2022							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2023							
Cross-financing to (-) / from (+) other charging zone(s) relating to 2024							
Total cross-financing to (-) / from (+) other charging zone(s)							
Total adjustments	20.810	313	-4.179	-75	933	3.726	20.092

Amounts in '000 (national currency)

* Including carry-overs relating to the previous reference period(s)

Estimates made on assumption that actual TSUs 2021 are equal to forecast and that the revised plan is adopted in 2022

Note: Adjustments relating to RP3 are to be calculated and carried forward only once the RP3 performance plan has been adopted in accordance with Article 16 (a) or (b)

Table 4 - Complementary information on common projects and on revenues from Union assistance programmes allocated to the charging zone

Belgium-Luxembourg

Amounts received

Project reference (as per Grant Agreement)	Project title	Value of funded project in '000 Euro		Amounts granted (as per GA) in '000 Euro		Common project y/n	Actual amounts received (charging zone) in '000 Euro										
		Total	For the charging zone	Total	For the charging zone		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	1.006	1.006	503	503	Y	9	61	10	9	0	1	66				
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	192	192	96	96	Y	64	19	20	2	0	0	0				
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	287	287	143	143	Y	1	3	23	42	0	0	0				
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call	344	344	172	172	Y			0	0	1	2	0				
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST	905	905	453	453	Y					27	94	59				
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework	213	213	107	107	Y					2	2	1				
Total in '000 Euro		2.946	2.946	1.473	1.473		74	84	54	53	30	99	125	0	0	0	0
Total in '000 national currency		0	0	0	0	0	0	0	0	0	0	0					

Amounts reimbursed to airspace users through other revenues

Project reference (as per Grant Agreement)	Project title	Amounts retained in respect of aministrative costs for the charging zone in '000 Euro	Total to be reimbursed for the charging zone in '000 Euro	Amounts reimbursed to users (charging zone) in '000 national currency											
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	After RP
XXX #1	XXX	0	0	0	0	0	0	0	0	0					
XXX #2	XXX	0	0	0	0	0	0	0	0	0					
XXX #3	XXX	0	0	0	0	0	0	0	0	0					
XXX #4	XXX	0	0	0	0	0	0	0	0	0					
Total in '000 Euro		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total in '000 national currency		0	0	0	0	0	0	0	0	0					

RP3 Cost-efficiency targets

a) RP3 revised cost-efficiency performance targets (IR 2020/1627)

En route charging zone Belgium-Luxembourg	Baseline 2014	Baseline 2019	RP3 revised cost-efficiency targets (determined 2020-2024)				2024 D	2024 D
	2014 B	2019 B	2020/2021 D	2022 D	2023 D	2024 D	vs. 2014 B	vs. 2019 B
Total en route costs in nominal terms (in national currency)	161.307.247	217.740.555	456.075.804	258.974.343	269.990.317	281.423.854	74,5%	29,2%
Total en route costs in real terms (in national currency at 2017 prices)	167.321.288	211.337.662	438.683.658	243.119.422	249.760.587	256.531.715	53,3%	21,4%
Total en route costs in real terms (in EUR2017) ¹	167.321.288	211.337.662	438.683.658	243.119.422	249.760.587	256.531.715	53,3%	21,4%
YoY variation			107,6%	-44,6%	2,7%	2,7%		
Total en route Service Units (TSU)	2.288.106	2.537.599	2.164.873	1.665.000	1.968.000	2.251.000	-1,6%	-11,3%
YoY variation			-14,7%	-23,1%	18,2%	14,4%		
Real en route unit costs (in national currency at 2017 prices)	73,13	83,28	202,64	146,02	126,91	113,96	55,8%	36,8%
Real en route unit costs (in EUR2017) ¹	73,13	83,28	202,64	146,02	126,91	113,96	55,8%	36,8%
YoY variation			143,3%	-27,9%	-13,1%	-10,2%		

National currency	EUR
¹ Average exchange rate 2017 (1 EUR=)	1,00000

b) Information on the baseline values for the determined costs and the determined unit costs

En route charging zone Belgium-Luxembourg	Baseline 2014	Baseline 2019	Actuals 2014	Actuals 2019	2014 Baseline	2019 Baseline
	2014 B	2019 B	2014 A	2019 A	adjustments	adjustments
Total en route costs in nominal terms (in national currency)	161.307.247	217.740.555	155.716.192	199.494.828	5.591.055	18.245.727
Total en route costs in real terms (in national currency at 2017 prices)	167.321.288	211.337.662	161.485.138	193.678.302	5.836.150	17.659.360
Total en route costs in real terms (in EUR2017) ¹	167.321.288	211.337.662	161.485.138	193.678.302	5.836.150	17.659.360
Total en route Service Units (TSU)	2.288.106	2.537.599	2.362.038	2.619.592	-73.932	-81.993

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Reference Period 3 (2020-2024)**

Belgium-Luxembourg

skeyes

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

1. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;

The methodology used for allocating costs is described in annex M of the FABEC performance plan.

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);

N/A

c) Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);

The criteria used to allocate costs between terminal and en route services are described in annex M of the FABEC performance plan.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;

skeyes operates its own meteorological services. These services are for aviation purposes only and do not serve meteorological requirements in general.

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

Meteorological costs of skeyes are fully allocated to civil aviation. The methodology used to allocate costs between terminal and en route services are described in annex M of the FABEC performance plan.

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f) For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;

Determined costs by nature and by service

Entity: skeyes	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>Payroll costs consists of wages and their associated legal social charges, the cost of pension schemes and training costs.</p> <p>Payroll costs of skeyes increase for the following major reasons:</p> <ul style="list-style-type: none"> a. The investment in the recruitment and training of new ATCOs to address the wave of pre-retirement and to prepare for traffic recovery; b. the growing number of pre-retired ATCO and the associated charge over the RP3; c. The recruitments to hire the necessary technical and project resources for the roll out of the investment plan (cfr evolution of NBV of fixed assets) bound to compulsory replacement and regulations; d. inflation and indexation on wages.
of which, pension costs	
1.2 Other operating costs	<p>Other operating costs includes all company expenses which are neither included in payroll cost nor depreciation. The main cost types are: goods and general services provided by third parties, such as utilities, general supplies, rent, maintenance contracts, legal advices, external studies and consulting,...</p> <p>Projects costs (Subject Matter Experts, external project management) and maintenance associated with new investments stand for the major reasons of the increase.</p>
1.3 Depreciation	<p>The fixed assets base is expected to increase significantly (67% increase in NBV over RP3) due to important CAPEX projects most of which are either for replacement and continuity (e.g. Surveillance Radars, Radio communication,...) or for investing in a sustainable capacity (NextGen ATM). See details in the respective annex.</p>
1.4 Cost of capital	<p>The cost of capital is calculated by applying a Weighted Average Cost of Capital on the year average net book value of fixed assets and the year average net current assets (excl. any interest bearing or cash account).</p> <p>The allocation of the company fixed assets to the respective activity is based on their share of depreciation ensuing from the (externally audited) cost model ; the current assets and liabilities are allocated directly whenever possible (e.g. receivables or payables from adjustment mechanism) or depending upon closest identifiable share of revenue for each activity.</p> <p>The WACC has been established by an independent audit company based on the financial <i>Capital Asset pricing model</i> for the return on equity (risk portion) and from the weighted average interest on the various loans, including the yield on Long Term government bond for the debt portion.</p>
1.5 Exceptional items	N/A
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	<p>As a general rule, cost and investments are allocated to the specific Service directly as far as possible; the remaining companywide charges and investments that cannot be traced directly to a specific service are spread proportionally over all services.</p> <p>The main factor for the ATM costs increase is coming from the payroll: rising number of pre-retired ATCOs, recruitment and training efforts for their replacers and specific project management cost for ATM projects (NextGen ATM) . Also, wage evolution (inflation and indexation) for this core staff category are important causes for the underlying increase of the baseline.</p> <p>Although significant projects are present, the increase in the depreciation charged stays relatively confined and secondary to the payroll impact since most of the ATM projects take several years to realize and are will be rolled out after the RP3 period. Nevertheless, the cost of capital on those amounts increases along the period concurrently with the cash-out invested in the respective initiatives.</p>
2.2 Communication	<p>The improvement of the redundancy and resilience of the air-ground radio communication</p>

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	infrastructure , the replacement and the upgrade of the radio communication system and the SWIM Gateway will generate additional depreciation charges. the roll-out starts pretty soon in the RP3 period ; technical staff will have to be hired for these projects.
2.3 Navigation	Renewal and rationalisation of the DVOR/DME network, Replacement of the Radio Direction Finder system and ILS systems used for approach operations.
2.4 Surveillance	The roll-out of new cooperative & non-cooperative radar surveillance systems together with the project staffing generate increasing costs over the period. As a matter of fact, technical staff is hired at the start of the period.
2.5 Search and rescue	N/A
2.6 Aeronautical Information	In line with historical trend ; No major change.
2.7 Meteorological services	Considering inflation, the cost of this service will slightly reduce over RP3
2.8 Supervision costs	Nihil for skeyes / in line with history
2.9 Other State costs	Nihil for skeyes / in line with history
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: skeyes, En route
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
Cf. §3.4.3 perf plan

g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;

Depreciation costs are based on historic cost data.

h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;

<skeyes>																					
Costs of new and existing investments (see also performance plan item 2)																					
3.10 Depreciation	Covered in item f) above																				
3.11 Cost of capital	The cost of capital is calculated on the average book value NBV of the Total Fixed Assets base after investments and depreciation; there is no separate calculation/ageing for new investments.																				
	<table><tr><td>Cost of Capital (000 EUR)</td><td>A2019</td><td>2020</td><td>2021</td><td>2022</td><td>2023</td><td>2024</td></tr><tr><td>En route P1</td><td>3.825</td><td>3.331</td><td>2.705</td><td>3.080</td><td>4.016</td><td>5.104</td></tr></table>							Cost of Capital (000 EUR)	A2019	2020	2021	2022	2023	2024	En route P1	3.825	3.331	2.705	3.080	4.016	5.104
	Cost of Capital (000 EUR)	A2019	2020	2021	2022	2023	2024														
En route P1	3.825	3.331	2.705	3.080	4.016	5.104															
3.12 Cost of leasing	Nihil.																				

Eurocontrol costs								
3.13 Eurocontrol costs (Euro)								
	Eurocontrol Costs (000 EUR)		A2019	2020	2021	2022	2023	2024
	En route	P1	12.365	16.493	20.396	12.741	12.807	12.841

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3.14 Exchange rate (if applicable)	N/A
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i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;

<skeyes> En route								
Average asset base								
3.1 NBV fixed assets	Average Net Book value of Fixed Assets (000 EUR)	A2019	2020	2021	2022	2023	2024	
	En route P1	73.451	75,149	77,122	92,732	110,889	125,777	
3.2 Adjustments total assets	None							

3.3 Net current assets	<p>Closing positions are estimated first: the net current assets are calculated by deducting the current liabilities from the current assets and after excluding any interest bearing or cash account. The evolution and the split of the various accounts within the net current assets receivables is based on the underlying revenue for the respective activity whenever or to the finest level possible (there is well delimited segmentation for the most material accounts) or with the global turnover in case no other better estimate is available.</p> <p>Components linked to price adjustment mechanism are directly allocated to the respective activity and the COVID is creating significant and growing balance during the years 2020 and 2021 since the Determined Cost of the initial plan (2019) were applied for these years. The situation peaks at 234m€ in 2022 ; after that the collections is spread over 7 years starting in 2023 when the balances start to decrease ; the return to a normal level is not expected before the end of 2029 (RP4).</p> <p>The other short-term receivable components are evolving in the same proportion as the revenue of the underlying activity and the estimated billing.</p> <p>Depending upon their nature, the short-term payables components are based on (i) the evolution of personnel, (ii) the evolution of cost and (iii) the evolution of CAPEX. Once all year closing positions have been estimated, year average between entry and closing points are retained for the calculation of cost of capital.</p>							
	Average Net Current Assets (000 EUR)	A2019	2020	2021	2022	2023	2024	
	En route P1	11.894	61.962	168.114	234.337	208.860	163.846	
Cost of capital % Based on detailed PwC analysis for the Weighted Average Cost of Capital (WACC): The WACC rate evolves								
	WACC rate	A2019	2020	2021	2022	2023	2024	
	En route P1	4.43%	3.51%	3.32%	3.62%	3.62%	4.06%	
3.6 Return on equity	4,84% based on a Capital Asset Price Model performed by outside financial consultants							

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3.7 Average interest on debts	The company has received a financing facility from Eurocontrol in the Autumn 2020 and the Belgian Federal State in 2020 and 2021. The weighted average interest rate is diluted over time as the loan with the highest interest rate (Eurocontrol) is being reimbursed or diluted by the ones received from the Federal State ; the EC loan must be completely reimbursed by March 2022.							
	Interest on debt		A2019	2020	2021	2022	2023	2024
	En route	P1	0.00%	0.99%	0.11%	0.05%	0.07%	0.13%
3.8 Share of financing through equity								
	Equity %		A2019	2020	2021	2022	2023	2024
	En route	P1	100%	89.31%	71.75%	68.27%	74.40%	83.31%
Until 2019, the company was totally financed through equity ; the different loan facilities received to bridge the pandemics dilute the share of equity until 2022 when the peak indebtedness is reached and the situation then gradually recovers								

j) Description of the determined costs of common projects (point 3.9 of Table 1).

The deployment of ATM functionalities as required by Commission implementing regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan are foreseen by keyes in larger investment projects (e.g. Single Date Service Solution). The specific determined costs of common projects could not be estimated.

En-route Charging Zone <BE-LUX> Reference Period 3 (2020-2024)

2. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

As the local cost-efficiency performance targets for RP3 are currently subject to revision as part of the draft performance plans to be submitted by Member States to the Commission by 1 October 2021, in line with the exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627 of 3 November 2020), the monitoring of the 2020 actual performance is carried out against the 2019 actual performance.

The main drivers for differences between actual data for 2020 and actual data for 2019 are presented for each item of cost by nature in the tables below.

RP3 Monitoring – Year 2020 vs. 2019	
ANSP: skeyes	
1.1 Staff costs	skeyes staff costs decreased by 2,1% when comparing actual 2020 to 2019. However, the 2020 actual staff costs related to the “En route” services are higher than the 2019 actuals reported in the monitoring tables. The overall decrease in staff costs is more than compensated by the increase due to the change in the allocation of the approach costs between the services (cfr. 1.1).
1.2 Other operating costs	The other operating costs are 4% lower than the 2019 actuals. skeyes made important efforts to reduce costs, while several measures were taken to secure health of our staff and to guarantee continuity of service.
1.3 Depreciation	The depreciation costs are 23% higher than the 2019 actuals. This evolution is mainly explained by the depreciation costs on new investments that became operational in 2020 and by the change in the allocation of the approach costs between the services.
1.4 Cost of capital	The cost of capital is 89% higher than the 2019 actuals. The cost of capital was capped in 2019 to lower the cost base. The actual cost of capital 2020 is not capped and calculated with the WACC methodology: based upon a higher assets base and an increasing risk (market beta) in the aviation sector as a consequence of the COVID-19 crisis.
1.5 Exceptional items	n/a

RP3 Monitoring – Year 2020 vs. 2019	
STATE/NSA: BSA-ANS	
The budget of BSA-ANS is fixed (but annually indexed) and determined by two Royal Decrees, of 23 May 2006 and 24 March 2009. The amount is allocated to the respective en route and terminal cost bases based upon the notification of changes in the past related to each cost base.	
1.1 Staff costs	Due to a change in allocation key, costs shifted between en route and terminal. This change is described in Annex M of the draft performance plan.
1.2 Other operating costs	Due to a change in allocation key, costs shifted between en route and terminal. This change is described in Annex M of the draft performance plan.
1.3 Depreciation	N/A
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

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b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;

2020 actual service units vs. 2019 actual service units

Total number of service units Belgium-Lux	2019	2020
Actuals (CRCO data)	2.619.592	1.080.873
Difference (in Total services units)		-1.538.719
Difference (in %)		-59,0%

- In 2020, the actual total number of service units is 59,0% below the 2019 actual total number of service units. This decrease is explained by the COVID-19 crisis.

c) Breakdown of the actual costs of common projects per individual project;

This table covers the common projects partially financed by European fundings in function of the outcome of the project.

Figures in '000 EUR.

Project reference (as per Grant Agreement)	Project title	COSTS (OPEX+CAPEX) - ACTUALS						
		2014	2015	2016	2017	2018	2019	2020
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	20	141	23	21	1	2	150
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	147	45	47	4	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	3	8	53	97	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call			5	1	64	156	3
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST					81	281	176
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework					5	7	3
TOTAL		170	193	128	122	151	445	331
Project reference (as per Grant Agreement)	Project title	COSTS (OPEX+CAPEX) - ACTUALS						
		2014	2015	2016	2017	2018	2019	2020
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	20	141	23	21	1	2	150
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	147	45	47	4	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	3	8	53	97	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call			5	1	64	156	3
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST					81	281	179
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework					5	7	3
TOTAL		170	193	128	122	151	445	335

d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

This information is provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

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e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).

In accordance with the exceptional measures for RP3 (Regulation 2020/1627), the investment plan for the third reference period has been thoroughly reviewed compared to the initial plan submitted in 2019.

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ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

Not applicable:

Belgium and Luxembourg agreed to create one FIR (= charging zone) composed of Belgian airspace and Luxembourg airspace.

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

Exemptions are in full compliance with the EU charging regulation. Mandatory and voluntary exemptions are listed in the management contract between skeyes and the Belgian government.

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2020
Costs for exempted VFR flights	Not included in the cost base
Costs for exempted IFR flights (in '000 EUR)	2.612
Total costs for exempted flights (in '000 EUR)	2.612 (exempted IFR flights)

The financing means covering the costs incurred for services provided to exempted flights are described in the management contract between skeyes and the Federal State.

Costs planned in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2021.

	2021
Costs for exempted VFR flights	Not included in the cost base
Costs for exempted IFR flights	2.822
Total costs for exempted flights	2.822 (exempted IFR flights)

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(1) and (2)).

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

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Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3)).

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3)).

f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);

N/A

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

Modulation of charges

Belgium does not modulate en route charges.

The actual application and relating financial advantages and disadvantages for 2020 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3))).

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(4)).

i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;

N/A

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

N/A

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k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

SKEYES

2018 adjustment mechanism – carried over to 2020:

1. **Inflation adjustment** (+2.049 K EUR): 2018 actual (cumulative) inflation index (118,2) was higher than the 2018 (cumulative) inflation index (116,0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 2.049 K EUR that was included in the unit rate of 2020.
2. **Financial incentive** (-538 K EUR): In 2018, the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxemburg of which 538 K EUR at charge of skeyes. This amount was included in the unit rate of 2020.
3. **Traffic adjustment** (+19 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2018, the actual total number of service units was slightly below (-0,2%) the forecast used in the Performance Plan. The under-recovery of +19 K EUR was included in the unit rate of 2020.

2019 adjustment mechanism – carried over to 2021:

1. **Inflation adjustment** (+1.870 K EUR): 2019 actual (cumulative) inflation index (119,6) was higher than the 2019 (cumulative) inflation index (117,6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 1.870 K EUR that is included in the unit rate of 2021.
2. **Financial incentive** (-528 K EUR): In 2019, the incentive scheme with regard to capacity resulted in a penalty amounting to 528 K EUR for Belgium-Luxemburg of which 528 K EUR at charge of skeyes. This amount is included in the unit rate of 2021.
3. **Traffic adjustment** (+321 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +321 K EUR is included in the unit rate of 2021.
4. **Traffic risk sharing** (+1.196 K EUR): This adjustment relates to the costs subject to traffic risk sharing. In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +1.196 K EUR is included in the unit rate of 2021.

2020 adjustment mechanism – carried over to 2022:

1. **Traffic adjustment on adjustments from previous RPs** (+930 K EUR) (Art. 27(8) and 27(9)): In 2020 the actual total number of service units was lower (-60,8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore, the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 1.530 K EUR has been partially charged to the users. The balance (+930 K EUR) will be charged in 2022.

MUAC BELGIUM

2018 adjustment mechanism – carried over to 2020 :

1. **Inflation adjustment** (+940 K EUR): 2018 actual (cumulative) inflation index (118,2) was higher than the 2018 (cumulative) inflation index (116,0) foreseen in the Performance

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Plan (RP2). This results in an under-recovery of 940 K EUR that was included in the unit rate of 2020.

2. **Financial incentive** (-261 K EUR): *In 2018, the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxembourg of which 261 K EUR linked to MUAC performance (Belgium). This amount is at charge of skeyes as skeyes bears the financial risk linked to MUAC BE cost base. This amount was included in the unit rate of 2020.*
3. **Traffic adjustment** (-1 K EUR): *this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2018, the actual total number of service units was slightly below (-0,2%) the forecast used in the Performance Plan. The over-recovery of -1 K EUR was included in the unit rate of 2020 .*

2019 adjustment mechanism – carried over to 2021 :

1. **Inflation adjustment** (+873 K EUR): *2019 actual (cumulative) inflation index (119,6) was higher than the 2019 (cumulative) inflation index (117,6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 873 K EUR that is included in the unit rate of 2021.*
2. **Traffic adjustment** (+8 K EUR): *this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +8 K EUR is included in the unit rate of 2021.*
3. **Traffic risk sharing** (+604 K EUR): *This adjustment relates to the costs subject to traffic risk sharing. In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +604 K EUR is included in the unit rate of 2021.*
4. **Cost exempt:** *Unforeseen changes in costs or revenues stemming from international agreements (+12.294 K EUR) - 2016+2017+2018+2019 adjustment mechanism – carried over to 2021*
 1. **Support & pension cost MUAC** (+11.854 K EUR): *uncontrollable costs based on the MCA-TF agreement of 12 November 2015 approved by the EUROCONTROL PC (on 8 December 2015) with regard to the support- and the pension-costs related to MUAC services. This amount is included in the unit rate of 2021.*
 2. **Sharing keys MUAC** (+440 K EUR): *In April 2014, the Budgetary and Financial Working Group agreed to use a fixed cost sharing key over RP2 as long as the cost-sharing key is not showing a deviation of more than 1 percent positive or negative, in which case the cost-sharing key might be adapted. In the determined costs of Belgium-Lux, the following sharing keys were used to forecast the MUAC cost base: sharing keys BE 31,3208% and LUX 0,9687%. As the deviation was more than 1 percent point from the agreed RP2 cost sharing keys, the 2019 keys have been adapted: the actual sharing keys were 31,5912% for Belgium and 0,9770% for Luxembourg. This amount is included in the unit rate of 2021.*

2020 adjustment mechanism – carried over to 2022:

1. **Traffic adjustment on adjustments from previous RPs** (+412 K EUR) (Art. 27(8) and 27(9)): *In 2020 the actual total number of service units was lower (-60,8%) than the*

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“forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore, the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 678 K EUR has been partially charged to the users. The balance (+412 K EUR) will be charged in 2022.

NSA + EUROCONTROL AGENCY

2018 adjustment mechanism – carried over to 2020:

1. **Inflation adjustment** (+278 K EUR): 2018 actual (cumulative) inflation index (118,2) was higher than the 2018 (cumulative) inflation index (116,0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 278 K EUR that was included in the unit rate 2020.
2. **Traffic adjustment** (+36 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. costs stemming from international agreements and costs incurred by the relevant national authorities). In 2018, the actual total number of service units was slightly below (-0,2%) the forecast used in the Performance Plan. The over-recovery of +36 K EUR was included in the unit rate of 2020.

2019 adjustment mechanism – carried over to 2021:

1. **Inflation adjustment** (+260 K EUR): 2019 actual (cumulative) inflation index (119,6) was higher than the 2019 (cumulative) inflation index (116,6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 260 K EUR that is included in the unit rate of 2021.
2. **Traffic adjustment** (+562 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. costs stemming from international agreements and costs incurred by the relevant national authorities). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The over-recovery of +562 K EUR is included in the unit rate of 2021.
3. **Cost exempt:** Unforeseen changes in costs or revenues stemming from international agreements:
 - a. 2015+2016+2017+2018+2019 adjustment mechanism – carried over to 2021: Cost exempt (-4.754 K EUR): the sharing keys from PC 22/5/16 were used to forecast the Agency cost base in the determined costs of Belgium-Lux: i.e. sharing keys BE 2,2830% and LUX 0,0992%. The difference between the determined costs and the actual costs (due to the difference with the actual sharing keys) is considered as a negative cost item exempt from the cost-risk sharing mechanism and is included in the unit rate of 2021.

2020 adjustment mechanism – carried over to 2022:

1. **Traffic adjustment on adjustments from previous RPs** (+191 K EUR) (Art. 27(8) and 27(9)): In 2020 the actual total number of service units was lower (-60,8%) than the “forecast service units used for the unit rate as per Art. 25(2) applied temporary in 2020”. Therefore, the “2018 adjustment mechanism-carried over to 2020” under-recovery (cf. supra) of 313 K EUR has been partially charged to the users. The balance (+191 K EUR) will be charged in 2022.

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**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.

Cfr. Section “2. Actual costs and unit costs , c)” for actuals costs of common projects.

Project reference (as per Grant Agreement)	Project title	AMOUNT GRANTED						
		2014	2015	2016	2017	2018	2019	2020
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	9	61	10	9	0	1	66
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	64	19	20	2	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	1	3	23	42	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call	0	0	0	0	1	2	0
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST	0	0	0	0	27	94	59
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework	0	0	0	0	2	2	1
TOTAL		74	84	54	53	30	99	125
Project reference (as per Grant Agreement)	Project title	AMOUNT GRANTED						
		2014	2015	2016	2017	2018	2019	2020
2014-EU-TM-0136-M #014AF5	MPLS WAN Project	9	61	10	9	0	1	66
2014-EU-TM-0136-M #015AF3	LARA integration in CANAC 2	64	19	20	2	0	0	0
2014-EU-TM-0136-M #016AF5	Initial WXXM Implementation on Belgocontrol systems	1	3	23	42	0	0	0
2015-EU-TM-0196-M	NewPENS Stakeholders contribution for the procurement and deployment of NewPENS - Part A: General Call	0	0	0	0	1	2	0
2017-EU-TM-0076-M 2017_062_AF4	Traffic Complexity Assessment and Simulations Tool - TCAST	0	0	0	0	27	93	60
2017-EU-TM-0076-M 2017_084_AF5	SWIM Common PKI and policies & procedures for establishing a Trust framework	0	0	0	0	2	2	1
TOTAL		74	84	54	53	30	99	126

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MUAC

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

1. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;

MUAC exclusively provides ATM services, and all relevant costs are allocated to the en route charging zones of the four MUAC States. A proportion of MUAC costs based on sharing keys agreed by the four MUAC States is allocated to the en route charging zone of the Belgium-Luxembourg.

b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);

<...>

c) Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);

MUAC costs

MUAC only provides en route services, and costs are 100% allocated to the en route charging zone.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;

<...>

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

<...>

f) For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;

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Determined costs by nature and by service

Entity: MUAC	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>A part of the variations from one year to another is explained by the sharing keys used to distribute MUAC costs between the 4 Member States. For RP3, the states have decided to adjust these sharing keys annually, leading to significant variations. While the sharing keys for 2022-2024 are not yet decided upon, the assumptions applied for the Belgium and Luxembourg are respectively the following:</p> <p>In 2020 : 32.8462% and 1.0159% In 2021 : 32.9525% and 1.0192% In 2022 : 32.7362% and 1.0125% In 2023 : 32.4943% and 1.0050% In 2024 : 32.9451% and 1.0189%</p> <p>Remuneration of staff: as from 2020, the increase is mainly due to indexation of remuneration (in accordance with the EUROSTAT methodology applied in the European institutions), the progressive impact linked to taxation on pension (which was not included during RP2) , the additional ab initio intake and the salary package (called General Condition of Employment package) negotiated with ATCO in 2018 aiming at providing increased capacity through increased ATCO working time.</p>
of which, pension costs	Following an agreement within the EUROCONTROL member states, the taxation on pension is progressively charged to the MUAC cost base (from 60% in 2020 to 100% in 2022)
1.2 Other operating costs	Stable over RP3
1.3 Depreciation	Decrease in 2021 due to end of depreciation of FDPS in 2020
1.4 Cost of capital	Stable over RP3
1.5 Exceptional items	
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	All MUAC costs are ATM related.
2.2 Communication	
2.3 Navigation	
2.4 Surveillance	
2.5 Search and rescue	
2.6 Aeronautical Information	
2.7 Meteorological services	
2.8 Supervision costs	
2.9 Other State costs	
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: MUAC
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
<p>Pension costs are made of 2 elements:</p> <ul style="list-style-type: none"> - the employer contribution fixed as a proportion of the basic salary (currently fixed at 17.5% of basic salary). <p>According to the latest actuarial studies, this contribution rate is expected to increase up to 20% during RP3. Due to the COVID crisis, this increase might be delayed to RP4.</p>

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- the taxation on pension is progressively charged to MUAC cost base (see explanation above) : this taxation element is charged on a Pay as You Go basis to the former MUAC employee. Main assumptions taken are mortality tables, foreseen date of pension and tax pressure in the states where MUAC pensioners reside

g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;

MUAC set depreciation costs on the basis of historical costs.

<Entity> only applicable to entities applying current cost accounting – if N/A, please delete table.					
Equivalent in historic cost accounting					
	2020	2021	2022	2023	2024
Investment costs (in nominal terms in '000 national currency)					
1.3 Depreciation	< ... >	< ... >	< ... >	< ... >	< ... >
1.4 Cost of capital	< ... >	< ... >	< ... >	< ... >	< ... >
Average asset base					
3.1 Net book val. fixed assets	< ... >	< ... >	< ... >	< ... >	< ... >
3.2 Adjustments total assets	< ... >	< ... >	< ... >	< ... >	< ... >
3.3 Net current assets	< ... >	< ... >	< ... >	< ... >	< ... >
3.4 Total asset base	< ... >	< ... >	< ... >	< ... >	< ... >
Cost of capital %					
3.5 Cost of capital pre tax rate	< ... >	< ... >	< ... >	< ... >	< ... >
3.6 Return on equity	< ... >	< ... >	< ... >	< ... >	< ... >
3.7 Average interest on debts	< ... >	< ... >	< ... >	< ... >	< ... >
3.8 Share of financing through equity	< ... >	< ... >	< ... >	< ... >	< ... >

h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;

MUAC	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	Interest from bank loans at floating rates (EURIBOR 3 to 12 months + margin). The main factor explaining the variation is the evolution of EURIBOR which is expected to remain very low in the short term.
3.12 Cost of leasing	N/A
Eurocontrol costs	
3.13 Eurocontrol costs (Euro)	< ... >

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3.14 Exchange rate (if applicable)	< ... >
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i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;

MUAC	
Average asset base	
3.1 NBV fixed assets	The NBV of assets has significantly decreased during RP2 due to the low investments made during that period. The NBV is expected to remain stable during the first years of RP3 and will slightly increase at the end of RP3 if large investment projects materialize (e.g. Phoenix project).
3.2 Adjustments total assets	
3.3 Net current assets	
Cost of capital %	
3.6 Return on equity	No equity
3.7 Average interest on debts	EURIBOR + margin of approx. 0.5 to 1%
3.8 Share of financing through equity	Full financing through bank loans (no equity)

j) Description of the determined costs of common projects (point 3.9 of Table 1).

MUAC					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
MUAC does not keep track of the costs specifically linked to the PCP/CP1. Most activities would be conducted anyhow regardless of the mandate and these are embedded/absorbed in the overall development roadmap without a specific PCP/CP1 label.	< ... >				
< ... >	< ... >				
Total (Table 1 item 3.9)					

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2. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

As the local cost-efficiency performance targets for RP3 are currently subject to revision as part of the draft performance plans to be submitted by Member States to the Commission by 1 October 2021, in line with the exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627 of 3 November 2020), the monitoring of the 2020 actual performance is carried out against the 2019 actual performance.

The main drivers for differences between actual data for 2020 and actual data for 2019 are presented for each item of cost by nature in the tables below.

RP3 Monitoring – Year 2020 vs. 2019	
ANSP: MUAC	
1.1 Staff costs	<p>Please refer to the comment made above on sharing keys between MUAC Member States which can significantly influence the evolution of the allocated costs per member states from one year to another.</p> <p>For info, the sharing keys used for Belgium and Luxembourg were the following In 2019: 31.5912% and 0.9770 % In 2020: 32.8462% and 1.0159%</p> <p>It means that the shares of the Belgium and Luxembourg have increased by 4.% between 2019 and 2020 and explains partly the increase in all categories of costs</p> <p>The treatment of HQ support cost and tax compensation : in 2019, it was included in the reporting table of MUAC, in 2020 it is not included.</p> <p>Staff costs significantly increased from 2019 to 2020 due to the following reasons:</p> <ul style="list-style-type: none"> • a high indexation of remuneration observed in July 2019 (+3.485%) and July 2020 (+2.87%) in accordance with the EUROSTAT methodology applied in the European Institutions. This includes a much increased cost of living factor for the Netherlands • effect from the “GCE remuneration package” which was negotiated with ATCO resulting in increased working time and revaluated remunerations • increased ab initio intakes to replace ATCO’s going on pensions (1/3 of ATCO population retiring within 8 years)
1.2 Other operating costs	Stable level of other operating costs
1.3 Depreciation	Decreased level of depreciation mainly due to the fact that a sharing key is applied to the German OAT thereby reducing the depreciation allocated to GAT member States
1.4 Cost of capital	Reduced costs due to the very low interest rates obtained from financial institutions on bank loans
1.5 Exceptional items	Nothing to report

Belgium

RP3 Monitoring – Year 2020 vs. 2019

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STATE/NSA: BSA-ANS	
The budget of BSA-ANS is fixed (but annually indexed and determined by two Royal Decrees, of 23 May 2006 and 24 March 2009. The amount is allocated to the respective en route and terminal cost bases based upon the notification of changes in the past related to each cost base.	
1.1 Staff costs	Due to a change in allocation key, costs shifted between en route and terminal. This change is described in Annex M of the draft performance plan submitted in 2019.
1.2 Other operating costs	Due to a change in allocation key, costs shifted between en route and terminal. This change is described in Annex M of the draft performance plan submitted in 2019.
1.3 Depreciation	N/A
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

Luxembourg

RP3 Monitoring – Year 2020 vs. 2019	
STATE/NSA: <name>	
1.1 Staff costs	Increase in staff costs partly due to the indexation of the salaries in January 2020 (+2,5%) but mainly due to the changes in the cost allocation keys (reflecting the change described above for the ANSP)
1.2 Other operating costs	Increase due to the changes in the cost allocation keys (reflecting the change described above for the ANSP)
1.3 Depreciation	N/A
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;

2020 actual service units vs. 2019 actual service units

c) Breakdown of the actual costs of common projects per individual project;

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
MUAC does not keep track of the costs specifically linked to the PCP/CP1. Most activities would be conducted anyhow regardless of the mandate and these are embedded/absorbed in the					

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overall development roadmap without a specific PCP/CP1 label					
Total (Table 1 item 3.9)					

d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

<...>

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

Actual costs incurred in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2020.

	2020
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	
Total costs for exempted flights	

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Description of the financing means covering the costs incurred for services provided to exempted flights in 2020?

<...>

Costs planned in relation to services to flights exempted from ANS charges (pursuant to Article 31(3) to (5) and Article 22(6) of Implementing Regulation (EU) 2019/317) in the charging zone in 2021.

	2021
Costs for exempted VFR flights	<...>
Costs for exempted IFR flights	
Total costs for exempted flights	

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(1) and (2)).

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3)).

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3)).

f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);

<...>

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

Modulation of charges

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The actual application and relating financial advantages and disadvantages for 2020 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3))).

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(4)).

i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;

<...>

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

<...>

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

<...>

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**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.

<...>

ADDITIONAL INFORMATION ANA

ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

3. Determined costs and unit costs

a) Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;

For the Belgium – Luxembourg charging zone the determined costs of the respective services are the basis for cost allocation.

ANA costs are registered by nature and by type of service (AIS, ATC, C, N, S, MET, ELE, AER, PCH, SIS) based on ANA's analytical accounting.

As in RP2 the cost allocation keys applied vary according to the type of service.

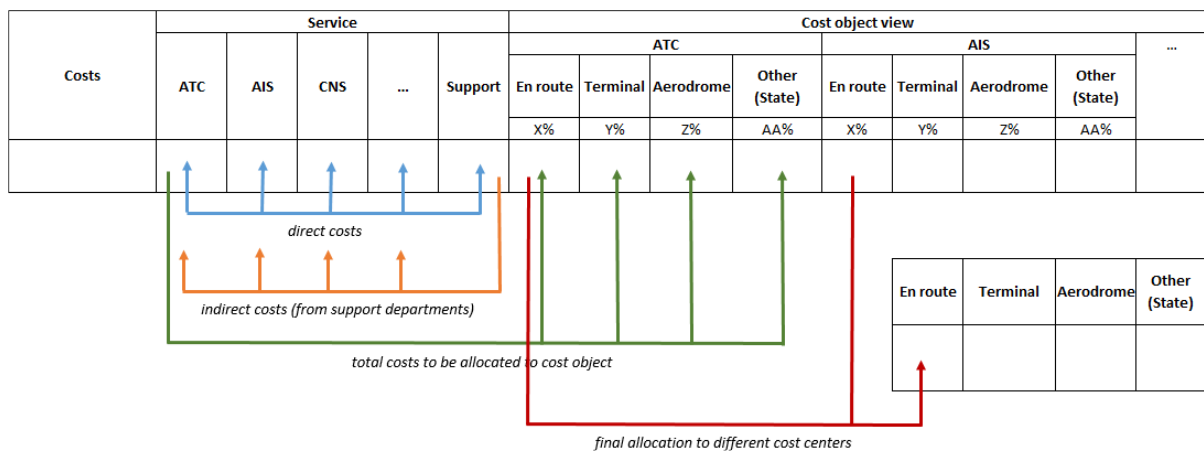
Cost allocation method

For the total cost calculation, in a first step ANA distinguishes between direct and indirect costs.

The direct costs result from the operational services ATC, AIS, NAV, COM, SUR, MET, SIS, ELE, AER and PCH, whereas the supporting services ADM, DIR, ENT, CERT, IT, RH/LEGAL and FIN are considered as indirect costs.

As a second step of the cost allocation methodology, those costs of the supporting services are allocated to each operational service, which finally results in its total costs. This distribution is done proportionally according to the share of direct costs in the operating services' total costs.

In the last step, those total costs are allocated to the different cost centers (En Route, Terminal, Aerodrome, Other), based on the applicable RP3 cost allocation key.



The revised allocation keys are based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centers. Part of the staff and operational costs of AIS and MET services are carried by other authorities in Luxembourg. These costs are excluded of the cost base for ANSP services and therefore not charged to the users.

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b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);

c) Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);

The criteria for the allocation of costs between ER and Terminal ANS are similar to RP2, based on the actual efforts and costs for service provision observed in RP2.

Within the controlled airspace of Luxembourg, a limit of 20 kms around the ELLX Airport has been considered, in order to split the costs between “En Route” and “Terminal” services provided. Regarding the arrivals, the transfers of the aircraft are performed from approximately 60Nm inbound of Luxembourg Airport.

For the departing flights, transfers from TWR to APP are performed just after the aircraft is airborne according to the Standard Instrument Departure (SID). The “APP ATCO’s” ensure the climbing and the separation of traffic before handing over to the neighbouring “ACCs”.

In addition to these climbing and descending flights, the approach controls a considerable number of overflights above the Luxembourg territory and inside the area of responsibility of ANA.

For the “APP ATCO’s”, services provided outside of the 20 kms cylinder represent an important part of their workload.

According to the operational practices used in many European countries, Luxembourg has assigned the costs of the workload produced by those approach flights outside the 20 kms cylinder to the “En Route” cost base.

d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general (‘MET core costs’). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;

A share of 50% of MET costs are considered as “MET core costs” and therefore excluded of the ANSP cost base. As a consequence these costs are carried by the State.

Direct costs: Airport observation infrastructure, Aviation MET systems, Aviation MET Staff, Housing and Aviation MET costs incurred by MeteoLux dedicated operational services.

Core costs: Observation sensors, radar-, satellite-, surface (SYNOP)- observations, Numerical Weather Prediction System (including maintenance), MeteoLux overhead not directly allocated to aviation (staffing costs, several international contributions, training costs).

e) Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;

The allocation of MET costs between ANS and non-aeronautical is based on the different tasks provided by the MET department.

f) For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;

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Determined costs by nature and by service

Entity: ANA (Luxembourg ANSP)	
1. Detail by nature (in nominal terms)	
1.1 Staff costs	<p>A recent study on the airport capacity established by Eurocontrol demonstrates that the capacity of ELLX can increase significantly. Among all the recommendations, 2 are directly linked to the ANSP.</p> <p>The first one is related to the management of traffic on the movement area: in addition to improving the ground infrastructure, ANA is planning to implement a third position at the TWR (Ground Position), which will result in a decongestion of the TWR "AIR" frequency and de facto increase the capacity.</p> <p>The second one is to reduce lateral separation between aircraft in ELLX airspace: ANA plans to respond to the current and future significant traffic increase by implementing a third position at the approach, the feeder position, allowing the ANSP to increase the capacity within its small airspace.</p> <p>Indexation: according to Luxembourg state principles (career shifts, mobile salary scale)</p> <p>Additional staff in ATC: 3rd position in APP, anticipation of retirements of ATCOs.</p> <p>Before the pandemic crisis ANA planned with a staff increase in AIS: due to actual understaffing and additional tasks which will be financed by the state. Due to the pandemic ANA is forced to renounce on this additional staff.</p> <p>Before the pandemic crisis ANA planned with a staff increase in CNS: due to the need to catch-up (significant number of projects to be finished and realised during RP3) Due to the pandemic ANA is forced to renounce on this additional staff.</p>
of which, pension costs	<p>The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.</p>
1.2 Other operating costs	<p>New maintenance contracts linked to the new systems and equipment to be implemented, additional need for training for ATCOs (new ATCOs and anticipation of retirements) and ATSEPs</p>
1.3 Depreciation	<p>The historical cost accounting method is used, with a linear depreciation.</p> <p>Significant amount of ongoing projects to be operational during RP3 (> 13 Mio. EUR).</p> <p>New investment/projects amounting to more than 25 Mio. EUR planned for RP3, of which more than 2/3 are in the scope of the performance plan</p> <p>Please note: depreciation will continue to be carried by the State of Luxembourg throughout RP3 These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.4 Cost of capital	<p>Still 100% equity financed, decrease of return on equity rate from 2.78 % to 1.79%, mainly due to lower risk-free rate.</p> <p>Please note: Cost of capital will continue to be carried by the State of Luxembourg throughout RP3 These costs are excluded of the chargeable unit rate via the "other revenues – national public funding" section.</p>
1.5 Exceptional items	N/A
2. Detail by service (in nominal terms)	
2.1 Air Traffic Management	3 rd position in APP, training costs, anticipation of retirements
2.2 Communication	Need to catch-up; therefore increase of depreciation amount
2.3 Navigation	Need to catch-up; therefore increase of depreciation amount
2.4 Surveillance	Need to catch-up; therefore increase of depreciation amount
2.5 Search and rescue	N/A

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2.6 Aeronautical Information	Renunciation on additional staff in AIS due to the pandemic: despite actual understaffing related to several new tasks and new responsibilities
2.7 Meteorological services	MET core cost are excluded and borne by the state during RP3
2.8 Supervision costs	N/A
2.9 Other State costs	N/A
Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008	

Pension costs

Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)

Entity: National Supervisory Authority
Assumptions underlying the determined pension costs and expected evolution over Reference Period 3
The state pension scheme is a pay-as-you-go system financed by contributions levied from current workers. The employer's contribution to the system is 8% of gross salary. No rate change is expected during RP3.

g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;

h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;

ANA (Luxembourg ANSP)	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	<p>Cost of capital rate = Cost of equity: 1.788%</p> <p>Formula:</p> $\text{Cost of equity (Re)} = \text{Risk free rate of return} + \text{Equity beta} \times (\text{Market rate of return} - \text{Risk free rate of return})$ <p>Assumptions for RP3:</p> <ul style="list-style-type: none"> - Risk free rate: 0.0% - Equity risk premium: 5.96% - Equity beta: 0.3% - Share of financing through equity: 100%
3.12 Cost of leasing	N/A

Eurocontrol costs

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3.13 Eurocontrol costs (Euro)	< ... >
3.14 Exchange rate (if applicable)	< ... >

i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;

ANA (Luxembourg ANSP)	
Average asset base	
3.1 NBV fixed assets	Significant increase of the NBV during RP3, due to the finalisation of ongoing and new projects.
3.2 Adjustments total assets	
3.3 Net current assets	Recovery of the net current assets from 2021 on.
Cost of capital %	
3.6 Return on equity	1.788%
3.7 Average interest on debts	N/A
3.8 Share of financing through equity	100%

j) Description of the determined costs of common projects (point 3.9 of Table 1).

<Entity>					
Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
< ... >	< ... >				
< ... >	< ... >				
Total (Table 1 item 3.9)					

4. Actual costs and unit costs

a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;

As the local cost-efficiency performance targets for RP3 are currently subject to revision as part of the draft performance plans to be submitted by Member States to the Commission by 1 October 2021, in line with the exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627

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of 3 November 2020), the monitoring of the 2020 actual performance is carried out against the 2019 actual performance.

The main drivers for differences between actual data for 2020 and actual data for 2019 are presented for each item of cost by nature in the tables below.

RP3 Monitoring – Year 2020 vs. 2019	
ANA (Luxembourg ANSP)	
1.1 Staff costs	Increase in staff costs, mainly due to the recruitment of ATC trainees in 2019, before the pandemic-crisis. Nevertheless, one part of the cost increase is explained by the changes in the cost allocation keys.
1.2 Other operating costs	Slight decrease in other operating costs.
1.3 Depreciation	Ongoing prioritisation of projects due to the pandemic to reduce investment costs. A full analysis regarding the entire investment project portfolio is still ongoing with a potential for further cost savings. This analysis could lead to the cancellation and postponement of some projects. Furthermore, the decisions are strongly depending on the outcome of the ongoing negotiations for additional (unplanned) public funds due to the pandemic.
1.4 Cost of capital	Prioritisation of projects due to the pandemic to reduce capital costs. A full analysis regarding the entire investment project portfolio is still ongoing with a potential for further cost savings.
1.5 Exceptional items	

RP3 Monitoring – Year 2020 vs. 2019	
STATE/NSA: <name>	
1.1 Staff costs	Increase in staff costs partly due to the indexation of the salaries in January 2020 (+2,5%) but mainly due to the changes in the cost allocation keys (reflecting the change described above for the ANSP)
1.2 Other operating costs	Increase due to the changes in the cost allocation keys (reflecting the change described above for the ANSP)
1.3 Depreciation	N/A
1.4 Cost of capital	N/A
1.5 Exceptional items	N/A

b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;

2020 actual service units vs. 2019 actual service units

Actual traffic was in 2020 58,7% lower than in 2019 (in terms of service units).

c) Breakdown of the actual costs of common projects per individual project;

<Entity>

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Determined costs of common projects (in nominal terms in '000 national currency)					
CP reference	2020	2021	2022	2023	2024
Total (Table 1 item 3.9)					

d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).

In respect of calendar year 2020, this information is to be provided in the annual monitoring report (see section 4 of the RP3 monitoring template).

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ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION

a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;

Belgium and Luxembourg agreed to create one FIR (= charging zone) composed of Belgian airspace and Luxembourg airspace

b) Description of the policy on exemptions and description of the financing means to cover the related costs;

c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(1) and (2).

d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3).

e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(3).

f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);

As regards the DC and DUC for all services it should be noted that a substantial and increasing part of the costs – cost of capital, investment costs and staff costs of the electro-technical department - will continue to be carried by the State of Luxembourg throughout RP3. These costs are excluded of the chargeable unit rate via the “other revenues – national public funding” section. A total of more than 25 M€ in investments is planned in RP3, whereby around 2/3 can be allocated to ANS and are thus in the scope of the performance plan.

g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and

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explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;

Financial incentive schemes

The description and justification of the parameters of the incentive scheme defined in accordance with Article 11(3) and 11 (4) are provided in the body of the performance plan under item 5.2.

Modulation of charges

The actual application and relating financial advantages and disadvantages for 2020 is not applicable (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 3 (3)).

h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);

Not applicable for this submission – will be based on the combined year 2020-2021 after the adoption of the RP3 performance plan as per Article 16 (Exceptional measures for RP3 due to the COVID-19 pandemic (Regulation (EU) 2020/1627, Article 5(4)).

i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;

j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;

k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;

ANA

2018 adjustment mechanism – carried over to 2020:

- **Inflation adjustment** (+123 K EUR): 2018 actual (cumulative) inflation index (118,2) was higher than the 2018 (cumulative) inflation index (116,0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 123 K EUR that will be charged to the users in 2020.
- **Traffic adjustment** (+2 K EUR): This adjustment relates to the costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2018, the actual total number of service units was slightly below (-0,2%) the forecast used in the Performance Plan. The under- recovery of +2 K EUR will be charged in 2020 to the users.

2019 adjustment mechanism – carried over to 2021:

- **Inflation adjustment** (+112 K EUR): 2019 actual (cumulative) inflation index (119,6) was higher than the 2019 (cumulative) inflation index (117,6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 112 K EUR that will be charged to the users in 2021.
- **Traffic adjustment** (+31 K EUR and +68 K EUR): This adjustment relates to

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- The costs not subject to traffic risk sharing (i.e. MET costs, etc.). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +31 K EUR will be charged in 2021 to the users.
- The costs subject to traffic risk sharing. In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of +68 K EUR will be charged in 2021 to the users.

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2018 adjustment mechanism – carried over to 2020 :

- **Inflation adjustment** (+29 K EUR): 2018 actual (cumulative) inflation index (118,2) was higher than the 2018 (cumulative) inflation index (116,0) foreseen in the Performance Plan (RP2). This results in an under-recovery of 29 K EUR that will be charged to the users in 2020.
- **Financial incentive** (-8 K EUR): In 2018, the incentive scheme with regard to capacity resulted in a penalty amounting to 807 K EUR for Belgium-Luxembourg of which 8 K EUR linked to MUAC performance (Luxembourg). This amount is at charge of ANA as ANA bears the financial risk linked to MUAC LUXEMBOURG cost base. This amount will be reimbursed to the users in 2020.
- **Traffic adjustment** (-0,02 K EUR): this adjustment relates to the costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2018, the actual total number of service units was slightly below (-0,2%) the forecast used in the Performance Plan. The over-recovery of -0,02 K EUR will be reimbursed to the users in 2020.

2019 adjustment mechanism – carried over to 2021 :

- **Inflation adjustment** (+27 K EUR): 2019 actual (cumulative) inflation index (119,6) was higher than the 2019 (cumulative) inflation index (117,6) foreseen in the Performance Plan (RP2). This results in an under-recovery of 27 K EUR that will be charged to the users in 2021.
- **Traffic adjustment** (+0,24 K EUR and +17 K EUR): this adjustment relates to
 - The costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of 0,24 K EUR will be charged to the users in 2021.
 - The costs not subject to traffic risk sharing (i.e. carry-over resulting from the implementation of the traffic risk-sharing mechanism). In 2019, the actual total number of service units was below (-3,7%) the forecast used in the Performance Plan. The under-recovery of 17 K EUR will be charged to the users in 2021.

Cost exempt: Unforeseen changes in costs or revenues stemming from international agreements

- 2016+2017+2018+2019 adjustment mechanism – carried over to 2021:
 - **Support & pension cost MUAC** (+367 K EUR): uncontrollable costs based on

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the MCA-TF agreement of 12 November 2015 approved by the EUROCONTROL PC (on 8 December 2015) with regard to the support- and the pension-costs related to MUAC services. The uncontrollable costs of RP2 shall be passed on to airspace users through a carry over to the following reference period (RP3).

- **Sharing keys MUAC (+14 k EUR):** *In April 2014, the Budgetary and Financial Working Group agreed to use a fixed cost sharing key over RP2 as long as the cost-sharing key is not showing a deviation of more than 1 percent positive or negative, in which case the cost-sharing key might be adapted. In the determined costs of Belgium-Lux, the following sharing keys were used to forecast the MUAC cost base: sharing keys BE 31,3208% and LUX 0,9687%. As the deviation was more than 1 percent point from the agreed RP2 cost sharing keys, the 2019 keys have been adapted: the actual sharing keys were 31,5912% for Belgium and 0,9770% for Luxembourg.*

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**ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION
ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

I) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.

2.1 - Investments - skewes

2.1.1 - Summary of investments

Number of new major investments		4										
#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	ATM Next Generation	86.574.148	38.658.980	0	79.524	310.096	817.889	1.398.122	12 years	78%	22%	Phase I 2023 / Phase II 2026 /Phase III 2027
2	remote radio sites	13.338.869	12.453.446	25.161	74.029	214.871	369.957	1.161.264	15 years	82%	18%	2024 most part / 2025 remainder
3	Wide Area Networking	7.371.289	6.361.653	482	67.541	613.056	878.528	976.639	8 years (15 for building arrangements)	87%	13%	Phase I 2022 / Phase II 2023 / Phase III 2024
4	A-SMGCS 2 systeem EBBR	5.869.670	3.119.671	6.755	21.160	29.955	72.822	635.986	6 years software / 15 years hardware	0%	100%	Phase I 2024 / Phase II 2026
Sub-total of new major investments above (1)		113.153.976	60.593.750	32.398	242.254	1.167.979	2.139.196	4.172.012				
Sub-total other new investments (2)		106.482.585	71.141.959	826.944	1.815.128	3.783.430	7.345.969	10.485.404		77%	23%	
Sub-total existing investments (3)				16.520.365	13.109.299	11.369.294	9.852.556	9.148.453		77%	23%	
Total new and existing investments (1) + (2) + (3)		219.636.561	131.735.709	17.379.707	15.166.680	16.320.702	19.337.720	23.805.869				
* The total % enroute+terminal should be equal to 100%.												

* The total % enroute+terminal should be equal to 100%.

2.1.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1		ATM Next Generation					Total value of the asset		86.574.148 €	
Description of the asset		This program focuses on replacing the current ATM system with a single, integrated and harmonised air traffic management system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies. The program includes the upgrade of the current ATM system to extend its lifetime until the commissioning of the new system								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)		Yes	Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)		AF1 1,1	AF2	AF3 3.1, 3.2	AF4 4,2	AF5	AF6 6,3	Interoperability		
Benefits for airspace users and results of the consultation of airspace users' representatives		The shared data services solution will enable an efficient sharing of data and integrated use of the airspace. It also supports the deployment of an efficient and effective external contingency solution in the event of a failure of one of the facilities providing technical services. Furthermore, it will enable maximum compliance with customer needs (i.e. airlines, airports, military bases), and will allow ATCO's to work flexibly from any work station, on any airspace sector (enabling CIV-MIL integration) – in line with the vision of the Airspace Architecture Study. The new system will enable the implementation of the functionalities required by the European regulation.								
Joint investment / partnership		Yes	Synergy with MUAC and Belgium Defense to reduce the operating and development cost of the ATM system.							
Investment in ATM systems		Yes								
If investment in ATM system, type?		New system	The investment includes the renewal of the current system and the extension of the lifetime of the current system (Midlife upgrade) until the operational date of the new system							
If investment in ATM system, Reference to European ATM Master Plan / PCP		PCP	AF 1.1, AF3.1, AF 3.2, AF 4.3, AF 6.3							

Name of new major investment 2		remote radio sites					Total value of the asset		13.338.869 €	
Description of the asset		This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 “new” sites for Enroute and Approach. The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?		No								
Level of impact of the investment		Network	Increased level of safety for airspace users as a result of improved communication service resilience, guaranteed business continuity of air navigation services through reduced traffic disruption.							
		Local	Increased level of safety for airspace users as a result of improved communication service resilience, guaranteed business continuity of air navigation services through reduced traffic disruption.							
		Non-performance								
Quantitative impact per KPA		Safety	Not measurable							
		Environment	N.A.							
		Capacity	Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes							
		Cost Efficiency	N.A.							
Results of the consultation of airspace users' representatives										
Joint investment / partnership		Yes	As part of the partnership between skewes and Belgian Defense, new radiosite are installed whenever possible on military sites to avoid purchasing and equipping new plot of land							
Investment in ATM systems		No								
If investment in ATM system, type?		Click to select								
If investment in ATM system, Reference to European ATM Master Plan / PCP		Click to select								

Name of new major investment 3		Wide Area Networking					Total value of the asset		7.371.289 €	
Description of the asset		From mid 2022 onwards, skewes’ existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. The creation of a new Wide Area Network (WAN) will support all skewes operational and business critical processes and related IT systems. In particular, it will provide highly available, secure and scalable network connectivity to interconnect all skewes locations (point of presence).								
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?		No								
Level of impact of the investment		Network	Business continuity of air navigation services through reduced risk of data traffic disruption							
		Local	Cost reduction and efficiency gains through the use of a more efficient, scalable network.							
		Non-performance								
		Safety	Not measurable							
		Environment	N.A.							

Quantitative impact per KPA	Capacity	Reduce risk of traffic disruption (traffic disruption due to system failure led to 52,920 minutes delay in 2015 and 7,442 minutes delay in 2018)
	Cost Efficiency	Not measurable
Results of the consultation of airspace users' representatives		
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	

Name of new major investment 4	A-SMGCS 2 systeem EBBR						Total value of the asset	5.869.670 €
Description of the asset	This project focuses on replacing the existing Advanced Surface Movement Guidance and Control (A-SMGCS) data fusion system, three Surface Movement Radars (SMR), and the MLAT system at Brussels Airport. The project comprises two investments: the A-SMGCS system and the cameras							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014						
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	
		2.1, 2.2, 2.3		4.2, 4.4				
Benefits for airspace users and results of the consultation of airspace users' representatives								
Joint investment / partnership	No							
Investment in ATM systems	No							
If investment in ATM system, type?	Click to select							
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select							

2.1.3 - Other new and existing investments

2.1.3.1 - Overall description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period

The description and justification of the costs nature and benefit of other new and existing investments in fixed assets planned over RP3 are described in Annex E. Each planned investment has been categorised into three overarching categories:

- ATM enhancement
- CNS and MET enhancement
- Infrastructure enhancement

2.1.3.2 - Details of the main other new investments in fixed assets planned over the reference period

Number of new other investments	Click to select number of new other investments
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#	Name of investment	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Description
				2020	2021	2022	2023	2024	

343 - Pension assumptions - skeyes

3431 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pension costs - TOTAL PENSION COST SKEYES*	20.798	22.172	42.970	23.977	24.345	25.098
En-route activity	14.413	15.365	29.778	16.712	17.139	17.794
Terminal activity (EBBR)	3.660	3.924	7.585	4.196	4.187	4.267
Terminal activity (Regional airports)	1.851	1.929	3.780	2.110	2.167	2.209
Other activities	874	953	1.827	959	852	828

* Includes the total pension cost at charge of skeyes, while determined pension cost is limited to the pension cost for the En route and EBBR terminal activity.

3432 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Yes-2					
Civil servants	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	45.718	48.554	94.272	51.477	53.654	55.276
Employer % contribution rate to this scheme	35%	35%		35%	35%	35%
Total pension costs in respect of this scheme	16.001	16.994	32.995	18.017	18.779	19.347
Number of employees the employer contributes for in this scheme	501	506		522	539	552
Contractual staff	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	31.674	33.026	647	37.996	35.328	36.401
Employer % contribution rate to this scheme	8,86%	8,86%		8,86%	8,86%	8,86%
Total pension costs in respect of this scheme	2.806	2.926	5.732	3.366	3.130	3.225
Number of employees the employer contributes for in this scheme	389	392		436	434	429

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

The State pension scheme in place is a "Pay-As-You-Go" scheme based on career duration and income earned
- for civil servants, skeyes makes a contribution of 35% to the State for each civil servants
- for contractual employees, skeyes makes a contribution of 8.86% to the State
Regulations on pension are a prerogative of the Federal State The existing regulatory regime may be consulted on <https://www.sfpd.gov.be/fr/centre-de-connaissances/legislation> skeyes has no information whether changes of those regulations are to be expected during RP3

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The pension cost "state pension scheme" is budgeted taking into account the current national pension regulations and the increase in pensionable payroll (increase in staff numbers and salary increase)

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

The pension costs have been determined based on existing regulatory regime Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated

3433 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No					
Executive committee - contractual staff	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	819	835	1654	869	904	940
Employer % contribution rate to this scheme	14%	14%		14%	14%	14%
Total pension costs in respect of this scheme	114	116	230	121	125	130
Number of employees the employer contributes for in this scheme	4	4		4	4	4

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

skeyes has a defined contribution pension scheme for members of the Executive Committee which are contractual employees Skeyes pays premiums to an insurance company under an extra group insurance contract

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

The pension cost "defined contribution pension scheme" is budgeted taking into account the current contract and an annual indexation

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

The pension costs have been determined based on existing regime Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated

3433 Assumptions for the occupational "Defined benefits" pension scheme

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	Yes					
Is the occupational "Defined benefits" pension scheme funded?	Yes					
	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	33.944	35.474	69.418	36.912	39.223	40.926
Total pension costs in respect of this scheme	1.877	2.136	4.013	2.473	2.311	2.396
- in respect of regular pension costs	0	0	-	0	0	0
- in respect of non-recurring deficit repair	0	0	-	0	0	0
- reported as staff costs (in reporting tables)	1.877	2.136	4.013	2.473	2.311	2.396
- not reported as staff costs (in reporting tables): please use comment box	0	0	-	0	0	
Actuarial assumptions						
% discount rate	Not available					
% projected increase in benefits						
% annual increase in salaries						
% expected return on plan assets						
Net funding surplus / deficit						
Number of employees the employer contributes for in this scheme	385	388		432	430	425
Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3						
skeyes has a defined benefit scheme for contractual staff members (excluding the Executive Committee) Skeyes pays premiums to an insurance company under an extra group insurance contract						
Description of the assumptions underlying the calculations of pension costs comprised in the determined costs						
The pension cost "defined benefit pension scheme" is budgetted taking into account the current contract, evolution in contractual staff numbers and salary increases						
Where, in the Reporting Tables, some occupational "defined benefits" costs (eg interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations						
Not applicable						
Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users						
The pension costs have been determined based on existing regime Any unforeseen changes on the costs to be passed on to airspace users will be duly motivated						

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - skeyes

Select number of loans						4
Interest rate assumptions for loans financing the provision of air navigation services (Amounts in nominal terms in '000 national currency)						
Loan #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Federal holding investment company loan					
Remaining balance (end of year)	2.500.000	2.510.000		2.520.040	2.530.120	2.540.241
Interest rate %	2,50%	2,50%		2,50%	2,50%	2,50%
Interest amount	62.500	62.750	125.250	63.001	63.253	63.506
Loan #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Eurocontrol loan for bridging the pandemic period: principal received in 2020 and last installment 03/22.					
Remaining balance (end of year)	31.304.663	6.260.932		-	-	-
Interest rate %	1,50%	1,50%		1,50%	1,50%	1,50%
Interest amount	207.276	294.383	501.659	15.324	-	-
Loan #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loans received from the belgian federal state in 2020 and 2021 to face liquidity issue due to the pandemic. The loan will be gradually reimbursed as from 2023.					
Remaining balance (end of year)	20.000.000	130.000.000		130.000.000	87.500.000	45.000.000
Interest rate %	0,00%	0,00%		0,00%	0,00%	0,00%
Interest amount	0	-	-	-	-	-
Loan #4	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	ST loan facility from the belgian federal state received in 2020.					
Remaining balance (end of year)	25.000.000	25.000.000		-	-	-
Interest rate %	0,00%	0,00%		-	-	-
Interest amount	0	0	-	0	0	0
Other loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description						
Remaining balance (end of year)						
Average weighted interest rate %						
Interest amount						
Total loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total remaining balance	78.804.663	163.770.932		132.520.040	90.030.120	47.540.241
Average weighted interest rate %	0,34%	0,22%		0,06%	0,07%	0,13%
Interest amount	269.776	357.133	626.909	78.325	63.253	63.506

##

2.7.1 - Summary of investments

Number of new major investments		6										
#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	New Voice Communication System	6.939.000	1.107.000	663.020	706.133	698.362	690.383	682.310	8 to 15	100%		Q4-2017
2	MeDUSA (MUAC Dual System Architecture)	13.500.000	9.500.000	0	0	0	0	0	8 to 15	100%		Q4-2025
3	Back up Voice Communication System	8.700.000	4.577.000	0	0	0	0	0	8 to 15	100%		Q4-2027
4	Data Centre Modernisation	7.103.000	7.103.000	0	0	0	511.890	507.438	15 to 20	100%		Q2-2023
5	IOP-G programme - First deployment	21.000.000	5.000.000	0	0	0	0	0	8 to 15	100%		Q2-2029
6	PHOENIX - New ops building (previously called New ATCO Consoles project)	34.375.000	3.067.000	0	0	0	0	0	8 to 50	100%		Q4-2026
Sub-total of new major investments above (1)		91.617.000	30.354.000	663.020	706.133	698.362	1.202.273	1.189.748				
Sub-total other new investments (2)		36.509.000	36.509.000	0	549.900	1.207.900	2.523.900	3.839.900				
Sub-total existing investments (3)				8.581.777	6.267.967	5.228.738	4.740.827	4.132.352				
Total new and existing investments (1) + (2) + (3)		128.126.000	66.863.000	9.244.797	7.524.000	7.135.000	8.467.000	9.162.000				

* The total % enroute+terminal should be equal to 100%.

2.7.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1		New Voice Communication System		Total value of the asset	6.939.000 €	
Description of the asset		ED-137 compliant VoIP Voice Communication System, including test system				
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?		No				
Level of impact of the investment	Network	Very limited on the short term. Impact on the network will arise once VoIP has been implemented across all ANSPs in Europe.				
	Local	None				
	Non-performance	None				
Quantitative impact per KPA	Safety					
	Environment					
	Capacity					
	Cost Efficiency					
Results of the consultation of airspace users' representatives		obsolescence avoidance and technological alignment (VoIP), system support for FABEC concept for inter-centre sectorisation, safety : improved radio coverage; reliability, capacity : preserving extendibility of the system, cost savings through common procurement and maintenance				
Joint investment / partnership		Yes	Common procurement with DSNA Voice / COM11.1			
Investment in ATM systems		Yes				
If investment in ATM system, type?		Replacement investment				
If investment in ATM system, Reference to European ATM Master Plan / PCP		Master Plan (non-PCP)				

Name of new major investment 2		MeDUSA (MUAC Dual System Architecture)		Total value of the asset	13.500.000 €	
Description of the asset		Upgraded Tier 2 (fall-back) CWP-HMI with additional functionalities on top of the currently existing ones : identical look and feel as the PRI-CWP, datalink and outgoing OLDI. The project is currently in the initiation phase.				
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?		No				
Level of impact of the investment	Network					
	Local					
	Non-performance					
Quantitative impact per KPA	Safety	The project is in the initiation phase. It is too early to quantify it's impact per KPA.				
	Environment					
	Capacity					
	Cost Efficiency					
Results of the consultation of airspace users' representatives		Obsolescence avoidance (FLB-CWP, FLB-FDPS), support the necessary OPS requirements for a safe transition from Tier 1 high capacity to Tier 2 sustained capacity, contribution to SAS3 and Adaas.				
Joint investment / partnership		No	CWP-HMI			
Investment in ATM systems		Yes				
If investment in ATM system, type?		Overhaul of existing system				
If investment in ATM system, Reference to European ATM Master Plan / PCP		Master Plan (non-PCP)				

Name of new major investment 3		Back up Voice Communication System		Total value of the asset	8.700.000 €	
Description of the asset		Replacement of the current BVCS system introduced in 2008				
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?		No				
Level of impact of the investment	Network	None				
	Local	None				
	Non-performance	This is a replacement project, without direct impact on network or local performance.				
Quantitative impact per KPA	Safety	The project is in the initiation phase. It is too early to quantify it's impact per KPA.				
	Environment					
	Capacity					
	Cost Efficiency					
Results of the consultation of airspace users' representatives		Improved reliability and capacity of the B-VCS system				
Joint investment / partnership		No				
Investment in ATM systems		Yes				
If investment in ATM system, type?		Replacement investment				

If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	Voice
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Name of new major investment 4	Data Centre Modernisation		Total value of the asset	7.103.000 €
Description of the asset	The data Centre Modernisation project aims at the upgrade of the equipment rooms and their installations and facilities to the Uptime Institute TIER III level. Besides that, the project will deliver processes and tooling to efficiently plan the rack-space and administer the assets and their physical (network) interconnections.			
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No			
Level of impact of the investment	Network	No		
	Local	No		
Quantitative impact per KPA	Non-performance	The upgrade of the infrastructure is needed in order to ensure that the platform remains capable to support current and future		
	Safety	No		
	Environment	Improved energy consumption, fire protection and physical security		
	Capacity	No		
	Cost Efficiency	No		
Results of the consultation of airspace users' representatives	Improved energy consumption, fire protection and physical security			
Joint investment / partnership	No			
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select			
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select			

Name of new major investment 5	IOP-G programme - First deployment						Total value of the asset	21.000.000 €
Description of the asset	To comply with the initial SWIM implementing rule 710/2014 of the Pilot Common Projects (PCP), MOAC is preparing the implementation of the Flight Object (FO), supported by the Blue SWIM Profile. The IOPG Programme comprises additional validations to complement the validations under SESAR1 & SESAR2020, the development and integration of the SWIM Node and Flight Object Manager (common project with ITEC) and the modifications to the legacy systems.							
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes							
Specify links to the PCP/CP1/Interoperability Regulations (add the sub-AF number(s) under each relevant box)	AF1	AF2	AF3	AF4	AF5	AF6	Interoperability	
					Family 5-6-2			
Benefits for airspace users and results of the consultation of airspace users' representatives	Access to common flight data can result in improved coordination in user-preferred route environments, safety, robustness and concepts of operation. Costs saving through common development of the Blue SWIN Node and Flight Object Manager with ITEC.							
Joint investment / partnership	Yes							
Investment in ATM systems	Yes							
If investment in ATM system, type?	New system							
If investment in ATM system, Reference to European ATM Master Plan / PCP	PCP				AF#5,family 5-6-2			

Name of new major investment 6	PHOENIX - New ops building (previously called New ATCO Consoles project)		Total value of the asset	34.375.000 €
Description of the asset	New operational building, flexibly locatable in a brighter OPS Room, including new consoles designed to modern ergonomic standards, improved training, test and locat contingency infrastructure, refurbished training, test & contingency environment			
The investment is mandated by a SES Regulation (i.e. PCP/CP1/Interoperability)?	No			
Level of impact of the investment	Network			
	Local			
	Non-performance			
Quantitative impact per KPA	Safety			
	Environment			
	Capacity			
	Cost Efficiency			
Results of the consultation of airspace users' representatives	Meet long term business demands and deliver future-proof operational services including additional sectors to handle peak traffic increase, integration of new concepts and services, enable automation levels and mitigate refurbishment risk			
Joint investment / partnership	No			
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select			
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select			

2.7.3 - Other new and existing investments

2.7.3.1 - Overall description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period

The **existing investments** with the highest significance in terms of operational and financial impact are : the MUAC building (9 M € of depreciations over RP3), new FDPS which has been fully depreciated at the end of 2020 (3.7 M€ of depreciations in 2020), the data centre operations (1.7 M€ over RP3), the Radio Direction Finder (1.2 M€ over RP3), the MUAC office Cloud operations OBS (1.1 M€ over RP3) and the BEEK transmitter station (0.6 M€ over RP3). The new investments with the highest significance are disclosed in section 2.7.1. **Other new investment projects** includes among others , Maintenance of servers and workstations, the new Access Control system and increased automation in training (MUSE project).

2.7.3.2 - Details of the main other new investments in fixed assets planned over the reference period

Number of new other investments	3
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#	Name of investment	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	Determined costs of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Description
				2020	2021	2022	2023	2024	
1	Data Centre operations	7.321.000	7.321.000	620.000	620.000	620.000	620.000	620.000	Obsolescence : replacement of servers and workstations
2	New Access Control System	2.800.000	2.800.000				100.000	200.000	obsolescence of the existing access control system, acquire a new and state of the art access control system based on an integrated security platform which interconnects all required applications within an open architecture meeting the present regulations, expecting benefits are in user friendliness, IT security, capacity and possibilities of the new system, improvement of physical barriers, futureproof and reducing of maintenance costs

3	Automated/remote ATCO training, self training and scoring (MUSE)	1.708.000	1.708.000					600.000	Improvement of the real time simulation environment at MUAC and from home leading to workload reduction, sel training for ab-initios
---	--	-----------	-----------	--	--	--	--	---------	--

3.4.3 - Pension assumptions - MUAC

NB : Amounts for MUAC GAT cost as a whole (excluding OAT costs)

3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pension costs	12.805	13.564	26.369	35.041	37.456	39.698
En-route activity	12.805	13.564	26.369	35.041	37.456	39.698
Terminal activity			-			
Other activities			-			

3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Select
--	--------

<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies			-			
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme			-			
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

MUAC does not have a "State" pension scheme.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users.

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Select
--	--------

<Staff category name>	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies			-			
Employer % contribution rate to this scheme						
Total pension costs in respect of this scheme			-			
Number of employees the employer contributes for in this scheme						

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3
MUAC does not have a "defined contributions" pension scheme.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

3.4.3.3 Assumptions for the occupational "Defined benefits" pension scheme

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	Yes
Is the occupational "Defined benefits" pension scheme funded?	Yes

	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	163.014	167.049	330.063	197.297	207.720	215.899
Total pension costs in respect of this scheme	12.805	13.564	26.369	35.041	37.456	39.698
- in respect of regular pension costs			-			
- in respect of non-recurring deficit repair			-			
- reported as staff costs (in reporting tables)	12.805	13.564	26.369	35.041	37.456	39.698
- not reported as staff costs (in reporting tables): please use comment box			-			
Actuarial assumptions						
% discount rate						
% projected increase in benefits						
% annual increase in salaries						
% expected return on plan assets						
Net funding surplus / deficit			-			
Number of employees the employer contributes for in this scheme	750	750		750	750	750

NB : amounts excludes OAT share

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3
MUAC employees are eligible for membership in the EUROCONTROL defined benefit pension scheme. This scheme is the first and unique pillar for the employees. Contributions from the employees and the employer are paid to the EUROCONTROL pension fund. The pension costs reported in this section relates to 2 different elements : the employer contribution (expressed as a percentage of the basic salary -17.5% in 2021) and the tax compensation on pension. Following a decision from the MUAC Member States, this tax compensation on pensions is gradually recognised over RP3 as pension costs in the MUAC costbase. This explains the substantial increase of pension costs as from 2022.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

One of the main assumptions is the % of the employer contribution which is set at 17.5% of the basic salary in 2021 . According to actuarial studies, this percentage is expected to increase up to 20% during RP3. Another assumption relating to the tax compensation on pension (accounted on a Pay as You Go basis) is the mortality and taxation pressure in the countries where pensioners reside.

Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations.

Not applicable

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

Increase pension age of ATCO and non ATCO staff. Review of benefits. New HR policy limiting access to permanent contracts of employment

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services - MUAC

NOTE : These loans are used to finance all activities of EUROCONTROL. MUAC is allocated a share of these loans in proportion to its NBV of related assets compared to the NBV of EUROCONTROL as a whole.

Select number of loans	4
------------------------	---

Interest rate assumptions for loans financing the provision of air navigation services (Amounts in nominal terms in '000 national currency)						
--	--	--	--	--	--	--

Loan #1	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Bullet loans with KBC contracted in December 2020 for 60 million€ up to 31 Dec 2027 at variable rate (IRS Swap Curve + 0.4%)					
Remaining balance (end of year)	60.000	60.000		60.000	60.000	60.000
Interest rate %	0,40%	0,40%		0,40%	0,40%	0,40%
Interest amount	0	240	240	240	240	240

Loan #2	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with KBC contracted in 2017 for 40 million € at variable rate (EURIBOR 1 to 9 months + 0.40%) maturing in December 2025					
Remaining balance (end of year)	25.000	20.000		15.000	10.000	5.000
Interest rate %	0,40%	0,40%		0,40%	0,40%	0,40%
Interest amount	120	100	220	80	60	40

Loan #3	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with BNP contracted in 2017 for 30 million € at variable rates (EURIBOR + 0.40%) maturing in December 2025					
Remaining balance (end of year)	18.750	15.000		11.250	7.500	3.750
Interest rate %	0,40%	0,40%		0,40%	0,40%	0,40%
Interest amount	90	75	165	60	45	30

Loan #4	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description	Loan with KBC contracted in 2014 for 70 million € at variable rate (EURIBOR 1 to 9 months +0.58%) maturing in December 2022					
Remaining balance (end of year)	17.500	8.750		-	-	-
Interest rate %	0,58%	0,58%				
Interest amount	152	102	254			

Other loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Description						
Remaining balance (end of year)						
Average weighted interest rate %	-	-		-	-	-
Interest amount			-			

Total loans	2020D	2021D	2020/2021D	2022D	2023D	2024D
Total remaining balance	121.250	103.750		86.250	77.500	68.750
Average weighted interest rate %	0,30%	0,50%		0,44%	0,45%	0,45%
Interest amount	362	517	879	380	345	310

SKEYES RP3 INVESTMENT PLAN

Annex E

13th July 2021

Contents



I. INTRODUCTION

II. INVESTMENT PLAN DRIVERS

III. INVESTMENT PLAN OVERVIEW

IV. INVESTMENT PLAN BREAKDOWN

V. INVESTMENT SUMMARY

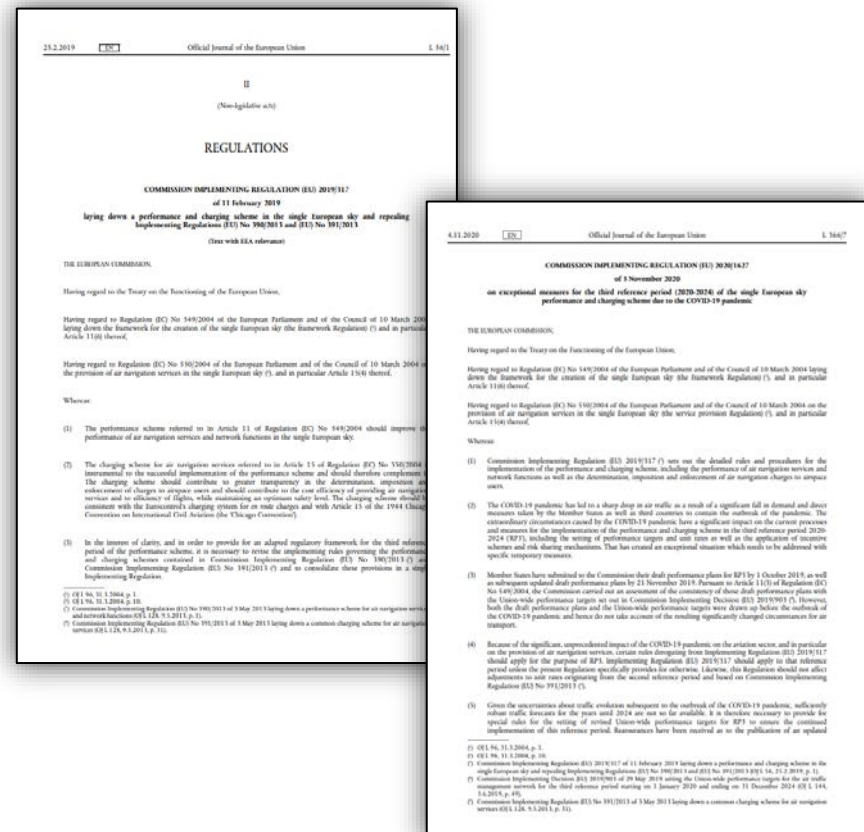
I. INTRODUCTION

Context

This investment plan summarizes new and existing capital expenditure investments planned for the 5-year RP3 period (2020-2024). Details and justifications are provided for investments greater than €1M. This document aims to provide full transparency on the determined costs of new and existing investments in respect of the purchase, development or leasing of fixed assets. Adjustment to this investment plan during RP3 will be subject to detailed justification and approval by the BSA.

Regulatory context

- Belgium, as a member of the EU, is subject to Single European Sky (SES) legislation and related performance targets as mandated by the Performance and Charging Scheme.
- The Performance Scheme provides EU-wide targets to mandate improved performance across the four SES Key Performance Areas (KPA's) – safety, capacity, cost efficiency and environment – and the Charging Scheme puts in place a uniform basis for the methodology by which ANSPs can charge airspace users for the services offered.
- Both regulations are applicable throughout a Reference Period. RP3 began in 2020, whereby new targets and the amended, and combined, regulation (2019/317) was adopted. Given the impact of the COVID-19 pandemic, some of the rules and targets for RP3 were amended in 2021 using IR (EU) 2020/1627 – hence the need to re-submit new performance plans in accordance to these changes.
- Skeyes has submitted a five-year Business Plan to the Belgian Supervisory Authority (BSA) – see Annex T. This forms the basis of the development of the National Performance Plan, and communicates skeyes' ambitions for the next five years.



Document structure

As well as presenting a detailed breakdown of skeyes' ongoing and planned investments for RP3, this document includes a description of the drivers that inform the planned investments together with an overarching summary of the investment plan.

The document is structured as follows:

➤ *Investment plan drivers (Section II)*

- An overview of the internal and external drivers influencing the investment plan. These are informed by skeyes strategic objectives and the performance plan regulation.

➤ *Investment plan overview (Section III)*

- A summary of the investment plan presenting the investments within three overarching categories: ATM Enhancement, CNS & MET Enhancement, and Infrastructure Enhancement.

➤ *Detailed breakdown of investments (Section IV)*

- A detailed breakdown of investments valued greater than €1M, including the following information:
 - a synopsis of the investment;
 - performance plan KPI category and drivers relevant to skeyes;
 - detailed information regards the scope and justification for the investment;
 - expected impacts of the investment in terms of service delivery;
 - information relating to how the investment is being procured and what action is being taken to ensure the most efficient cost distribution;
 - project status, RP3 financials and planned date of entry;
 - cost allocation (en-route, regulated terminal and un-regulated terminal).

➤ *Investment summary (Section V)*

- A tabular overview of all the investments presenting the planned date of entry, cost allocation, cost breakdown, EU KPI and skeyes driver.

II. INVESTMENT PLAN DRIVERS

Investment plan drivers

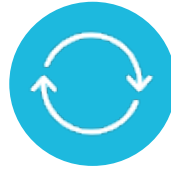
There are a number of key internal and external drivers which influence skeyes' investment plan. The three key drivers are introduced below and are expanded further on subsequent pages. A view on the impact of COVID-19 on the investment plan is also provided.

Key investment plan drivers:



Resourcing

An aging ATCO population means hiring new ATCOs to support skeyes strategic initiatives and maintain capacity levels



Business continuity

Many of skeyes infrastructure are reaching their end of life during the RP3 period and require replacement to maintain operational capacity levels



Building capacity

Skeyes is investing to ensure it aligns with the future vision of European airspace whilst also increasing airspace capacity

Impact of COVID-19:

Since the original RP3 performance plan submission, the air transport industry has been substantially disrupted as a result of the COVID-19. This has resulted in:

- ✓ A **significant drop in air traffic volumes**, putting the financial stability of the aviation industry under immense pressure.
- ✓ The **expected trends and forecasts initially envisaged in 2019 drastically changing**, resulting in a need to amend plans for the coming years.

The pandemic has not impacted the drivers of the investment plan, however skeyes has adapted its strategic plan and revised its priorities for RP3, whilst ensuring they remain a relevant player in the market. The revised strategic plan is skeyes' response to the uncertainties associated with Covid-19, taking into account the changing strategic and regulatory environment.

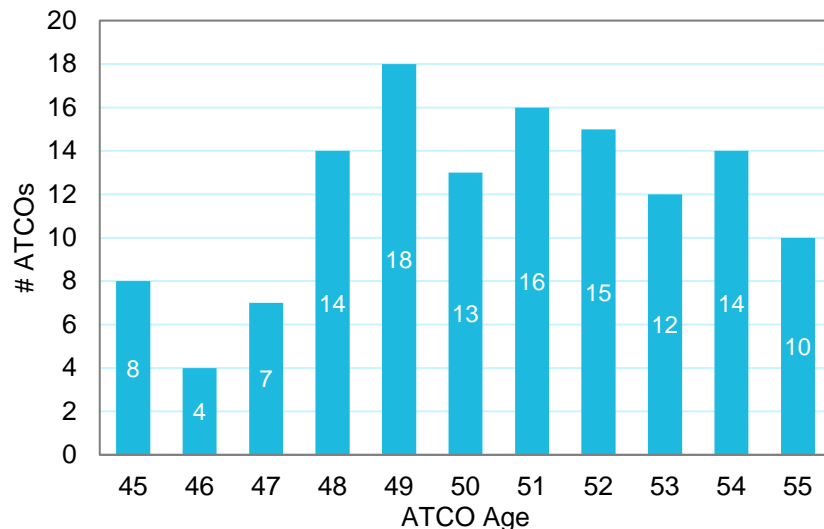
Investment plan drivers – Resourcing (1)

An aging ATCO population results in the need to hire new ATCOs to maintain capacity levels. This means skeyes must pay the cost of retaining ATCOs who have reached pre-retirement age, whilst also recruiting new ATCOs.

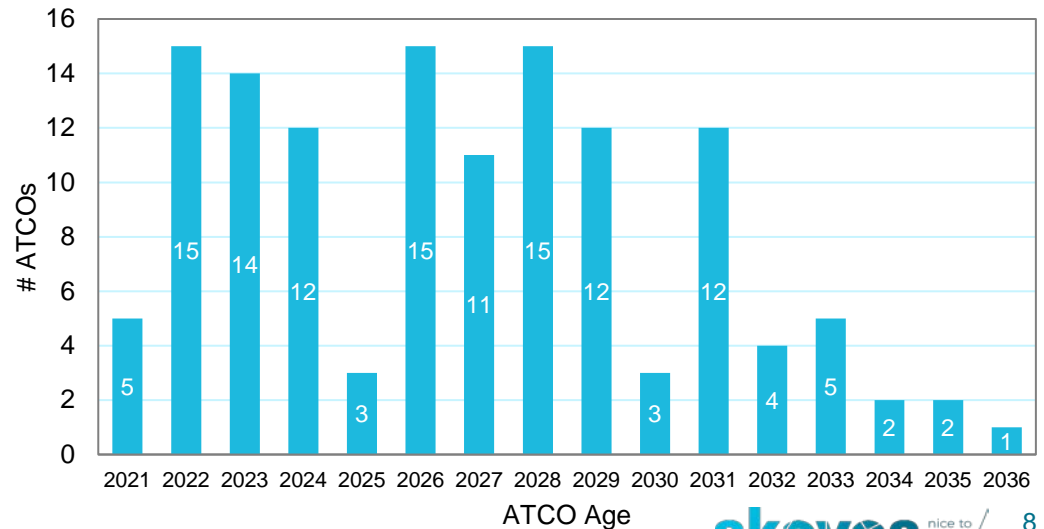
An increasing number of ATCOs are expected to reach pre-retirement age in the coming years:

- Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during the RP3 period – the ATCO age profile as of December 2020 is presented below. The graph to the right presents the expected number of ATCOs reaching functional incapacity (DISPO) age over the next 15 years.
- By Royal Decree, ATCOs cannot be in operational service for 5 years before they retire, and are placed in DISPO.
- ATCOs placed in DISPO receive a waiting allowance equal to an amount between 75% and 85% of their last salary.
- Historically, air traffic controllers were placed in DISPO from the age of 55 until the age of 60. As a result of a pension reform and a social agreement in 2016, the age of DISPO will gradually be delayed to 56 in 2020, 57 in 2025 and 58 in 2030.
- ATCOs who have reached DISPO age require replacement as they are no longer fit for operational duty, and the recruitment of new ATCOs is essential for maintaining business continuity and operational capacity.

ATCO age profile as of December 2020:



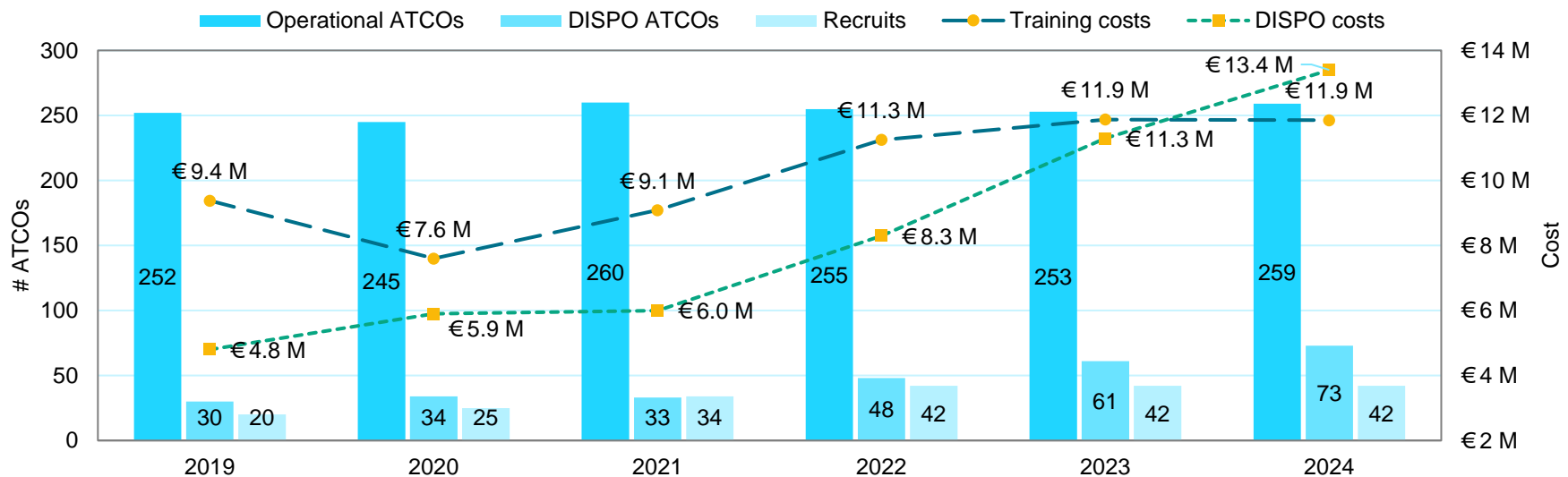
Number of ATCOs expected to reach DISPO age until 2036:



Investment plan drivers – Resourcing (2)

Skeyes has to recruit and train new ATCOs to maintain operational capacity:

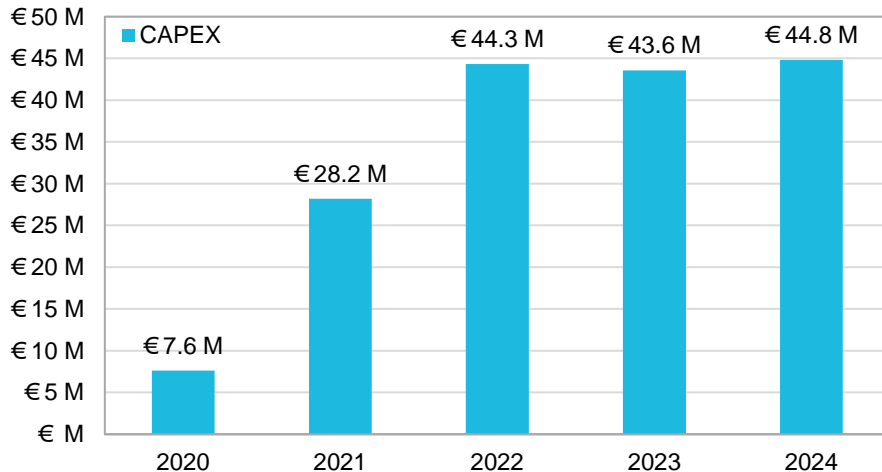
- An aging ATCO population means:
 - **DISPO ATCOs remain on the pay role, leading to high pay roll costs (totalling ~€45M during RP3).**
 - **Over 200 ATCOs will be recruited to replace those ATCOs reaching retirement age – these come with a training cost of ~€52M during RP3.**
- The graph below presents the financial impact of these elements.
- Skeyes has adopted a number of processes to reduce the cost of recruitment and implement more efficient operations:
 - A joint-venture with Entry Point North (EPN) means the cost of ATCO training is reduced given there is no need to train ATCOs abroad.
 - ATCOs can now be recruited directly into area control centres, eliminating the previous need for ATCOs to begin their career working within approach services.
 - Skeyes have implemented more efficient rostering processes and rationalised operations during the night time to improve service provision during low traffic levels.



Investment plan drivers - Business continuity and building capacity

Replacing end-of-life systems and building capacity are key drivers to the investment plan.

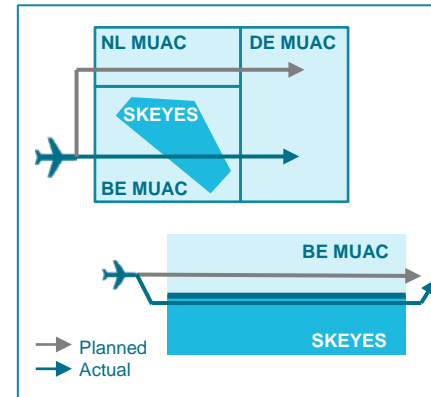
CAPEX is planned during RP3 to support the replacement of aging infrastructure:



- Vital ATM service provision infrastructure is reaching its end-of-life during RP3 and requires replacement, amounting to ~ €170 M.
- Skeyes are using this opportunity to reassess its infrastructure, looking for opportunities to rationalise current infrastructure and implement systems supporting the future airspace vision of Europe.
- Skeyes have allocated a project management team to oversee the investment plan to ensure successful delivery of each programme.
- These investments will ensure business continuity whilst also maintaining safety and operational capacity.

Skeyes are actively looking at opportunities to build capacity and prepare for the future of European aviation:

COMPLEX AIRSPACE



- Skeyes has the highest level of structural traffic complexity in Europe due to a large number of ascending and descending aircraft.
- Belgium has developed a Vision for its airspace, which aligns with the Airspace Architecture Study – helping create an efficient and modernised airspace.
- Skeyes will be investing in software and infrastructure to prepare itself for aspects such as digitalisation and data service provision to improve and increase services for Airspace users.
- Building capacity in this way is key to maximising traffic throughput in this complex airspace environment.
- These investments will secure skeyes future as an ANSP and support the European aviation market meet SES targets.

III. INVESTMENT PLAN OVERVIEW

Overview of planned investments

Each planned investment has been categorised into three overarching categories as described below.

1. ATM enhancement

This is a broad category which encompasses the investments which help skeyes improve the level of ATM service it provides to their airspace users – with a specific focus on ATM system elements. Examples range from upgrading consoles at a control centre through to the implementation of new flight-data processing systems.

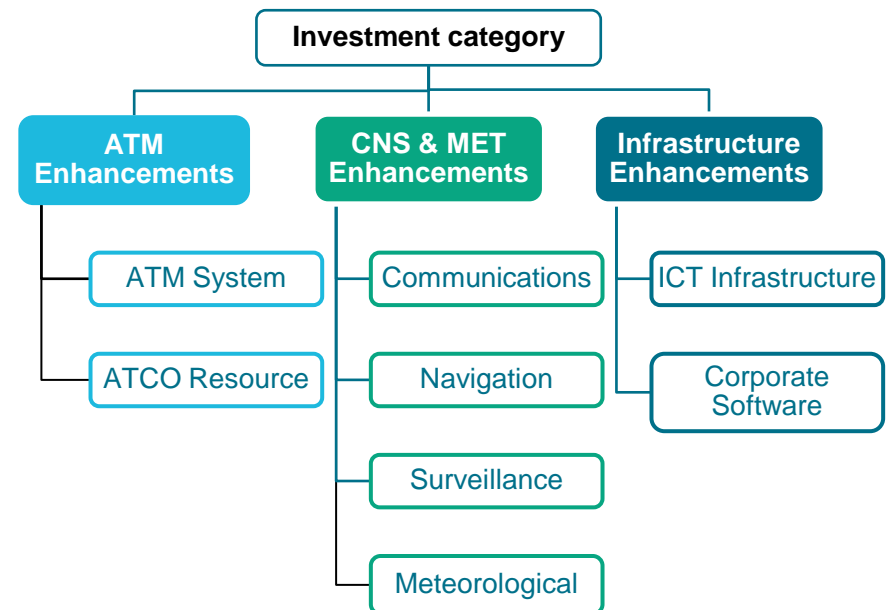
2. CNS & MET enhancement

This category relates to any investments made to the Communications, Navigation and Surveillance (CNS) elements of the ATM system. This category also includes any Meteorological related upgrades.

3. Infrastructure enhancement

This category relates to investments being made to the infrastructure required to provide ATS services. Examples include ICT networks and data centres.

Each overarching category is further divided into sub-groups as presented in the figure below:



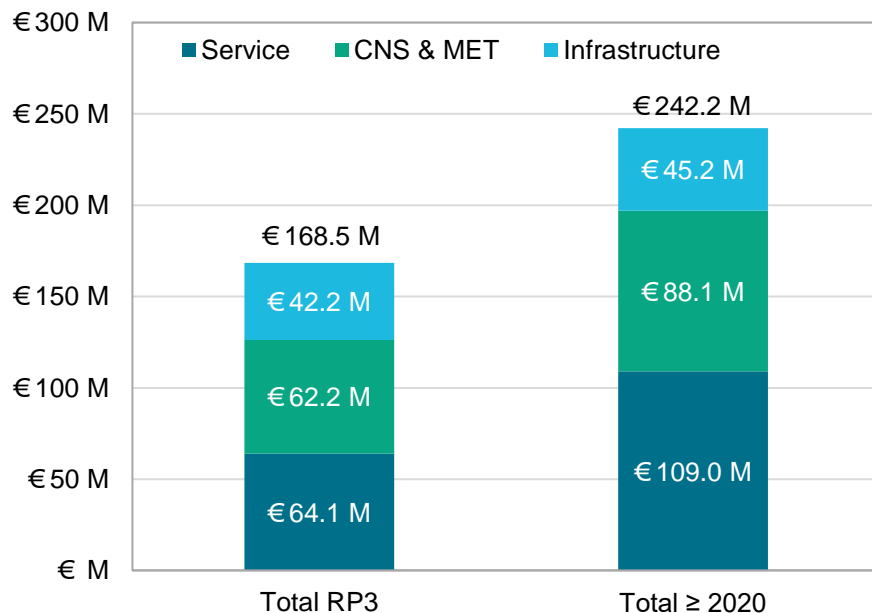
Note: while ATCO resource is treated as an operational expense in the performance plan, we have included a description of it within the investment plan given the large value of its investment during the RP3 period.

Total CAPEX values

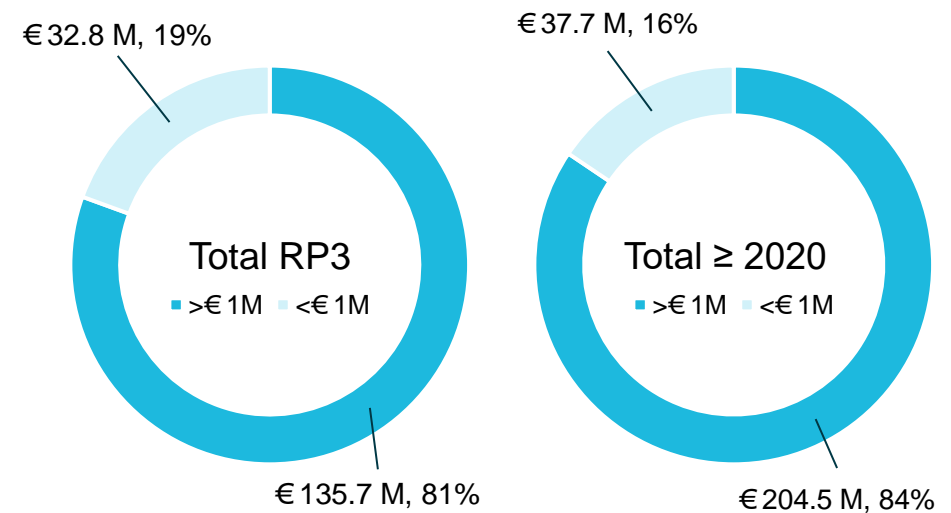
This investment plan presents a detailed overview of skeyes investments valued >€1M. Total values for investments <€1M are also presented and classed as 'Low Tier' investments.

- Skeyes investments during RP3 total a value of ~€168.5M.
- This is made up of a total of ~150 projects during the RP3 period.

Summary of total investments broken down by enhancement category:



Share of low tier investments as % of all investments:



ATM enhancement investments

Key objectives related to ATM enhancement investments include:

- **Eliminate risks** linked to end-of-life infrastructure.
- Secure a **robust roadmap** for the evolution of skeyes' main ATM platform.
- Maintain **business continuity** by replacing an aging ATCO workforce.
- Enable the **Single European Sky vision** through strong partnership with MUAC.
- **Increase skeyes' operational flexibility** using digital tower technology.

List of service enhancement investments > €1 M:

(Note some investments have been grouped and are presented under a general investment heading)



ATM System (2 investments)

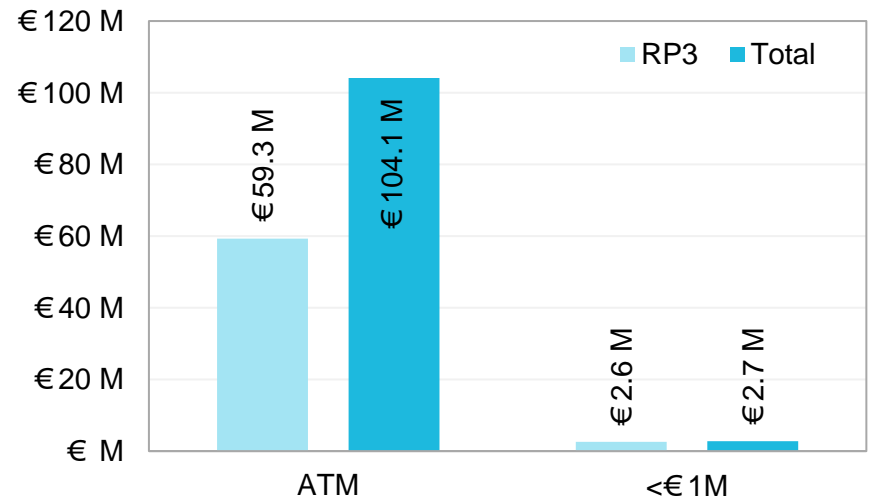
- **ATM Next Generation**
- **Digital Towers**



ATCO resource (2 OPEX investments)

- **ATCO resource**
 - └ ATCO pre-retirement (DISPO) payroll costs
 - └ ATCO recruitment and training
- (Ave. yearly OPEX = ~€18.5M)

CAPEX summary¹:



¹ATCO resource costs are not included here given they are classed as an operational expense.

CNS & MET enhancement investments

Key objectives related to CNS & MET enhancement investments include:

- **Eliminate risks** linked to end-of-life infrastructure.
- Support the implementation of **Performance Based Navigation (PBN)** using keyes PBN implementation plan which is developed in accordance with the PBN-Implementing Rule and CP1-objectives
- **Improve efficiency** through partnership with the Ministry of Defence.
- **Improve airport capacity and safety** (especially under low-visibility).
- **Future proofing** keyes' operations preparing for SWIM implementation.

List of CNS enhancement investments > €1 M:

(Note some investments have been grouped and are presented under a general investment heading)



Communications

(8 investments)

- **Remote radio sites**
 - └ Electronics equipment and centre
 - └ Radio sites infrastructure
- **Voice Communications**
 - └ VCS-b partial hardware replacement
 - └ VOIP gateways
 - └ VCS Ultimate
- **Voice recording**
- **SWIM Gateway**
 - └ SWIM Node
 - └ ISAAC SR5



Navigation

(3 investments)

- **Replacement instrument landing systems**
- **DVOR/DME repl. & rationalization**
- **Replacement radio direction finder**



MET

(1 investment)

- **Replacement Meteoradar**

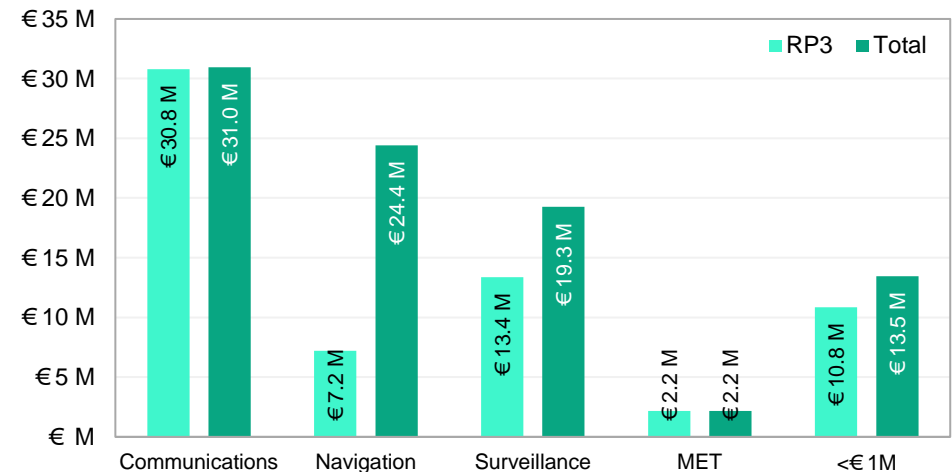


Surveillance

(6 investments)

- **Cooperative surveillance / ADS-B**
 - └ Sensor infrastructure
 - └ Wide area multilateration
- **Replacement A-SMGCS at EBBR**
 - └ A-SMGCS EBBR system
 - └ A-SMGCS EBBR cameras
- **New A-SMGCS at EBCI and EBLG**
 - └ A-SMGCS EBCI
 - └ A-SMGCS EBLG

CAPEX summary:

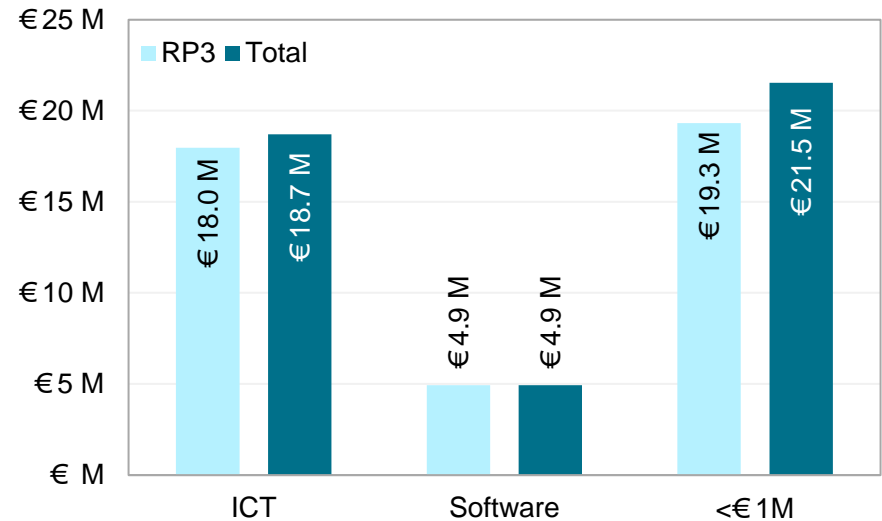


Infrastructure enhancement investments

Key objectives related to infrastructure investments include:

- Improve **network resilience**.
- Support the **digitalisation of skeyes corporate infrastructure**.
- **Simplify** corporate IT services.
- **Improve efficiency** through smart software solutions.
- Evolve skeyes' ICT infrastructure into a **state-of-the-art system**.
- **Future proofing** skeyes' corporate operations.

CAPEX summary:



List of infrastructure enhancement investments > €1M:

(Note some investments have been grouped and are presented under a general investment heading)



ICT Infrastructure (5 investments)

- **Wide Area Networking (WAN)**
- **IT infrastructure**
 - └ Network services
 - └ Datacentre
 - └ Security services
- **Telephone system**

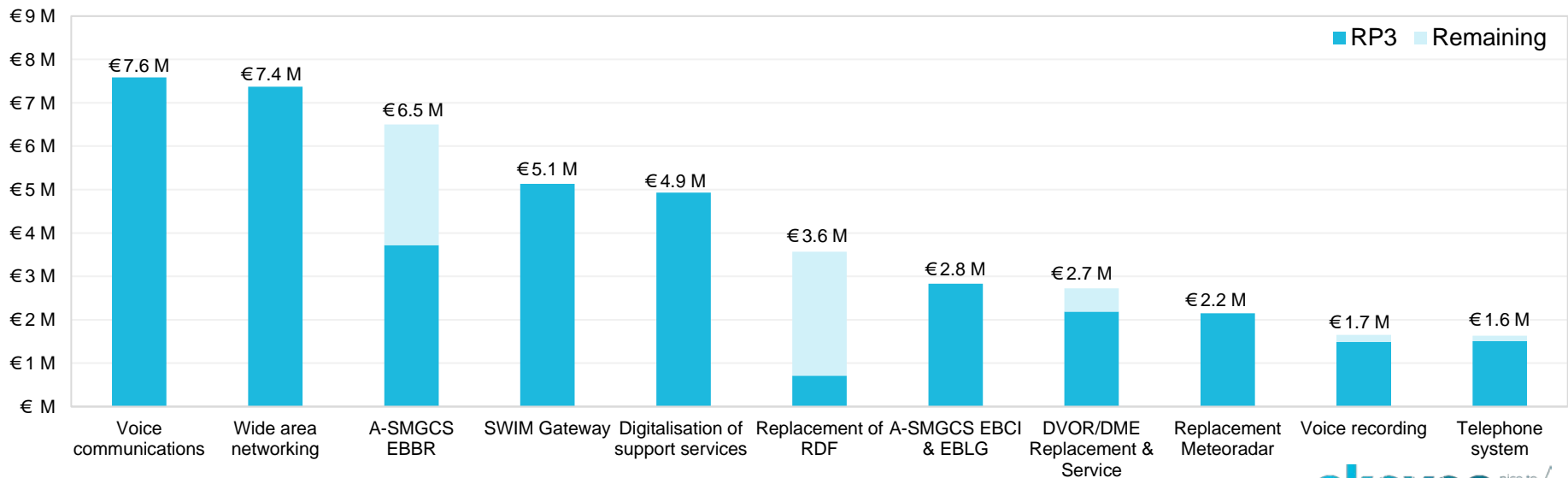
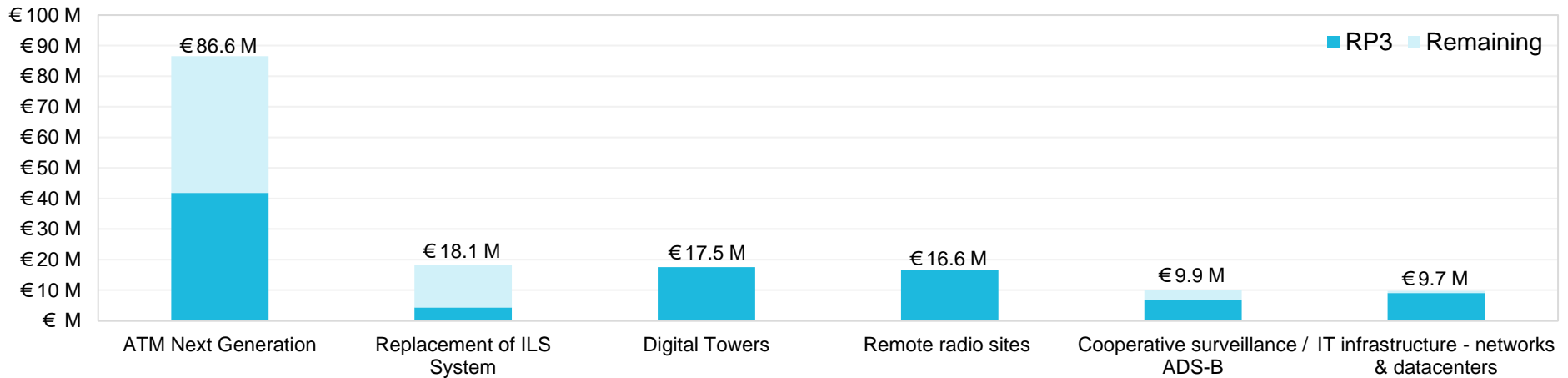


Corporate software (3 investments)

- **Digitalisation of support services**
 - └ Workforce Management tools
 - └ Enterprise Resource Planning (ERP)
 - └ Human resource management software (HRIS)

Investment CAPEX overview

This page presents a CAPEX overview of the investment groups presented in the previous pages. Note these values do not include low tier investments, but include investments > €1M in value. A further breakdown of these investment groups and their relative costs are presented in the investment plan breakdown section.

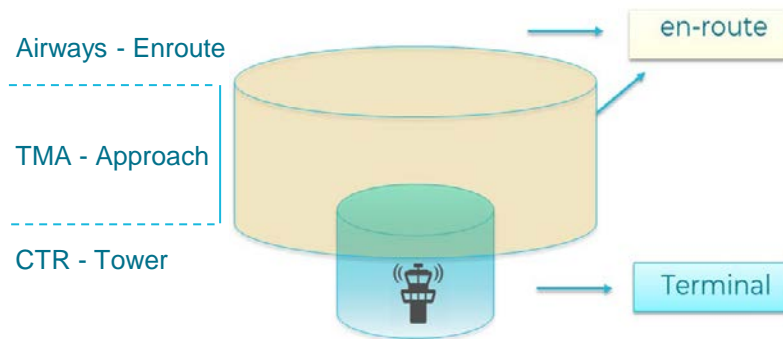


Cost allocation

A detailed description of the cost allocation methodology used by skeyes is provided in Annex M of the Performance Plan. This page summarises the methodology used in RP3 and presents the investments in terms of their respective en-route and terminal allocation.

The cost allocation methodology was updated in 2019:

- The cost of approach services will be allocated entirely to the en-route cost base.
- When both approach and tower services are provided by the collocated approach/tower unit, the cost will be divided between the en-route and terminal cost bases in accordance with the airspace volume ratio (CTR and TMA).



It must be noted that airspace users will not pay the full amount of the investment via amortization, but only the part that is not financed by a third party. This investment plan presents 'gross' investment amounts, with an indication of where parts of the investment are financed by third parties.

Investment programme / project		En-route	Regulated Terminal	Un-regulated Terminal
ATM Next Generation		72.4%	20.2%	7.3%
Digital Towers		0.0%	16.7%	83.3%
Remote radio sites	Equipment centre	71.0%	17.8%	11.2%
	Remote radio sites	74.3%	15.8%	9.9%
Replacement of Radio Direction Finder		66.7%	33.3%	0.0%
IT infrastructure	Network services	69.2%	18.9%	9.7%
	Datacentre	72.1%	19.3%	7.3%
	Security services			
Wide Area Networking (WAN)		74.9%	11.4%	12.2%
Cooperative surveillance / ADS-b	Mode S St Hubert	99.4%	0.1%	0.5%
	Mode S Berthem			
	Mode-S Kleine			
	WAM	84.0%	0.1%	15.9%
SWIM Gateway	Upgrade ISAAC SR5	52.5%	41.8%	5.7%
	SWIM Node			
Replacement of ILS System		56.8%	25.9%	17.3%
A-SMGCS EBBR	A-SMGCS (system)	0.0%	100.0%	0.0%
	A-SMGCS 2 (Cameras)			
Voice communications	VCS-b HW Replacement	77.0%	15.4%	3.8%
	VOIP Gateways			
	VCS Ultimate			
Replacement Meteoradar		62.4%	36.8%	0.8%
DVOR/DME Replacement & rationalization		84.8%	11.1%	4.1%
Digitalisation of support services	Enterprise Resource Planning	66.7%	22.4%	9.4%
	HRIS	72.5%	17.6%	9.4%
	Workforce management	70.0%	18.0%	11.2%
Voice recording system		71.8%	26.1%	1.5%
Telephone system		68.9%	18.3%	11.0%
A-SMGCS EBCI & EBLG	A-SMGCS EBCI	0.0%	0.0%	100.0%
	A-SMGCS EBLG			

IV. INVESTMENT PLAN BREAKDOWN

Investment plan breakdown structure

This section presents detailed descriptions and justifications for each of the investments presented in the previous section. The tables below provide a page reference for where information on each investment can be found.

Service enhancements	
ATM system	
ATM Next Generation	Page 23
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ATCO recruitment	
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CNS enhancements	
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IV.I SERVICE ENHANCEMENT INVESTMENTS

ATM Next Generation	RP3 KPI	Safety, Capacity, Cost-efficiency
	Skeyes driver	Business continuity, Building capacity

Synopsis of investment

This project focuses on replacing the current ATM system with a single, integrated and harmonised airspace management system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.

Justification and scope of investment

The NextGen ATM program aims to replace the current ATM system by a shared data services solution between all ANSPs active in Belgian airspace to cope with the capacity and cost-efficiency challenges in the Belgian airspace and to support the integration of the civil and military ATM services in Belgium.

The shared data services solution will enable an efficient sharing of data and integrated use of the airspace. It also supports the deployment of an efficient and effective external contingency solution in the event of a failure of one of the facilities providing technical services. Furthermore, it will enable maximum compliance with customer needs (i.e. airlines, airports, military bases), and will allow ATCO's to work flexibly from any work station, on any airspace sector (enabling CIV-MIL integration) – in line with the vision of the Airspace Architecture Study. The new system will enable the implementation of the functionalities required by the European regulation.

The shared data services solution will be developed during RP3 and deployed in RP4. The lifetime of the current ATM system will be extended via a midlife upgrade during RP3 to secure the service provision during the transition until the effective deployment of the data service solution.

An independent study was performed to review the ATM system options available to skeyes. The study assessed an option provided by Eurocontrol against one provided by Thales and looked at the following criteria: Strategic, Risk, Operational, Technical, Management and Financial. It was concluded that the Eurocontrol option provided the best alignment with skeyes strategic goals.



Expected impact on service delivery

- ✓ **Increased efficiency and capacity** through an integrated and harmonised airspace management system.
- ✓ **Increased safety** through the deployment of an external contingency solution in the event of a system failure.
- ✓ **Cost-efficiency gains** through a strategic partnerships with MUAC and Belgium Defense.
- ✓ **The risk of not investing** will lead to the use of an aging ATM system and limited alignment to SES data service requirements.

Procurement process / synergies

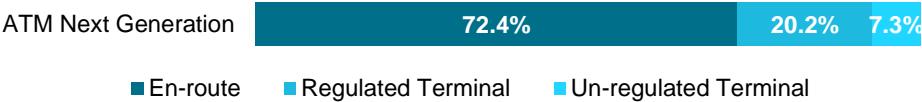
Synergy with MUAC and Belgium Defense to reduce the operating and development cost of the ATM system.

Project status and RP3 financials

Status: Study phase

In € '000	2020	2021	2022	2023	2024	RP3	>2024	Total
ATM Next Gen	Planned date of entry: December 2027							
CAPEX	0	4,900	10,374	12,500	14,000	41,774	44,800	86,574

Cost allocation



Digital Towers	RP3 KPI	Safety, Capacity, Cost-efficiency
	Skeyes driver	Business continuity, Building capacity

Synopsis of investment
This project aims to implement a centre that provides remote and digital tower ATC services to Liege and Charleroi airports who have a combined annual movement count of ~130,000. The digital towers will initially run in parallel to the current physical towers as a contingency solution, with a transition towards digital towers providing the main ATC service.

Justification and scope of investment

Liege and Charleroi airports have seen significant growth over recent years, and play an integral part of Belgium’s transport network. Both airports lack a full contingency tower solution, risking business continuity in the event of main tower unavailability. Both towers must also undergo major renovation which means ATC services will be unavailable during the renovation period.

In 2018, skeyes commissioned an independent study to determine the most efficient solution to ensure service continuity at both Liege and Charleroi airports. The digital tower option was chosen as it not only solves service continuity issues, but provides long term opportunities to skeyes.

With SES2+ proposing the liberalisation of terminal ATC, the use of digital towers will help in ensuring skeyes remain relevant in the market, offering the opportunity to exploit the technology and provide ATC services to additional airports. Ownership of the equipment strengthens this opportunity.

The towers provide additional efficiency and flexibility in terms of operations given a single digital tower centre located in Namur will control both Liege and Charleroi airports. The joint centre centralises staff and equipment, saving costs when compared to traditional contingency solutions.

Digital towers also provide an increased level of safety and security to service provision given the implementation of new technologies.

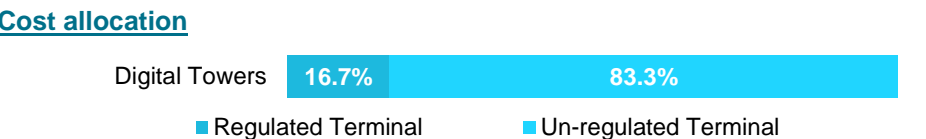


- Expected impact on service delivery**
- ✓ **Guaranteed business continuity** and increased resilience at growing airports.
 - ✓ **Increased efficiency** in business operations given staff and equipment consolidation.
 - ✓ **Increased safety and security** with the implementation of new technologies.
 - ✓ **Opportunity to expand service delivery** to other airports given the flexibility of digital tower technology.

Procurement process / synergies
The solutions for both Liege and Charleroi are procured under single tender. The joint procurement procedure means the best possible price offer is received for the digital towers.

Project status and RP3 financials
Status: Planning and tendering phase

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Digital Towers	Planned date of entry: December 2025							
CAPEX	0	0	1,528	3,696	12,322	17,546	0	17,546



ATCO Recruitment & Training

Allocation N/A

RP3 KPI	Safety, Capacity, Cost-efficiency
Skeyes driver	Resourcing, Business continuity

Synopsis of investment

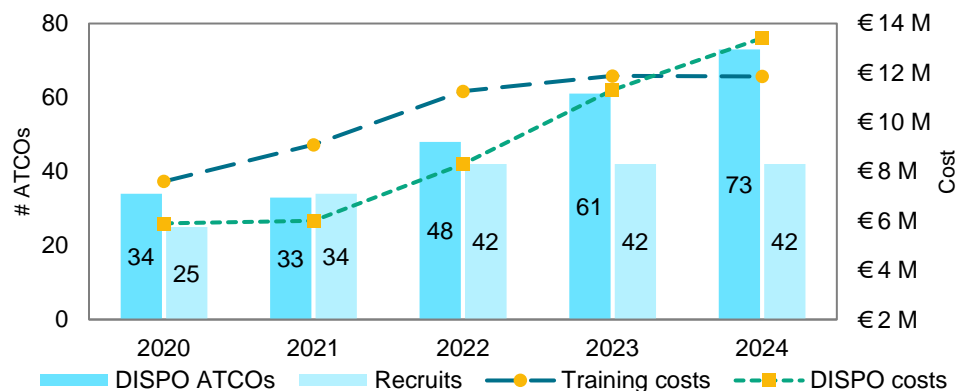
This project focuses on ATCO recruitment and training which is essential for business continuity and capacity challenges faced by skeyes in RP3. The core drivers for this investment are presented on page 8 & 9 of this investment plan.

Justification and scope of investment

To prepare for the expected resumption of air traffic during RP3, skeyes must ensure its ATCO capacity is maintained at appropriate levels. Skeyes has an aging ATCO population, resulting in a large number of ATCOs reaching pre-retirement age during RP3. To compensate, additional ATCOs require recruitment and subsequent training to ensure skeyes operational capacity is retained.

There are two major operational cost elements to this investment, the first relating to the cost of retaining ATCO's who have reached pre-retirement age and second in relation to recruiting and training ATCO's. Over 200 ATCOs are expected to be recruited using a more efficient recruitment and training process to reduce the overall costs. Further efforts to reduce costs are presented on the right hand side of this page.

The evolution of ATCOs considers a 60% success rate of trainees, adding to the recruitment challenges faced by skeyes. Significant investments in training (€52 M) and recruitment are envisaged in RP3.



Expected impact on service delivery

- ✓ **Guaranteed business continuity and capacity** through safe and reliable service delivery.
- ✓ An updated recruitment and training process supports the **employment of highly-skilled ATCOs**.
- ✓ **Increased operational efficiency** through rostering amendments during night-time operations.
- ✓ Not recruiting ATCOs leads to the risk of having **major capacity issues** when traffic recovers to pre-pandemic levels.

Cost reduction efforts

1. A joint-venture with Entry Point North (EPN) means the cost of ATCO training is reduced given there is no need to train ATCOs abroad.
2. ATCOs can now be recruited directly into area control centres, eliminating the previous need for ATCOs to begin their career working within approach services.
3. Skeyes have implemented more efficient rostering processes and rationalised operations during the night time to improve service provision during low traffic levels.

RP3 financials

In €'000	2020	2021	2022	2023	2024
Cost of retaining pre-retirement ATCOs					
OPEX	5,900	6,000	8,300	11,300	13,400
Cost of recruitment and training					
OPEX	7,601	9,087	11,252	11,875	11,853

IV.II CNS & MET ENHANCEMENT INVESTMENTS

Remote Radio Sites

RP3 KPI	Safety, Capacity
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 “new” sites for Enroute and Approach. The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.

Justification and scope of investment

This investment includes the installation of remote radio sites including radio equipment, electronic equipment and infrastructure (shelters and pylons).

Today, radio communication infrastructure operates from a single site, acting as a single point of failure. Such a failure could have a significant impact on safety and business continuity. Through the installation of additional sites, this risk will be reduced. The geo-redundancy will improve the resilience of the communication services and will limit the risk of traffic disruption.

The project includes installation of 18 “new” sites for Enroute and Approach communications with the following objectives:

- ✓ Objective 1: Installation of geo-redundant A+B sites (main redundant) to minimise risks.
- ✓ Objective 2: Installation of separate C-chain with nationwide coverage.
- ✓ Objective 3: Remove the need for implementation of Climax.



Expected impact on service delivery

- ✓ **Increased level of safety** for airspace users as a result of improved communication service resilience.
- ✓ **Guaranteed business continuity** of air navigation services through reduced traffic disruption.
- ✓ The investment de-risks a single point of failure which could severely impact business continuity

Procurement process / synergies

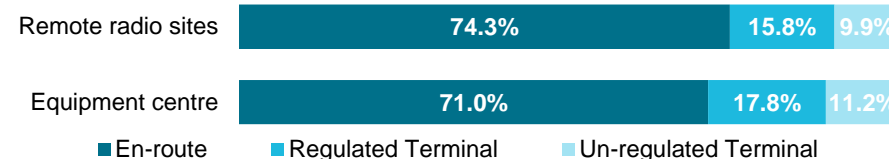
To reduce the total cost of ownership, skeyes has opted for a general call for tender for all remote radio sites. The joint procurement procedure means the best possible price offer is received for the construction of the radio sites.

Project status and RP3 financials

Status: End of planning and tendering phase

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Remote Radio Sites	Planned date of entry: December 2024							
CAPEX	108	3,316	6,355	1,960	1,600	13,339	0	13,339
Equipment Centre	Planned date of entry: December 2022							
CAPEX	85	105	2,302	752	0	3,245	0	3,245

Cost allocation



Voice Communications

RP3 KPI	Safety
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on partial replacement of Voice Communication Switch (VCS) hardware (HW) and extension of VCS-b lifetime, as well as integration with Voice Over Internet Protocol (VoIP) Gateways to ensure continuity and safety of Air/Ground and Ground/Ground communications. The project comprises three investments: VCS-b partial HW Replacement, VOIP Gateways, and VCS Ultimate.

Justification and scope of investment

The purpose of this project is to undertake a partial HW replacement of VCS-b components, both at EBBR and at the four Regional Airports (EBAW, EBCI, EBOS, EBLG), and to integrate these with VoIP Gateways.

VCS-b is the dual operational voice communication system for ATS. It was commissioned in Nov 2007 - the intent is to retain operation for the next seven to eight years. After more than 12 years of operation, some HW components (and corresponding software components) are end-of-life and need to be replaced to guarantee business continuity and the reliability of the safety critical VCS-b system.

The scope of this project includes:

- Installation of 150 new VCS-b CWP at EBBR & Regional Airports.
- Ten new client servers at EBBR & Regional Airports.
- Four new GAP servers at Regional Airports.

A VoIP gateway is a device that uses Internet Protocols to transmit and receive voice communications resulting in clearer voice quality.

Telecom provider support for existing MFC-lines is gradually decreasing; no new connections have been implemented since the end of 2019. Furthermore, VoIP Ground/Ground communication will soon be a requirement of Local Single Sky Implementation (LSSIP) monitoring.

Any major change to the current VCS (i.e. integration with VoIP) will be delayed until the new Ultimate VCS is fully integrated with the new radio site Chain C (Q2 2023), and on completion of the Eurocat replacement project.

Expected impact on service delivery

- ✓ **Guaranteed level of safety and capacity** for airspace users at the airport through continued and improved voice communications.

Procurement process / synergies

Single tender process.

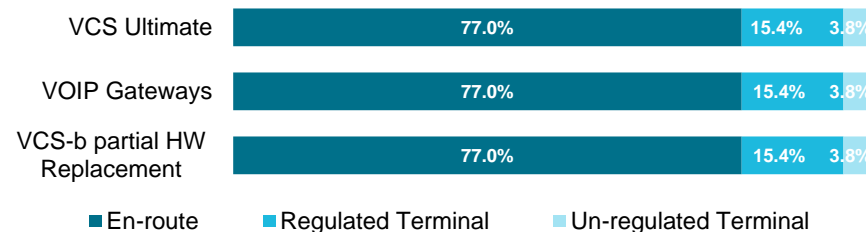
Project status and RP3 financials

Status:

- VCS-b partial HW Replacement: Planning and tendering
- VCS Ultimate: Planning and tendering
- VOIP Gateways: Initiation Phase

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
VCS-b HW Rep	Planned date of entry: December 2023							
CAPEX	0	1,225	1,225	0	0	2,450	0	2,450
VCS Ultimate	Planned date of entry: December 2024							
CAPEX	0	0	1,710	878	0	2,588	0	2,588
VOIP Gateways	Planned date of entry: December 2025							
CAPEX	0	0	0	60	2,490	2,550	0	2,550

Cost allocation



SWIM Gateway

RP3 KPI

Environment, Cost-efficiency, Capacity

Skeyes driver

Business continuity, Building capacity

Synopsis of investment

This project focuses on creating a System Wide Information Management (SWIM) node to support upcoming SWIM implementation, and integration of the SWIM node with the Innovative System for Automated Aeronautical Communication (ISAAC) system. This project also includes an upgrade of the current ISAAC system hardware and software.

Justification and scope of investment:

SWIM will enable harmonization of the current ATS Message Handling System (AMHS) with systems used by other stakeholders to share information. Furthermore, it will enable 4D trajectory which provides airspace users with the most up-to-date information during a flight. This allows operators to better plan their trajectories and increase efficiencies in terms of fuel consumption and flight time, leading to a reduced environmental footprint (in both the ATM and UTM domain).

The project is driven by obligation from the EU Commission IR 2021/116. Skeyes shall provide and operate SWIM sub-functionalities by the implementation target date of 31 December 2025.

The SWIM node will provide a data communication gateway (SWIM/AMHS) between the SWIM domain and several skeyes systems. Integration of the SWIM node with the ISAAC system (described below) will enable harmonisation of data on a national and international scale.

Skeyes must also prepare, as defined by the ICAO Doc 10039 Manual on SWIM and the GANP 2016-2030, an aviation intranet based on standard data models and internet-based protocols to maximize interoperability.

The ISAAC system is a data communication gateway that serves as a message handling system for aeronautical messages. The services of skeyes must be able to exchange aeronautical messages in the most efficient way, for the all civil and military airports at national level, and with Eurocontrol MUAC (SAS2), Eurocontrol NM and other ANSP zones at an international level. This is accomplished using ISAAC, which uses appropriate communication protocols and message formats.

The current ISAAC system is supplied by FREQUENTIS COMSOFT GmbH and has been in operation since 2010 (Service Release 2), with a midlife hardware & software upgrade in May 2017 (SR3), and a supplementary software upgrade in May 2021 (SR4). To guarantee business continuity, it is necessary to upgrade the system to SR5, which includes a six year renewal and maintenance programme and software upgrades.

The ISAAC system plays an important role for skeyes as an international and national gateway for several systems in use, including EUROCAT, AMS, and MMU, and is important for future projects including EUROCAT MLU, SWIM node and SAS3.

Expected impact on service delivery

- ✓ **Capacity, environmental and cost-efficiency gains** sought through improved flight planning and reduced fuel burn.
- ✓ **Business continuity and future proofing** through the development, implementation and evolution of services for information exchange.
- ✓ **Guaranteed business continuity** of ISAAC services for airspace users.
- ✓ Not investing risks not meeting EU Commission IR 2021/116 regulation and relying on aging infrastructure.

Procurement process / synergies

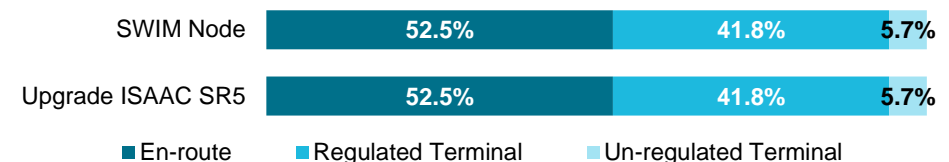
Single tender process.

Project status and RP3 financials

Status: SWIM Node: Initiation phase / ISAAC SR5: Planning and tendering

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
SWIM Node	Planned date of entry: December 2024							
CAPEX	0	0	0	3,533	1,000	4,533	0	4,533
ISAAC SR5	Planned date of entry: December 2023							
CAPEX	0	0	600	0	0	600	0	600

Cost allocation



Voice recording

RP3 KPI

Safety, Capacity

Skeyes driver

Business continuity

Synopsis of investment

The purpose of this project is to replace the current Voice Recording and Playback System (VRPS) for airports in Belgium.

Justification and scope of investment

The current VRPS system was installed in 2008 and is reaching its operational end-of-life. Efforts have been taken to retain the system however it has now reached a stage of becoming 'beyond economical repair' in IT terms, and is nearing obsolescence. This means the current support contact with the supplier is becoming increasingly expensive.

The replacement system will support business continuity, maintain safety, and increase operational capability through access to new features which the current system is unable to support.

The new VRPS system investment will cover the infrastructure and support contract elements of the system.



Expected impact on service delivery

- ✓ **Improved capability and increased operational capacity** through access to new features which the current system is unable to support.
- ✓ **Guaranteed safety and business continuity** of air navigation services through continued and improved communications.

Procurement process / synergies

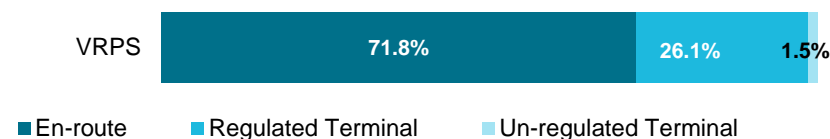
Single tender process.

Project status and RP3 financials

Status: Planning and tendering

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
VRPS (HW & SW)	Planned date of entry: December 2023							
CAPEX	0	0	1,485	0	0	1,485	165	1,650

Cost allocation



Replacement of ILS System	RP3 KPI	Safety, Capacity
	Skeyes driver	Business continuity

Synopsis of investment

This project covers the replacement of various Instrument Landing Systems (ILS) which are due to reach the end of their scheduled operational lifetime, and the implementation of ILS at regional airports which are currently not ILS equipped.

Justification and scope of investment

A number of Belgium’s ILS systems are reaching the end of their scheduled operational lifetime during the third reference period, and require replacement.

Skeyes expect ILS capability will remain the primary means of landing until ~2030. While Performance Based Navigation (PBN) approaches could provide an alternative option for ILS, skeyes has seen only a small percentage of flights capable of making use of such technologies (e.g. Required Navigation performance (RNP)) to reach the specified Localiser Performance with Vertical guidance (LPV) minima needed (e.g. at EBBR, EBCI and EBLG, capabilities are < 5%). A significant increase in the uptake of RNP approaches is needed before it becomes a viable option to replace Category I ILS systems. As such, this project will include the procurement of ILS systems that meet the minimum requirements of the airport.

The replacement systems will enable consistent and reliable air navigation services to users during RP3, while ensuring aircraft equipped with Global Navigation Satellite System (GNSS) can maximise the benefits it brings in terms of approach. Skeyes are considering GNSS infrastructure at selected airports to enable aircraft to fly a precision approach with increased flexibility, however these are being considered as a separate investment and will consist largely of the implementation of a Ground-Based Augmentation System (GBAS) at airports. Skeyes notes that CAT III operations using GBAS are yet to be validated, however foresee a strong uptake in the technology in the coming years.

During RP3, ILS replacement and ILS implementation is planned at EBBR and regional airports. Note that this programme of work is expected to extend beyond RP3, totalling ~€18.1M over the course of the whole project. This is subject to receiving approval from regional authorities and other stakeholders. During RP3, ILS replacement and implementation is planned for EBBR and EBOS respectively, to ensure business continuity and to increase capacity and resilience under low visibility conditions.

Expected impact on service delivery

- ✓ **Increased level of safety** for airspace users approaching airports in Belgium.
- ✓ **Increased capacity** through enabling continued low-visibility operations at existing and additional airports.
- ✓ **Increased business continuity** of air navigation services for airspace users.
- ✓ Not investing risks the continued use of end-of-life infrastructure which could **impact safety and capacity**.

Procurement process / synergies

To reduce the total cost of ownership, skeyes has opted for joint procurement to ensure the best possible price offer is received for replacement and installation of ILS.

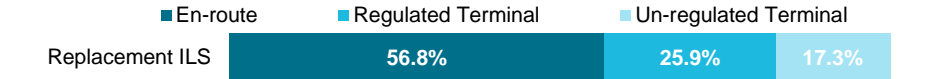
Project status and RP3 financials*

Status: Framework contract in final phase of tender awarding.

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
EBBR RWY 19	Planned date of entry: December 2024							
CAPEX	0	0	300	1,200	0	1,500	0	1,500
EBOS RWY 26	Planned date of entry: December 2026							
CAPEX	0	0	0	300	0	300	1,200	1,500
EBOS RWY 08	Planned date of entry: December 2025							
CAPEX	0	0	0	300	1,200	1,500	0	1,500

*An additional budget of €6M has been allocated to ILS implementations at EBBR post RP3 and spread across a many years. These are subject to planning. An additional budget of €7.6M has also been allocated to implemented ILS at other regional airports in Belgium post RP3. These are subject to approval from regional authorities.

Cost allocation**



**Note the cost allocation above is based on the capex budget allocated to the whole ILS programme (~€18.1M). During RP3 airspace users will only be contributing towards the ILS system allocated to EBBR RWY 19.

Replacement Radio Direction Finder

RP3 KPI	Safety, Capacity
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on renewing seven Radio Direction Finder (RDF) stations at six Belgium airports, which are currently declining as they approach end-of-life. Simultaneously, this project will support the integration of these stations with the planned new ATM system through provision of a suitable integration interface.

Justification and scope of investment

The existing RDF stations, which provide bearing information about radio transmissions to ATCOs, were installed between 1999 and 2001. The reliability of these systems has started to decline as the stations approach end-of-life, and must be renewed to ensure service continuity.

Further to this, with the approach of skeyes ATM Next Gen system, it is important to ensure that these stations are compatible with both the current and future ATMs through a suitable integration interface.

The scope of this project includes:

- Renewal of one or two RDF stations in EBBR.
- Renewal of one RDF station in EBOS, EBCI, EBAW, EBLG and EBSH.
- Optional: Construction of one new RDF station.



Expected impact on service delivery

- ✓ **Guaranteed safety and business continuity** of air navigation services through continued and improved communications.
- ✓ Not investing risks **increasing maintenance costs** to keep aging infrastructure running

Procurement process / synergies

To reduce the total cost of ownership, skeyes has opted for a general call for tender for all RDF stations. The joint procurement procedure means the best possible price offer is received for renewal/construction of the RDF stations.

Project status and RP3 financials

Status: Initiation phase

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Replacement RDF	Planned date of entry: December 2026							
CAPEX	0	0	0	0	714	714	2,856	3,570

Cost allocation

Replacement Radio
Direction Finder



DVOR / DME replacement & rationalisation

RP3 KPI	Safety, Cost-efficiency
Skeyes driver	Business continuity, Building capacity

Synopsis of investment

There are currently 12 Doppler VHF Omni Directional Range (DVOR) / Distance Measuring Instrument (DME) and 2 DVOR stations spread across Belgium which are reaching end-of-life. This project focuses on the replacement of five DVOR/DME stations, with the remaining stations being serviced using recovered parts from the five upgraded stations.

Justification and scope of investment

Ground-based navigation aids (NAVAIDs) provide a back-up facility for satellite based navigation equipment (e.g. GNSS) for PBN. As Belgium looks to transition towards a full PBN environment, ground-based NAVIADs will seek to provide support to both conventional navigation processes or to support DME-based PBN capabilities.

The transition and evolution towards a PBN environment provides the opportunity to rationalise the ground-based infrastructure in Belgium, developing a minimum operational network that can efficiently provide the ground-based support services.

The 14 stations in Belgium are made up of fixed beacons which help enable pilots to adhere to routes / procedures presented in the state Aeronautical Information Publication (AIP) whilst also determining the aircrafts airborne lateral position.

The initial goal of this project is to upgrade a limited number of DVOR systems (on the electronics level) in accordance with the current conventional NAVAID rationalization trend (recognized by ICAO i.e. state letter AN 7/1.3.103-15/18). It was decided to upgrade only five DVOR stations (BUB, ANT, COA, SPI and GSY). The other Belgian DVOR stations will not be upgraded as they can be serviced using recovered parts from the five upgraded DVOR stations, until their final decommissioning as a result of a (future) successful PBN plan implementation in the Belgian airspace.

The final decision on how many, and which DVOR stations will be upgraded is closely depending on (amongst others things) the re-commissioning of the old Thales DVOR, the implementation of PBN for the whole of Belgium, and the remaining roles for DVOR when PBN is fully implemented.

It has been agreed to update all DME stations due to their role as an enabler and system for PBN procedures down to RNAV-1. This strategy is compliant with all international roadmaps on conventional navigation aids.

The investment includes a replacement and upgrade of the technical systems and a thorough refurbishment of the beacon sites. The future effective rationalisation of the terrestrial NAVAID infrastructure is out of scope for this upgrade project.

Expected impact on service delivery

- ✓ **Guaranteed safety and business continuity** of NAVAID services for airspace users.
- ✓ **Cost-efficiency gains** through a limited DVOR system upgrade and future PBN implementation.
- ✓ Supporting the enablement of **PBN services** across Belgium.

Procurement process / synergies

To reduce the cost of ownership, skeyes opted for a joint procurement for all DVOR/DME stations.

Project status and RP3 financials

Status: Execution

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Rep. DVOR/DME	Planned date of entry: December 2021							
CAPEX	800	791	237	356	0	2,184	542	2,726

Cost allocation



Cooperative surveillance / ADS-B	RP3 KPI	Safety, Cost-efficiency
	Skeyes driver	Business continuity

Synopsis of investment

This project focuses on replacing existing Cooperative Sensors which are reaching end-of-life, and WAM with ADS-B. The project comprises four investments in which the costs are shared with Belgian Defense: Cooperative Surveillance Sensors (St Hubert, Bertem and Ostend) and WAM.

Justification and scope of investment

Cooperative surveillance systems, which compose secondary surveillance radar, MLAT and Automatic dependent surveillance (ADS), are the basis of information support for the airspace control system and Air Traffic Control (ATC). These surveillance systems cooperate with, and depend on, aircraft to obtain the required data.

Cooperative sensors – Mode-S Bertem and Saint-Hubert - are at end-of-life and require urgent replacement during RP3 in order to guarantee business continuity. Mode-S Ostend is also close to reaching its end-of-life and is planned for replacement post RP3.

WAM will guarantee business continuity due to its flexible nature and ability to adapt to the changing environment (i.e. infrastructure developments). WAM encourages sensor diversity, avoiding common modes of failure, and includes ADS-B functionality which enables a higher update rate and better coverage in the CTR/TMA.

New regulations coming into force (Surveillance Performance and Interoperability regulation (SPI IR)) require the following:

- Major TMA: duplicated secondary and single primary surveillance radar coverage;
- En-route: duplicated secondary surveillance radar coverage.

Cooperative surveillance systems and WAM will facilitate compliance with the new regulation.

Skeyes are also investing in non-cooperative surveillance systems. The cost of these non-cooperative surveillance sensors are shared with Defense (50:50), who own the assets, relieving cost pressures on airspace users.

With increasing demand for windfarms and the strong pressures to relax planning restrictions to enable these developments, the use of non-cooperative surveillance systems are under threat. Wind turbines can interfere with civilian radar, potentially impacting the performance of non-cooperative surveillance sensors on the ground.

Expected impact on service delivery

- ✓ **Guaranteed safety and business continuity** of air navigation services for airspace users through continued and improved operational resilience.
- ✓ **Cost-efficiency gains** through partnership with Belgian Defence.
- ✓ Not investing risks the continued use of end-of-life infrastructure which could **impact safety and business continuity**.

Procurement process / synergies

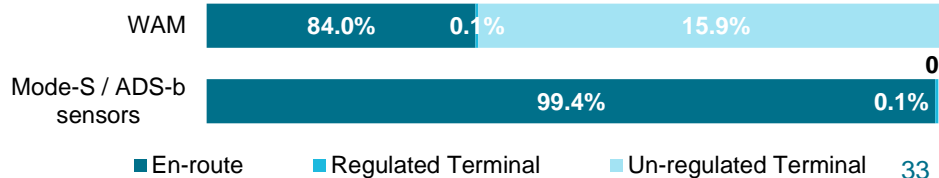
Skeyes and the Belgian MOD have developed a common Surveillance Roadmap, targeting the sharing of the surveillance assets and the linked investment and support expenses. An important objective of the roadmap is the gradual reduction of the number of cooperative sensors with rotating antennas in favor of nationwide WAM/ADS-b coverage. The costs for cooperative surveillance systems have been split 2/3 skeyes and 1/3 Defense, based on ground infrastructure requirements, usage and workload sharing. This will enable skeyes to maximise its service delivery in a cost-efficient way, relieving cost pressures on airspace users.

Project status and RP3 financials

Status: Planning and tendering phase

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
MODE-S – St Hubert	Planned date of entry: December 2024							
CAPEX	0	0	650	1,550	0	2,200	0	2,200
MODE-S – Bertem	Planned date of entry: December 2025							
CAPEX	0	0	320	400	900	1,620	0	1,620
MODE-S – Ostend	Planned date of entry: December 2028							
CAPEX	0	0	0	0	0	0	1,500	1,500
Mode-S - Kleine	Planned date of entry: December 2025							
CAPEX	0	0	0	0	600	600	0	600
WAM	Planned date of entry: December 2026							
CAPEX	0	0	0	0	2,400	2,400	1,600	4,000

Cost allocation



A-SMGCS EBBR

RP3 KPI

Safety, Capacity

Skeyes driver

Business continuity

Synopsis of investment

This project focuses on replacing the existing Advanced Surface Movement Guidance and Control (A-SMGCS) data fusion system, three Surface Movement Radars (SMR), and the MLAT system at Brussels Airport. The project comprises two investments: the A-SMGCS system and the cameras.

Justification and scope of investment

A-SMGCS is an important element to ensure safe, efficient air traffic operations while supporting the implementation of a seamless gate-to-gate ATM operation. The basis of an A-SMGCS is a surveillance system that automatically determines the traffic situation on the surface and in the neighborhood of an airport.

At EBBR, the A-SMGCS is becoming obsolete and must be replaced in order to continue to provide surveillance and alerting to tower controllers. This project will guarantee continued safety and capacity at the airport.



Expected impact on service delivery

- ✓ **Guaranteed safety and capacity** for airspace users at the airport.
- ✓ Not investing risks the continued use of end-of-life infrastructure which could **impact safety and capacity**.

Procurement process / synergies

Single tender process.

Project status and RP3 financials

Status: Planning and tendering

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
A-SMGCS system	Planned date of entry: December 2024							
CAPEX	305	597	0	2,217	0	3,120	2,750	5,870
A-SMGCS cameras	Planned date of entry: December 2024							
CAPEX	4	27	240	328	0	599	4	603

Cost allocation

A-SMGCS EBBR

100.0%

■ Regulated Terminal

A-SMGCS EBCI & EBLG

RP3 KPI

Safety, Capacity

Skeyes driver

Business continuity, Building capacity

Synopsis of investment

This project focuses on the implementation of a new A-SMGCS system at EBCI and EBLG, in order to guarantee safety and optimise airport capacity in low visibility conditions. The investment at each airport is presented separately below.

Justification and scope of investment

A-SMGCS is an important element to ensure safe, efficient air traffic operations while supporting the implementation of a seamless gate-to-gate ATM operation. The basis of an A-SMGCS is a surveillance system that automatically determines the traffic situation on the surface and in the neighborhood of an airport.

The planned A-SMGCS system at EBCI and EBLG airports will include a surface movement radar, a MLAT system and a data fusion system providing the tower controller with a display of all traffic on and near the airport, supplemented with automatic alerting in case of potentially dangerous situations.

This project will increase safety at EBCI and EBLG, whilst optimising airport capacity through the efficient movement of aircraft on the ground and enabling continued operations during low visibility.



Expected impact on service delivery

- ✓ **Guaranteed level of safety** for airspace users at the airport.
- ✓ **Optimisation and increased airport capacity** in low visibility conditions through efficient ground movements and reduced air traffic disruption caused by low visibility at the airport.

Procurement process / synergies

Single tender process.

Project status and RP3 financials

Status: Execution

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
A-SMGCS EBCI	Planned date of entry: December 2023							
CAPEX	0	0	1,254	100	0	1,354	0	1,354
A-SMGCS EBLG	Planned date of entry: April 2021							
CAPEX	0	1,179	200	0	0	1,379	0	1,379

Cost allocation

A-SMGCS EBCI /
EBLG

100.0%

■ Un-regulated Terminal

Replacement METEO Radar

RP3 KPI	Safety
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on replacing the existing MET Radar at EBBR airport with a new radar system using modern technology, and decommissioning of the current radar system which is reaching it's end of life.

Justification and scope of investment

The current weather radar located at EBBR provides weather radar data to internal (Meteo, ATCO's) and external (RMIb, Meteowing, pilots) users. It has been operational since 2003 and is nearing its end-of-life. Some maintenance issues include:

- Inability to perform hardware or software updates.
- Increased number of annual system outages: 2019 (6), 2020 (15), 2021 (7 to date).
- Availability of 1 spare part on site; additional spare parts are no longer available for purchase from the manufacturer.
- Lack of maintenance support resulting in lack of solutions for future failures.

Skeyes considered rationalising current MET radar infrastructure to support EBBR however:

- Two of the three Belgian radars are not sufficient as they are too far from EBBR for low-level data above EBBR airport. Low-level data improves the detection and prediction of low-level freezing rain which can impact de-icing services and the capacity of the airport. Moreover, RMI could not guarantee the high availability needed (98%).
- The final (VMM) radar is not compatible with skeyes' needs at EBBR as it uses a different radar configuration.

The scope of the project is to decommission the current radar, install a brand-new radar using modern technology (dual-polarization), and provide training and support services. The expected life-cycle of the MET radar is 15 years (3 years of guarantee + 12 years of support service).

The replacement system will assure business continuity.

Expected impact on service delivery

- ✓ **Improved quality of meteorological radar data** through delivery of an updated system.
- ✓ **Guaranteed business continuity** through safe and reliable service delivery.
- ✓ Not investing risks an increased number of **system outages** together with **no guarantee of system serviceability**.

Procurement process / synergies

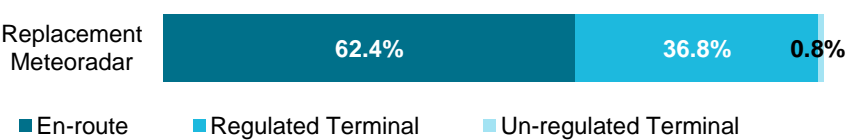
Single tender process.

Project status and RP3 financials

Status: Planning and beginning project tender process

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
MET Radar	Planned date of entry: December 2024							
CAPEX	0	0	215	1,935	0	2,150	0	2,150

Cost allocation



IV.III INFRASTRUCTURE ENHANCEMENT INVESTMENTS

Telephone System

RP3 KPI	Safety
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on replacement of the main telephone system at skeyes including operational licenses and supporting maintenance agreements.

Justification and scope of investment

The current operational Private Automatic Branch Exchange (PABX) business telephone system is reaching the end of its operational life. The support contract with the current supplier Unify / Damova ended in December 2020 and has been extended until the end of 2021 based on a best effort service.

A new operational business telephone system is needed given it is a 'critical' system for skeyes day-to-day operations. The new system would require 24/7 support should any issues arise.

The operational main telephone system renewal comprises:

- main and fall-back Telephony systems;
- SLA with supplier for 24h/7d support; and
- licenses for Session Initiation Protocol (SIP) by the Telecom provider.

The core driver of this investment is the need to secure business continuity in the event of a telephone system outage.



Expected impact on service delivery

- ✓ **Increased resilience and business continuity** given the reduced impact on daily operations should the current system fail.
- ✓ **Increased performance** through access to new features which the current system does not offer.
- ✓ Not investing risks using a telephone system that has **limited maintenance support** in the event of system issues.

Procurement process / synergies

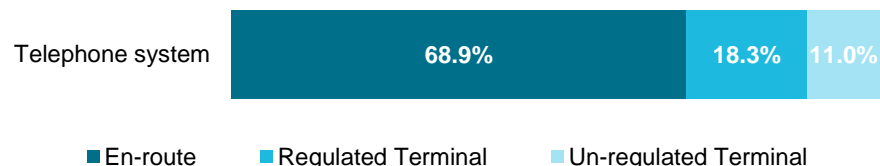
Single tender process.

Project status and RP3 financials

Status: Execution

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Telephone System	Planned date of entry: May 2021							
CAPEX	36	721	645	50	55	1,508	125	1,633

Cost allocation



Wide Area Networking

RP3 KPI	Capacity, Cost-efficiency
Keyes driver	Business continuity

Synopsis of investment

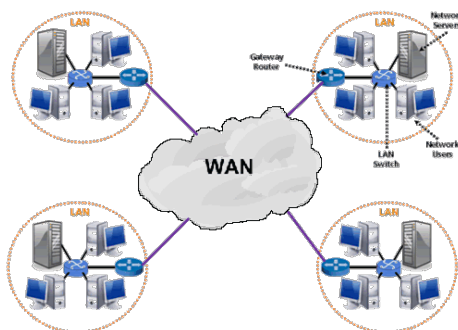
This project focuses on creating a new Wide Area Network (WAN) to support all keyes operational and business critical processes and related IT systems. In particular, it will provide highly available, secure and scalable network connectivity to interconnect all keyes locations (point of presence).

Justification and scope of investment

From mid 2022 onwards, keyes' existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. keyes has decided to implement a new network that will be easily upgradeable both in capacity and size in order to address future demands.

The new IP network is the underlying secure network service for all keyes operational and business critical applications. Availability, security, and scalability are of the utmost importance as the unavailability or a security breach may have considerable impact on (the safety of) Belgian air traffic. The network redesign is an opportunity for keyes to improve its redundancy and resilience, support business continuity, and permit scalability.

WAN is an important investment in keyes' planning as many of the proposed RP3 investments depend on a reliable and efficient network. The new WAN will limit the risk of data traffic disruption at a national and local level due to reduced network issues (i.e. loss of data transfer).



Expected impact on service delivery

- ✓ **Business continuity** of air navigation services through reduced data traffic disruption.
- ✓ **Cost reduction and efficiency gains** through the use of a more efficient, scalable network.
- ✓ Not investing risks having **no operational WAN** in 2022 and risks the **delivery of other keyes projects** (e.g. Digital Towers and ATM Next Gen)

Procurement process / synergies

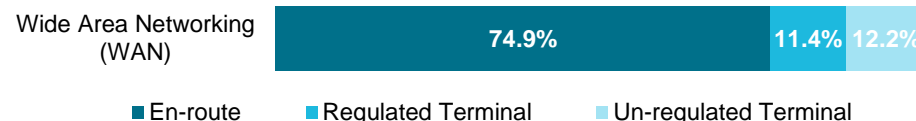
Single tender process.

Project status and RP3 financials

Status: Execution

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
WAN	Planned date of entry: December 2022							
CAPEX	25	4,412	2,348	586	0	7,371	0	7,371

Cost allocation



IT infrastructure

RP3 KPI

Safety, Cost-efficiency, Environment

Skeyes driver

Business continuity, Building capacity

Synopsis of investment

This investment encompasses a number of projects which focus on data communication system upgrades, replacement, and strategical changes. The project comprises three investments: network services, datacentre and security services.

Justification and scope of investment

This investment has a broad scope and encompasses a number of projects focused on improving the IT infrastructure and security at skeyes.

Modernisation of the internal datacentre and extension to a cloud based datacentre will improve remote server and network accessibility, and increase access to administration applications. Redundancy and advanced storage and back-up solutions will form part of the upgraded/new infrastructure.

To guarantee business continuity, it is essential to renew end of life system and network components and enhance the availability and resilience of critical systems, for example, through the renewal of hardware without the need for application reconfiguration. These investments will improve service delivery and enhance security through network isolation capability.

Investments in IT infrastructure support the move towards virtualisation, helping skeyes shift towards a more digitalised environment. This will lead to a reduction in skeyes' environmental footprint, i.e. there will be an 80% reduction in datacentre capacity.

Expected impact on service delivery

- ✓ **Increased level of safety and business continuity** through enhanced resilience and network security (protecting against cyber threats).
- ✓ **Cost reduction and efficiency gains** through digitalisation, maximising service delivery and relieving cost pressures on airspace users.
- ✓ **Reduced environmental footprint** resulting from a move towards virtualisation.
- ✓ Not investing risks the continued use of end-of-life systems which could **impact safety and business continuity**.

Procurement process / synergies

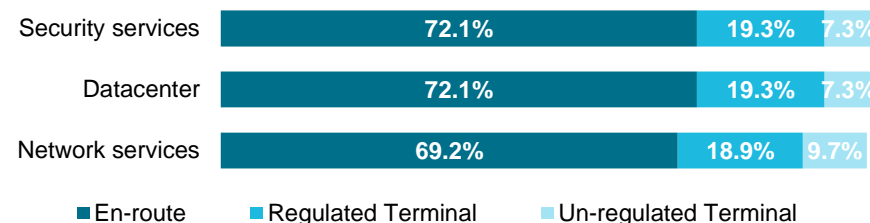
Single tender process.

Project status and RP3 financials

Status: Planning and tendering

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
Network services	Planned date of entry: December 2020							
CAPEX	507	510	1,202	0	0	2,218	0	2,218
Datacentre	Planned date of entry: December 2020							
CAPEX	279	607	1,980	1,200	1,550	5,616	500	6,116
Security services	Planned date of entry: August 2020							
CAPEX	57	90	880	120	120	1,257	120	1,377

Cost allocation



Digitalisation of Support Services

RP3 KPI

Cost-efficiency

Skeyes driver

Business continuity, Building capacity

Synopsis of investment

This project focuses on improving airspace user support services, including the development of skeyes data and digitalisation strategy and the implementation of transversal programs such as Workforce Management tools, Human Resource Information Systems (HRIS) and Enterprise Resource Planning (ERP), with the aim to reduce costs and improve efficiencies. The project comprises three investments: Workforce Management tools, HRIS and ERP.

Justification and scope of investment

In response to increased uncertainty and pressure costs as a result of the pandemic, skeyes has identified cost reduction and efficiency gains through digitalisation and the introduction of transversal programs such as Workforce Management tools, HRIS and ERP. Digitalisation will enable skeyes to provide a reliable foundation for its activities and remain a relevant player in the market through the reengineering, automation and optimisation of its tool landscape.

Workforce Management tools are designed to help manage ATCO workload, enabling more flexibility in terms of scheduling and rostering.

The existing HR function faces major challenges linked to a series of inefficiencies due to complex, fragmented and outdated processes and under-developed systems and tools. Simplifying and aligning skeyes' HR processes, whilst embracing technological advances, would reduce costs, enable efficiencies and create a sustainable future. This can be achieved through the adoption of HRIS.

The existing Finance Function is facing a number of challenges which are impacting process efficiency and effectiveness. Implementation of standardised ERP systems and data structures are required to facilitate E2E information availability and ownership of financial data.

Skeyes agile strategy to maximise service delivery in a cost-efficient way whilst creating improved competitiveness will relieve cost pressures on airspace users.

Expected impact on service delivery

- ✓ **Cost reduction and efficiency gains** through digitalisation, maximising service delivery and relieving cost pressures on airspace users.

Procurement process / synergies

Single tender process.

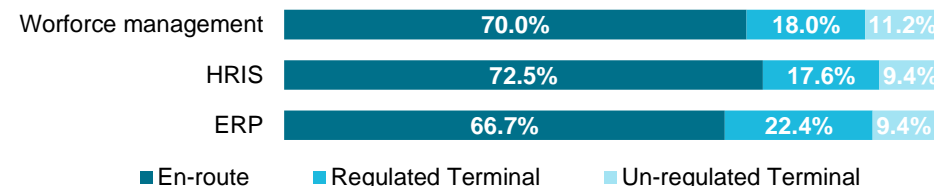
Project status and RP3 financials

Status:

- Workforce Management tools: Initiation phase
- ERP & HRIS: Execution

In €'000	2020	2021	2022	2023	2024	RP3	>2024	Total
WF Management tools	Planned date of entry: December 2025							
CAPEX	0	0	0	1,000	1,000	2,000	0	2,000
HRIS	Planned date of entry: December 2024							
CAPEX	0	380	840	135	0	1,355	0	1,355
ERP	Planned date of entry: December 2025							
CAPEX	255	686	150	150	150	1,573	0	1,573

Cost allocation



V. INVESTMENT SUMMARY

ATM enhancement investments

Project Title	Planned entry	Allocation %			Cost €'000		EU KPI	Skeyes driver
		ER	Regulated TMA	Un-regulated TMA	RP3	Total		
ATM Next Gen	Dec-27	72.4%	20.2%	7.3%	41,774	86,574	Safety capacity, cost-efficiency	Business continuity, Building capacity
Digital Towers	Dec-25	0.0%	16.7%	83.3%	17,546	17,546	Safety capacity, cost-efficiency	Business continuity, Building capacity
ATCO recruitment & training								
Pre-retirement costs	Ongoing	-	-	-	44,900	N/A	Safety, Capacity	Resourcing, business continuity
Recruitment & training	Ongoing	-	-	-	51,700	N/A		
Low Tier Investments	-	-	-	-	4,900	6,500	-	-



CNS & MET enhancement investments

Project Title	Planned entry	Allocation %			Cost €m		EU KPI	Skeyes driver
		ER	Regulated TMA	Un-regulated TMA	RP3	Total		
Voice recording	Dec-23	71.8%	26.1%	1.5%	1,485	1,650	Safety, capacity	Business continuity
Remote Radio Sites								
Radio sites infrastructure	Dec-24	74.3%	15.8%	9.9%	13,339	13,339	Safety, Capacity	Business continuity
Electronics equipment and centre	Dec-22	71.0%	17.8%	11.2%	3,245	3,245		
Voice Communications								
VCS-b partial HW replacement	Dec-23	77.0%	15.4%	3.8%	2,450	2,450	Safety	Business continuity
VCS Ultimate	Dec-24	77.0%	15.4%	3.8%	2,588	2,588		
VOIP Gateways	Dec-25	77.0%	15.4%	3.8%	2,550	2,550		
SWIM Gateway								
SWIM Node	Dec-24	52.5%	41.8%	5.7%	4,533	4,533	Environment, Cost-efficiency, capacity	Business continuity Building capacity
ISAAC SR5	Dec-23	52.5%	41.8%	5.7%	600	600		
Replacement ILS System	Dec-26						Safety, capacity	Business continuity
Replacement DVOR/DME	Dec-21	84.8%	11.1%	4.1%	2,184	2,726	Safety	Business continuity
							Cost-efficiency	Building capacity
Replacement RDF	Dec-26	66.7%	33.3%	0.0%	714	3,570	Safety, capacity	Business continuity
Surveillance Sensors								
MODE-S - St Hubert	Dec-24	99.4%	0.1%	0.5%	1,500	1,500	Safety, cost-efficiency	Business continuity
MODE-S - Bertem	Dec-25	99.4%	0.1%	0.5%	1,500	1,500		
MODE-S - Ostend	Dec-28	99.4%	0.1%	0.5%	0	1,500		
Wide Area Multilateration	Dec-26	84.0%	0.1%	15.9%	2,400	4,000		
A-SMGCS EBBR								
A-SMGCS EBBR system	Dec-24	0.0%	100.0%	0.0%	3,120	5,870	Safety, capacity	Business continuity
A-SMGCS EBBR cameras	Dec-24	0.0%	100.0%	0.0%	599	603		
A-SMGCS EBCI & EBLG								
A-SMGCS EBCI	Dec-23	0.0%	0.0%	100.0%	1,354	1,354	Safety, capacity	Business continuity, Building capacity
A-SMGCS EBLG	Apr-21	0.0%	0.0%	100.0%	1,379	1,379		
Replacement Meteoradar	Dec-24	62.4%	36.8%	0.8%	2,150	2,150	Safety	Business continuity
Low Tier Investments	-	-	-	-	8,500	9,700	-	-

Infrastructure enhancement investments

Project Title	Planned entry	Allocation %			Cost €m		EU KPI	Skeyes driver
		ER	Regulated TMA	Un-regulated TMA	RP3	Total		
Telephone system	May-21	68.9%	18.3%	11.0%	1,508	1,633	Safety	Business continuity
Wide Area Networking (WAN)	Dec-22	74.9%	11.4%	12.2%	7,371	7,371	Capacity, cost efficiency	Buisness continuity
IT Infrastructure								
Network services	Dec-20	69.2%	18.9%	9.7%	2,218	2,218	Safety, cost efficiency, environment	Business continuity, Building capacity
Datacentre	Dec-20	72.1%	19.3%	7.3%	5,616	6,116		
Security services	Aug-20	72.1%	19.3%	7.3%	1,257	1,377		
Digitalisation of support services								
Workforce Management tools	Dec-25	70.0%	18.0%	11.2%	2,000	2,000	Cost-efficiency	Business continuity, Building capacity
HRIS	Dec-24	72.5%	17.6%	9.4%	1,355	1,355		
ERP	Dec-25	66.7%	22.4%	9.4%	1,573	1,573		
Low Tier Investments	-	-	-		19,300	21,500	-	-



ANNEX F. BASELINE VALUES (COST-EFFICIENCY)

The baseline values for determined costs has been calculated by using the actual costs 2014 and 2019.

1. En-route

1.1. Actual costs 2014 and 2019

Actual costs of Air Navigation Services in the Be/Lux charging zone amounted to 155,716 million euros in 2014 (in nominal terms).

Actual costs of Air Navigation Services in the Be/Lux charging zone amounted to 199,495 million euros in 2019 (in nominal terms).

1.2. Adjustments to the 2014 baseline value for the determined costs

In the first reference period, the costs of ANA Lux were not included in the cost base of BE-LUX. From the second reference period (2015) onwards, the costs of ANA Lux were added to the cost base. To make comparisons between several years, this effect must be neutralised by including these costs in the baseline value (2014).

1.3. Adjustments to the 2019 baseline value for the determined costs

1.3.1. skeyes

The cost allocation methodology for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M).

These changes in the methodology compared to the previous reference period correspond to a transfer of 14.8 million € (in nominal terms) from the terminal charging zones to the en-route charging zone.

1.3.2. MUAC

In 2016, an agreement was reached with regard to a new cost allocation methodology within Eurocontrol. Part of this agreement was the transfer of the tax compensation and support costs from the general Eurocontrol budget to the MUAC cost base.

In 2019, the tax compensation amounted to 17.553.719 EUR, 40% of which were attributed to the MUAC special annex (EUROCONTROL Part IV) and 60% thereof to the EUROCONTROL General Budget (Part I). The HQ support costs amounted to 4.514.080 EUR, included by 100% into the MUAC Special Annex (Part IV). The Belgian share within MUAC for 2019 was 31.5912%, the Luxembourg share was 0.9770%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly, and 3.31 million € is added.

1.4. Adjusted service units

The requirements for the calculation of en-route service unit have been modified for the third reference period: the service unit shall be calculated according to the actual route flown (while the service unit shall be calculated according to the last filed flight plan during RP2).

CRCO made a comparison between the number of service units calculated from actually flown routes and calculated from flight plan. For the charging zone of Belgium/Luxembourg, the difference is estimated at 3.13%¹. This relatively high difference is probably due to the limited size of the Belgium/Luxembourg charging zone with a high proportion of military airspace (direct routes are given as soon as a military zone is released for civil air traffic).

The service units 2014 and 2019 have been adjusted to neutralize the impact of this regulatory change.

2. Terminal EBBR

2.1. Actual costs 2019

Actual costs of Air Navigation Services in the EBBR terminal charging zone amounted to 37,584 million euros in 2019 (in nominal terms).

2.2. Change of cost-allocation methodology

The cost allocation methodology for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M).

These changes in the methodology compared to the previous reference period correspond to a transfer of 4.575 million € (nominal terms) from EBBR terminal charging zones to the en-route charging zone.

¹ EUROCONTROL Intermediate two-year Forecast – May 2019, Annex 4

ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

1. Introduction

The costs of air navigation services in Belgium are relatively high due to the size and complexity of the airspace.

In addition to these intrinsic factors, the original performance plan submitted in October 2019 presented an increase of costs mainly driven by the necessity to respond to the traffic growth by increasing the capacity of the air navigation system.

Since the original RP3 performance plan submission, the air transport industry has been substantially disrupted as a result of the COVID-19. This has resulted in a significant drop in air traffic volumes, putting the financial stability of the aviation industry under immense pressure. The expected trends and forecasts initially envisaged in 2019 drastically changed, resulting in a need to amend plans for the coming years. However, given the lead time for the modernisation of the air navigation system, there is still a need for investment in RP3 to ensure sustainable capacity and to modernise the ATM system for the resumption of traffic after the COVID crisis.

This annex aims at explaining these different cost drivers and at justifying the local cost-efficiency targets.

2. Structural costs linked to the size and complexity of the airspace

2.1. Airspace size and air traffic complexity

The Air Navigation Service Providers in Belgium handle a high number of flights within a small area. This situation leads to higher costs to manage a complex airspace¹ while the distance flown and the revenues are limited due to the size of the Belgian airspace.

The Belgian airspace is located at the crossroads of the 4 major hubs in Europe (Frankfurt, London, Amsterdam, , Paris – FLAP) together with numerous medium hubs (EDDL, EBBR, EBCI, EDDK, London TMA, ELLX), This location results in a high-level of traffic complexity:

- In 2019, skeyes presented the highest structural index of complexity² in Europe due to ascending and descending aircraft (structural index of complexity of 1.2 compared to a European average of 0.79).

complexity from number of interactions:		
Ranking	ANSP	Structural complexity index
1	skeyes	1.20
2	Skyguide	1.04
3	ENAV	1.03
4	NATS (Continental)	1.02
5	DFS	1.01
European average		0.79

¹ The airspace complexity indicator considers the density of traffic, along with horizontal, vertical and speed interactions in a given section of airspace.

² The structural index of complexity reflects the number of horizontal, vertical, and speed interaction.

- Overall, MUAC has one of the highest complexity scores in Europe. Within the MUAC area of responsibility, the Brussels sector-group of MUAC has by far the highest complexity score due to the traffic density (the complexity score reaches 15.04 in the Brussels sector group in 2018 compared to 8.8 in the DECO sectors and compared to 6.85 as European average).

Overall traffic complexity (Interaction and density):		
Ranking	ANSP	Structural complexity index
1	Skyguide	13.29
2	MUAC (> FL 245)	10.97
3	DFS	10.93
4	NATS (Continental)	10.80
5	Skeyes (< FL 245)	9.77
European average		6.85

MUAC Brussels Sector Group : 15.04

2.2. Impact on workload

The airspace complexity is a key driving factor to the lower productivity due to extra workload to keep aircraft separated while limiting delays.

Within MUAC, productivity is the lowest in the Brussels sector group with an ATCO-hour productivity of 1.91 in 2019 (compared to 2.94 in the DECO sectors). The highest number of flights to handle within the smallest area leads to a high complexity and a lower productivity in the Brussels sector group. On the other hand, the DECO sector group is the largest in terms of airspace size and flight-hours controlled but with a much lower traffic complexity score.

2.3. Cross-border service provision

The Brussels Sector Group of MUAC provides cross-border services in the Rhein UIR and France UIR to the benefit of the network. While the cost for the service in these delegated airspaces are supported by the ANSP's operating in the Belgian/Luxembourg charging zone, the service units and associated revenues are allocated to the French and German charging zones (for a revenue value estimated at ca. €20M in 2019). This represents roughly 10 % of the cost base; if the service units would be allocated to the ANSP ultimately providing the service then the determined unit cost would decrease .

In this specific situation, only charges are paid in the established charging zones, as prescribed by the relevant legislation. This situation is not unique to the MUAC Brussels sector, as there are also parts of delegated airspace around the other MUAC sectors.

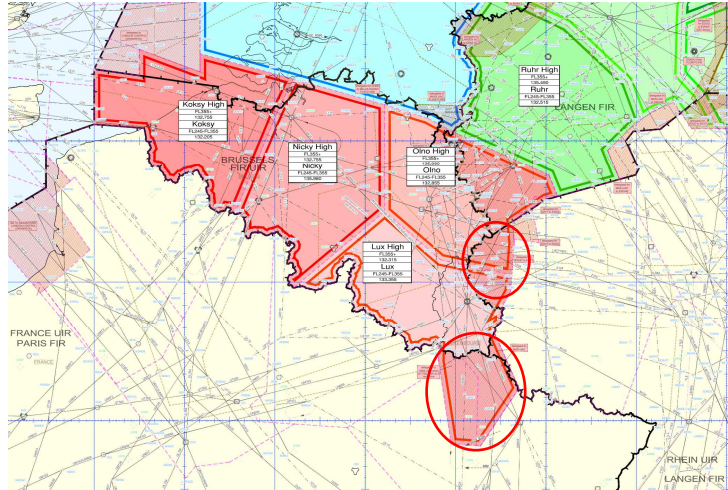


Figure 1: MUAC Brussels sectors

2.4. Impact on ANS cost efficiency in upper airspace

Unlike other ANSPs, MUAC is not directly financed from air navigation charges paid by the airspace users. Instead, MUAC budget is financed from contributions by the four member States who, in turn, include these contributions in their respective chargeable cost base towards airspace users.

The contribution is defined according to the number of ATCOs allocated to each sector group. This sharing key, coupled with the lower productivity in the Brussels sector and the provision of cross-border services (see 2.3) lead to higher costs per service unit.

In 2019, Belgium supported 33% of MUAC costs while the share of service units pertaining to the Brussels sectors was only 26%.

3. Elements specific to keyes

3.1. Costs to maintain a sustainable capacity

3.1.1. Renewal of an ageing ATCO population

keyes has an adverse age pyramid in its ATCO population : almost 30% of the operational air traffic controllers are older than 50 and will reach the pre-retirement age during RP3, an extra 20% will reach pre-retirement in RP4 as they are currently older than 45.

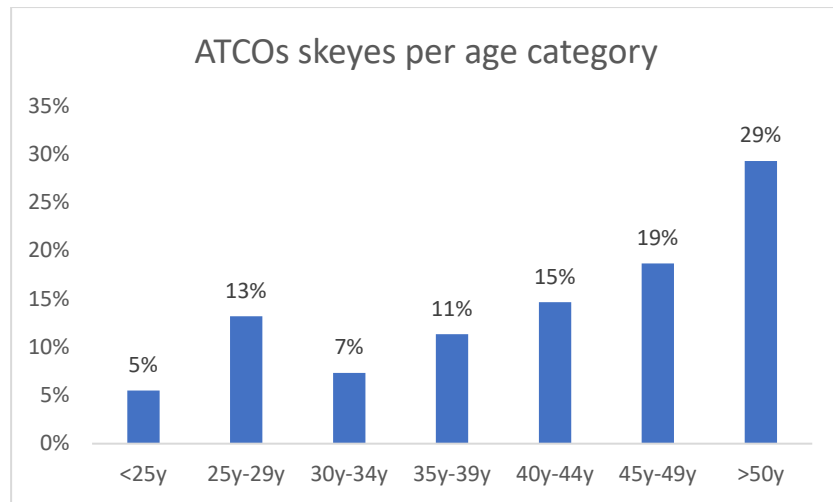


Figure 2: skeyes : ATCO OPS per age on 31/12/2020

The impact of this situation on the cost base is twofold: pre-pension charges for demobilized ATCO must be supported on the one hand and a comprehensive set of measures must be taken to guarantee a sustainable capacity in the skeyes' area of responsibility on the other hand.

3.1.2. *Renewal of end of life equipment's*

Vital ATM service provision infrastructure has reached or will be reaching its end-of-life during RP3 and requires replacement and result in a substantial investment plan (168.5m€) for the RP3. Annex E gives a detailed overview of the investments RP3 plan and underlying reasons.

3.2. Measures taken and approach.

While remediating to both structural and historical factors affecting its cost base, skeyes is permanently looking to opportunities to reassess and rationalise its infrastructure, to leverage on partnerships or to benefit from shared developments in order to optimize its contribution to the future airspace vision of Europe.

3.2.1. *Belgian airspace vision 2030 : addressing the complexity*

Considering the complexity and the capacity limits of the Belgian airspace, the Belgian State, skeyes, Belgian Defence and Eurocontrol MUAC articulated a joint vision for the Belgian airspace over a 10-year horizon and beyond.

The evolving needs of the airspace users have been taken as a starting point for the development of the 2030 vision:

- Maintaining or improving safety levels (per flight hour);
- Optimizing accessibility to Belgian airports;
- Committing to serve to the fullest extent possible the preferred trajectories for civil and military traffic by reducing restrictions as far as possible;
- Improving flight efficiency for all users in both horizontal routings and vertical performance;
- Improving the cost effectiveness of Air Navigation Services;
- Incorporating the security and defence dimension at a level that will enable Military Aviation to provide and further improve effective security and defence in a national and international context;

- Optimizing accessibility to Military aerodromes and training areas;
- Using appropriately defined airspace volumes for the current and future training needs (the new platforms acquired by Belgian Defence) with due prioritisation and facilitation to conduct effective and efficient training missions;
- Integrating unmanned traffic (drones) for various applications.

By 2030, the Belgian Airspace shall be considered as one flexible and seamless volume, fully integrated in the Single European Sky:

- The airspace structure will be flexible and dynamic allowing airspace users to fly their preferred trajectories with minimal constraints
- The airspace management will allow a flexible use of airspace tailored to the needs of the civil and military airspace users
- Integrated civil-military Air Navigation Services will be provided with a high reliability and efficiency

The implementation is foreseen to be built on a number of milestones for each of the partners as well as essential enablers to be introduced throughout Belgian airspace. A phased approach will be used for each initiative that supports the implementation of the vision, starting with an evolution from the current situation, ensuring improvements are made in a short time-frame where possible.

These improvements will allow a more efficient use of the airspace to address the needs of more capacity and flight/mission optimization and flexibility expressed by civil and military users.

3.2.1. NextGen ATM: technical defragmentation

In line with the Belgian Airspace Vision 2030, the NextGen ATM program aims to replace the current ATM system by a shared data services solution between all ANSPs active in the Belgian airspace to cope with the capacity and cost-efficiency challenges in the Belgian airspace and to support the integration of the civil and military ATM services in Belgium.

The shared data services solution will enable an efficient sharing of data and integrated use of the airspace. It also supports the deployment of an efficient and effective external contingency solution in the event of a failure of one of the facilities providing technical services. Furthermore, it will enable maximum compliance with customer needs (i.e. airlines, airports, military bases), and will allow ATCO's to work flexibly from any work station, on any airspace sector (enabling CIV-MIL integration) – in line with the vision of the Airspace Architecture Study. The new system will enable the implementation of the functionalities required by the European regulation.

The shared data services solution will be developed during RP3 and deployed in RP4. The lifetime of the current ATM system will be extended via a midlife upgrade during RP3 to secure the service provision during the transition until the effective deployment of the data service solution.

The NextGen ATM program represents an investment of 41.8 m€ during RP3.

3.2.2. Recruitment of ATCOs

skeyes has taken several measures to maintain a sustainable capacity despite the ageing issue of its ATCO base:

Training of new air traffic controllers

To address the wave of retirement, skeyes will have to **invest 33 million during RP3** (25 million for en-route and 8.4 million for terminal) in the recruitment and training of new air traffic controllers to maintain a sustainable capacity in the future.

Building up the training capacity

To support these extensive training needs, skeyes set up a joint venture with Entry Point North (EPN) to build up the training capacity and to reduce costs.

New career path for ATCO

Previously, new air traffic controllers started their careers as tower air traffic controllers before undergoing transition training to become approach and ACC controllers.

Considering the wave of retirements in ACC, the career path of ATCOs has been reviewed in close collaboration with the unions to allow new ATCO to access directly ACC to accelerate the rejuvenation of the ACC controller pool.

Operational excellence

skeyes have implemented more efficient rostering processes allowing a better demand and capacity balancing and improving the resiliency of air traffic services.

Extension of the duration of the career

By Royal Decree, ATCOs have the right to be removed from operational services (early retirement or DISPO) 5 years before retirement. .

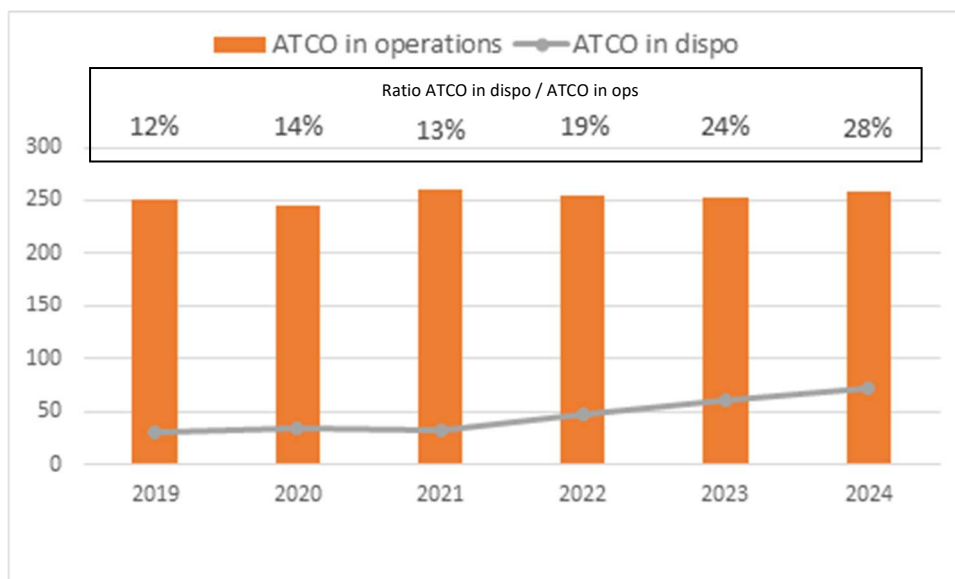
ATCOs placed on DISPO receive from skeyes a waiting allowance equal to an amount between 75% and 85% of their last salary.

Historically, air traffic controllers were placed in DISPO from the age of 55 until the age of 60. As a result of a pension reform and a social agreement in 2016, the age of DISPO will gradually be delayed to 56 in 2020, 57 in 2025 and 58 in 2030.

The increase in the number of controllers in DISPO puts a heavy burden on the skeyes' costs. **DISPO costs amount to 44.9 million for RP3** (32.5 million for en-route and 12.5 million for terminal).

Impact on capacity

Despite these measures and the recruitment and training effort, skeyes will barely maintain the same number of air traffic controllers during RP3.



In absence of recruitment and training during RP3, skeyes will have to further limit the opening of sectors and drastically reduce en-route and airport capacity. As the training of an air traffic controller takes 2 or 3 years before being operational, a delay in the training effort during RP3 will impact the capacity when the traffic is expected to reach the 2019 level (2025).

3.2.3. Business continuity

Skeyes' has an ambitious investment plan amounting to 168.5m€ over RP3 to address the replacement and the development of its infrastructure. Annex E is going more in details through the different projects with extended description of their context and scope.

3.3. Evolution of skeyes cost base

skeyes cannot achieve the EU wide cost-efficiency target due to the local circumstances (increase of charges for pre-retried ATCO) and the costs necessary to maintain a sustainable capacity (training cost and costs for Next Gen ATM). Once these elements are taken away from the cost base evolution, skeyes would be close to the EU targets over the whole RP3 period.

En-route skeyes cost base vs. EU wide target*



4. Elements specific to MUAC

4.1. Highest cost share for Belgium compared to handled traffic

See 2.4.

4.2. Cost increases due to external factors

Following an agreement between the Eurocontrol Member States, the tax compensation on pensions for MUAC staff will be gradually transferred from the general Eurocontrol costbase to the MUAC costbase (staggered implementation from 12M€ in 2020 to 29M€ in 2024).

As from 2020, MUAC will become responsible for support costs for services rendered in Eurocontrol HQ for MUAC. (5M€). This decision was agreed by the four States and is linked to the increased management autonomy from Eurocontrol HQ.

4.3. GCE agreement and salary indexation methodology

In 2019, a new GCE agreement was concluded which resulted in a rise in wages for each ATCO in return for extra workload (+/-10% pay rise in return for +/-10% extra shifts). Additionally, MUAC now has the possibility to ask its ATCOs to deliver a specific number of additional shifts for a fixed price should the need arise. For this last element, a minus counter was installed (at no extra cost) in light of the Covid-19 crisis, so that these shift can be used for the remainder of RP3.

The salary indexation methodology was determined in 2014 on a Eurocontrol-level and was fixed for 10 years until 2024.

5. Impact on cost-efficiency targets

Considering the crisis, the determined cost for the Belgium & Luxembourg charging area has been considerably reduced compared to the initial submission in 2019 (120.7 m€ (-9%) lower than initially) :

BE/LUX DETERMINED COST : a reduction of 9% vs the initial submission



COMPLEMENTARY INFORMATION TO THE PERFORMANCE PLAN

1 PURPOSE OF THE DOCUMENT

The purpose of this document is to provide additional information requested from skeyes by airspace users during the en-route and terminal consultation meetings held on 18 August 2021.

2 CALCULATION OF THE COST OF CAPITAL

A detailed explanatory note on the Cost of Capital Calculation is provided in annex.

3 COST ALLOCATION METHODOLOGY FOR INVESTMENTS

skeyes has an activity-based costing system. Further detailed information about the cost allocation system applied at skeyes has been provided and can be found in 'ANNEX M. COST ALLOCATION'.

As a general principle, as many costs as possible are allocated directly to the appropriate cost/activity centre. For the costs which cannot be allocated directly to the appropriate cost/activity centre, allocation keys are defined based on the general principle that every user (internal customer) is paying for the requested services.

An external independent audit of the cost allocation has been performed in 2019 by one of the Big Four in the context of the European common charging scheme for air navigation services.

The controls performed were:

- Reconciliation of the analytical accounting with the general accounting;
- Verification of the registration of costs on 'cost centers', the causality of the used allocation keys and the accuracy of the allocation to the different activities (end products);
- Verification of the sources of the allocation keys used;
- Review of the processes and procedures of the costing model.

The auditor concluded that:

- The analytical structure of skeyes is constructed in such a way that direct costs can be allocated correctly;
- The time registration, analysis and discussion with the responsible managers were performed in order to strive for the best possible causality;
- The audit has not led to the identification of findings which would have a significant impact on the calculation of the cost of services caused by the use of cost allocation keys without any causal link, the incorrect calculation within cost allocations or the use of incorrect data as a cost allocation key.

3.1 Additional information to the cost allocation drivers of the presented programs/projects

3.1.1 ATM Next Generation - Allocation key basis

The cost allocation key for ATM Next Generation is based on the number of Eurocat-positions.

3.1.2 Digital Towers - Allocation key basis

- The costs of digital towers specific to one or more airports are allocated directly to the airport or airports concerned.
- The costs common to all Belgian airports (study costs, procurement support) are distributed equally between all airports.

Important note

- The depreciations linked to Digital Towers project will only materialize after RP3 which means that the above allocation keys are not yet applicable on the RP3 cost base.

- The cost allocation mentioned in Annex E only related to costs common to all Belgian airports (study costs and procurement support in OPEX).

3.1.3 Remote Radio Sites - Allocation key basis

The cost allocation key for Radio Sites is based on the number of transmitters/receivers per location and the frequencies used by each operational unit.

3.1.4 Voice Communications - Allocation key basis

The cost allocation key is based on the number of VCS positions per location.

3.1.5 SWIM Gateway - Allocation key basis

The cost allocation key for ISAAC and SWIM Node is based on the volume of data received/handled/transmitted.

3.1.6 Voice recording - Allocation key basis

The cost allocation key is based on the number of channels used by ACC, APP, TWR.

3.1.7 Replacement of ILS System - Allocation key basis

The cost allocation key is based on the Eurocontrol "Conditions of Application of the Route Charges System and Conditions of Payment". Eurocontrol states in the context of the 'En Route' invoicing that when determining the distance in kilometers, the distance flown must be reduced by 20 km for each landing and each ascent on Belgian territory.

The operating range of an ILS is 25 NM (46.3 km). As a consequence of the above mentioned '20 km rule', 20 km of the operating range of an ILS is allocated to the Tower/Terminal activity and the remaining part (26.3 km) to Approach (En route).

3.1.8 Replacement Radio Direction Finder

The allocation mentioned in the UCM document is the allocation for RDF EBBR (CAPEX 204 k€). The remaining CAPEX is for RDF replacement in the regional airports, for which the allocation key was not shown in the User consultation documentation. The RDF for regional airports is allocated to the En route activity and the un-regulated Terminal.

Allocation key basis:

The distribution of the costs is based on the number and type of frequencies installed in the RDF for each airport.

Important note

- The depreciations linked to Replacement RDF will only materialize after RP3 which means that the above allocation key is not yet applicable on the RP3 cost base.

3.1.9 DVOR / DME replacement & rationalization - Allocation key basis

The cost allocation key is based on the number of DVOR/DME stations as included in several ATC procedures (published in AIP), especially with regard to Departure, Approach and Landing (APPR, Holding, SID, STAR).

3.1.10 Cooperative surveillance / ADS-B - Allocation key basis

The cost allocation key is based on the radar coverage for the different volumes of airspace (CTR, TMA, FIS, ACC)

3.1.11 A-SMGCS EBBR - Allocation key basis

These ground radar related costs are fully allocated to the Terminal activity of EBBR.

3.1.12 A-SMGCS EBCI & EBLG - Allocation key basis

These ground radar related costs are fully allocated to the Terminal activity of the regional airports (= unregulated terminal).

3.1.13 Replacement METEO Radar - Allocation key basis

The cost allocation key is based on the usage of the meteo radar data by Meteo and ATS, in proportion to the number of positions of IRIS workstations, CANAC 2 Displays, ADIDS-a, BARWIS.

3.1.14 Telephone System- Allocation key basis

The cost allocation key is based on the number of FTEs within the different departments of skeyes.

3.1.15 Wide Area Networking- Allocation key basis

The cost allocation key is based on the bandwidth used per system.

3.1.16 IT infrastructure- Allocation key basis

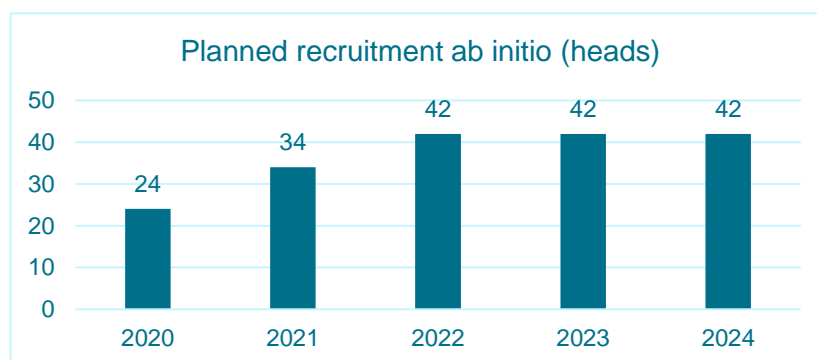
The cost allocation key of Security Services and Data center are based on the number of the readers on the racks in the computer rooms.

4 STAFFING EVOLUTION DURING RP3

4.1 ATCO evolution

During RP3, skeyes will hire and train new ATCOs at the maximum pace (considering the available capacity for the unit training) to compensate the wave of pre-retirement (dispo). These recruitments are needed for the daily run but also to support projects.

skeyes plans to recruit 184 candidates (*ab initio* training) air traffic controller over RP3.



During the period 2020-2024, fifty air traffic controllers will reach the conditions for granting availability with waiting salary and pre-retirement leave with waiting salary (determined in the Royal Decree of 23 April 2017). To compensate this wave of pre-retirements, skeyes plans to release sixty-seven new air traffic controller after successful completion of their training. The recruitment plan will reinforce the number of air traffic controllers available for operations and projects (+6%). This reinforcement is justified by the expected increase in traffic and by the number of projects requiring operational expertise (new ATM system, etc.).

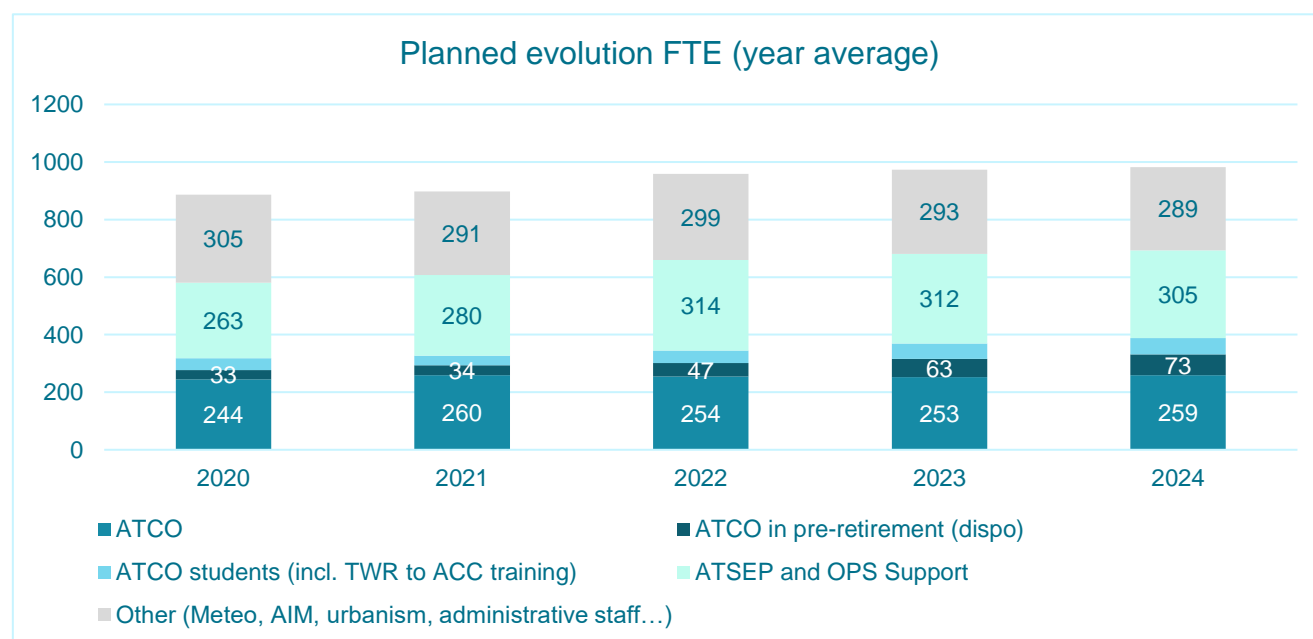
	OUT ATCOs going to dispo	IN Planned new ATCOs
2020 (*)	5	6
2021	6	18
2022	15	8
2023	16	16

2024	8	19
Total	50	67

(*) actuals.

4.2 Staff evolution

skeyes will also recruit additional resources to support the investment plan, with a focus on technical and IT profiles.



Planned evolution FTE (year average)	2020	2021	2022	2023	2024
ATCO	244	260	254	253	259
ATCO in pre-retirement (dispo)	33	34	47	63	73
ATCO students (incl. TWR to ACC training)	41	34	44	53	56
ATSEP and OPS Support	263	280	314	312	305
Other (Meteo, AIM, urbanism, administrative staff...)	305	291	299	293	289

5 FINANCIAL ARRANGEMENTS BETWEEN SKEYES AND BELGIAN DEFENCE

The financial arrangements between skeyes and the Belgian Ministry of Defence within the framework of the CIV-MIL cooperation were laid down in a financial cooperation agreement.

This cooperation agreement defines, among other things, the process for drawing up the CIV-MIL five-year plan, the annual plan and the annual breakdown.

The basic principle is that the user pays for the requested services and investments. For each area of cooperation, a distribution key is determined according to a party's share in the use of an asset or service on the one hand and the specificity requested on behalf of one of the parties on the other.

For example:

- the cost of using premises at skeyes by the Ministry of Defence is charged to them on the basis of the number of square metres they use, including the cost of cleaning, electricity, HVAC, etc.
- skeyes carries out the investment for 'cooperative surveillance', 33% of the costs is charged to Defence during the lifetime of the system; Defence carries out the investment for 'non-cooperative surveillance', 50% of the costs is charged to skeyes during the lifetime of the system.

The CIV-MIL five-year plan includes estimates of the financial flows between the two parties. The estimation of the costs that will be charged by skeyes to Defence has been excluded from the cost bases of the performance plan.

Forecast of costs (a.o. rental, training costs, radar data, ...) charged to Defence and excluded from the cost bases included in the performance plan.

6 FABEC BUDGET INCLUDED IN RP3 PERFORMANCE PLAN

skeyes is contributing 14% of the FABEC budget to support the close collaboration between the FABEC ANSPs. The forecast of the contribution (as included in the performance plan) is indicated in the table below :

In k€	2020	2021	2022	2023	2024
FABEC	251	321	335	348	359

Annex

Explanatory note on the Cost of Capital Calculation

This note aims at clarifying and documenting allocation of the cost of capital to the charging zones in the framework of the EU reference plan for skeyes.

References :

- Regulation EC 549/2004 and 550/2004
- EC implementing regulation 2019/317 for the performance and charging scheme in the single European sky
- User consultation meeting presentation 18/08/2021

Definition and regulatory framework :

The implementing regulation 2019/317 states that “The determined costs included in a cost base for *en route* or *terminal* air navigation services should include staff costs, operating costs other than staff cost, depreciation costs, cost of capital and exceptional cost” [L56/4 (30)] and gives more details in its Article 22.4 about the content and baseline for the respective cost types :

The determined cost included in the cost bases for *en route* and terminal charges shall consist of

- (a) Staff costs;
- (b) Operational costs other than staff costs;
- (c) Depreciation costs;
- (d) Cost of capital;**
- (e) Exceptional costs

[...]

As regards point (d) the cost of capital shall be equal to the product of the following elements :

- (i) the sum of the average net book value of fixed assets in operation or under construction and possible adjustments to total assets determined by the national supervisory authority and used by the air navigation service provider and of the average value of the net current assets, excluding interest-bearing accounts, that are required for the purposes of providing air navigation services;
- (ii) the weighted average of the interest rate on debts and of the return on equity. For air navigation service providers without any equity capital, the weighted average shall be calculated on the basis of a return applied to the difference between the total of the assets referred to in point (i) and the debts.

For the purpose of establishing the cost of capital, the factors to which weight is to be given shall be based on the proportion of financing through either debt or equity. The interest rate on debts shall be equal to the weighted average interest rate on debts of the air navigation service provider. The return on equity shall be that provided in the performance plan for the reference period and shall be based on the financial risk incurred by the air navigation service provider.

As per the definition, the cost of capital is conceptually the multiplicative product of an baseline with a rate :

$$\text{Cost of capital} = \text{Baseline} \times \text{WACC Rate}$$

In the following part of this document, we will describe the build-up of these 2 components, starting with the WACC rate :

1. Weighted Average Cost of Capital - WACC rate :

The **Weighted Average Cost of Capital** is a rate (expressed as a percentage).

It is determined from the cost of Equity C_e and the cost of debt C_d in their relative proportion – it represents the cost for an investor to invest in the selected activity given his financial structure :

$$WACC = C_e * \left(\frac{Equity}{Equity + Debt} \right) + C_d * \left(\frac{Debt}{Equity + Debt} \right)$$

1.1. The **Cost of Equity** is derived from the **Capital Asset Pricing Model** (CAPM) :

$$C_e = R_f + (R_m - R_f) * \beta_e$$

where

$R_f =$	Risk-free rate
$R_m =$	Market risk premium
$[R_m - R_f] =$	Equity market risk premium
$\beta_e =$	Equity beta

The following values were retained for skeyes in the above calculation :

- Risk free rate 0.207%

Skeyes are reused the same RFR as in the 2020 submission for consistency based on a 20 years OLO (Source Eikon Thomson Reuter) and estimated by PwC in Nov 2020.

- Market Beta 0.843

The Beta coefficient is a measure of sensitivity of a company's stock price (i.e. results and future results) to movements in the global financial market and hence of the financial risk.

A value of 1 indicates a perfect correlation with the market.

A positive value lower than 1 indicates that the volatility (risk) of the company is less than the global market and a value greater than 1 indicates that the company is more volatile than the global market.

As such it indicates the share of financial risk supported and the matching return that should be expected for this risk.

To establish the beta for a non-quoted company such as skeyes, we need to identify a comparable set of business with similar fundamentals, such as competitors or similar industries.

In the case of skeyes, there are few competitors with fully comparable activity being stock quoted : ENAV being the sole known example, even with an higher beta than the one retained for skeyes. There is no evidence why companies operating similar businesses would face different financial risk.

However, the ANSP industry is characterized by relatively intensive and dedicated infrastructure with comparatively long investment cycles, operating in regulated markets which is also the case for Utility companies (Water, Energy, Gaz, electricity...).

For the RP3 submission, we have reused the same β value as the value retained in the preliminary submission in 2020 : 0.84.

A quick update would give very similar result today :

Source : Yahoo Finance 23 rd Aug 2021	Beta (5y average)	Average Beta : 0.84 With exclusion of upper and lower extreme values : 0.88
ENAV (ENAV.MI)	0.96	
Engie (ENGI.SA)	U 1.20	
Suez (SEV.PA)	0.77	
Gazprom (GAZ.DE)	L 0.33	
Electricité de France S.A. (EDF.PA)	0.92	

Market Risk Premium : **5.50%**

For the submission of Performance Scheme RP3 July 2021, skeyes has reused the same Market Risk Premium (MRP) parameters as for the preliminary submission in 2020.

The financial literature about the market risk premium is very broad and publications related to the MRP matter tend to confirm that a market risk premium of 5.5%¹ is fair and historically at a rather low level since 2012. The initial fears in 2020² of an increase in MRP due to the augmented market uncertainty arising from the pandemics have proven to be overpessimistic¹ and the most recent estimate confirms that MRP has resumed at 5.5% currently.

We believe therefore that the retained value of 5.5% for the MRP is relatively robust and defendable.

There is no reason to assume that skeyes would not face the same financial risks as other companies operating in the same industry or that its shareholders should not be entitled to a fair level of indemnification on the capital amount invested in the activities. Even less in a context where there are talks to liberalize the ANSP markets.

¹ KPMG : "Equity Market Risk Premium Research Summary", 30th June 2021.

MRP Team KPMG Corporate Finance NL. Marcel Groenendijk, Herman Engelbrecht, Alain Verbrug

² KPMG : "Equity Market Risk Premium Research Summary", 31st March 2020.

MRP Team KPMG Corporate Finance NL. Marcel Groenendijk, Herman Engelbrecht, Alain Verbrug

The application of above values in the calculation of the **Cost of Equity C_e** results in :

$$C_e = 0.207\% + 0.843 \times 5.500\% = \mathbf{4.844\%}$$

this value remains constant for each year of the RP3

- 1.2. The **Cost of Debt C_d** is a weighted average of the actuals interest rates charged for the various loans that skeyes has received :

Whereas skeyes was totally debt free until 2019, the COVID pandemics has required additional fundings to bridge the liquidity gap arising from the traffic collapse and continue to guarantee business continuity.

The following loans are in the portfolio :

#	Lender	Amount	Start date	Horizon	Interest rate
1	FPIM	2.5m€	Feb 2020	5 years	2.5%
2	Eurocontrol : loan attributed to support the extended collection period for traffic Feb 2020 to May 2020. Principal received in 4 instalments during the summer 2020, with the first monthly reimbursements occurring in Q4/2020 and last instalment in 03/2022. Peak amount is 39.6m€ with closing balance per 31/12/2020 at 31m€	39.6m€		03/2022	1.5%
3	Belgian Federal state : first interest free loan received at the outburst of the pandemic ; to be reimbursed in line with the collection of correction mechanism 2020	20.0m€	2020	2030 - 7 years starting 2023	OLO rate from Belgian State, capped at 0.0% if negative
4	Belgian Federal State : additional loan granted in 2021 once complementary guidelines were issued by EC, with updated traffic forecast and based on refined financial estimates	110.0m€	2021	2030 - 7 years starting 2023	OLO rate from Belgian State, capped at 0.0% if negative

For each year, the effective average interest rate on the portfolio has been calculated to determine the weighted Cost of Debt. As foreseen in the contractual agreement, the most material loans from the Belgian Federal State were capped at 0.0% in light of current the OLO rate, so the weighted average interest rate for the global debt portfolio is strongly diluted when those loans are received.

Further, the average interest rate is calculated by applying the specific rate of each loan to the average position between the year opening and closing for each of them individually and then dividing the sum of interest by the sum of the average total debt.

	Average 2019	Average 2020	Average 2021	Average 2022	Average 2023	Average 2024
Cost of Debt	0.00%	0.99%	0.11%	0.05%	0.07%	0.13%

1.3. Gearing ratio Debt / Equity :

The relative share of Equity and Debt were calculated for the company individually for each year on the forecasted financial results and the evolution of the debt.

For the purpose of the gearing ratio, the debt and Equity proportion were taken at the average of the year opening and the year closing positions :

The debt level increase in 2020 due to the EC loan and the first loan from the Belgian Federal State. It further increases in 2021 due to the additional loan from the Belgian Federal state, largely offsetting the reimbursement of the EC loan and even further in 2022 because positions are averaged between opening and closing.

The peak indebtedness position is reached at the end of 2021. Starting in 2023, the level of debt starts gradually to reduce since the reimbursement to the Belgian Federal State is initiated together with the collection of the correction mechanisms for both 2020 and 2021.

	Average 2019	Average 2020	Average 2021	Average 2022	Average 2023	Average 2024
$\left(\frac{Equity_{avg}}{Equity_{avg} + Debt_{avg}} \right)$	100%	89%	72%	68%	74%	83%
$\left(\frac{Debt_{avg}}{Equity + Debt} \right)$	0%	11%	28%	32%	26%	17%
Total	100%	100%	100%	100%	100%	100%

1.4. Weighted Average Cost of Capital :

The application the parameters explained above under 1.1 to 1.3 in the WACC formula yields the following values for the WACC.

These are the values from Table 1 section of the Performance Plan.

	Average 2019	Average 2020	Average 2021	Average 2022	Average 2023	Average 2024
Cost of Equity	4.84%	4.84%	4.84%	4.84%	4.84%	4.84%
Cost of Debt	0.00%	0.99%	0.11%	0.05%	0.07%	0.13%
WACC	4.84%	4.43%	3.51%	3.32%	3.62%	4.06%

For the sake of clarity, we would like to stress that the weighted average cost of capital is NOT to be confused with a borrowing rate or an interest rate as this is often the case. The EU regulation does not leave room for ambiguity about this in the definition above.

2. Baseline : Capital employed in operations / Asset base :

Besides the WACC rate, we also need to establish the base for the capital used in operations. As a matter of fact, we start from the company total and determine the share of assets pertaining to the specific charging zone.

The methodology is described in the “additional information to the reporting Table 1” document under caption j) and has been applied to allocate the company assets to the respective charging zone :

We distinguish 2 major parts : Net Fixed Assets + Net current Assets.

The Net Book Value of the company **Fixed Assets** are allocated to the charging zones in the same proportion as the depreciation charges are, yearly :

Average Net Book value of Fixed Assets (000 EUR)	A2019	2020	2021	2022	2023	2024
En route P1	73,451	75,149	77,122	92,732	110,889	125,777

For each year, the average between opening and closing position is retained. The increase in NBV of fixed assets is arising from the intensive investment plan to guarantee business continuity and future compliance. More details about the investment plan were given in the presentation and the respective section.

Regarding the **Net Current Assets**, the allocation to the respective charging zone happens by means of rules in a decreasing order of accuracy :

The General Ledger accounts with a direct and unique link to a specific charging zone are allocated straightforwardly to the respective charging zone. This is the case for the most material amounts, and for example typically for the correction mechanism Receivable or En Route Trade Receivables.

Whenever a direct allocation cannot be done because the GL accounts balance pertain to several activities, the most relevant and closest allocation drivers are used. For example, if an account only holds balance for terminal activities, its balance is spread only among the terminals in function of the proportional revenues generated by each terminal. In this example, nothing is

attributed to *En Route* activities.

In the case of GL accounts holding company wide balances, the amounts are spread in the proportion of *En Route* and Terminal revenues. This is typically the case for balances such as “Overtime payable” or “Financial charges payable” ; those amounts are generally less material.

Net current Assets for En Route (000 EUR)		2019	2020	2021	2022	2023	2024
(Average over the year)							
Allocation of Terminal specific elements	Terminal rev. %	0	0	0	0	0	0
Allocation of revenue specific elements	Revenue%	-21,436	-22,304	-27,743	-29,238	-32,322	-33,380
Allocation of "En route" specific elements	En Route	26,090	25,321	21,060	17,143	19,394	24,724
Allocation of Correctie mechanism elements	En Route	11,183	58,945	174,797	246,432	221,788	172,502
Average net current asset over the year		15,837	61,962	168,114	234,337	208,860	163,846

We believe that the level of granularity retained in the allocation of the Net Current Assets is very detailed and quite robust.

Unsurprisingly, the increase in the Net Current Asset arises essentially from the correction mechanism incurred during the years 2020 and 2021. As the above values are average between opening and closing position, the maximum of this average is reached in 2022. Thereafter, the redemption starts to decrease the value.

The correction mechanism is an integral part of the Net Current Assets because it genuinely represents delayed collectibles into which funds had to be invested. Also, one should note that this asset in particular is not shielded from future regulatory changes still unknown at this point in time or possible bankruptcy cases from some stakeholders ; as such it is clearly not risk-free and it is therefore legitimate to expect a fair level of remuneration in due consideration of the risk supported. This is exactly what the WACC is capturing.

23 August 2021

Mr Pieter Verstreken
Airspace Division
Belgian Civil Aviation Authority
Brussels

By email: pieter.verstreken@mobilit.fgov.be

Re: RP3 Performance Plan Consultation, Belgium-Luxembourg

Dear Mr Verstreken,

I refer to the above and the invitation for views following the Belgium-Luxembourg consultation held on 18th August.

At the consultation, airlines were presented with a draft performance plan that would see en route unit rates increasing to €146.02 (+116% vs 2019) and BRU terminal unit rates increasing to €319.97 (+87% vs 2019). These significant increases are unacceptable and serve to make Belgium-Luxembourg airspace and BRU airport less attractive for airlines when planning traffic growth following the C19 downturn and for the remainder of RP3.

Ryanair does not support the Belg-Lux draft performance plan and wishes to add the following comments. General comments should be considered as being applicable to both en route and terminal charging zones despite separate consultation sessions.

1. Meeting Format

Ryanair were disappointed with the rushed nature of the consultation with the Q&A section being cut short in order to keep within the constrained agenda. It was inappropriate to attempt to cover a high volume of content in a single morning session and did not afford airlines appropriate opportunity to query the information being presented.

2. En Route Costs

The draft plan shows Belg-Lux exceeding EU targets by €97m in RP3 despite both states having voted to support these targets. We noted that the draft 2019 plan failed PRB checks on all key areas and Ryanair calls on Skeyes and ANA Lux to act with urgency to prevent a recurrence of this underperformance.

The consultation meeting referred to the decision made to use a 7-year period for recovery of the alleged "revenue gap". We call on Skeyes and ANA Lux to publish details to airlines of how this recovery period will be funded and how the unit rate will vary between a 5 and 7-year period. This will enable airlines to make an informed comment on this crucial cost driver.

We note that traffic volumes will be updated to reflect the October 2021 STATFOR and that no change to costs will be permitted at this stage. This, combined with the failure to agree MUAC sharing keys, is creating significant uncertainty regarding 2022 unit rates for airlines given the numerous changes that will be carried out in the coming months.

3. Belgium

Costs

Despite the reported implementation of cost containment measures by Skeyes in 2020 and a 59% reduction in traffic volume, staff costs increased by 7% vs 2019 and total costs increased by 8%. Multiple ANSPs (e.g. ANA Lux) were able to decrease costs in 2020 and 2021 and Ryanair requests justification for this lack of action to reduce costs.

We note that Skeyes did not obtain national public funding due to a *“policy decision for loans instead of public funding”*. This is contrary to the actions taken by partner ANSP, ANA Lux, and we question why the Belgian state and Skeyes entered into such an arrangement that serves to unnecessarily increase costs for airlines.

Finally, Ryanair requests further information on the €130m loans taken to support liquidity. We request further clarification on how this loan will affect Skeyes' cost base throughout RP3 and a disclosure of both the interest rates and payback period.

Operations and Targets

Skeyes' terminal delay target has almost tripled from 0.38 minutes per flight in 2020 to 1.08 minutes per flight in 2021, allegedly due to VVIP activity. Ryanair urge Skeyes to work with BRU airport to evaluate alternative procedures that would prevent disruption to commercial traffic during this crucial recovery period.

Ryanair welcomes the proposal to introduce an asymmetric incentive scheme for performance targets, however, we call on all bodies to show their commitment to supporting the recovery of traffic in Belgium through waiving any right to incentives or bonuses until traffic returns to 2019 levels.

We noted reference to the introduction of more efficient rostering practices during the consultation. Ryanair requests further detail as to how these more efficient practices have improved headcount requirements and what the benefits are for airlines.

Future Staffing

It was concerning to learn that Skeyes is *“stretched for ATCOs and needs to recruit massively”*. Ryanair requests detailed information on Skeyes' headcount plans for the remainder of RP3 including planned retirements, attrition, training and recruitment plans, training capacity, failure rate, and training duration.

Ryanair also requests further detail regarding the training capacity provided by Entry Point North, though we note that the main activities will remain in house. We request clarification as to what percentage of total Skeyes training capacity will be used each year for the remainder of RP3 and how Skeyes proposes to reduce the current high failure rate for trainee ATCOs (c50%) which is not replicated by partner ANSP, ANA Lux.

Ryanair notes the planned increase in retirement age for operations staff and requests detail on the impact on the cost base of this increase. We ask Skeyes to provide airlines with details of the DISPO (pre-retirement) scheme whereby ATCOs are not operational but remain on payroll.

Investments and Projects

Throughout the Capex section of the consultation, information provided focused on 'possible' benefits. There were no quantified benefits, no statistics, and no evidence of comprehensive research prior to presenting these Capex proposals. There was no basis for airlines to provide input on what Capex items should be pursued and Ryanair therefore requests further clarification prior to submission of this draft performance plan.

We noted that the ILS project has an allocated en route cost component which is quite unusual, and we request further detail on the reasoning behind not fully allocating this project to the terminal charging zone.

We also noted the proposed radar replacement project and request that Skeyes provide a comprehensive review into alternative options for this project, including evaluating usage of overlapping radar services.

4. Luxembourg

Ryanair acknowledges the efforts made by the state of Luxembourg to cover NSA costs during this crucial time of recovery. This effort has had a positive impact on unit rates for airlines and is an effort that should be replicated more widely across European ANSPs/states.

Costs

Ryanair noted the statement that unit rates presented "*should be viewed as worst case scenario*". We request further information regarding the proposal to source additional state support in order to reduce unit rates. Providing clarity on 2022 unit rates should be a priority which will enable airlines to plan effectively.

Staffing

Ryanair notes the increased availability of qualified staff due to the lower than expected training failure rate (10%) and we urge ANA Lux to utilise all employees effectively until attrition and retirement requirements fall into line with a sufficient headcount plan.

The introduction of a third controller in Q1 2023 will result in a significant increase in staff costs. Ryanair requests a breakdown of the improvements generated to operations as a result of the creation of this additional position to better quantify the benefit to airlines.

Targets

Ryanair requests details of any incentive schemes applicable for performance targets. We call on all bodies to further show their commitment to supporting the recovery of traffic in Luxembourg through waiving any right to incentives or bonuses until traffic returns to 2019 levels.

5. Final Remarks

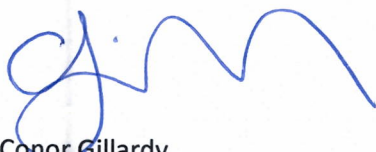
Ryanair calls on Skeyes, ANA Lux, MET providers, NSAs, and the Belgian and Luxembourgish states to work alongside airlines to lobby their respective governments to remove the unsustainable burden of the alleged "*revenue gap*" from airlines. Governments should help by financially supporting their own service providers, moving away the financial burden of the crisis from the airlines. This is the most efficient solution for the government and individuals (taxpayers and airlines' customers) to re-build a healthy aviation industry.

Another failure to act effectively by ANSPs and Member States at this crucial point would increase unit rates to an unsustainable level for the remainder of RP3 and throughout RP4. The risk of airlines having to support ANSPs alone is that costs will continue increasing in future years, as the surge in ATC costs slows down traffic growth, delaying economic recovery and damaging European connectivity.

The sooner governments fix the problem, the less money it will need to pour into the system eventually in later years. Not only is it unfair that airlines are asked to bear the losses of ANSPs and unique compared to other industries and within the aviation sector, but it is also highly inefficient for the aviation industry.

We remain available for any clarification required.

Yours sincerely,



Conor Gillardy
ATM Manager

CC: Prof. Dr. Regula Dettling-Ott (PRB), Ms. Christine Berg (Head of SES Unit), Bjoern Schraeder (Luxembourg NSA), Geoffray Robert (Skeyes), Claudio Clori (ANA Lux)

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Airportring, 60546 Frankfurt/Main, Germany

Belgian NSA
To : Mr. Clarysse and Mr. Verstrecken
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3. September 2021

Lufthansa Group Statement on Belgian RP3 consultation / 19 August 2021

Dear Mr. Clarysse and Mr. Verstrecken

Thank you for hosting the Belgian RP3 consultation on 18th August 2021 and giving us the opportunity to share our observations and concerns with you now. On behalf of the Lufthansa Group we would like to give the following statement:

To set the scene a look back to what the airlines of the Lufthansa Group experienced in the last 18 months. Most of our fleet was grounded and we had to stop not only once up to 85% of our operations. In 2020 alone, the Lufthansa Group had 23 bn. EUR less revenue than 2019 with no possibility to recover this loss by protective regulatory safeguards from our customers from 2023 onwards.

In Q1 2021 in comparison to Q1 2020, which was already partly affected by the Covid-19 crisis, Lufthansa Group's revenues were again reduced by 60%. However, at the same time the airlines were able to adjust their operating expenses by -51%, a number we would have wished to see to a similar extent from our partners in ATC.

Already on 11th March 2021 we presented and explained to you the Lufthansa Group expectation on the RP3 re-planning process and our major concerns with the Belgian costbase. Unfortunately, we have to note that the majority of our concerns raised by then are not adequately addressed. Belgium will now report the highest unit rate in the Eurozone by increasing the rate by 57%.

We are very concerned to learn that Belgium considers filing a performance plan that will not even meet the already watered-down European targets, especially as the DUC will be 55% above the European target in 2024. This is not acceptable and all service providers have to double their efforts to make the Belgian part of the FABEC performance plan consistent with the European targets.

Belgian RP3 consultation process:

- Taking-up the assessment reports on RP3 performance plan:

Firstly, we want to highlight that in our opinion the comparison of the now presented numbers with those of the performance plans filed in fall 2019 are not valid, as the PRB and the European Commission assessed this performance plan as inconsistent.

We would have expected that Belgium would in a first step take up the findings made, correct them and then build on that basis a new performance plan.

This we would have expected especially as some points of the report by the European Commission are not referring to the build-up of capacity, which is now not needed for RP3, but to other topics with the general provision of ATC in the Belgium.

- Way towards this consultation:

At this point, we would also like to point out once again that Lufthansa Group has continuously pursued an early – and at that time timely – consultation process since the fall of 2020 in order to have sufficient time to fully work through the issues to be dealt with and, if necessary, to be able to work out solutions for cost improvements together with Skeyes and MUAC. Unfortunately, this request was not honoured.

During the winter and spring, a number of issues would have already been addressed regardless of any remaining issues of the legal requirements, such as capital costs or investments.

Skeyes:

- Check of eligibility and necessity of 2020 and 2021 costs:

On several occasions we pointed out that we are not 100% reassured that all cost were checked for eligibility and necessity. Thus, we would ask the Belgian NSA to conduct an in-depth analysis if costs were eligible and/or necessary.

- Development of capacity according to demand:

As already mentioned earlier, the Lufthansa Group implemented much more significant cost containment measures than we have seen until now from any

of our system partners in ATC. While we had to reduce our offer by up to 85% we could significantly also reduce our cost by more than 50%.

ATC has felt the same traffic downturn as us and we acknowledge that ATC might have higher fixed costs due to their 24/7 service obligation, but we are shocked to see that Skeyes did even increase its cost base by 8.4% compared to 2019 and MUAC also increased its cost by 8.1%! The increase in Skeyes can not fully attributed to the shift of cost from the TNC to ERC, and by doing so Skeyes should be compensated from the Belgium state, as this is – especially at the regional airports – cost that was funded by 100% by national public funding.

We are not reassured that the anticipated traffic levels and the efforts put into the cost planning match. We are lacking evidence that Skeyes and MUAC will have the right capacity in place to serve the traffic without delays and detours but at the same time not having excess capacity in place.

- Number of ATCOs & Success rates in training:

We have not yet fully understood the need to increase the ATCO headcount until 2024 to 259, while traffic over Belgian skies is still expected to be significantly below the 2019 values. We also would like to see a justification why ATSEP and OPS support staff needs an increase by almost a sixth.

We are very concerned about the low success rate Skeyes trainees are showing until they are ready for the ops room. Having a failure rate of 50% is not understandable when MUAC reports of a drop out quota of 25%.

There is immediate need for reform, as the reduction in the failure rate would be key to cost reductions in staff recruitment and training efforts, releasing also much needed training capacity for normal operational duties.

- Pre-Retirement Scheme “Dispo”:

Lufthansa Group expresses its highest concerns about the pre-retirement scheme of Skeyes. A pre-retirement scheme should lead to reducing staff costs of the ageing workforce. But we regard this scheme of counter productive, as it is not helping Skeyes to reduce its costbase but in contrary even puts additional cost on the company if an employee retires early.

We call on the Belgian authorities to find an immediate solution for the ‘DISPO’ system as this has a tremendous impact on staff costs. By doing so, staff cost for the entire RP3 can be reduced. It cannot be that airspace users need to bear the costs induced by a reform of the Belgian pension scheme.

- Sharing keys of investments:

We appreciate the information on the determination of the cost sharing keys for the investments, but we would have also expected to be provided with the exact percentage values of cost sharing between Enroute, TNC Brussels and TNC regional airports.

We see that a number of the sharing keys are not determined by the actual or operational use but by the technical capability. We highlight the cost sharing of ILS as an example. The cost is shared 56%/43% between ERC and TNC due to its operational range. Nevertheless the flight path, which requires the ILS signal is typically much shorter and we reference to the runways with the highest number of approaches in Belgium:

Brussels RWY 25L: 14nm = 25km

Brussels RWY 25R: 11nm = 20km

Liege RWY 22L/R: 9.5nm = 17km

Therefore the cost allocation key for the ILS must be altered and for all other projects the NSA is requested to conduct an independent assessment of the cost sharing keys if the keys used are sensible and regard the operational realities.

- Cost of Capital:

Thank you for providing the additional information. We would like to comment on the parameters as follows:

- β-Factor:

We think that the benchmark group for the β-Factor is not right, as those companies only operate in a very limited regulated environment compared to ANSPs.

CAA has commissioned a study on the β Factor of NERL which assessed an eligible β-Factor of 0.6. Other European ANSPs set the β-Factor between 0.3 and 0.5 regarding the limited risk ANSPs are facing

- (Market) Risk Premium:

As ANSPs don't operate in a fully liberalized market, the application of the full market risk premium is not justifiable to us. The PRB has assessed already in 2019 that the maximum risk an ANSP is exposed to is limited to 4.4%. This is in our view the maximum allowable risk premium.

- As Skeyes is not paying out any dividends to its shareholder we are of the opinion that there was no cost of equity at all and NSA should regulate the return of equity to 0%.

MUAC

- Financial disadvantages for airspace users due to the organizational form MUACs:

Lufthansa Group had already commented in detail on the submitted performance plan of Eurocontrol MUAC (hereinafter "MUAC") in the follow-up to the Dutch RP3 consultation and submitted its comments to the BAF on July 7, 2021.

Lufthansa Group believes that the majority of the cost increases at MUAC are mainly due to the structural characteristics of MUAC and that there is an urgent need for action there. We have already expressed our concerns in this regard in 2019 (see our statement of 04 September 2019).

The organizational set-up of MUAC as a European agency differs fundamentally from all other ANSP service providers. In particular, unlike DFS for example, MUAC is not expected to act as an entrepreneur, but to operate within a budget set by national and European authorities. Therefore, it is not apparent to us that MUAC is subject to the same regulatory obligations as other ANSPs.

An indication of this is that MUAC has not made any statements on compliance with the European performance targets, but rather referred to the requirements for the development of wages for EU employees.

It was also pointed out by both MUAC's leadership and its employee representatives that a significant program to reduce personnel costs during the Covid-19 crisis was not implemented due to MUAC's organizational constraints. As a result, costs to airspace users were not significantly reduced.

This is compounded by the fact that MUAC did not have the option to send its staff in furlough or use a similar tool. This possibility for employees of a European agency is not provided for, since the tasks are basically to be performed independently of the crisis as part of the public service. A flexible, efficient and cost-reducing adjustment of capacities and resource requirements in line with the crisis situation is made considerably more difficult.

From the Lufthansa Group's point of view, this is unacceptable and violates the principle that only necessary costs can be charged. Costs incurred due to structural deficits must not be charged to the airspace users. Therefore, we are of the opinion that the excessive costs that arise from the organizational nature of MUAC should not be passed on to users as a consequence of Covid-19-related revenue shortfalls.

In addition, we believe it is necessary for the sustainable achievement of the goals that the four countries that are relevant for MUAC (Belgium, Germany, Luxembourg and the Netherlands) eliminate their respective structural deficits by the end of RP3 (e.g. wage development formula) and compensate for the financial disadvantages by then.

- Cost distribution key between the three charge zones Belgium/Luxembourg, Germany and the Netherlands:

The Lufthansa Group is surprised that a few weeks before the submission of the performance planning, there is still no agreement on the distribution key of the costs between the three charge zones involved. There is an urgent need for action and further transparency for airspace users.

- Borrowing costs:

We also point out the inconsistency of the cost of debt from the data according to the draft performance plan and the data in the reporting tables.

The disclosures in the draft Performance Plan provide for borrowing costs of 0.3% to 0.5%, while the reporting tables show cost rates of up to 1.00%.

We acknowledge that MUAC has consented to reduce the interest on loans to 0.6% after interventions from users during the Dutch and German consultation, but still does not match the data shown in the performance plan draft.

- Non-conducted investments in RP2:

MUAC was not able to fully complete its ambitious investment program within RP2. According to the PRB's analysis, airspace users were charged €10 million in depreciation and amortization that were not provided. Particularly in view of the significance of this crisis, we call on Germany to commit to ensuring that users are reimbursed these €10 million in RP3.

The Belgian, Dutch, German and Luxemburg authorities must understand, that even when some of the cost increases should be compensated on a network level, that the home-carriers of the four countries are the ones hurt most of the MUAC cost development. This creates a significant competitive disadvantage for their hub operations compared to other network carriers in other parts of Europe or even worldwide. The airlines of the Lufthansa Group, mainly Brussels Airlines, Eurowings and Lufthansa (Cargo) rely on an efficient service provision by MUAC and have no chance to circumnavigate this airspace, as other carriers might opt to do so.

MUAC as an European agency, must act as an European example to at least fulfill the European targets if not even outperform them!

By summarizing the above mentioned points we assess the current draft of the Belgian performance plan as not being consistent to the European targets and that more efforts must be put to achieve that consistency.

The Covid-19 crisis is an unprecedented event and the biggest crisis to civil aviation since the Second World War. It is unlinked to normal economic cycles and could not have been avoided by management activities. The whole aviation sector was equally affected but only air navigation service providers were given the right to compensate for the losses by regulative safeguards. Several European countries have already opted to help their ANSPs by subsidizing the unit rates (e.g. Czech Republic, Slovenia, Spain) or injected equity into their ANSPs in order to finance the revenue gaps and perspective to reduce its costbases (e.g. Finland, Germany, Slovakia, Slovenia, Switzerland).

Given the dependency of the Belgian economy and the connectivity for European and Worldwide institutions from a healthy aviation industry we kindly ask Belgium to consider a similar step and help aviation in Central Europe to overcome this crisis by supporting the Belgian Unit Rates in the remainder of RP3 in order to offset the massive increase in charges.

A stable charges level can help to bring back traffic much quicker and lead to even higher income than anticipated today. The Lufthansa Group asks Belgium to keep their unit rates on similar levels as in 2020 & 2021.

If you have any questions regarding this statement or any feedback given during the consultation meeting held, please do not hesitate to contact us.

The Lufthansa Group also fully supports the statement to be filed by IATA and therefore please regard the statements of IATA as part of this feedback.

Yours sincerely



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- A4E (Mr. Baumann)
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Amtsgericht Köln HRB 2168

Vorsitzender des Aufsichtsrats/
Chairman of the Supervisory Board
Dr. Karl-Ludwig Kley

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Carsten Spohr (Vorsitzender/Chairman)
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Dr. Michael Niggemann
Remco Steenbergen

Pieter Verstreken

Van: Kris Clarysse
Verzonden: vrijdag 3 september 2021 11:31
Aan: Pieter Verstreken
CC: Antoine Vincent
Onderwerp: FW: BATA Response to BELUX RP3 TNC ERC Consultation

Urgentie: Hoog

Opvolgingsvlag: Opvolgen
Vlagstatus: Met vlag

Van: Snauwaert Vincent <vincent.snauwaert@tuifly.be>
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Onderwerp: BATA Response to BELUX RP3 TNC ERC Consultation
Urgentie: Hoog

Dear Members of the Belgian NSA,

Thank you for having organised the RP3 consultation in Belgium, held last week, and for the opportunity to provide our feedback.

The airline industry still struggles to recover from the COVID crisis and in these difficult times it is for us of utmost importance to strictly control our costs. Therefore it is disappointing to see that Belgium will not reach the EU-wide target on cost efficiency, leading to a tremendous increase in the Unit Rate for en-route and terminal navigation charges. This increase will see nearly a doubling of ATC charges in 2024 compared to 2019. We hope that you will understand that this is not acceptable for airlines operating to and over Brussels.

While we support investments and staff hiring to improve Air Traffic Control in general and secure long-term business continuity, we are critical of the fact that they come so late and without correlation with the current traffic development. On the contrary, the impact of the under-recovery incurred by Skeyes during the years 2020 and 2021 comes simply on top of the expected rising costs of investment, capital and staffing.

That's why we urge you to challenge again the documents presented by the ATC providers with the aim to come to a plan that can be accepted by all parties.

We thank you in advance for your attention and remain at your disposal to further discuss this.

Best regards,

Vincent Snauwaert
Secretary General



Belgian Air Transport Association

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Consultation Meeting on the final revision of the RP3 performance plans of Belgium and Luxembourg - 26 Octobre 2023

Participants:

Rory Sergison (IATA), Stephan Weidenhiller (Lufthansa Group), Mélissa Capizzi (EBAA), Johan Zandstra (KLM), Kurt Callaerts (ACV-CSC), Johan Decuyper (skeyes), Geoffroy Robert (skeyes), Ilse Evenepoel (skeyes), Philippe De Coune (MUAC), Ralph Nickels (ANA), Pit Probst (ANA), Laura Könnér (Ministry MMTP Luxembourg), Björn Schröder (co-chair, LUX NSA), Sylvie Philppin (LUX CAA), Laurent Quesnel (co-chair, BE NSA), Garry Moës (BE CAA), Nathalie Dejace (BE CAA), Sonja Van Nieuwenhuyze (BE CAA), Nicola Volta (PRB), Cecile Capart (PRB), Estelle Malavolti (PRB)

Agenda

1. Welcome and introduction by head of Belgian NSA and deputy head of Luxembourg NSA

BE NSA reminded the context of this consultation:

A pre-consultation was performed on the 31th of August 2023 without being able yet to share the data of the performance plan revision that was submitted on the 16th September to the Commission.

3 weeks ago, the submitted performance plan was provided to the stakeholders facilitating a real consultation on the 26 October 2023. The outputs of this consultation will be used for the final performance plan revision that must be submitted by the 3rd November to the European Commission.

The Agenda was structured in accordance with what had been content of the 31th August pre-consultation with the update based on the performance plan revision submitted to the European Commission on the 16th September.

2. Traffic and inflation scenario

BE NSA presented the traffic and inflation scenarios which were derived from the respective STATFOR Base (March 2023) and IMF (April 2023) scenarios. It was recalled that both scenarios were the standard scenarios to be used and represented the data available at the time of the submission on the 16th of September.

No comments were formulated.

3. Overview of corrective measures in answer to the Commission implementing Decision C(2023)3852 and proposed actions

BE NSA presented the actions taken in answer to the corrective measures required in the European Commission's Decision. This content is further explained in the Annex Z of the Performance Plan revision that was sent to the stakeholders 3 weeks ago.

- (a) Incorrect application of the respective legal provisions governing traffic risk sharing, cost risk sharing and incentive schemes in respect of MUAC

BE NSA stated that two approaches could be considered: at MUAC level or at national level. The goal is to isolate the incentive bonus/malus effect of MUAC for MUAC only. Unfortunately, nothing will be ready for RP3.

No additional comments were formulated.

- (b) verification by the NSAs that the costs charged in RP2 for the cancelled and delayed investments in fixed assets are not double-charged to airspace users in the event that those investments materialize at a later stage

BE NSA communicated that for MUAC an amount of 2.1 million € and for skeyes an amount of 5.6 million € were identified during the compliance review by an independent contractor. These amounts are included as an exceptional cost (minus) in the 2024 cost base.

Q&A

Lufthansa Group requested more details on the figures. skeyes and MUAC will present details in the coming presentations.

- (c) Incorrect financing arrangements for the costs incurred for services provided in cross-border areas

BE NSA recalled that this finding is shared with other countries (where the services are provided without funds back to either skeyes or MUAC Be+Lux) and that Belgium and Luxembourg cannot solve the problem alone. This issue will take time to be solved and nothing can be done for RP3.

BE NSA informed that in any case the total amount of costs will be charged to the users but in another airspace. In fact, from an airlines' perspective a flight is going through multiple airspaces and the total amount is charged whenever the costs are associated with a specific airspace.

- (d) Incorrect allocation of the approach costs between en route and terminal air navigation services in respect of skeyes

BE NSA does not agree with the assessment of the European Commission. The current Belgian cost allocation between en route and terminal is compliant with the current requirements of the regulation. The independent contractor in charge of the compliance review had the same opinion.

Consequently, Belgium did not review the allocation methodology in the performance plan.

Q&A

IATA as well as Lufthansa Group asked if the compliance review report will be shared with the stakeholders. BE NSA informed that a summary of the compliance review will be added to the final performance plan because the compliance review report cannot be disclosed.

- (e) Lack of adequate justifications for excessive terminal cost-efficiency targets of Belgium

The finding does not take into account the Belgian government subsidies for terminal

BE NSA stated that at the level of the DUC, the terminal unit rate for EBBR is indeed 55% above the median level. However, if the annual subsidy via Royal Decree was taken into account, the DUC would only be +/- 16% above the median level.

In addition, skeyes has reduced the cost base at EBBR Terminal Charging zone of 780k€ in 2023 and 185k€ in 2024.

- (f) Incorrect level of the maximum financial disadvantages in the incentive schemes of Belgium and Luxembourg supporting the achievement of en route and terminal capacity targets

BE NSA disagreed with the European Commission concerning the level of the incentive scheme for the capacity in particular because no demonstration was communicated explaining this assessment. Consequently, BE NSA did not adapt the level of the maximum financial disadvantages for RP3.

Financial impact of the corrective measures

BE NSA presented the below financial elements which were used to adjust the cost base.

	2023	2024	RP4	Entity
Update traffic and inflation forecast	-7,3M€	-14,2M€		STATFOR + IMF
MUAC 2022 inflation excessive forecast		-9,5M€		MUAC BE+LUX
MUAC 2023 inflation forecast adaptation	-7M€			MUAC BE+LUX
Non-executed investments RP2 skeyes		-5,6M€		skeyes
Non-executed investments RP2 MUAC		-2,1M€		MUAC BE+LUX
Reduction determined costs MUAC		-2,8M€		MUAC BE+LUX
Review MUAC Sharing key			-9M€*	MUAC BE+LUX
Reduction determined costs skeyes	-0,4M€	0,7M€		skeyes
Difference determined/actual 2022 skeyes		-0,1€		MUAC BE+LUX
TOTAL	-14,7M€	-33,4M€	-9M€*	

4. En route: Actual Costs 2022, 2024 unit rate and Determined Costs RP3

- Introduction by the Belgian and Luxembourgish NSA

BE NSA gave an introduction by stating that the Cost base consists of the sum of the costs of all ANSPs providing services in the charging zone, together with the NSA and Eurocontrol costs.

BE NSA stated that no change occurred since the presentation of the 31 August 2023.

No additional comments were formulated.

- Traffic risk sharing

BE NSA stated that no change occurred since the presentation of the 31 August 2023.

With regard to the traffic risk sharing mechanism, no deviation from the system as described in the legislation was proposed by BE and LUX NSA.

Q&A

KLM questions why the process to get an approved performance plan is longer in Belgium and in Luxembourg than in the other Member States. For airlines, it is important to be able to plan their costs and there is a real need for a performance plan with a unit rate well defined in advance.

BE NSA informed about the process set out in the regulation and the inability of Belgium to deliver a compliant performance plan. Although the performance plan is drawn up by the NSAs, it is the responsibility of the State to decide on the content of the plan.

KLM requests improvement and to fasten the process for the next performance plan for RP4.

- Presentation of Skeyes

En route 2022: actual costs

Staff costs were higher due to inflation whereas other operation costs were under the budget mainly due to delays in projects delivery. Cost exempt from cost sharing will be reimbursed in RP4.

En route cost base 2023-2024

Unspent in 2021 and 2022 are used to reduce the cost base of 2024.

skeyes presented the list of all the reimbursements of depreciation costs recovered in RP2 for projects delayed or postponed to RP3.

Consistency of the EU target

skeyes presented computation with and without the corrective measures to demonstrate the compliance with the EU wide trend of +1%:

- +0,7% without corrective measures
- -1,1% with corrective measures

A comparison is done with the Netherlands showing that the cost base of Skeyes is 20% lower and the difference is explained by the heavier traffic in the upper airspace of the Netherlands.

Major investments

skeyes presented their major investments:

- Remote radio sites: needed to modify present architecture into a new system;
- ATM next generation: needed due to the fact that the actual system is at the end of its life cycle;
- Wide area networking (WAN): needed because the old technology is not supported any more.

Q&A

Lufthansa Group requested more information concerning a compliance question: Which costs could be revised ?

PRB informed that there is no retroactive revision of costs, only the costs of the current and future years can be revised

Lufthansa Group is questioning the compliance of using unspent money from previous years as exceptional items to reduce the cost base because the money has already been collected from the airspace users.

BE NSA agreed that the current rules for this specific situation (Reference Period almost ended) are not clear and some clarifications are needed to avoid uncertainty.

Lufthansa Group : has the impression that it was not like this.

IATA noted that there is no real structural reduction of the costs (as it is requested “by the spirit of the regulation”) but the reduction of the costs is mainly linked to the actual costs and some investments spent in RP3 instead of RP2. The main issue was the building block “reduction of the structural cost is not affected”.

IATA notified the need to forward the problem to the European Commission to clarify.

The Representative of unions asked a clarification about the compliance of the evolution from a FABEC performance plan towards several national ones. Where is it written that you can separate?

IATA informed that this is not an issue for the airspace users.

PRB informed that due to the rejection of the Belgium-Luxembourg performance plan, the Member States of FABEC decided to submit individual ones. Nothing prevents this possibility in the regulation as a Performance could be either submitted at FAB level or national level.

Lufthansa group requested clarification on the unspent depreciation cost in RP2 where only 5,6M€ are reimbursed in 2024.

skeyes informed that according their analysis not all initial investment plans were taken into account.

- Presentation of MUAC

Projects and performance

MUAC presented the projects portfolio and an update on the delivered performance.

Traffic is nearly back to pre-covid levels especially in the Brussels sector.

There is a 4 % increase of delay, whereas the most impacted sector being the Brussels sector and can be mostly explained by bad weather.

The productivity is back to pre-covid levels.

Finance

In 2022, there was a 16,5% increase of actual costs explained by external factors (inclusion of taxes compensation and HQ support costs), increased sharing key for Belgium as well as inflation on operating cost and staff.

In 2023, MUAC is able to create savings of 8% due to a reduction of staff costs linked to lower inflation. For 2024, MUAC is proposing a reduction of 16% based on exceptional items (unrealized investments RP2 and unspent 2022), reviewing cost of staff).

The total of the corrective measures applied for MUAC amounts to 21,6M€.

Q&A

Lufthansa Group requested information on the personnel cost's structural reduction, on the training costs and the evolution of wages.

MUAC is strictly managing the cost of staff: in terms of quantity (staff is hired when absolutely necessary) and price (indexation is linked to the European Commission rules and is lower than Belgian or Dutch ones and offers also more stability). Training costs are included in the operating costs.

Lufthansa Group requested information on the overall amount of the 2022 unspent costs for the 4 MUAC Member States (including Germany and the Netherlands)
MUAC informed these data are not provided in this presentation but are available.

- Presentation of ANA

ANA presented an increase of staff cost of 247 K€ due to a lower rate of early retirements. notified only "6 months in advance".

ANA informed about the new service unit forecast for the traffic scenario: a slight increase for 2024 is expected.

The State of Luxembourg takes over the depreciation costs, cost of capital and costs of the ELE staff. That represents an amount of 7.2 M€ for RP3 which is deducted via the "other revenues" for the calculation of the unit rate. In addition, an easier access to the status of civil servant is reducing the cost base as there is no contribution for pension and therefore, Luxembourg will reimburse airspace users in RP4 through the carry-forward adjustment by 36K€ (2020/21: 6K€ - 2022: 30K€). The same principle will be followed for some investments that were not implemented yet.

ANA presented the portfolio of their current projects and the planned ones as well as some KPIs.

Q&A

Lufthansa Group requested clarification regarding the pensions: Are cost for civil servants staff included?

ANA clarified that only pension cost for employees are included. The civil servants pension costs are not in the cost base and there is no current intention to include them in the future.

- NSA and Eurocontrol costs

BE and LUX NSA presented the NSA costs at the Eurocontrol costs (general budget excluding MUAC).

BE NSA costs are charged to the users by a defined amount indexed on inflation. The BE NSA costs are split into 6 parts: En route and 5 airports where only one is charged to the users (EBBR).

As of 2022, the Luxembourg State decided to bear the NSA costs for the remainder of RP3.

No additional comments were formulated.

- 2024 unit rate

The 2024 unit rate has decreased to 112,17€ with the currently available data.

No additional comments were formulated.

5. Terminal: Actual Costs 2022, 2024 unit rate and Determined Costs RP3

- Traffic risk sharing

BE NSA stated that no change occurred since the presentation of the 31 August 2023.

No additional comments were formulated.

- Presentation of Skeyes

skeyes presented that the actual costs of 2022 were 3% lower than the planned costs due to lower staff costs and lower operating costs explained by in-project deliveries. A cumulative effort of 1.4M€ is done on the cost base for 2023 and 2024 at Brussels airport. A major investment at Brussels airport is the renewal of the A-SMGCS.

Q&A

IATA requested clarification on the amount of the Belgian state support on the unit rate.

BE NSA informed that every year a Royal Decree is published by the Government resulting in a new discussion every year even if it always happens for the same part with the target to stabilize the unit rate. The Royal Decree is generally published in the two last months of each year.

IATA informed about the airlines' concern related to the modulation of the unit rates based on environmental criteria.

Lufthansa Group asked if any new project of environmental charges is expected in the coming years.

BE NSA was not informed of such a current project of the government.

Lufthansa Group noted that the Determined Unit Costs (DUC) at Brussels airport (without the contribution of the Belgian state) is the highest cost for a HUB airport in Europe.

Moreover, Lufthansa Group noticed a continued deterioration of the Brussels airport costs.

Lufthansa Group is very concerned by this situation.

skeyes took note of the concern but underlined the inflation issues.

skeyes intends to be more efficient in the future.

- NSA costs

BE presented the NSA costs which were attributable to the charging zone of Brussels Airport.

Q&A

KLM requested more information on the rule followed for the inflation.

BE NSA informed that the Belgian state is using an official health index computed by the FPS Economy the Federal Ministry of Economy.

- 2024 unit rate

The current unit rate with the known data is 294,53€. The annual subsidy which was granted in the past (+/- 25%) is not yet included.

6. Concluding remarks

IATA underlined that the Belgium-Luxembourg performance plan has been a long journey and only started to materialize in the last years of RP3.

IATA noted that there is no structural cost reduction in the revised performance plan. The costs reduction is mainly a consequence of the impact of inflation computation and investments not yet performed. According to IATA's analysis, the costs reduction do not represent real efforts but is only due to accounting measures.

Consequently, IATA is concerned of the cost evolution for the future.

In particular, IATA does not see any progress on the DISPO scheme of the skeyes' ATCOs.
IATA appreciates the Belgian state effort regarding the support on the Brussels airports unit rates.
IATA is expecting that Belgium is able to control and manage their costs for RP4.
KLM and Lufthansa Group supported the IATA's statement.

Lufthansa Group requested clarification on the next steps for Belgium and Luxembourg and the associated timing.

BE NSA informed on the risk that the performance plan will not be approved this year even if the PRB and the European Commission are flexible to assess the new elements.

The next steps are:

- Contributions of stakeholders during the consultation will be annexed to the final performance plan revision;
- On the 30 October 2023, the reporting tables with the unit rates will be uploaded for the Enlarged committee;
- On the 3 November, Belgium and Luxembourg will submit the final performance plan revision;
- Before end of 2023, a new Royal Decree Factor F (contribution of the Belgian state to the unit rate at Brussels airport) will be published for the year 2024.

In addition, BE NSA will escalate the requests concerning the needed clarifications of guidance on what must be done and what is allowed when a revision of the performance plan has already been started.

IATA stressed the need for a timely process for the RP4 performance plan.

The Unions' representative announced his intention to continue to monitor the cost-efficiency performance of Belgium and Luxembourg.

BE and LUX NSA thanked all participants for their attendance and inputs and closed the meeting.

Annexes:

- Agenda of the consultation
- Presentation BE and LUX NSA
- Presentation skeyes
- Presentation MUAC
- Presentation ANA



Agenda BeLux stakeholder consultation on the revision of the performance plan

26/10/2023 - 10H-13H

1. Welcome and introduction by heads of Belgian and Luxembourg NSA
2. traffic and inflation scenario
3. Overview of corrective actions proposed by Belgium and Luxembourg
4. En route: Actual Costs 2022 , 2024 unit rate and Determined Costs RP3
 - a. Introduction by the Belgian and Luxembourg NSA
 - b. traffic risk sharing
 - c. Presentation of skewes
 - i. Q & A
 - d. Presentation of MUAC
 - i. Q & A
 - e. Presentation of ANA
 - i. Q & A
 - f. State costs
 - g. 2024 unit rate
5. Terminal: Actual Costs 2022, 2024 unit rate and Determined Costs RP3
 - a. Introduction by the Belgian NSA
 - b. traffic risk sharing
 - c. Presentation of skewes
 - i. Q & A
 - d. State costs
 - e. 2024 unit rate
6. Concluding remarks



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LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Direction de l'aviation civile



Belgium-Luxembourg RP3 Consultation

26/10/2023

.be

welcome

Introduction by heads of NSAs or deputy – Laurent Quesnel & Björn Schröder



agenda

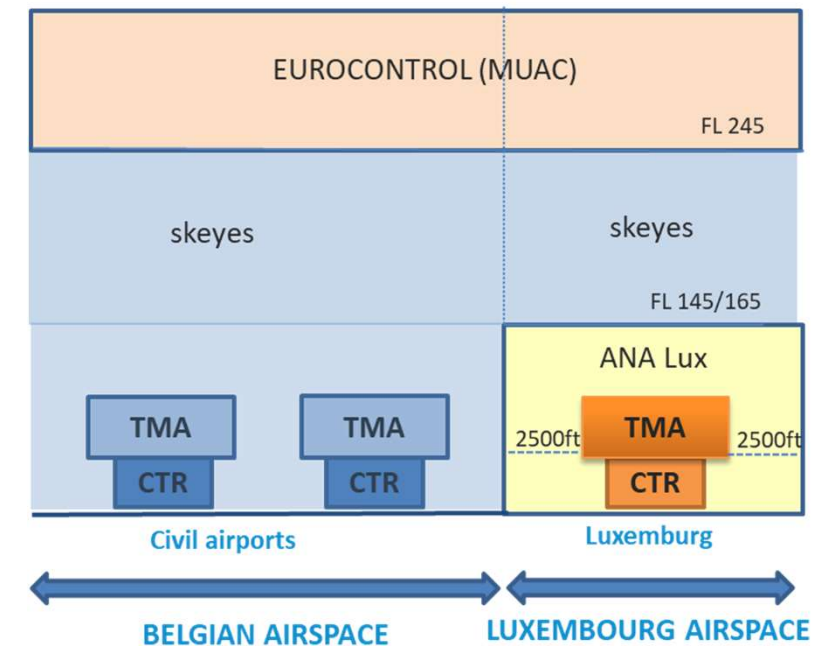
- Traffic and inflation scenario
 - Proposed scenario: STATFOR base (March 2023)
- Overview of proposed actions
- En route Cost-efficiency: actual costs 2022, 2024 unit rate and determined costs RP3
 - skeyes
 - MUAC
 - ANA
 - NSA and Eurocontrol costs
- Terminal cost efficiency: actual costs 2022, 2024 unit rate and determined costs RP3
 - Skeyes
 - NSA costs
- Concluding remarks

NO UPDATE



Structure of BeLux airspace

- 3 ANSPs in the Belgium-Luxembourg en route charging zone
- Each ANSP has its own cost base



NO UPDATE

traffic + inflation scenario

En route + Brussels Airport



traffic scenario

- Proposed scenario: STATFOR Base from the March 2023 forecast

NO UPDATE

- En route: Adjusted to actual route flown, 3,13% deviation

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	1.240	1.275	1.249	541	639	1.023	1.160	1.244	-0,1%
IFR movements (yearly variation in %)		2,9%	-2,1%	-56,6%	18,0%	60,1%	13,4%	7,2%	
En route service units (thousands)	2.594	2.644	2.620	1.081	1.167	2.096	2.404	2.560	-0,5%
En route service units (yearly variation in %)		1,9%	-0,9%	-58,7%	8,0%	79,6%	14,7%	6,5%	

- Terminal (Brussels Airport)

	2017A	2018A	2019A	2020A	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	116,1	114,9	114,6	45,7	57,1	87	96	104	-1,8%
IFR movements (yearly variation in %)		-1,1%	-0,3%	-60,1%	25,0%	52,6%	10,3%	8,7%	
Terminal service units (thousands)	157,8	161,1	162,3	72,9	93,8	131,5	146,2	161,0	-0,2%
Terminal service units (yearly variation in %)		2,1%	0,8%	-55,1%	28,7%	40,1%	11,3%	10,1%	



Inflation scenario

- IMF April 2023

NO UPDATE

	2022	2023	2024
Index	123,259	129,029	131,786
Percent change	10,334%	4,681%	2,136%

	2020	2021	2020/2021	2022	2023	2.024
5.1 Inflation %	0,40%	1,70%		7,80%	4,68%	2,14%
5.2 Inflation index (1)	103,94	105,71		113,95	119,3	121,8

Overview of proposed actions

Answer to the Commission implementing Decision C(2023)3852

Annex Z



findings

(a) Incorrect application of the respective legal provisions governing traffic risk sharing, cost risk sharing and incentive schemes in respect of MUAC

UPDATE

- Different options possible:
 - Change at MUAC level – Time is needed
 - Adptation at national level – Quicker
- Isolate the incentive bonus/malus of MUAC for MUAC
- No financial effect on skeyes
- Not ready for RP3



findings

(b) verification by the NSAs that the costs charged in RP2 for the cancelled and delayed investments in fixed assets are not double-charged to airspace users in the event that those investments materialize at later stage

UPDATE

- Review by independent consultant during the compliance review
- Effect 2024:
 - Skeyes: -5,6M€
 - MUAC (BE+LUX): -2,1M€
- Amounts will be included as an exceptional cost (minus) in 2024 cost base



findings

(c) Incorrect financing arrangements for the costs incurred for services provided in cross-border areas

- File shared with other countries and not under control of Belgium and Luxembourg

UPDATE

- Ongoing talks - Long discussions expected
- No change for RP3



findings

(d) Incorrect allocation of the approach costs between en route and terminal air navigation services in respect of skeyes

- Transparency - All information provided to COM/PRB
- Compliance review assess methodology is compliant
- No change for RP3 of the currently applied cost allocation methodology

UPDATE



(e) Lack of adequate justifications for excessive terminal cost-efficiency targets of Belgium

- keyes cost base reduction at EBBR Terminal Charging zone
 - 780K for 2023
 - 185K for 2024
- Finding of the Commission does not take into account annual subsidy of +/- 25% via Royal Decree
 - If this subsidy would be taken into account, DUC would only be +/- 16% over the median, and not 55%

UPDATE



findings

(f) Incorrect level of the maximum financial disadvantages in the incentive schemes of Belgium and Luxembourg supporting the achievement of en route and terminal capacity targets

- COM/PRB expect 1% for bonus/malus
 - No demonstration was communicated
- BE and LUX NSA disagree with the COM/PRB assessment
- No change for RP3 (0,5%)

UPDATE



total

UPDATE

	2023	2024	RP4	Entity
Update traffic and inflation forecast	-7,3M€	-14,2M€		STATFOR + IMF
MUAC 2022 inflation excessive forecast		-9,5M€		MUAC BE+LUX
MUAC 2023 inflation forecast adaptation	-7M€			MUAC BE+LUX
Non-executed investments RP2 skeyes		-5,6M€		skeyes
Non-executed investments RP2 MUAC		-2,1M€		MUAC BE+LUX
Reduction determined costs MUAC		-2,8M€		MUAC BE+LUX
Review MUAC Sharing key			-9M€*	MUAC BE+LUX
Reduction determined costs skeyes	-0,4M€	0,7M€		skeyes
Difference determined/actual 2022 skeyes		-0,1€		MUAC BE+LUX
TOTAL	-14,7M€	-33,4M€	-9M€*	

En route Cost-Efficiency

Belgian-Luxembourg en route Charging zone



Introduction BE and LUX NSA

- Cost base consists of the sum of the costs of all ANSPs active in the charging zone + NSA and Eurocontrol costs **NO UPDATE**

Entities	Allocated to En-route Determined Cost
skeyes	100% of en-route costs as determined by cost allocation
MUAC	32,90% (BEL) + 1,02% (LUX) of MUAC overall cost base (2023)
ANA	100% of en-route costs as determined by cost allocation
NSA BEL and LUX	100% of en-route costs as determined by cost allocation
Eurocontrol	100% of BEL and LUX share of Eurocontrol costs (excl. MUAC)



2021 and 2022 actual vs. determined costs

- COM requested in 2022 to include 2021 determined costs in the Performance Plan
NO UPDATE
- Difference 2021 under cost risk already included in the 2024 determined costs as a minus
 - -7.929K for skeyes
 - -396K for ANA
- For 2022, where possible, same approach

Traffic risk sharing



Traffic risk sharing

NO UPDATE

Belgium-Luxembourg

Traffic risk-sharing parameters adapted?

no

	Dead band	Risk sharing band	Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

- Art. 5 (4 & 5) of IR 2020/1627: Carry-over can be spread over 5 or 7 years
- BE and LUX NSA included a carry-over spread over 7 years in the current proposal

Presentation skeys

Presentation MUAC

Presentation ANA

NSA and Eurocontrol costs



NSA costs

- Belgian NSA Costs are determined by two Royal decrees (23-5-2006 and 24-3-2009) and are included into the costbase
- Costs split over en route and five airports (only one included into the PP) based upon notification of changes related to each entity
- Luxembourg includes the NSA costs in accordance with the art. 22(1) of (EU) 2019/317 and art. 15(2) of (EC) 550/2004 (decision of the Ministry). As of 2022, the State of Luxembourg has decided to cover the NSA costs.

NO UPDATE

En route	2020	2021	2022	2023	2024
NSA BE	910	918	989	1023	1042
NSA LUX	175	142	0	0	0



Eurocontrol costs

- Based upon Eurocontrol cost base as presented during Standing Committee On Finance 38
- In 2020 and 2021, MUAC tax compensation and support costs are still included in the general budget via a special annex

UPDATE

En route	2020	2021	2022	2023	2024
Eurocontrol BE	16,354	19,303	13,090	13,189	11,277
Eurocontrol LUX	947	1,093	950	958	961



Unit rate 2024

- Provisional pending the approval of the final performance plan by the Commission

Table 2 B - Calculation of the unit rate for year n (1)		2024
13.1	Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	252.086,17
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	5.154,49
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	- 1.544,11
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	-
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 50,68
13.8	Other revenues (Art. 25(2)(i))	- 1.198,37
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	32.717,92
13.11 Grand total for the calculation of year n unit rate		287.165,4
13.12 Forecast total service units for year n (performance plan)		2.560,0
13.13 Unit rate for year n as per Art. 25(2) (in national currency)		112,17
13.14 Reduction as per Art. 29(6), where applicable (in national currency)		0,00
14	Applicable unit rate for year n	112,17

UPDATE

BE terminal Cost-Efficiency

Belgium EBBR charging zone

Traffic risk sharing



Traffic risk sharing

NO UPDATE

Belgium EBBR

Traffic risk-sharing parameters adapted?	no
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	Dead band	Risk sharing band	Service units lower than plan		Service units higher than plan	
			% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

- Art. 5 (4 & 5) of IR 2020/1627: Carry-over can be spread over 5 or 7 years
- BE NSA included a carry-over spread over 7 years in the current proposal

Presentation skeys

NSA costs



NSA costs

- Belgian NSA Costs are determined by two Royal decrees (23-5-2006 and 24-3-2009) and are included into the costbase
- Costs split over en route and five airports (only EBBR included into the PP) based upon notification of changes related to each entity

NO UPDATE

EBBR	2020	2021	2022	2023	2024
NSA BE	606	620	659	682	695



Unit rate 2023

- Provisional pending the approval of the final performance plan by the Commission

Table 2 B - Calculation of the unit rate for year n (1)		2024
13.1	Determined costs in nominal terms - VFR excl. (Art. 25(2)(a))	43.636,88
13.2	Inflation adjustment : amount carried over to year n (Art. 25(2)(b))	804,77
13.3	Traffic risk sharing adjustment : amounts carried over to year n (Art. 25(2)(c))	-
13.4	Differences in costs as per Art. 28(4) to (6) : amounts carried over to year n (Art. 25(2)(d))	- 26,83
13.5	Financial incentives : amounts carried over to year n (Art. 25(2)(e))	-
13.6	Modulation of charges : amounts carried over to year n (Art. 25(2)(f))	287,62
13.7	Traffic adjustments : amounts carried over to year n (Art. 25(2)(g) and (h))	- 157,45
13.8	Other revenues (Art. 25(2)(i))	-
13.9	Cross-financing between charging zones (Art. 25(2)(j))	-
13.10	Difference in revenue from temporary application of unit rate (Art. 25(2)(k))	2.860,74
13.11	Grand total for the calculation of year n unit rate	47.405,7
13.12	Forecast total service units for year n (performance plan)	161,0
13.13	Unit rate for year n as per Art. 25(2) (in national currency)	294,53
13.14	Reduction as per Art. 29(6), where applicable (in national currency)	0,00
14	Applicable unit rate for year n	294,53

UPDATE



- Annual subsidy in the past

Concluding remarks



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LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Direction de l'aviation civile



End of the consultation



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RP3 – REVISED DRAFT PERFORMANCE PLAN WITH CORRECTIVE MEASURES

Stakeholders' consultation
26 October 2023

Agenda

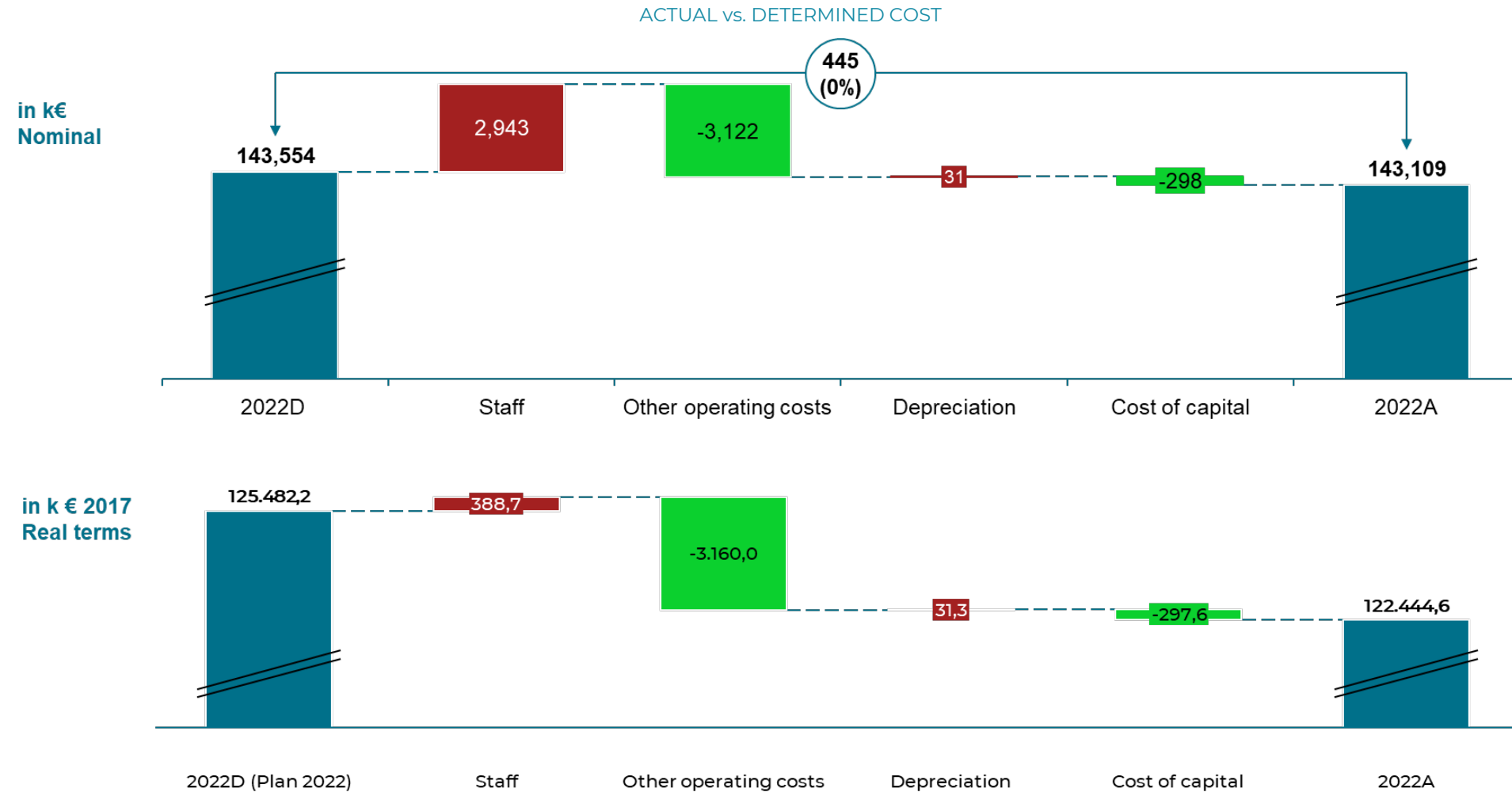


- I. En-route 2022 actual costs**
- II. En-route Cost base 2023-2024**
- III. Consistency with EU wide Targets**
- IV. New major investments**
- V. Terminal cost**

1. 2022 ACTUAL COSTS

Stakeholders consultation
26 October 2023

Actual costs 2022



Actual costs 2022

- The total cost base is 445 k€ or 0,3% lower than planned
- Main explanations for the deviations
 - Actual staff costs 2,7% higher than planned mainly due to higher inflation: 10,3% actual vs. 7,8% planned.
 - Other operating costs remain 12% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.
 - Planned depreciation is fully realized.
 - Cost of capital is lower than planned, mainly due to a lower fixed asset base. WACC percentage kept at 1,72% as planned.
- Difference will be deducted from the cost base 2024 as exceptional item (corrective measure)

Cost exempt from cost sharing - skeyes

Costs of new and existing investments	2022 Determined costs	2022 Actuals	Difference
3.10 Depreciation	8.513	8.545	31
3.11 Cost of capital	1.597	1.274	-323
Total	10.110	9.818	-292

- ✓ The actual costs of investments were 292 k€ lower than planned, mainly explained by a lower than planned asset base for the Cost of capital calculation
- ✓ This amount will be reimbursed / carried over to RP4 (adjustment in line with Art. 28(4))

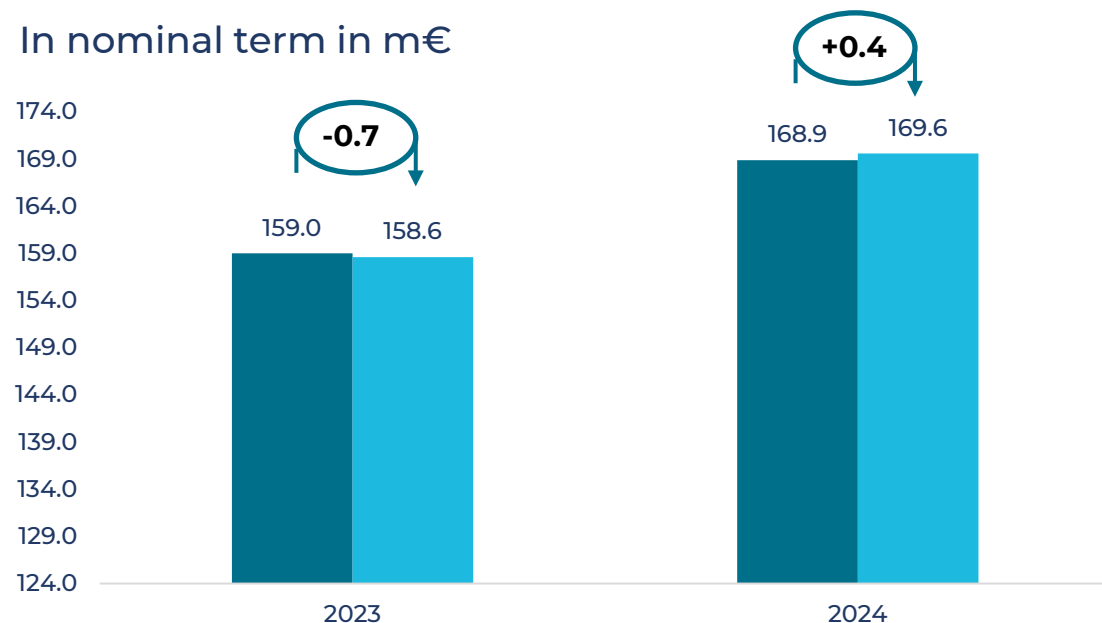
2. EN-ROUTE COST BASE 2023-2024

Stakeholders consultation
26 October 2023

Revised Cost base 2023-2024 (excl. exceptional items)

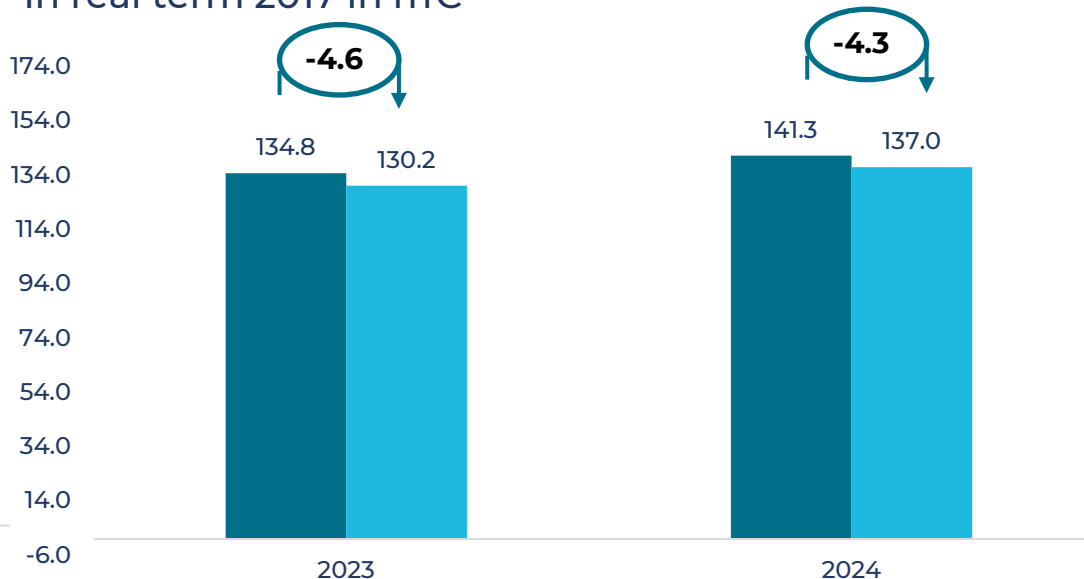
Additional savings of 4.6M€ in 2023 and 4.3M€ in 2024

In nominal term in m€



■ Cost base excl. exceptional items (July 2022)
■ Revised cost base excl. exceptional items (Sept 2023)

In real term 2017 in m€

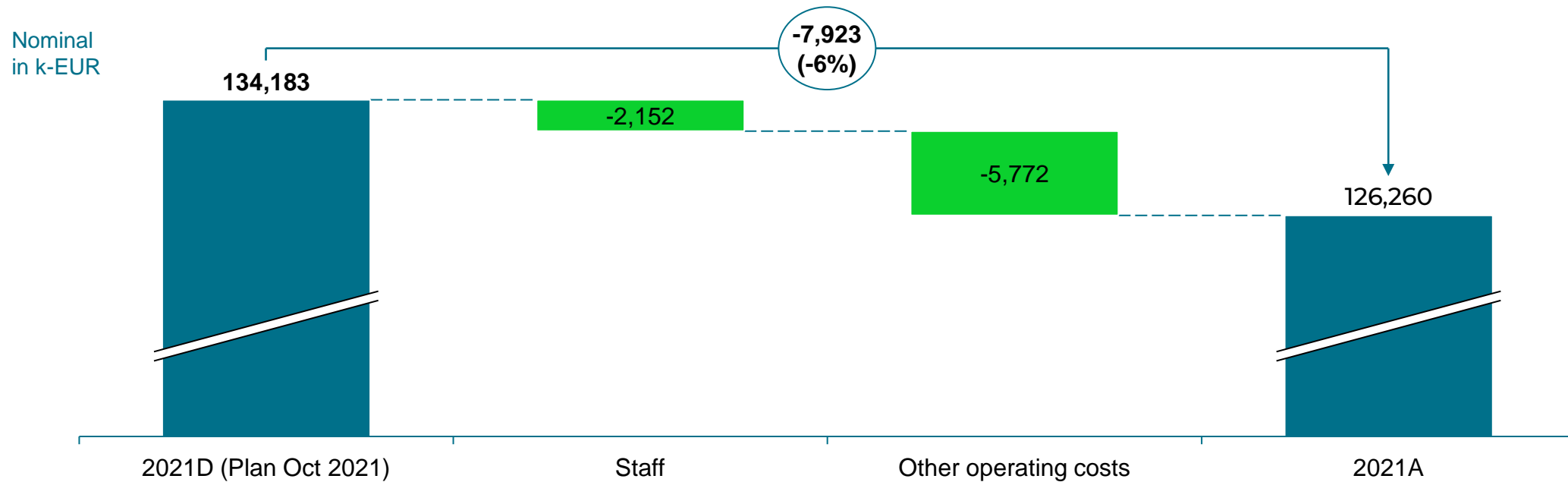


■ Cost base excl. exceptional items (July 2022)
■ Revised cost base excl. exceptional items (Sept 2023)

- For the **revised version of the performance plan** for the year 2023 and 2024 skeyes based its financial projections on **2022 actuals**
- **Considering the impact of inflation note a difference of -4,3m€ in real terms** between the July submission and the revised performance plan, is mainly related to the cost savings efforts in the other operating costs (e.g. utilities, maintenance, etc.)

Exceptional item 2024: Unspent 2021

7.9M€ to be deducted as exceptional item in 2024



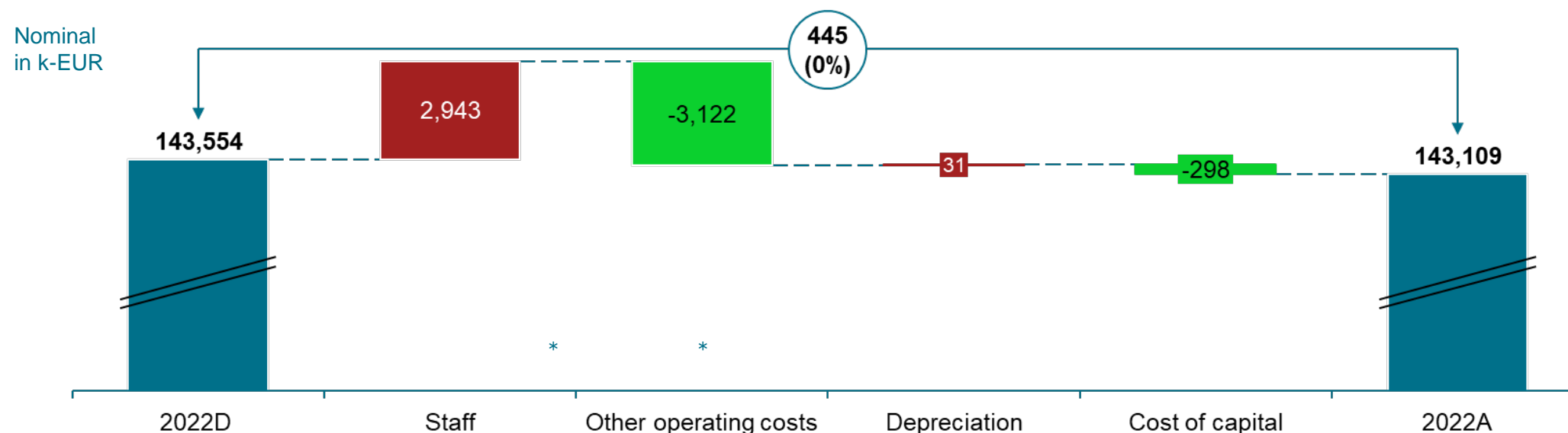
Comments:

- Actual staff costs 1% lower than planned mainly due to slower recruitment than expected as well as lower training costs in 2021 (COVID).
- Other operating costs remain 13% under budget mainly due to delay in projects delivery (ATM Nextgen, Remote radio sites, WAN) resulting in less third party external costs, maintenance and lower general expenses.
- 99% of planned depreciation is realized.
- Cost of capital is 3% lower than planned, mainly due to a lower fixed asset base. Wacc percentage kept at 1,68% as planned.

* Reimbursement of difference between planned and actual costs of new and existing investments in RP4 (ref. cost exempt report 2021).

Exceptional item 2024: Unspent 2022

0.4M€ to be deducted as exceptional item in 2024



Comments:

- The total cost base is 445 k€ or 0,3% lower than planned
- Main explanations for the deviations
 - Actual staff costs 2,7% higher than planned mainly due to higher inflation: 10,3% actual vs. 7,8% planned.
 - Other operating costs remain 12% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.
 - Planned depreciation is fully realized.
 - Cost of capital is lower than planned, mainly due to a lower fixed asset base. WACC percentage kept at 1,72% as planned.

* Reimbursement of difference between planned and actual costs of new and existing investments in RP4 (ref. cost exempt report 2022).

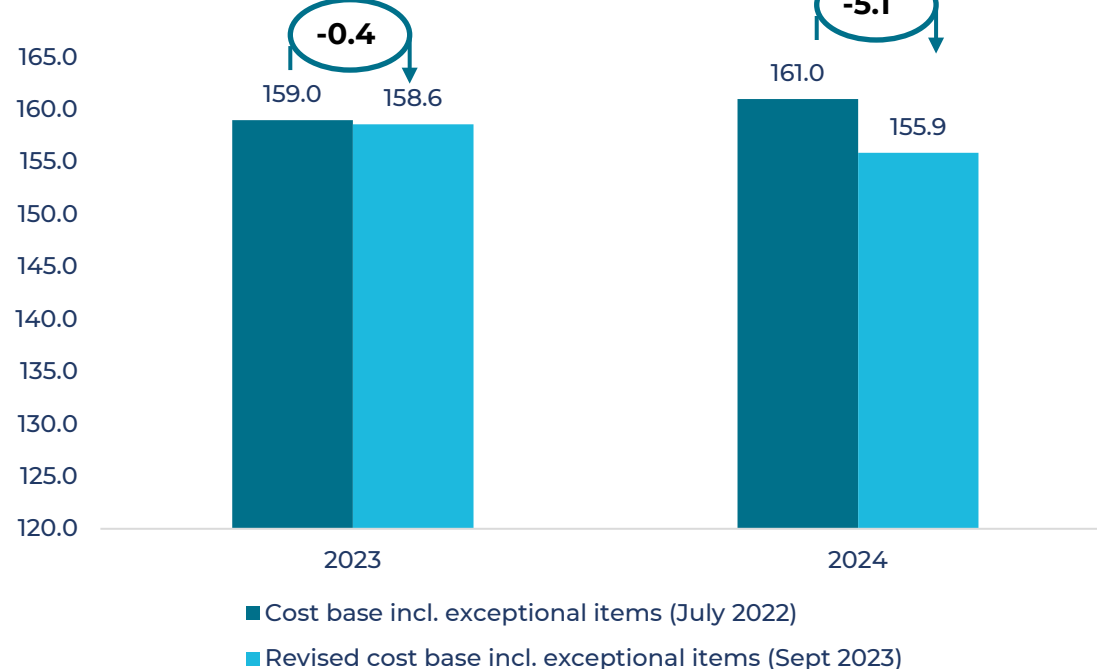
Exceptional item 2024: RP2 investment cost

5.6M€ to be deducted as exceptional item in 2024

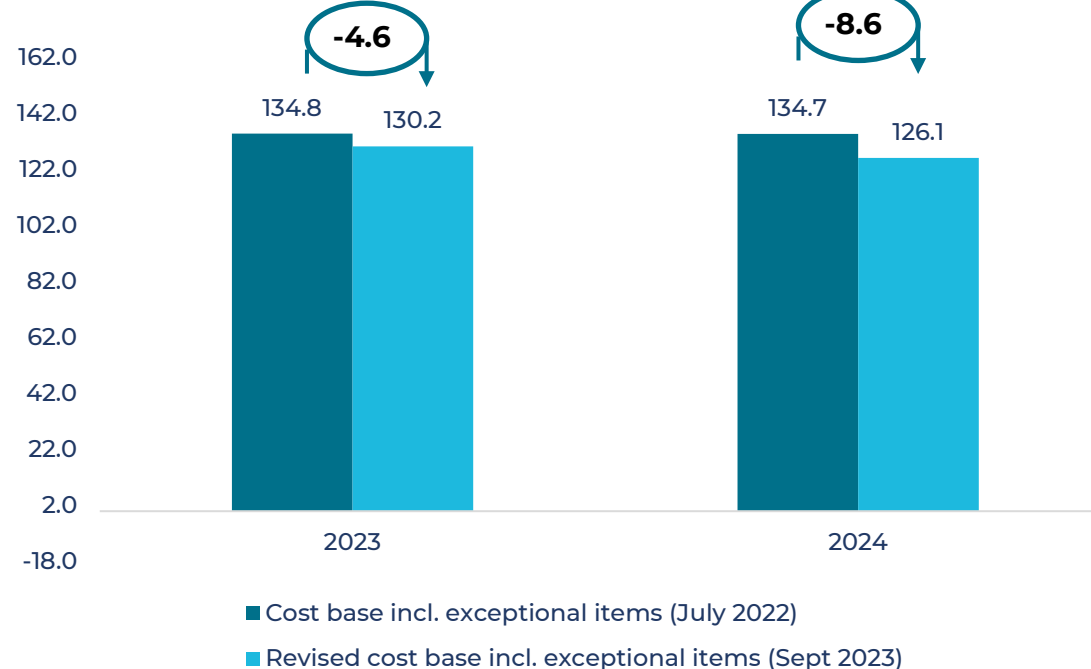
- Reimbursement of depreciation costs recovered in RP2 for projects delayed or postponed to RP3
 - DVOR / DME replacement & rationalisation: the project was partially carried out in RP2 and part was postponed to RP3 (the project was finalized in 2021);
 - The replacement of ILS systems at Brussels Airport and at regional airports has been postponed to RP3;
 - The replacement of the Voice Recording and Playback System has been postponed to RP3
 - The replacement of the URS has been postponed to RP3 as part of the ATM NG program
 - The replacement of the transmitter/receiver centre has been postponed to RP3
 - The replacement of CMS has been postponed to RP3
 - The BARWIS midlife upgrade has been postponed to RP3
 - The replacement of the weather radar has been postponed to RP3
 - The replacement of the WAN has been phased over RP2 and RP3
 - The replacement and upgrade of radars has been reviewed following an agreement with Belgian Defence on a joint surveillance roadmap (synergies)

Revised Cost base 2023-2024 (incl. exceptional items)

In nominal term in m€



In real term 2017 in m€



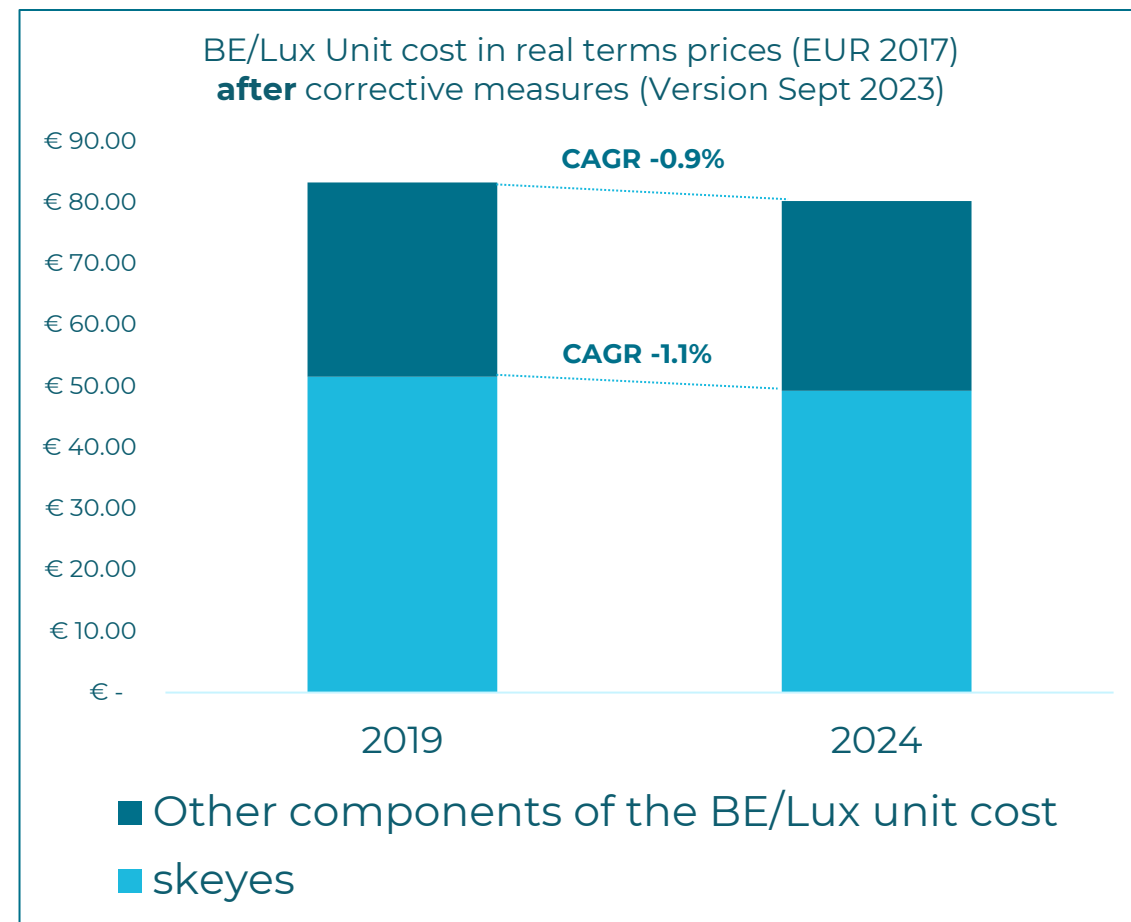
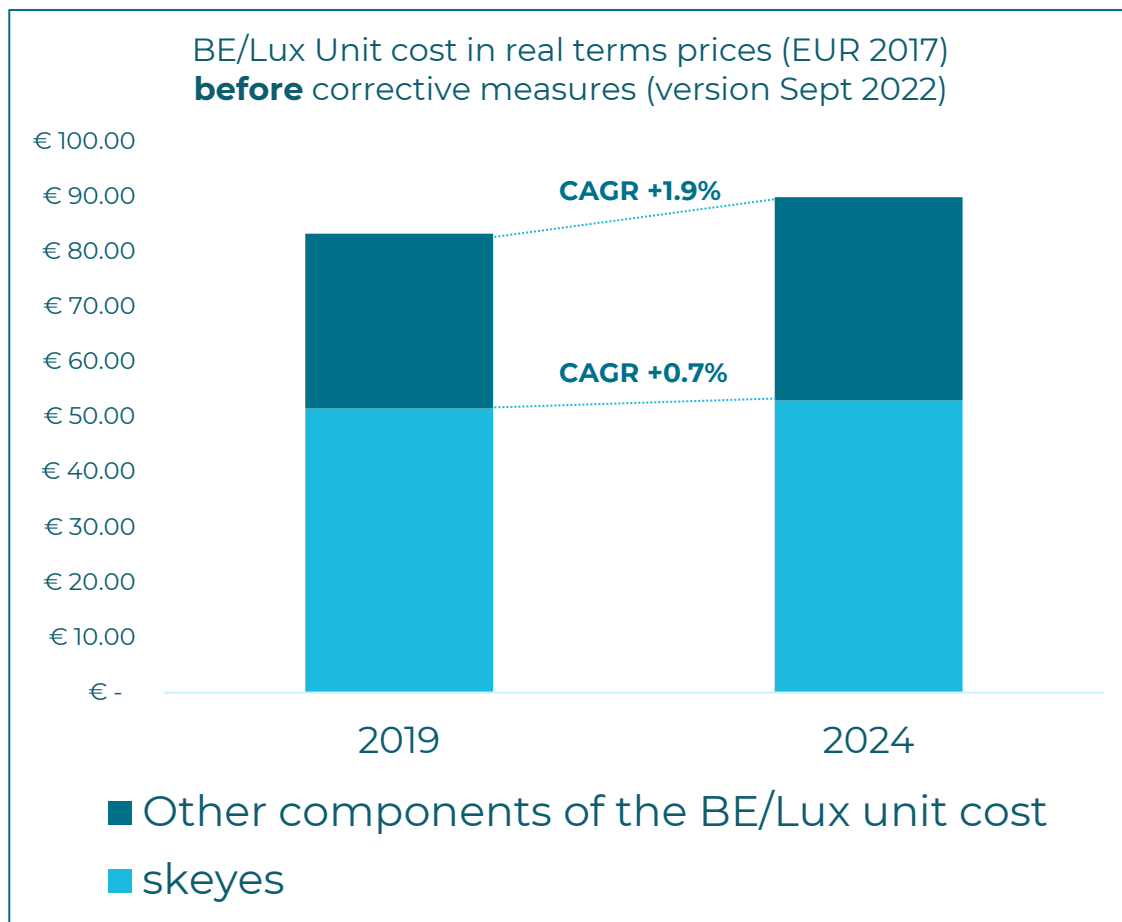
- For the **revised version of the performance plan** for the year 2023 and 2024 skeyes based its financial projections on **2022 actuals**
- **Difference of -5.1K€ nominal and -8.6K€ in real terms** between the July submission and the revised performance plan. The remaining part is mainly related to the cost savings efforts in the other operating costs (e.g. utilities, maintenance, etc.)

3. CONSISTENCY WITH EU WIDE TARGETS

Stakeholders consultation
26 October 2023

Consistency with EU wide Target

skeyes unit cost is consistent with the EU wide trend of +1% (with and without corrective measures)

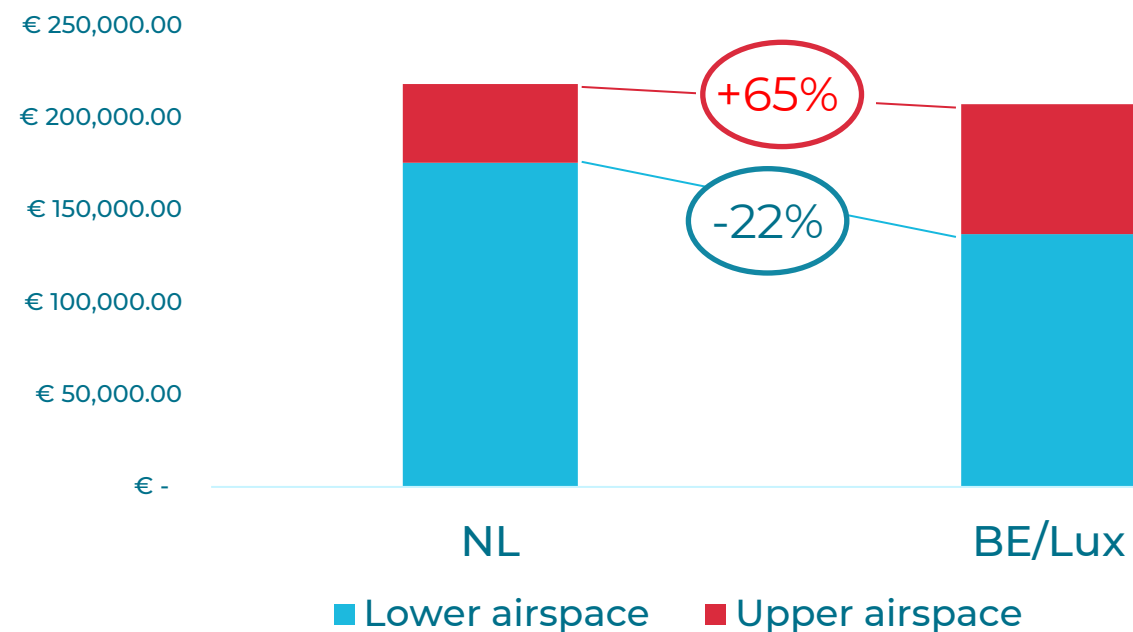


Consistency with EU wide Target

ANS in the BE/Lux upper airspace has higher cost than the comparator group

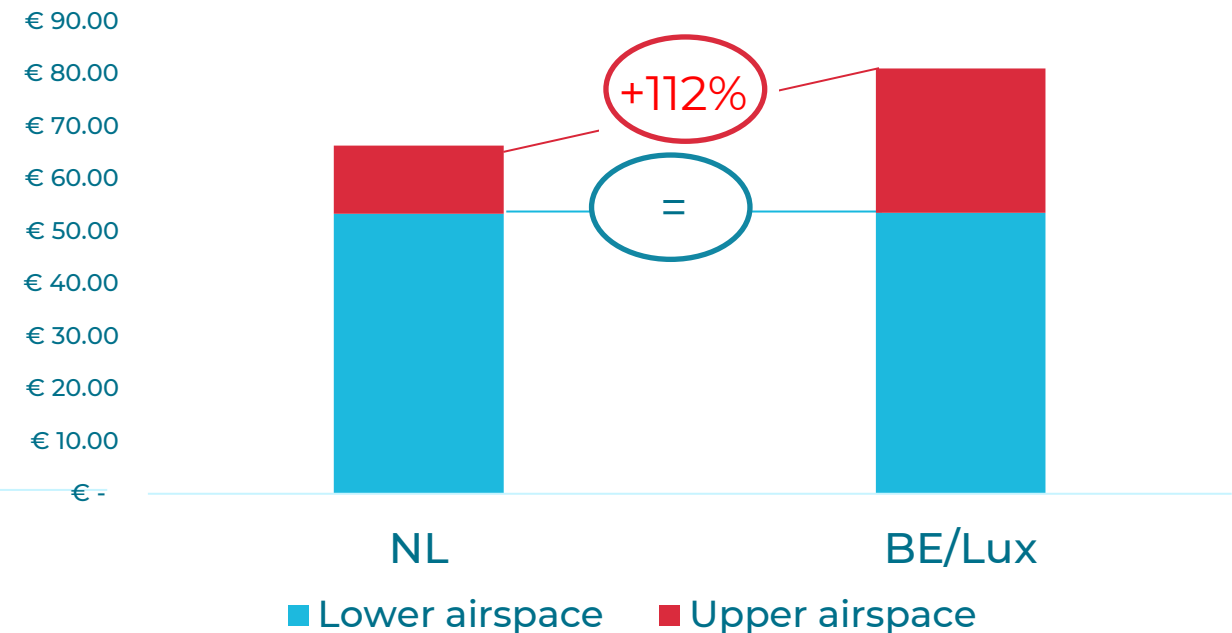
ANS cost base 2024 (excl. exceptional items)

In real term 2017 in m€



ANS unit cost 2024 (excl. exceptional items)

In real term 2017 in m€

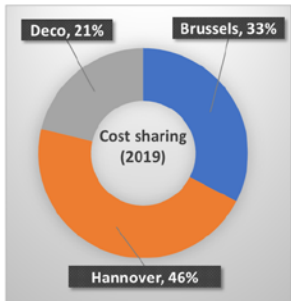


Consistency with EU wide Target

ANS in the BE/Lux upper airspace has higher cost than the comparator group

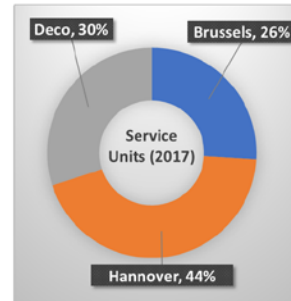
Share of costs

Based on the number of ATCOs
(*MUAC Treaty 1986*)

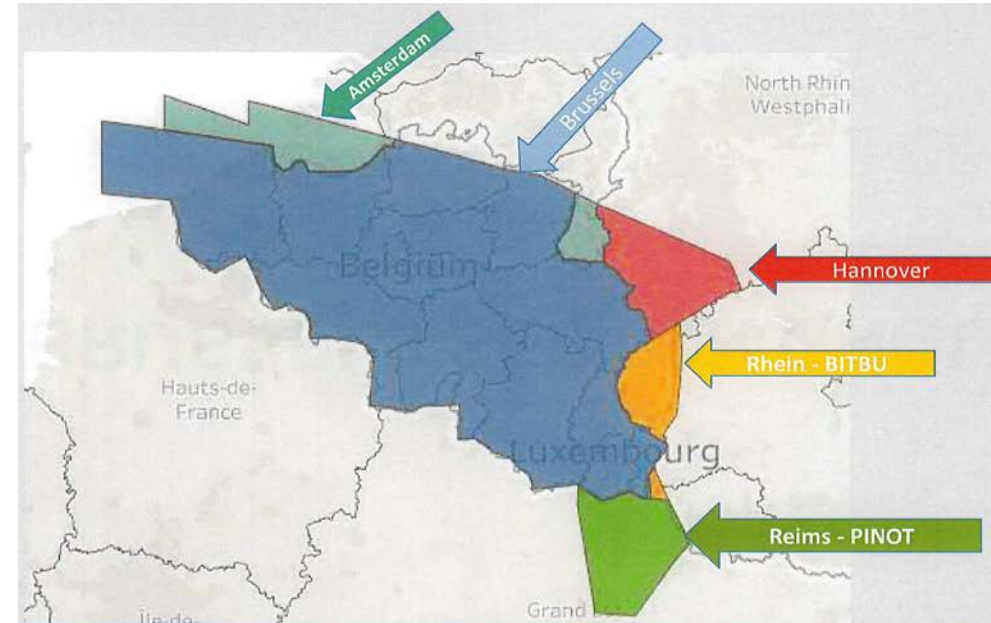


Share of revenues

Based on km flown and aircraft size
(*European Charging scheme*)



Belgium supports a higher cost share for MUAC compared to Netherlands for less service units



Belgium supports ANS cost for delegated airspace in France and Germany while the revenues are allocated to France and Germany

4. NEW MAJOR INVESTMENTS

Stakeholders consultation
26 October 2023

Remote Radio Sites

RP3 KPI	Safety, Capacity
Skeyes driver	Business continuity

Synopsis of investment

This project focuses on improving the redundancy and resilience of the air-ground radio communication infrastructure (Chain A, B and C), and involves the installation of 18 “new” sites for Enroute and Approach. The project comprises two investments: Remote radio sites and the electronic equipment transmitting and receiving centre.

Justification and scope of investment

This investment includes the installation of remote radio sites including radio equipment, electronic equipment and infrastructure (shelters and pylons).

Today, radio communication infrastructure operates from a single site, acting as a single point of failure. Such a failure could have a significant impact on safety and business continuity. Through the installation of additional sites, this risk will be reduced. The geo-redundancy will improve the resilience of the communication services and will limit the risk of traffic disruption.

The project includes installation of 18 “new” sites for Enroute and Approach communications with the following objectives:

- ✓ Objective 1: Installation of geo-redundant A+B sites (main redundant) to minimise risks.
- ✓ Objective 2: Installation of separate C-chain with nationwide coverage.
- ✓ Objective 3: Remove the need for implementation of Climax.



Expected impact on service delivery

- ✓ **Increased level of safety** for airspace users as a result of improved communication service resilience.
- ✓ **Guaranteed business continuity** of air navigation services through reduced traffic disruption.
- ✓ The investment de-risks a single point of failure which could severely impact business continuity

Procurement process / synergies

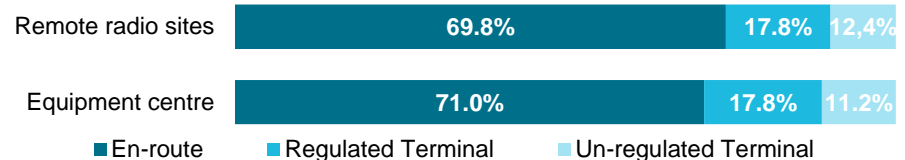
To reduce the total cost of ownership, skeyes has opted for a general call for tender for all remote radio sites. The joint procurement procedure means the best possible price offer is received for the construction of the radio sites.

Project status and RP3 financials

Status: Implementation phase

	2020	2021	2022	2023	2024	RP3	TOTAL
Remote Radio Sites	Planned date of entry: 2024						
CAPEX (in € '000)	108	612	4,488	6,613	0	11.792	11,792
Equipment Center	Planned date of entry: 2024						
CAPEX (in € '000)	85	29	1,116	2,474	0	3.668	3.668

Cost allocation



ATM Next Generation	RP3 KPI	Safety, Capacity, Cost-efficiency
	Skeyes driver	Business continuity, Building capacity

Synopsis of investment
The NextGen ATM program aims to define the future of the current ATM system to support the integration of civil and military ATM services and to improve capacity and operational efficiencies.

Justification and scope of investment

The NextGen ATM program aims to define the future of the current ATM system.

The objectives of the modernisation program are to:

- ensure business continuity
- implement new technologies (new operating system, virtualization, cybersecurity requirements)
- comply with current and future European requirements (e.g. CP1, SES2+)
- comply with performance objectives (safety, environment, cost-efficiency and capacity)
- enable the integration of civil and military air navigation services
- ensure inter-operability with tower system and neighbouring ANSPs

The lifetime of the current ATM system will be extended via a midlife upgrade during RP3 and the deployment of the future system will take place in RP4



Expected impact on service delivery

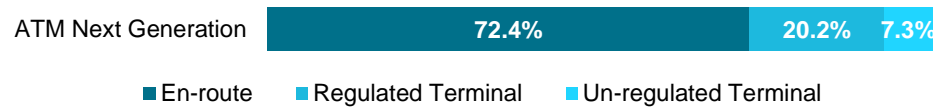
- ✓ **Increased efficiency and capacity** through an integrated and harmonised airspace management system.
- ✓ **Guaranteed business continuity** and increased resilience
- ✓ **Increased safety and security** with the implementation of new technologies.
- ✓ **The risk of not investing** will lead to the use of an aging ATM system and limited alignment to SES data service requirements.

Project status and RP3 financials

Status: Initiation phase

	2020	2021	2022	2023	2024	RP3	TOTAL
ATM Next Gen	Planned date of entry: as of 2024						
CAPEX (in € '000)	0	7,728	2,490	2,771	10,000	22,988	66,988

Cost allocation



Wide Area Networking

RP3 KPI	Capacity, Cost-efficiency
Skeyes driver	Business continuity

Synopsis of investment

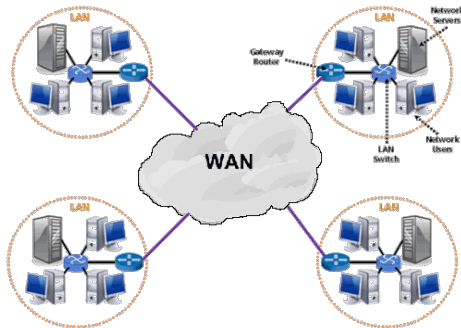
This project focuses on creating a new Wide Area Network (WAN) to support all skeyes operational and business critical processes and related IT systems. In particular, it will provide highly available, secure and scalable network connectivity to interconnect all skeyes locations (point of presence).

Justification and scope of investment

skeyes' existing WAN (SDH network) will no longer be supported by the current Telco service provider, thus becoming obsolete. skeyes has decided to implement a new network that will be easily upgradeable both in capacity and size in order to address future demands.

The new IP network is the underlying secure network service for all skeyes operational and business critical applications. Availability, security, and scalability are of the utmost importance as the unavailability or a security breach may have considerable impact on (the safety of) Belgian air traffic. The network redesign is an opportunity for skeyes to improve its redundancy and resilience, support business continuity, and permit scalability.

WAN is an important investment in skeyes' planning as many of the proposed RP3 investments depend on a reliable and efficient network. The new WAN will limit the risk of data traffic disruption at a national and local level due to reduced network issues (i.e. loss of data transfer).



Expected impact on service delivery

- ✓ **Business continuity** of air navigation services through reduced data traffic disruption.
- ✓ **Cost reduction and efficiency gains** through the use of a more efficient, scalable network.
- ✓ Not investing risks having **no operational WAN** in 2022/2023 and risks the **delivery of other skeyes projects** (e.g. Digital Towers and ATM Next Gen)

Procurement process / synergies

Single tender process.

Project status and RP3 financials

Status: Execution

	2020	2021	2022	2023	2024	RP3	TOTAL
WAN	Planned date of entry: 2023						
CAPEX (in € '000)	25	1.495	3.449	3.608	0	8.576	8.576

Cost allocation



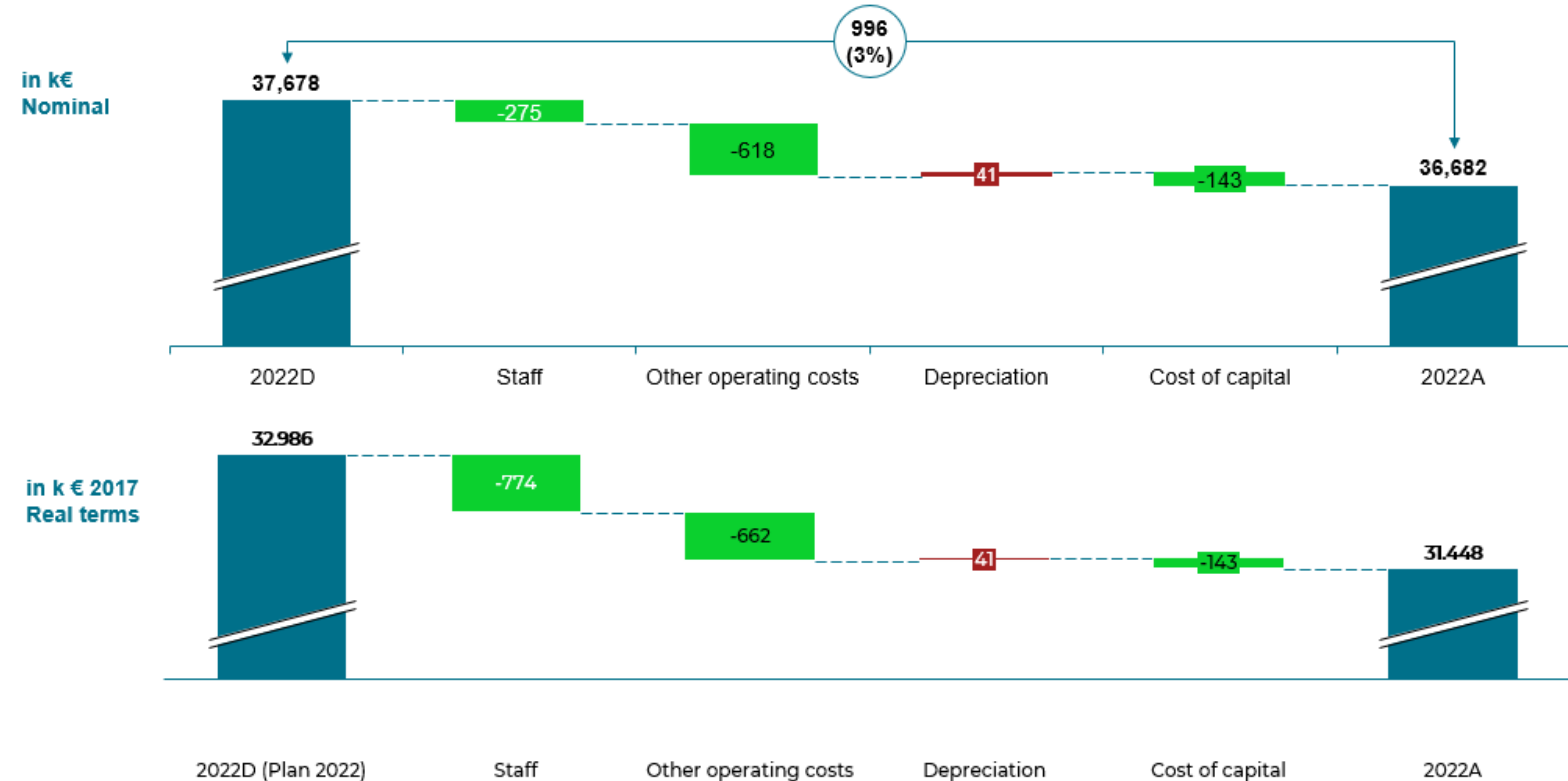
5. TERMINAL COST

Stakeholders consultation
26 October 2023

I. EBBR ACTUAL COSTS 2022


EBBR actual costs 2022

ACTUAL vs. DETERMINED COST



97.4% of budget realisation

EBBR actual costs 2022

- 
- ✓ **The total cost base is 996 k€ or 3% lower than planned**
 - ✓ **Main explanations for the deviations**
 - Actual staff costs 1% lower than planned.
 - Other operating costs remain 9% under budget mainly due to delay in projects delivery resulting in less third party external costs, maintenance and lower general expenses.
 - Planned depreciation is fully realized.
 - Cost of capital is lower than planned, mainly due to a lower fixed asset base. WACC percentage kept at 1,72% as planned.

II. EBBR DETERMINED COSTS 2023-2024

EBBR determined costs 2023-2024

Revised cost base for the year 2023 and 2024 based on 2022 actuals

- Expected impact on the cost base : -1.4M€

REAL	RP3v5		RP3v6		Diff real	
Cost details	2023	2024	2023	2024	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	25,959	26,406	24,734	26,090	-1,225	-316
1.2 Other operating costs	6,357	6,293	6,011	5,804	-346	-489
1.3 Depreciation	2,796	3,787	2,689	3,365	-107	-423
1.4 Cost of capital	1,049	1,510	936	1,242	-113	-268
1.5 Exceptional items	0	-1,658	0	-1,597	0	61
1.6 Total costs	36,162	36,338	34,371	34,904	-1,791	-1,435

STAKEHOLDER CONSULTATION – MUAC

BELGIUM LUXEMBOURG – 26 OCTOBER 2023

Philippe de Coune – Head of Finance

Projects and Performance in 2023

MUAC programmes

Airspace

To optimise the MUAC AoR for higher efficiency, capacity and environmental targets

CONOPS 2030

To remain best in class on operational performance: traditionally cost, capacity, productivity and delays, + customer preferences and environment

MADAP 2030

To increase the robustness and resilience of our technical systems.

Shared Services

To increase our service portfolio and thereby secure our independence (both technical and CONOPS)

MeDUSA

To upgrade the Fallback System for a safe transition from Primary high capacity to Fallback sustained capacity

PHOENIX

New OPS Building to achieve long term business objectives and green certification

CONOPS 2030: Status

- **Environment**

- **COAV:** camera-based validation platform and next trial under preparation
- **FOCUS/ATMP:** Further develop the Customer Service in collaboration with NM and ECTRL InnoHub

- **Automation**

- **ARGOS:** implementation of LORD (horizontal conflict resolution advisory) for validators
- **MUSE:** individual learning trajectory with self-training, speech recognition, adapted exercises and automated evaluation

- **Optimised Sector Manning (OSM)**

- Increased flexibility in sector transitions and managing short periods of traffic over-demand
- Exchange with NATS to be planned

- **Full civil-military integration (CIMI):** ongoing

- **Best Equipped Best Served (BEBS):** to boost datalink usage in MUAC airspace; study being concluded

MADAP 2030

- Triggers:
 - Need to robustify the systems with a view towards collaboration with partners
 - Move towards scalable cloud solutions
 - Internal surveys
- Ongoing:
 - Agile development
 - DPS modernisation & AIRAC automation: call for tenders to be published by end '23
 - FDO Renewal: design phase concluded
 - Manpower Planning Suite: IOC in Jan '24
 - CWP Technology Study: to replace GUI toolkits; ongoing
 - Cyber security: to review IT security risks and develop roadmap

Shared Services

- ADaaS2:
 - Demonstrate 2-ADSP (MUAC, SCL) architecture, serving 1 ATSU (SCL) by Shadow Mode and possibly OPS Trials
 - Synchronisation between MUAC FDPS and SCL FDPS
 - SCL CWP switchable between MUAC FDPS and SCL FDPS
 - *Adapt the SCL FDPS for MUAC's (MeDUSA) and skeyes' (SAS3) fallback requirements*
 - Replanning following SAS3 and MAKAN
- SAS3
 - Dedicated ATS system for skeyes and BEL DEF, with PRI from MUAC; FLB and UFS at skeyes
 - Mutual contingency provisions
 - skeyes Board meeting on 13.10.22 concluded that risks could not be sufficiently mitigated and issued mandate to negotiate the termination of the SAS3 Cooperation Agreement with BEL DEF and MUAC
- ✓ iFMP@KUAC
 - To deliver MUAC's iFMP as a service, tailored for KUAC airspace and needs
 - First instantiation of MAKAN cooperation
 - ✓ O-Date: 27 April '23

Shared Services: MAKAN

- Scope
 - setting up a virtual infrastructure as two geo-redundant data centres, providing services and software solutions to MUAC and KUAC, and potentially 3rd party ATSUs, in 3 threads:
 - Reduce the OPS Gap between MUAC and KUAC
 - Implement a common system
 - Technological convergence (geo-redundant data centres, *cloud ready*)
- Costs
 - Each party covers own cost, unless effort is for one party only (e.g. iFMP)
 - Cost sharing principles for O&M phase as in SAS3: driven by number of movements (reported by NM)
- Timeline
 - Sept '22: PC approval
 - 2022 – 2023: implementation of first MUAC service, i.e. ATFCM/ASM services to KUAC → **iFMP@KUAC**
 - 2022 – 2028: CONOPS convergence to realise „best of both worlds“
 - 2023 – 2026: implementation of first KUAC service (PHNX-SDPS) to MUAC
 - 2028 – 2030: common system at MUAC and KUAC based on virtual centre idea

Shared Services: SOFIA

- SOFIA =Service Oriented FDPS Interfaces and Architecture
 - Architectural study to define the future FDPS reference architecture and set a roadmap for implementation
 - Compatible with MAKAN target architecture
 - Contractor: INDRA
- Cost
 - Under definition
- Timeline:
 - Contract signature: Dec '23
 - Study report: Dec '24

MeDUSA (MUAC Dual System Architecture)

- Scope
 - An upgraded Fallback System to support the necessary OPS requirements for a safe transition from Primary high capacity to Fallback sustained capacity.
 - Provide the following additional functionalities on top of the currently existing:
 - Same look and feel for the ATCO's on the FLB-CWP as the PRI-CWP
 - Data Link communications (Logon & CPDLC)
 - OLDI out
- Cost
 - Effort: 10,000 md
 - CAPEX: 16.7 M€
- Timeline
 - ✓ Oct '21: Cooperation Agreement with SCL for FLB-FDPS (KAMI-FDPS)
 - ✓ Apr '22: Call for Tenders for FLB-CWP published
 - ✓ Q2.23: Contract Signature for FLB-CWP
 - Q4.26: MeDUSA IOC

PHOENIX

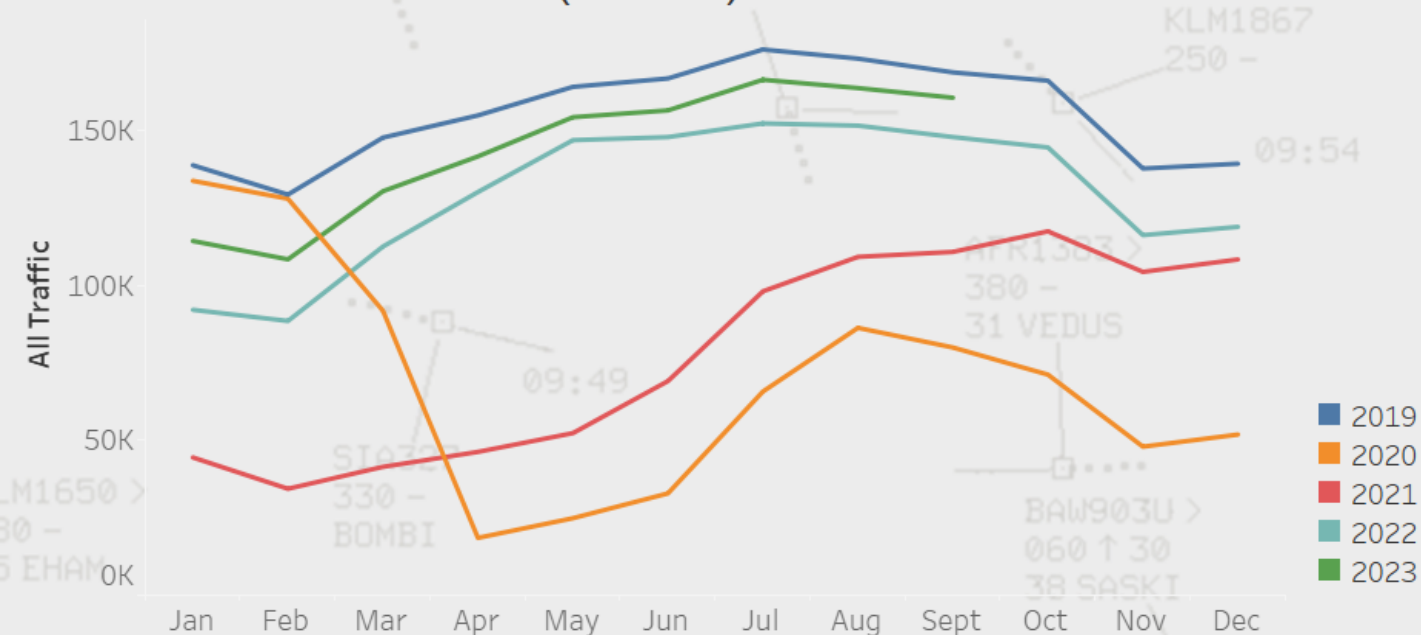
- Scope
 - New Operational Building achieving BREEAM NL Excellent certification level
 - New consoles designed to modern ergonomic standards and flexibly locatable in a brighter OPS Room
 - Improved training, test and local contingency infrastructure
- Benefits
 - Meet long-term business demands: additional sectors to handle peak traffic increase
 - Deliver future-proof operational services: new concepts and services, enable automation levels
 - Mitigate refurbishment risk
- Timeline
 - Initial presentation of the Programme in October 2020 (BFWG, MCG/99)
 - Three technical workshops for the MCG members (01/21, 04/21, 09/22)
 - 02/2023 – Delivery of the Architectural study (FEL2)
 - 4th Technical Workshop for 4 States
 - The 4 States' approval of the PHOENIX Programme
 - Operational use of new OPS Room: Q4.28

IFR Traffic Movements, 01 Jan-30 Sep

2023	VS 2022	VS 2021	VS 2020	VS 2019
1,296,201	11%	114%	661,872	-9%

	2023	VS 2022	VS 2021	VS 2020	VS 2019
Jan	114,330	24%	157%	-15%	-18%
Feb	108,415	22%	215%	-15%	-16%
Mar	130,400	16%	215%	42%	-12%
Apr	141,634	9%	206%	665%	-9%
May	154,289	5%	195%	520%	-6%
Jun	156,486	6%	126%	376%	-6%
Jul	166,378	9%	70%	153%	-6%
Aug	163,692	8%	50%	90%	-5%
Sept	160,577	9%	45%	101%	-5%

Evolution of Traffic in the MUAC Area (2019-2023)



IFR Traffic Movements per Sector Group (Sep/2023)

BRU

DEC

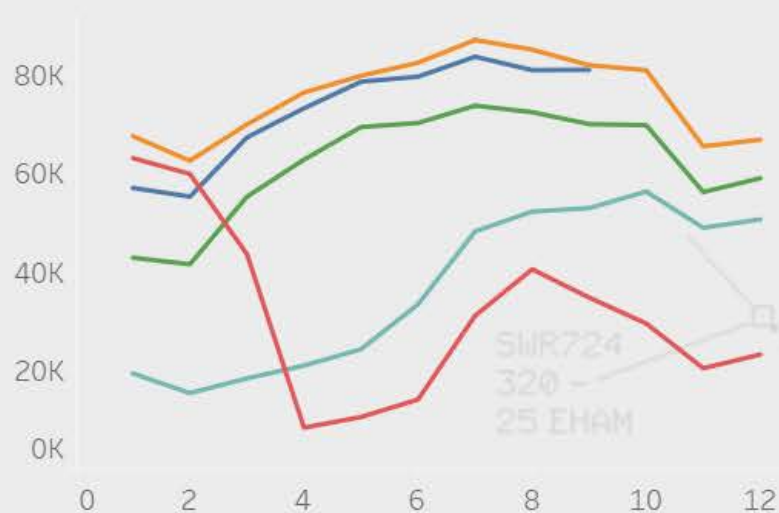
HAN

Traffic : 81.225
vs Prev. Month: 0%

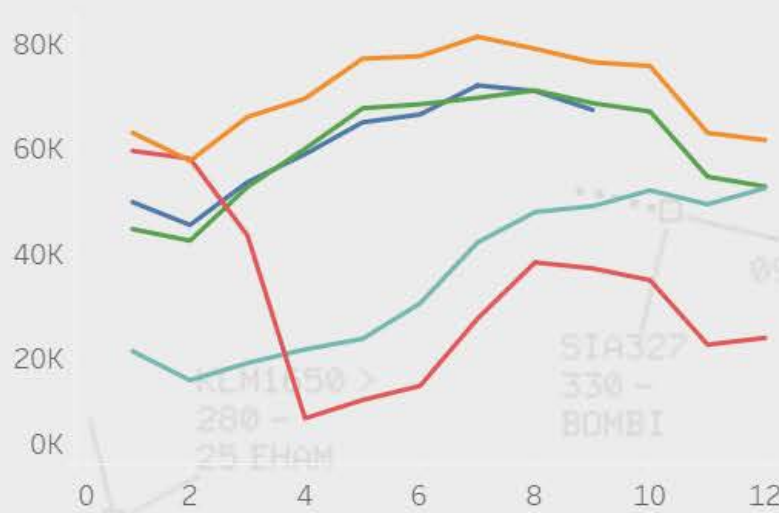
Traffic : 67.430
vs Prev. Month: -5%

Traffic : 68.195
vs Prev. Month: -5%

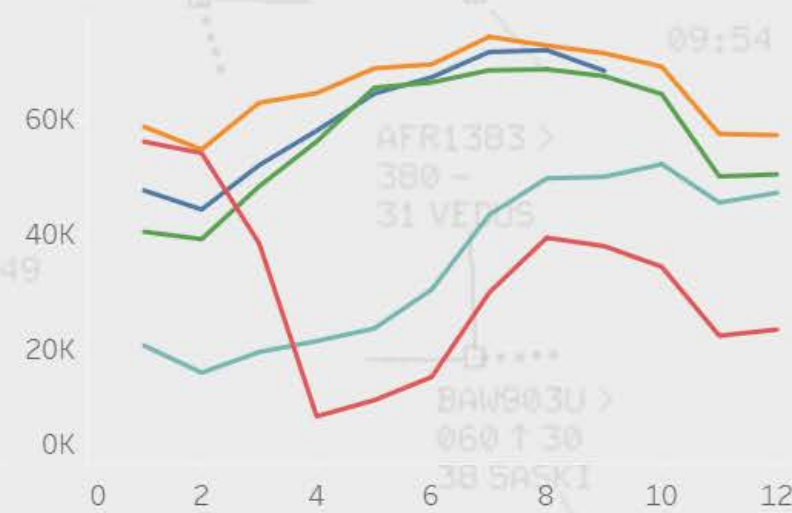
Evolution of Traffic - BRU



Evolution of Traffic - DEC



Evolution of Traffic - HAN



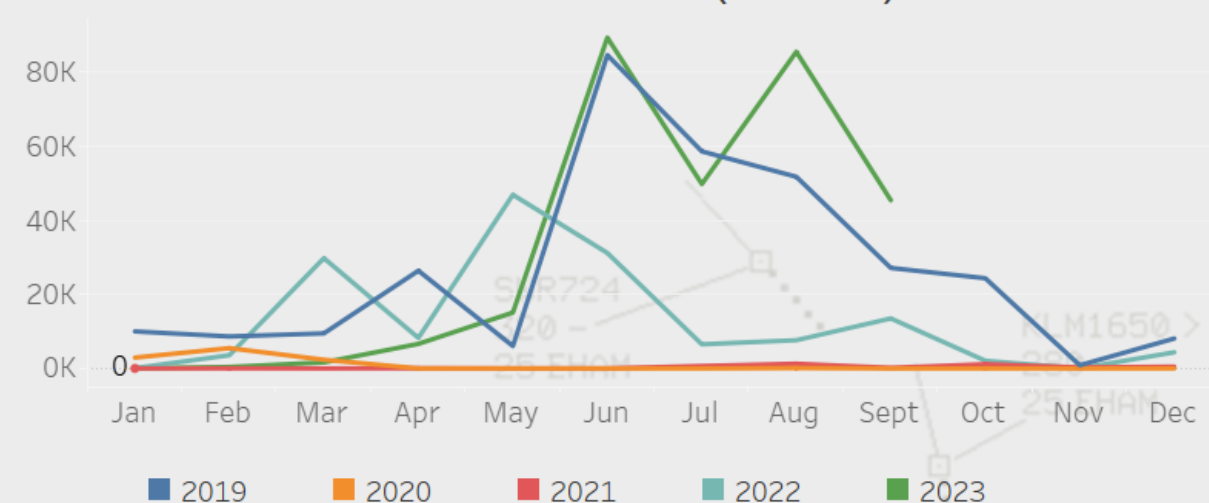
2019 2020 2021 2022 2023

ATFM DELAY, 01 Jan-30 Sep

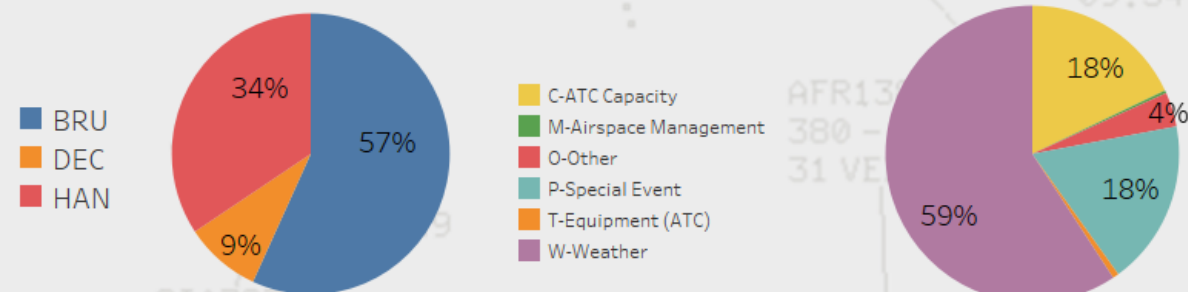
2023	vs 2022	vs 2021	vs 2020	vs 2019
293.912 min	99%	13679%	2612%	4%

* period over period comparison

EVOLUTION OF ATFM DELAY IN THE MUAC AREA (2019-2023)



MUAC DELAY PER REASON PER SECTOR GROUP

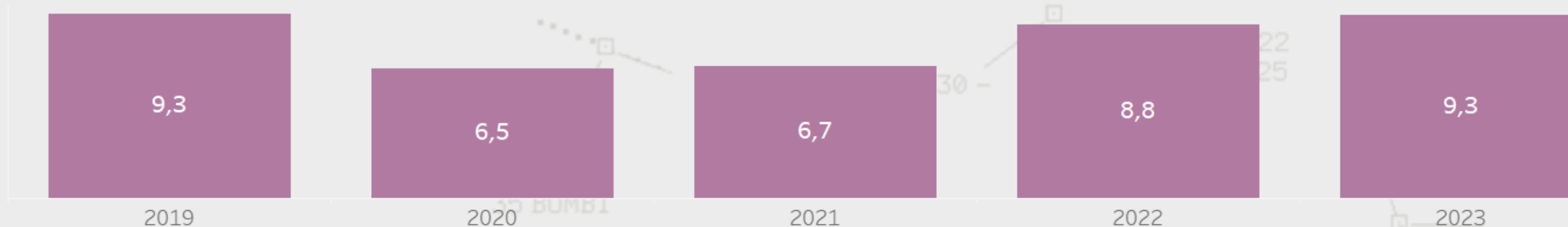


Other (Sep): AIRAC Switch/ High Demand/New Frequency

PRODUCTIVITY

Sector Productivity

This indicator is the ratio between IFR flight-hours and available sector.



ATCO-hour Productivity

This indicator is the ratio between IFR flight-hours and ATCO-hours on duty.



MUAC is approaching full efficiency as the traffic recovers.

Finance perspective

Determined Costs vs Actual Costs 2021 -2022

Details by nature - MUAC BE

		Determined costs		Actual costs	
		2021	2022	2021	2022
Cost details					
1. Detail by nature (in nominal terms)					
1.1 Staff		51 662	67 862	52 676	61 704
of which, pension costs		4 469	12 576	6 168	12 037
1.2 Other operating costs		8 222	11 762	7 311	8 620
1.3 Depreciation		2 032	2 069	1 951	1 842
1.4 Cost of capital		78	98	56	56
1.5 Exceptional items		0	0	0	0
1.6 Total costs		61 994	81 791	61 994	72 222
Total	% n/n-1	-0.4%	31.9%	-0.4%	16.5%

The increase(+16,5%) in 2022 compared to 2021 is explained by

- inclusion of tax compensation & HQ support cost (+ 12,6 %)
- increased BE sharing keys (0,4%)
- the remaining 3,5% is mainly due to inflation on staff and operating costs

For 2022, the difference between the determined costs (81,791 K€) and the actual costs (72,222 K€) is reimbursed to airspace users (as exceptional items in 2024)

Determined Costs : 2022-2024 MUAC BE

comparison between:

- version 2 submitted in 2022 revised plan
- version 3 submitted in September 2023

Cost details MUAC BE	2022			2023				2024			
	Version 3 (K€)	version 2 (K€)	Variance (K€)	Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)	Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)
1. Detail by nature (in nominal terms)											
1.1 Staff	67 862	67 862	0	66 584	72 260	-5 676	-8%	72 102	75 121	-3 019	-4%
<i>of which, pension costs</i>	12 576	12 576	0	12 842	13 572	-730	-5%	13 680	14 364	-684	-5%
1.2 Other operating costs	11 762	11 762	0	10 155	10 797	-642	-6%	11 039	10 453	586	6%
1.3 Depreciation	2 069	2 069	0	1 997	2 458	-461	-19%	2 171	2 639	-468	-18%
1.4 Cost of capital	98	98	0	93	115	-22	-19%	246	136	110	81%
1.5 Exceptional items	0	0	0	0	0	0		-11 312	0	-11 312	
1.6 Total costs	81 791	81 791	0	78 829	85 630	-6 801	-8%	74 246	88 349	-14 103	-16%

2022 : no changes in determined costs as instructed but difference between determined and actual costs reimbursed in 2024

2023 : reduction of 6,8 million €(-8%), mainly due to significant reduction in staff costs due to lower indexation of remuneration than foreseen

2024 : overall reduction of 14,1 million €(-16%) explained by

- exceptional items: -11,3 million €made of -2 million €related to investmentcost not relaized in RP2 and -9,3 related to unspent in 2022
- staff costs: - 3 million € (-4%) , lower indexation than foreseen

In Total for MUAC BE, -20,9 million €over 2023 and 2024

Summary of Corrective measures for MUAC BE & LU

Summary of corrective measures	Amounts (in nominal terms in K€)
RP2 investment cost not realized: MUAC BE	-2,013
RP2 Investment cost not realized: MUAC LU	-62
2022 difference between determined costs and actual costs (staff and other operating costs): MUAC BE	-9,299
2022 difference between determined costs and actual costs (staff and other operating costs): MUAC LU	-288
2023 reduced determined cost MUAC BE	-6,801
2023 reduced determined cost MUAC LU	-211
2024 reduced determined cost MUAC BE (except exceptional items already taken into consideration)	-2,791
2024 reduced determined cost MUAC LU (except exceptional items already taken into consideration)	-86
TOTAL reductions (nominal terms)	21,551

For MUAC BE : -20,9 million €

For MUAC LU : -0,7 million €

TOTAL corrective measures = 21,6 million €



User Consultation En Route RP3 (2020-2024)

ANA - Luxembourg

Brussels, 26 October 2023



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Administration de la navigation aérienne

What we do



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Actual costs 2022



Cost details	2022		
	Determined (in k€)	Actuals (in k€)	Difference (in k€)
1.1 Staff	5.103	5.350	247
1.2 Other operating costs	1.411	1.534	123
1.3 Depreciation	798	638	- 160
1.4 Cost of capital	-	-	-
1.5 Exceptional items	-	-	-
1.6 Total costs	7.312	7.522	210

- Increase of staff costs for 247 k€ : mainly due to an increase of the number of ATCO, as a few persons who could have retired decided to carry on working.
- Increase of Other operating costs for 123 k€ : mainly related to higher overhead costs and unforeseen expert costs for the CNS department in order respond to unexpected resignations of ATSEP.
- Due to budget constraints, ANA had to revise the investment plan which lead to project cancelations and postponements for a total amount of 160 k€.
- Cost of capital is nil, as the ANA is 100% equity financed

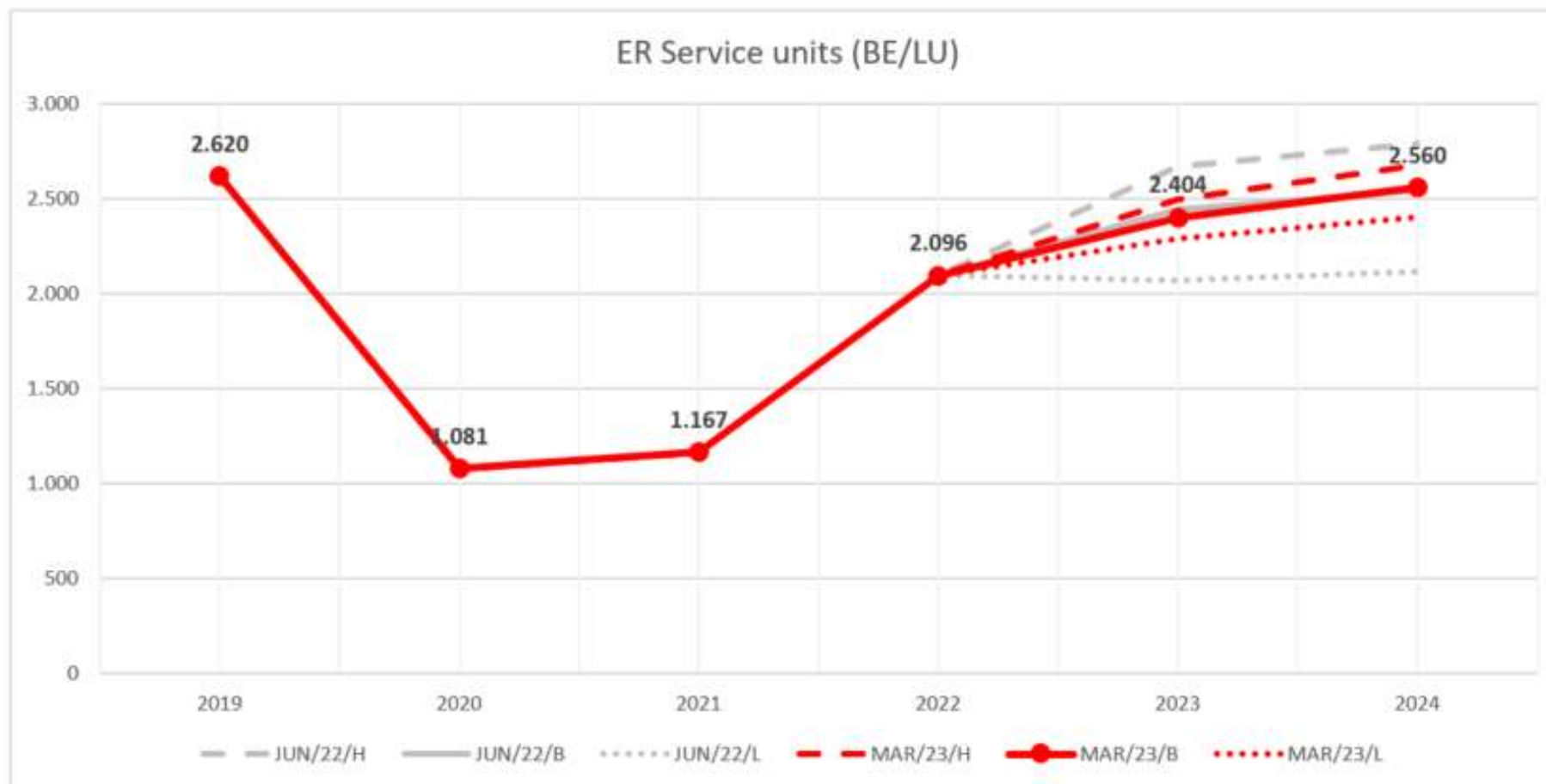


Traffic forecast update

Service units forecast (traffic scenario)



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Unit rate calculation

Other revenues (borne by the state)



- **Cost of capital and investment costs (depreciation)**, as well as the **cost of the ELE staff** - will continue to be carried by the State of Luxembourg throughout RP3 (other revenues – national public funding section).

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)	2020-2024 (in k€)
1.1 Staff	9.890	5.103	5.216	5.388	25.598
<i>of which, pension costs</i>	188	97	99	102	487
1.2 Other operating costs	3.656	1.411	1.561	1.586	8.213
1.3 Depreciation	1.146	798	791	828	3.563
1.4 Cost of capital	272	-	-	-	272
1.5 Exceptional items	-	-	-	396	- 396
1.6 Total costs	14.964	7.312	7.568	7.407	37.251



Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)	2020-2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407	37.251
Other revenues	- 1.854	- 2.969	- 1.217	- 1.198	- 7.238
Remaining cost	13.109	4.344	6.351	6.209	30.013

Please note that the presented figures are provisional and subject to official confirmation



- The chargeable unit rate calculated for RP3 **before** carry forward adjustments (only ANSP part – Performance plan):

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407
Other revenues	- 1.854 -	2.969 -	1.217 -	1.198
Remaining costs	13.109	4.344	6.351	6.209
Total Service Units (forecast)	2.242	2.108	2.404	2.560
Unit rate (before carry-forward adjustments) (in €/SU)	5,85	2,06	2,64	2,43

Unit rate after carry-forward adjustments



- The chargeable unit rate calculated for RP3 **after** carry forward adjustments (only ANSP part – Performance plan):

Terminal	2020/2021 (in k€)	2022 (in k€)	2023 (in k€)	2024 (in k€)
Determined costs	14.964	7.312	7.568	7.407
Other revenues	- 1.854	- 2.969	- 1.217	- 1.198
Remaining costs	13.109	4.344	6.351	6.209
13.2 Inflation adjustment : amount carried over to year n	235	-	102	151
13.3 Traffic risk sharing adjustment : amounts carried over to year n	68	-	-	-
13.7 Traffic adjustments : amounts carried over to year n	33	76	124	- 12
13.10 Difference in revenue from temporary application of unit rate	-	-	-	1.028
Chargeable costs	13.445	4.420	6.577	7.376
Total Service Units (forecast)	2.242	2.108	2.404	2.560
Unit rate (after carry-forward adjustments) (in €/SU)	6,00	2,10	2,74	2,88



- Pension cost : Variation between determined pension costs and actuals

	Pension cost (ER)				Total
	2020-21	2022	2023	2024	
Determined costs	188	97	99	102	
Actual costs	182	67			
	6	30			36

- Pension cost decrease as a result of a change in legislation : it has become easier to obtain the “Civil servant” status, which is not subjected to pension cost.
- Following the new legislation, the percentage of civil servant has increased, leading to a decrease of pension cost.

=> **Proposal :**

- We propose to reimburse the difference to the users in RP4 through the RP4 carry-forward adjustment.



- Investment cost : Variation between determined investment costs and actuals

	Investment cost (ER)				Total
	2020-21	2022	2023	2024	
Determined costs	1.359	798	791	828	
Actual costs	1.315	638			
Difference	43	160			204

- Due to budget constraints ANA had to revise the investment plan, which lead to project cancelations and postponements. Concerning 2022, those decision although don't have yet an impact on the costs. The lower depreciation amount is mainly due to the later capitalisation of two projects, the surveillance chain upgrade and the replacement of the WAN and LAN infrastructure.

=> Proposal:

- We propose to reimburse the difference to the users in RP4 through the RP4 carry-forward adjustment.



ANA Annual Report 2022



KPI	2022	RP3 Target
ATFM arrival delay KPI	0.10 min	0.05 min
ATC Departure delay	0.04 min	N/A
Airport Slot adherence (CTOT-ATOT)	94.12%	N/A



EoSM	Score Safety Culture	Safety Policy and Objectives	Safety Risk Management	Safety Assurance	Safety Promotion
ANA LUX 71	B	B	C	B	B
RP3 Target 2022	C	C	D	C	C



ANA Project Portfolio

2. ANA projects finalised in 2022



Project Ref & Name	Entity	Finalization Date
MeteoLux Mobile application	MET	31/07/2022
LVP for runway 06	TWR	31/12/2022
Mode S compliance in FABEC area	APP	30/10/2022
ATCO Qualification Management Tool	ADM	31/07/2022
NDB-Independent Flight Procedures Luxembourg	APP	27/01/2022

2. ANA projects portfolio (June 2023)



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Entity	Project Name	Revised End Date	
ATC	TWR 3rd Position	01/06/2023	COMPLETED
ATC	Reduced RWY separation	01/06/2023	COMPLETED
ATC	ANA Contingency Phase I & analyse préparatoire phase II	30/06/2023	
ATC	A-SMGCS Phase 1 & Phase 2	01/08/2023	
ATC	PBN SID's for ELLX	05/10/2023	
ATC	TA 5000 within ELLX TMA	05/10/2023	
ATC	Approach Controller Final Director (3rd APP Position)	30/06/2024	
ATC	New ANA Tower	31/12/2027	
ATC/CNS	BTO Building refurbishment	31/12/2024	
CERT	CENTRIK Integrated management tool	31/12/2025	
CNS	Surveillance chain upgrade	30/09/2023	
CNS	AMHS upgrade	31/12/2023	
CNS	VCS	31/12/2024	
ELE	ALCMS update phase 2	28/06/2023	COMPLETED
ELE	New CCR's in new ELE stations	14/07/2023	
ELE	Electrical Station for Gate 18 and stations 06 & 24	01/10/2023	
ELE	Lot 71 A-New ducts for medium voltage, fiber optic	01/10/2023	
ELE	Implementation of the ILCMS	30/09/2024	
ELE	Power Station North	01/05/2025	
MET	Flash flood guidance and forecast system	31/12/2023	
MET	Redundant Data Collector & New Sensors for Metgarden	31/12/2023	
MET	New MeteoLux website	01/06/2024	
MET	Synergie-WEB Visualization and data integration meteorological tool	01/07/2024	
MET	AWOS 2020	31/10/2024	
MET	ADD with integrated D-ATIS	30/06/2025	
OPS	Billing and statistics program	30/09/2023	
OPS	Web Geographic Information system (GIS)	31/12/2024	
OPS	AIM data base	28/02/2026	

2. Future main projects not endorsed yet



Initiator	Target	Description
ATC	Optimization of existing routes & Use of Satellite guidance	<ul style="list-style-type: none">• Introduction of new PBN roads to facilitate continuous descents• Improved interfaces with our sectors adjacent to optimize traffic flows
ATC	Optimization of aircraft separations	<ul style="list-style-type: none">• Reduction of aircraft separations 5 to 3 nautical miles in the TMA in order to increase ELLX's capacity
ATC	Apron control	<ul style="list-style-type: none">• Tower position for parking once the new tower will be operational
ATC	DigiStrips	<ul style="list-style-type: none">• Replace PaperStrip
CNS	Surv Chain performance	<ul style="list-style-type: none">• Improving radar coverage above Luxembourg through the implementation of Eurocontrol recommendations (MLAT coverage, etc.)
CNS	Maintain the level of compliance of CNS systems and equipments	<ul style="list-style-type: none">• Based on a functional system monitoring and a regulatory watch of our communication, navigation and surveillance systems
MET	Renewal of the technical infrastructure	<ul style="list-style-type: none">• Development of an infrastructure solution for downloadable data, high value data as well as for aeronautical data access and transmission using ICAO/EASA required formats
OPS	Upgrading Aeronautical Message Handling System (AMHS)	<ul style="list-style-type: none">• Upgrading the transmission system of aeronautical messages and developing new skills inherent in this evolution



- What else can ANA do for you?
- Do you have any questions?

Thank you!

ANNEX F. BASELINE VALUES (COST-EFFICIENCY)

The baseline values for determined costs have been calculated by using the actual costs 2014 and 2019.

1. En-route

1.1. Actual costs 2014 and 2019

Actual costs of Air Navigation Services in the Be/Lux charging zone amounted to 161,485 million euros in 2014 (in real terms).

Actual costs of Air Navigation Services in the Be/Lux charging zone amounted to 193,678 million euros in 2019 (in real terms).

1.2. Adjustments to the 2014 baseline value for the determined costs

1.2.1. ANA Luxembourg

In the first reference period, the costs of ANA Lux were not included in the cost base of BE-LUX. From the second reference period (2015) onwards, the costs of ANA Lux were added to the cost base. To make comparisons between several years, this effect must be neutralised by including these costs in the baseline value (2014).

1.2.2. skeyes

The cost allocation methodology for the approach services has been modified for the third reference period to better reflect the operational requirements and workload by charging zone (cf. annex M). The change in the allocation of these costs is also applied to the baseline value of 2014. These changes correspond to a transfer of 14.3 million € (in real terms) from the terminal charging zones to the en-route charging zone.

1.2.3. MUAC

In 2016, an agreement was reached with regard to a new cost allocation methodology within Eurocontrol. Part of this agreement was the transfer of the tax compensation and support costs from the general Eurocontrol budget to the MUAC cost base.

In 2014, the tax compensation amounted to € 12.072.849,79 (in nominal terms). The Belgian share within MUAC for 2014 was 30.8550%, the Luxembourg share was 0.9543%, resulting in an adjustment of 4 million € (real terms). The amount originally included in the Eurocontrol cost base is deducted from the Eurocontrol cost base in the baseline 2014 (-283 k€).

Similarly, the HQ and support costs amounted up to 6 million € (in nominal terms). The Belgian share within MUAC for 2014 was 30.8550%, the Luxembourg share was 0.9543%, resulting in an adjustment of 2 million € (real terms).. The amount originally included in the Eurocontrol cost base is deducted from the Eurocontrol cost base in the baseline 2014 (-147 k€).

1.3. Adjustments to the 2019 baseline value for the determined costs

1.3.1. skeyes

The cost allocation methodology for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M).

These changes in the methodology compared to the previous reference period correspond to a transfer of 14.3 million € (in real terms) from the terminal charging zones to the en-route charging zone.

1.3.2. MUAC

In 2016, an agreement was reached with regard to a new cost allocation methodology within Eurocontrol. Part of this agreement was the transfer of the tax compensation and support costs from the general Eurocontrol budget to the MUAC cost base.

In 2019, the tax compensation amounted to 17.553.719 EUR (in nominal terms), 40% of which were attributed to the MUAC special annex (EUROCONTROL Part IV) and 60% thereof to the EUROCONTROL General Budget (Part I). The HQ support costs amounted to 4.514.080 EUR, included by 100% into the MUAC Special Annex (Part IV). The Belgian share within MUAC for 2019 was 31.5912%, the Luxembourg share was 0.9770%.

In order to provide for a baseline that makes future costs comparable to the situation in 2019, the MUAC cost base is adjusted accordingly, and 3.31 million € (2017 prices) is added. The amount originally included in the Eurocontrol cost base is deducted from the Eurocontrol cost base in the baseline 2019 (-177 k€).

1.3.3. ANA

Cost allocation keys are revised based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

In order to provide a baseline that makes future costs comparable to the situation in 2019, the ANA cost base is adjusted accordingly, and 118 KEur (2017 prices) is added.

1.4. Adjusted service units

The requirements for the calculation of en-route service unit have been modified for the third reference period: the service unit shall be calculated according to the actual route flown (while the service unit shall be calculated according to the last filed flight plan during RP2).

CRCO made a comparison between the number of service units calculated from actually flown routes and calculated from flight plan. For the charging zone of Belgium/Luxembourg, the difference is estimated at 3.13%¹. This relatively high difference is probably due to the limited size of the Belgium/Luxembourg charging zone with a high proportion of military airspace (direct routes are given as soon as a military zone is released for civil air traffic).

The service units 2014 and 2019 have been adjusted to neutralize the impact of this regulatory change.

2. Terminal EBBR

1.5. Actual costs 2019

Actual costs of Air Navigation Services in the EBBR terminal charging zone amounted to 37,584 million euros in 2019 (in nominal terms).

1.1.1. Change of cost-allocation methodology

The cost allocation methodology for the approach services has been modified for the third reference period to better reflect the operational requirements (cf. annex M). The cost allocation methodology for the Belgian Supervisory Authority for Air Navigation Services has been modified for the third reference period to better reflect the workload by charging zone (cf. annex M).

These changes in the methodology compared to the previous reference period correspond to a transfer of 4.575 million € (nominal terms) from EBBR terminal charging zones to the en-route charging zone.

3. Terminal ELLX

3.1. Actual costs 2019

Actual costs of Air Navigation Services in the ELLX terminal charging zone amounted to 13,191 million euros in 2019 (in nominal terms).

3.2. ANA

Cost allocation keys are revised based on the actual allocation keys, applicable for RP2, and reflect changes in the services provided and cost centres.

In order to provide a baseline that makes future costs comparable to the situation in 2019, the ANA cost base is adjusted accordingly, and 654 KEur (2017 prices) is added.

¹ EUROCONTROL Intermediate two-year Forecast – May 2019, Annex 4

ANNEX M. COST ALLOCATION

1. Introduction

Pursuant to point 3.3(d) of Annex II of Implementing Regulation (EU) 2019/317, this annex provides additional information on cost allocation between en route, terminal charging zone and other services.

From the third reporting period onwards, the cost allocation for approach services and the cost allocation for supervisory costs will be modified in view of the operational arrangements and airspace structure. Paragraphs 3 and 4 of this annex provides further information on the reasons for these changes.

2. Cost allocation system

skeyes has an activity-based costing system.

As a general principle, as many costs as possible are allocated directly to the appropriate cost/activity centre. For the costs which cannot be allocated directly to the appropriate cost/activity centre, allocation keys are defined based on the general principle that every user (internal customer) is paying for the requested services. E.g. the cost of the building is paid per m² used, etc.

A list of cost centres/activities has been created to provide financial information at four levels:

1. Level 1: cost information by organisational unit
 - Cost per directorate
 - Cost per department within the directorate
 - Cost per unit within the department.
2. Level 2: expenses and revenues by type of service
 - Communication
 - Surveillance
 - Navigation
 - Air Traffic Management (ATM)
 - Aeronautical Information Service (AIS)
 - Meteo
3. Level 3: expenses and revenues by cost object, “final product”
 - Air Traffic Control Centre (ACC)
 - Approach Brussels (APP)
 - Terminals
 - Public services
 - Commercial activities
4. Level 4: expenses by airport
 - Brussels Airport
 - Regional airports (Ostend, Antwerp, Liège, Charleroi)

The cost centres have been structured in different groups, including a.o.:

1. Corporate
2. Operations (ATS, Meteo & AIS)
3. Equipment
4. Finance & administration
5. Buildings

The cost centres regarding “General Services” which are mainly the cost centre groups “Finance & Administration” and “Buildings” are allocated to the more operational cost centre groups “Engineering” and “Operations”.

The operational cost centres “Engineering” and “Operations” are then allocated to skeyes’ “Final products” being ACC, APP, Terminal, public services and commercial activities (cf. Level 3 of the cost/activity centres). Systems and equipment are allocated to their users in APP, ACC and Terminal.

skeyes uses timesheets to record the time spent by engineers and technical staff on the development and maintenance of systems. These time sheets are then used for cost allocation. The salary costs of air traffic controllers are recorded in the unit to which they belong. ATS training centre expenses are allocated to the users of the centre.

General expenses or overhead (Corporate, insurance aviation liability, HR department) are allocated to the “Final Product” according to the amount of direct expenses.

2.1. Direct costs allocated to En-Route

The following expenses are directly allocated to En-Route:

- Staff cost of air traffic controllers for En-Route
- Staff cost of engineers working on development and maintenance of systems for En-Route
- Assets and depreciation of equipment and systems used in ACC
- Depreciation of buildings and general building expenses (e.g. electricity, maintenance, cleaning ...) for the part that is used for En-Route activity
- Communication of data and maintenance costs of systems used for En-Route.

2.2. Expenses shared between terminal and en-route

General expenses or overhead costs are shared between the final products / activities.

Allocation keys vary with the nature of the cost, which could be number of positions, number of controllers, number of m², frequencies, time spent.

3. Cost allocation for approach services

3.1. Approach services

Skeyes provides air navigation services both for en-route, as well as for the 5 Belgian airports.

- En-route air navigation services in the Belgian airspace are provided by skeyes up to FL 245. These services are fully financed by airspace users.

During the first and second reference periods (RP1 and RP2), the en-route unit rate of Belgium decreased substantially,

- skeyes also provides air navigation services at Brussels Airport and the four regional Belgian airports in Ostend, Antwerp, Charleroi and Liège. skeyes has one ACC, which is located in Brussels. The airports of Ostend, Charleroi and Liège have both tower and approach sectors, whereas Antwerp Airport only has tower, its approach is handled by the air traffic controllers in Brussels. ANS services at Brussels Airport are partially financed by airspace users (+/- 75%) and partially financed by the authorities (+/- 25%). ANS services at the four regional airports are fully financed by the authorities.

3.1. Cost allocation methodology applied by Belgium during RP2

The allocation mechanism used by skeyes during RP2 is to estimate the total volume of airspace it controls and to deduct a “cylinder” representing a radius of 20 km around an airport to obtain the en-route costs. The cylinder includes the following zones:

1. The full control zone (CTR), where services are provided predominantly from the control towers
2. A proportional part of the TMAs within the 20km cylinder around the airport where the services are mainly provided from both approach and area control positions, depending on the phase of the flight and ATS route in use

The cylinder's upper level differs per airport and is set to reflect operations. It represents 6,500 ft at Brussels Airport (also providing approach services to Antwerp) and Ostend, and 5,500 ft at Charleroi and Liège Airport.

During RP2, skeyes billed users directly at Brussels Airport where 75% of the costs were recovered from users and 25% was funded by public authorities. At the regional airports, total costs were borne by public authorities.

3.2. Cost allocation methodology applied by Belgium during RP3

The cost allocation methodology has been changed for the third reporting period to better reflect the operational arrangements and airspace structure:

Operational practices

The first reason is because while allocating a portion of the approach costs to the terminal costs based on the 20-km rule is consistent with the fact that services are provided to arriving/departing flights, a waste majority of the approach controllers' workload takes place outside the 20-km cylinder. The method used in RP2 thus assigns a disproportionate part of approach cost to the terminal cost base. Assigning the costs of approach services to the en-route cost base while keeping the aerodrome control services within the terminal cost base, similarly as is currently done in Germany, Sweden, Poland, Denmark or the Netherlands, is more aligned with the operational practices in Belgium than the methodology used during RP2.

Approach controllers' workload

The second reason for changing the cost allocation methodology is because for most Belgian airports, the approach unit handles traffic from a distance

depending on the assigned Standard Terminal Arrival Route (STAR). The majority of effort related to approach services for arrivals therefore takes place outside of the 20-km cylinder. Departing flights on the other hand are served by aerodrome towers while on the ground and are handed-over to the approach controller after take-off. This hand-over often takes place at a distance of two to four kilometres from the airport, depending on the Standard Instrument Departure route (SID). The effort of ATCOs related to the departures is thus usually minimal before handing over to the ACC.

The financial impact of this revision is illustrated in the table below (based on the cost of 2019) :

APP costs 2019 (m€)	Cost allocation RP2		Cost allocation RP3		Delta	
	En-route	terminal	En-route	terminal	En-route	terminal
EBBR	19.6	36.6	24.2	32.0	4.6	-4.6
EBAW	0.0	6.9	0.0	6.9	0.0	0.0
EBCI	2.4	8.2	6.5	4.2	4.1	-4.1
EBLG	4.7	10.1	9.2	5.6	4.6	-4.6
EBOS	6.1	2.5	7.7	0.9	1.6	-1.6
Total	32.8	64.3	47.6	49.5	14.8	-14.8

The difference between the airports is due to the structure of the airspace (e.g. no TMA at Antwerp, large TMA at Ostend).

4. Cost allocation for supervision

4.1. BSA-ANS

The Belgian Supervisory Authority for Air Navigation Services (BSA-ANS) is an independent body of the BCAA specifically responsible for supervision and certification of air navigation service providers.

The costs of BSA-ANS are included in determined costs for each charging zone and for the regional airports.

4.2. Cost allocation methodology applied by Belgium during RP2

The cost of BSA-ANS are allocated proportionally to the cost base of each charging zone and of each final product.

4.3. Cost allocation methodology applied by Belgium during RP3

The cost allocation methodology for supervision costs will be adapted for RP3 to better reflect the workload related to each charging zone and to each regional airport.

The cost allocation key is based on the proportion of notifications of changes with potential impact on safety related to each unit (ACC, APP, TWR) during the last 3 years.

5. External audit

An external audit of the cost allocation has been performed in 2019 in context of the European common charging scheme for air navigation services.

The auditor concluded that the implementation of the procedures has not led to the identification of findings, which would constitute a relevant infringement. A relevant infringement is an infringement which would have a significant impact on the calculation of services, and is caused by the use of cost allocation keys without any causal link, the incorrect calculation within cost allocations or the use of incorrect data as a cost allocation key.

ANNEX Q – BE - JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

1. KPI for en-route capacity

For the third reference period (2020 until 2024 included) of the European Performance and Charging scheme, the en-route Key Performance Indicator at local level (Ref. annex I, section 2, §3.1.(a)) for the Single European Sky has been defined as the average minutes of en route ATFM delay per flight attributable to air navigation services, calculated as follows:

- i. the *en route* ATFM delay, calculated in accordance with point 3.1(a) of Section I;
- ii. this indicator covers all IFR flights traversing the local airspace and all ATFM delay causes, excluding exceptional events; it also covers IFR flights traversing other airspaces, when delay corrections are applied as a result of the post-operations delay adjustment process coordinated by the Network Manager through which operational stakeholders notify the Network Manager of issues that relate to ATFM delay measurement, classification and assignment;
- iii. this indicator is calculated for the whole calendar year and for each year of the reference period;
- iv. for the purposes of this indicator, 'local' means at national level or at the level of functional airspace blocks depending on the level at which the performance plan is established;
- v. for monitoring, the values calculated for this indicator are broken down at national level in case the performance plan is established at functional airspace block level, including cases of delegation of the responsibility for the provision of air traffic services as a result of collaborative cross-border arrangements.

This KPI was already of application during RP2.

1.1. skewes

1.1.1. Actual performance

The actual performance of skewes for this KPI (ATFM en-route delay per flight) is the following :

	2012	2013	2014	2015	2016	2017	2018	2019	2020
All causes	0.03	0.08	0.02	0.14	0.48	0.15	0.19	1.01	0.06
CRSTMP	0.00	0.02	0.01	0.14	0.44	0.09	0.12	0.85	0.06
Target all causes				0.08	0.08	0.08	0.08	0.09	

During RP2, the targets have never been achieved.

The main causes of en-route delay at skeyes during the second reference period were due to ATC capacity and staffing.

1.1.2. Local circumstances

Current ATCO recruitment is set at full pace as well as training capacity, and aims at the largest extent possible to compensate the wave of retirement.

A midlife upgrade of the CANAC2 ATM system is foreseen for 2024-2025. During the testing and validation phases, no capacity increase can be achieved.

1.2. MUAC

1.2.1. RP2 targets and Actual performance of MUAC

During RP2 (2015-2019), two yearly targets have been set on the KPI depicted above, to all FABEC ANSPs :

- a target on all causes
- a target on CRSTMP² causes, linked to an incentive mechanism

For the first four years of RP2 (2015 – 2018), MUAC has not achieved its assigned targets (see below), and has been financially penalised each year in application of the incentive mechanism described in the FABEC Performance Plan for RP2. The 2019 targets were achieved.

The main causes of en-route delay at MUAC during the second reference period are attributable to weather, ATC capacity and staffing.

The actual performance of MUAC for this KPI is the following :

	2012	2013	2014	2015	2016	2017	2018	2019	2020
All causes	0.04	0.07	0.17	0.34	0.55	0.67	0.79	0.16	0.01
CRSTMP	0.02	0.04	0.09	0.23	0.39	0.43	0.50	0.10	0.00
CRSTMP target				0.14	0.14	0.14	0.14	0.14	0.63

1.2.2. Local circumstances

Current ATCO recruitment has been adjusted to take into account the better than expected pass rate of the current students and also the impact of the pandemic on the forecast demand.

MUAC expects to commence work on the shared ATM system project with skeyes (SAS3). This is a large technical project (the costs of which are fully borne by skeyes) which is expected to deliver economies of scale and capacity improvements in the medium term. No short term capacity impacts are foreseen for MUAC.

Also in the medium term, MUAC is continuing its work on automation in ATC and ATFCM. this work is expected to further improve ATCO productivity by augmenting the work of the controller.

2. KPI for terminal (EBBR)

For the third reference period (2020 until 2024 included) of the European Performance and Charging scheme, the terminal Key Performance Indicator at local level (Ref. annex I, section 2, §3.1.(a)) for the Single European Sky has been defined as the average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services, calculated at local level as follows :

- i. this indicator is the average arrival delay at the destination airport caused by ATFM regulations per inbound IFR flight;
- ii. this indicator covers all IFR flights landing at the destination airport and all ATFM delay causes, excluding exceptional events;
- iii. this indicator is calculated for the whole calendar year and for each year of the reference period.
- iv. for the purposes of this indicator, 'local' means at national level.
- v. for monitoring, the values calculated for this indicator are broken down at airport level.

This KPI was already of application during RP2.

2.1. Actual performance of skewes

The actual performance of skewes for this KPI (ATFM arrival delay per flight at EBBR) is the following:

	2012	2013	2014	2015	2016	2017	2018	2019	2020
All causes	0.65	0.84	0.88	1.26	0.93	0.81	0.85	0.90	0.38
CRSTMP	0.01	0.07	0.03	0.06	0.11	0.14	0.08	0.06	0.03
Target CRSTMP				0.12	0.12	0.11	0.11	0.11	

The target has been met during RP2, except in 2017. The main reason for delay during the second reference period was due to weather (limited runway capacity in case of north/east winds).

2.2. Local circumstances

A major factor is likely to influence the performance at EBBR : a new procedure for VVIP during an EU-summit has been imposed by the authorities. This procedure is effective from 20 June 2019. Personalities, given the status of VVIP, will require a Federal Police Helicopter (FPH) escort between the airport and their destination in Brussels City.

As a result of this new procedure, high CRSTMP delay can be expected in some meteorological circumstances at EBBR during the application of new measures

to escort VVIPs using a police helicopter (P cause, beyond ANSP managerial control).

Therefore, yearly 0.05 min/fl buffer for P-delay is included in the RP3 arrival delay forecast at EBBR.

ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

1 Introduction

The costs of air navigation services in Belgium are relatively high due to the size and complexity of the airspace.

In addition to these intrinsic factors, the original performance plan submitted in October 2019 presented an increase of costs mainly driven by the necessity to respond to the traffic growth by increasing the capacity of the air navigation system.

Since the original RP3 performance plan submission, the air transport industry has been substantially disrupted as a result of the COVID-19. This has resulted in a significant drop in air traffic volumes, putting the financial stability of the aviation industry under immense pressure. The expected trends and forecasts initially envisaged in 2019 drastically changed, resulting in a need to amend plans for the coming years. However, given the lead time for the modernisation of the air navigation system, there is still a need for investment in RP3 to ensure sustainable capacity and to modernise the ATM system for the resumption of traffic after the COVID crisis.

This annex aims at explaining these different cost drivers and at justifying the local cost-efficiency targets.

2 Structural costs linked to the size and complexity of the airspace

2.1 Airspace size and air traffic complexity

The Air Navigation Service Providers in Belgium handle a high number of flights within a small area. This situation leads to higher costs to manage a complex airspace¹ while the distance flown and the revenues are limited due to the size of the Belgian airspace.

The Belgian airspace is located at the crossroads of the 4 major hubs in Europe (Frankfurt, London, Amsterdam, , Paris – FLAP) together with numerous medium hubs (EDDL, EBBR, EBCI, EDDK, London TMA, ELLX), This location results in a high-level of traffic complexity:

- In 2019, skeyes presented the highest structural index of complexity² in Europe due to ascending and descending aircraft (structural index of complexity of 1.2 compared to a European average of 0.79).

complexity from number of interactions:		
Ranking	ANSP	Structural complexity index
1	skeyes	1.20
2	Skyguide	1.04
3	ENAV	1.03
4	NATS (Continental)	1.02
5	DFS	1.01
European average		0.79

¹ The airspace complexity indicator considers the density of traffic, along with horizontal, vertical and speed interactions in a given section of airspace.

² The structural index of complexity reflects the number of horizontal, vertical, and speed interactions.

- Overall, MUAC has one of the highest complexity scores in Europe. Within the MUAC area of responsibility, the Brussels sector-group of MUAC has by far the highest complexity score due to the traffic density (the complexity score reaches 15.04 in the Brussels sector group in 2018 compared to 8.8 in the DECO sectors and compared to 6.85 as European average).

Overall traffic complexity (Interaction and density):		
Ranking	ANSP	Structural complexity index
1	Skyguide	13.29
2	MUAC (> FL 245)	10.97
3	DFS	10.93
4	NATS (Continental)	10.80
5	Skeyes (< FL 245)	9.77
European average		6.85

2.2 Impact on workload

The airspace complexity is a key driving factor to the lower productivity due to extra workload to keep aircraft separated while limiting delays.

Within MUAC, productivity is the lowest in the Brussels sector group with an ATCO-hour productivity of 1.91 in 2019 (compared to 2.94 in the DECO sectors). The highest number of flights to handle within the smallest area leads to a high complexity and a lower productivity in the Brussels sector group. On the other hand, the DECO sector group is the largest in terms of airspace size and flight-hours controlled but with a much lower traffic complexity score.

2.3 Cross-border service provision

The Brussels Sector Group of MUAC provides cross-border services in the Rhein UIR and France UIR to the benefit of the network. While the cost for the service in these delegated airspaces are supported by the ANSP's operating in the Belgian/Luxembourg charging zone, the service units and associated revenues are allocated to the French and German charging zones (for a revenue value estimated at ca. €20M in 2019). This represents roughly 10 % of the cost base; if the service units would be allocated to the ANSP ultimately providing the service then the determined unit cost would decrease.

In this specific situation, only charges are paid in the established charging zones, as prescribed by the relevant legislation. This situation is not unique to the MUAC Brussels sector, as there are also parts of delegated airspace around the other MUAC sectors.

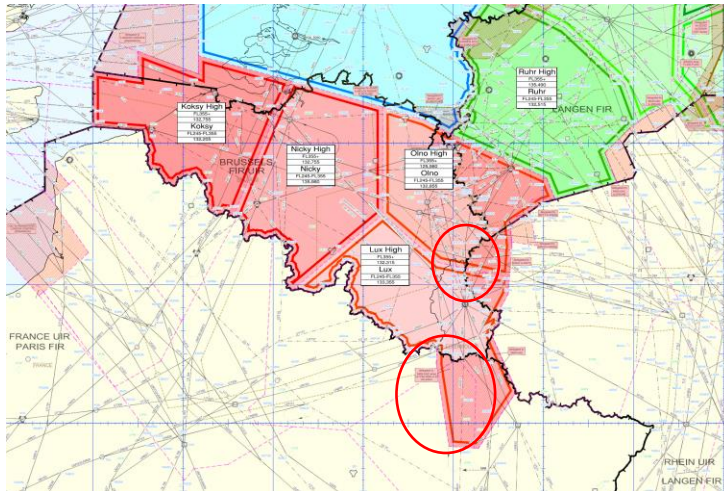


Figure 1: MUAC Brussels sectors

2.4 Impact on ANS cost efficiency in upper airspace

Unlike other ANSPs, MUAC is not directly financed from air navigation charges paid by the airspace users. Instead, MUAC budget is financed from contributions by the four members States who, in turn, include these contributions in their respective chargeable cost base towards airspace users.

The contribution is defined according to the number of ATCOs allocated to each sector group. This sharing key, coupled with the lower productivity in the Brussels sector and the provision of cross-border services (see 2.3) lead to higher costs per service unit.

In 2019, Belgium supported 33% of MUAC costs while the share of service units pertaining to the Brussels sectors was only 26%.

3 Elements specific to skeyes :

3.1 Structural challenges

3.1.1 adverse age pyramid

skeyes has an adverse age pyramid in its ATCO population: 32% of the operational air traffic controllers are older than 50 years and an additional 13% older than 45 years. (see figure 2 below)

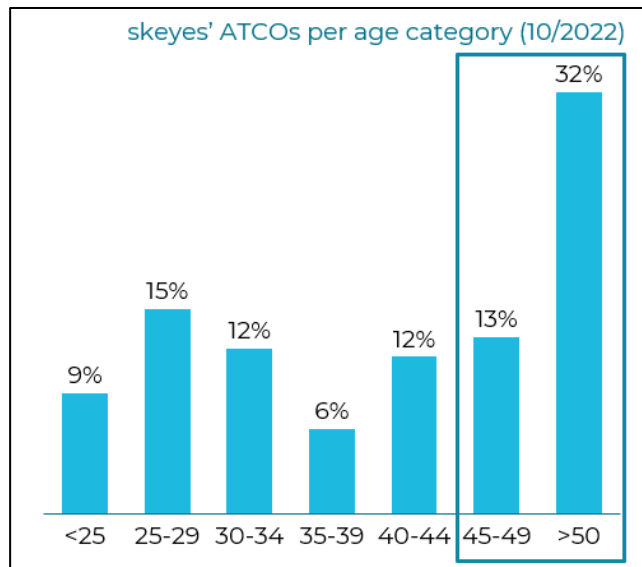


Figure 2: skeyes ATCO OPS per age on 10/2022

Air traffic controllers at the end of their career are laid off (“dispo”) in accordance with the Royal Decree of 23 April 2017. The age of dispo has been revised in 2016 to gradually increase from 55 to 58 after an agreement with the social partners. Nevertheless, the costs of availability will increase considerably in the coming years due to the unfavorable age pyramid. Skeyes cannot compensate this cost increase by additional savings on operating costs. Furthermore, the cost of dispo will continue to increase sharply in the coming years.

In addition, a comprehensive set of measures must be taken to guarantee a sustainable capacity in the skeyes’ area of responsibility.

3.1.2 Ageing infrastructure

The downward sloping evolution of depreciation charges over the decade is a sign of an ageing infrastructure which is up for renewal and replacement. The renewal was initiated in RP2 as can be seen from the inflexion point in the curve. As we have often to deal with multi-year and large scope projects requiring significant resources, while some equipment are being replaced, others are reaching end of life, pleading for long lasting catch-up efforts which will extend still in the years to come. Also, with regard to the depreciation component in the cost base, it should be noted that the end of RP2 (2019) does not represent a reliable reference year for the underlying infrastructure needed in operations. The level at the beginning of RP1 when traffic was much lower, would probably be a more valid benchmark for the evolution.

Vital ATM service provision infrastructure has reached or will be reaching its end-of-life during RP3 and requires replacement and results in a substantial investment plan (132.0m€) for RP3. Annex E gives a detailed overview of the investment plan for RP3 and underlying reasons.

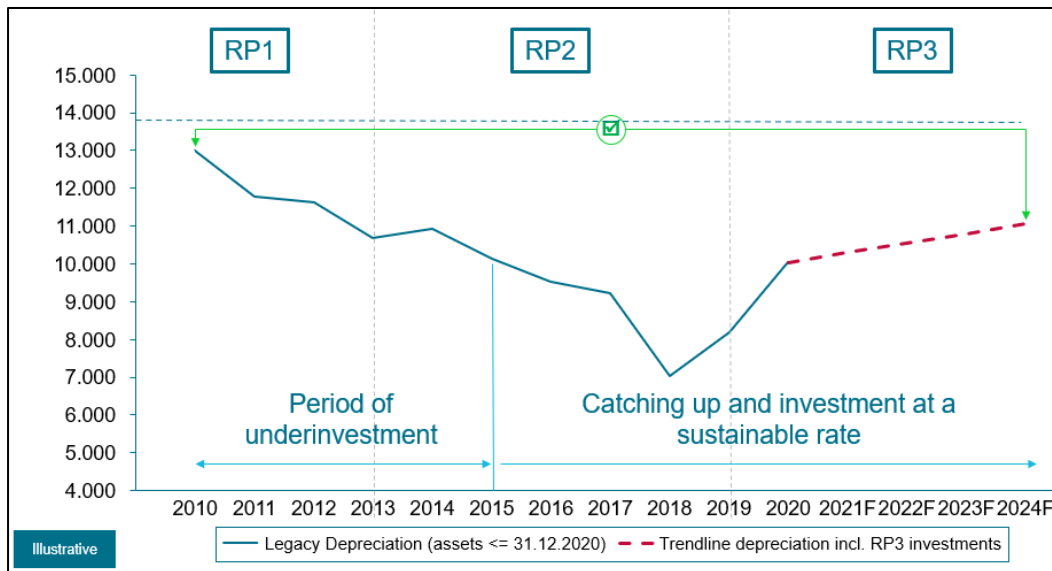


Figure 3: skeyes long term evolution of Fixed Assets depreciation

3.2 Contextual challenges

3.2.1 COVID operations and Post-COVID consequences

With a high level of uncompressible costs, skeyes could not call upon the same levers of flexibility as other businesses did to bridge the pandemics. While revenue collections from the traffic collapsed, skeyes stayed under an obligation of services, could not call on economical unemployment and had to safeguard its highly specialized and trained personnel because of the long lead time to train and hire. Further, the long term investments projects had to be pursued.

As a direct consequence of this situation, skeyes encountered an immediate liquidity problem to face the operating & investments needs and obtained external financial support from the Belgian Federal State and Eurocontrol, pushing the level of indebtedness to an unseen level for several years.

The outstanding debt will gradually decrease possibly from 2024 or 2025 onwards when the instalments from the correction mechanism for the years 2020-2021 will be collected.

Inflation & Energy cost

As of the end of 2021, energy prices and inflation started to increase; this trend grew further with the start of the war in Ukraine at the beginning of 2022 causing a high level of economic uncertainty.

Energy price have more than doubled since the RP3 submission of 2021 and the new inflation assumptions will generate an additional 11.9% cumulative increase in 2024 on top of what was expected in the Oct 2021 assumptions. Salaries in Belgium are automatically increased on the price index evolution by law, so payroll cost are expected to evolve similarly.

3.3 Measures addressing the structural challenges

skeyes is permanently looking for opportunities to reassess and rationalize its infrastructure, to leverage on partnerships or to benefit from shared developments in order to optimize its contribution to the future European airspace architecture.

3.3.1 Airspace Vision 2030: addressing the complexity

Considering the complexity and the capacity limits of the Belgian airspace, the Belgian State, skeyes, Belgian Defence and Eurocontrol MUAC articulated a joint vision for the Belgian airspace over a 10-year horizon and beyond.

The evolving needs of the airspace users have been taken as a starting point for the development of the 2030 vision:

- Maintaining or improving safety levels (per flight hour);
- Optimizing accessibility to Belgian airports;
- Committing to serve to the fullest extent possible the preferred trajectories for civil and military traffic by reducing restrictions as far as possible;
- Improving flight efficiency for all users in both horizontal routings and vertical performance;
- Improving the cost effectiveness of Air Navigation Services;
- Incorporating the security and defence dimension at a level that will enable Military Aviation to provide and further improve effective security and defence in a national and international context;
- Optimizing accessibility to Military aerodromes and training areas;
- Using appropriately defined airspace volumes for the current and future training needs (the new platforms acquired by Belgian Defence) with due prioritisation and facilitation to conduct effective and efficient training missions;
- Integrating unmanned traffic (drones) for various applications.

By 2030, the Belgian Airspace shall be considered as one flexible and seamless volume, fully integrated in the Single European Sky:

- The airspace structure will be flexible and dynamic allowing airspace users to fly their preferred trajectories with minimal constraints.
- The airspace management will allow a flexible use of airspace tailored to the needs of the civil and military airspace users.
- Integrated civil-military Air Navigation Services will be provided with a high reliability and efficiency.

The implementation is foreseen to be built on a number of milestones for each of the partners as well as essential enablers to be introduced throughout Belgian airspace. A phased approach will be used for each initiative that supports the implementation of the vision, starting with an evolution from the current situation, ensuring improvements are made in a short timeframe where possible.

These improvements will allow a more efficient use of the airspace to address the needs of more capacity and flight/mission optimization and flexibility expressed by civil and military users.

3.3.2 Recruitment of ATCO's

skeyes has taken several measures to maintain a sustainable capacity despite the ageing issue of its ATCO base:

3.3.2.1 Training of new air traffic controllers

skeyes will have to invest 55.0 m€ during RP3 (40.4 m€ for en-route and 14.6 m€ for terminal) in the recruitment and training of new air traffic controllers to maintain a sustainable capacity in the future. Recruitment of new air traffic controllers is needed to compensate the wave of pre-retirements during RP3 and RP4. Without these recruitments, the number of active Air Traffic Controllers would automatically decrease by 20 % at the end of RP4 with a drastic decrease of capacity. Only two sectors of ACC could be open, with a 40% reduction in capacity. Airports would face a major risk of traffic disruption due to the shortage of air traffic controllers.

3.3.2.2 Building up the training capacity

To support these extensive training needs, skeyes set up a joint venture with Entry Point North (EPN) to build up the training capacity and to reduce costs.

3.3.2.3 New career path for ATCO

Previously, new air traffic controllers started their careers as tower air traffic controllers before undergoing transition training to become approach and ACC controllers.

Considering the wave of retirements in ACC, the career path of ATCOs has been reviewed in close collaboration with the unions to allow new ATCO to directly access ACC to accelerate the rejuvenation of the ACC controller pool.

3.3.2.4 Operational excellence

skeyes has implemented more efficient rostering processes allowing a better demand and capacity balancing and improving the resiliency of air traffic services.

3.3.2.5 Extension of the duration of the career

By Royal Decree, ATCOs have the right to be removed from operational services (early retirement or DISPO) 5 years before retirement.

ATCOs placed on DISPO receive from skeyes a waiting allowance equal to an amount between 75% and 85% of their last salary.

Historically, air traffic controllers were placed in DISPO from the age of 55 until the age of 60. As a result of a pension reform and a social agreement in 2016, the age of DISPO will gradually be delayed to 56 in 2020, 57 in 2025 and 58 in 2030.

The increase in the number of controllers in DISPO puts a heavy burden on the skeyes' costs. DISPO costs amount to 41.6 m€ for RP3 (30.2 m€ for en-route and 11.4 m€ for terminal).

3.3.2.6 Impact on capacity

Despite these measures and the recruitment and training effort, skeyes will barely maintain the same number of air traffic controllers during RP3.

In absence of recruitment and training during RP3, skeyes would have to further limit the opening of sectors and drastically reduce en-route and airport capacity. As the training of an air traffic controller takes 2 or 3 years before being operational, a delay in the training effort during RP3 would ill impact the capacity when the traffic is expected to reach the 2019 level (2025).

3.3.3 Business Continuity

Skeyes' has an ambitious investment plan amounting to 132.0m€ over RP3 to address the replacement and the development of its infrastructure. Annex E is going more in details through the different projects with extended description of their context and scope.

Recruitments of 37 additional FTE with a technical profile are planned during the third reference period to support the investment plan and the digital transformation. A freeze of these recruitments would have a major impact on the investment plan, on business continuity for air navigation services and on the digital transformation. End of life equipment would not be replaced, and technological evolution would be stopped.

3.4 Measures addressing the contextual challenges

3.4.1.1 Financial loan:

The Cost of capital amount has not been modified compared to the previous submission neither for the assets base nor for the Weighted Average Cost of Capital. In full logic, the WACC rate should have been more due to the higher volatility on the financial markets and the inflation impact on the debt interest rate. Also, the level of working capital would normally be subject to the inflationary impact on the receivables via the unit rate.

skeyes did not include the LT receivable on the correction mechanism for 2020 & 2021 in the net current asset base neither in the previous submission nor in the current submission. In not doing so, skeyes is contributing to restrain the DUC growth and helping the users' face their own challenge.

3.4.1.2 Additional productivity efforts & reshuffling of investment plan:

skeyes has had an in-depth review of its contribution to the cost base and investment plan in search for additional reductions and optimization while at the same time facing the new inflation headwind.

Within the latest update of the performance plan, skeyes has worked further on cost containment measures with regard to the investment plan and cost saving efforts in other operating costs resulting in a real term reduction of the en-route cost base of -4.3m€ in 2024.

3.5 Evolution of skeyes en route cost base

On top of the savings mentioned in section 3.4.1.2, there were several exceptional and non-recurring items defined to reduce the 2024 cost base. The cost risk for the year 2021 (7.9m€ nominal) and for the year 2022 (0.2m€ nominal) will be utilized in 2024. In other words, the cost risk for both years 2021 and 2022 will be refunded to the users in addition to the cost saving measures.

Additionally, the CAPEX not realized during the RP2 period and postponed to RP3 (5.6m€ nominal) will be refunded as well to the users via a reduction of the cost base 2024.

Overall, the en-route cost base of skeyes will decrease in real terms by -8.6m€ for 2024 compared to the submission of July 2022. (see figure 4 below)

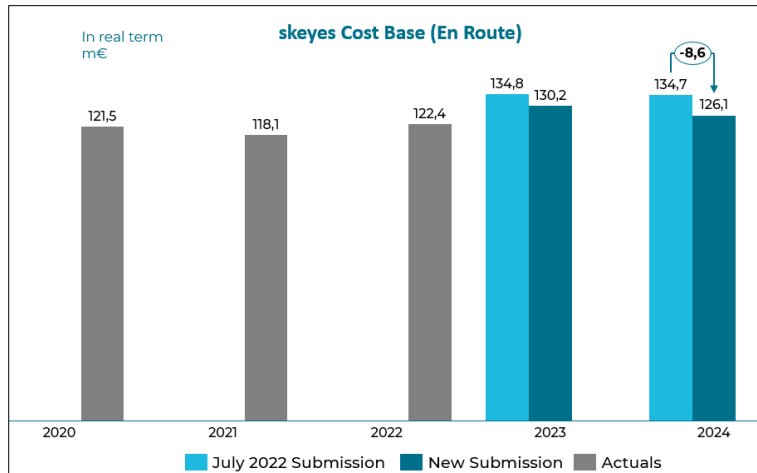


Figure 4: skeyes En-route cost base of updated submission

Finally, the Determined Unit cost will also benefit from the new STATFOR traffic forecast where the higher traffic will further help dilute the cost over a larger base than in the previous submission.

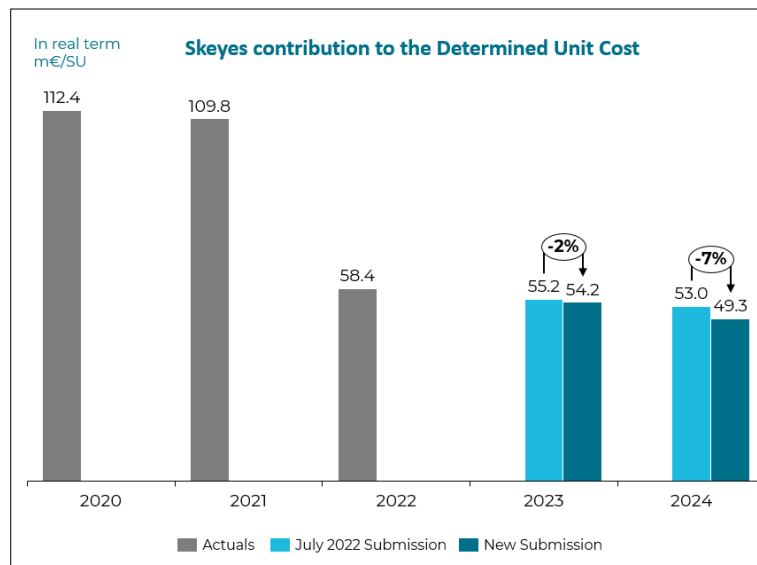


Figure 5: skeyes contribution to the Determined Unit Cost

With these measures, skeyes is able to limit the CAGR (Compounded Average Grow Rate) of its contribution to the DUC in real terms (2017) to -1.1% per annum over the RP3 years, which is better than required by the EU RP3 target ($\leq 1.0\%$).

As such, the new submission of skeyes is fully compliant with the EU cost efficiency targets.

4 Elements specific to MUAC

4.1 Highest cost share for Belgium compared to handled traffic

See 2.4.

4.2 Cost increases due to external factors

Following an agreement between the Eurocontrol Member States, the tax compensation on pensions for MUAC staff will be gradually transferred from the general Eurocontrol costbase to the MUAC costbase (staggered implementation from 12M€ in 2020 to 29M€ in 2024).

As from 2020, MUAC will become responsible for support costs for services rendered in Eurocontrol HQ for MUAC. (5M€). This decision was agreed by the four States and is linked to the increased management autonomy from Eurocontrol HQ.

4.3 GCE agreement and salary indexation methodology

In 2019, a new GCE agreement was concluded which resulted in a rise in wages for each ATCO in return for extra workload (+/-10% pay rise in return for +/-10% extra shifts). Additionally, MUAC now has the possibility to ask its ATCOs to deliver a specific number of additional shifts for a fixed price should the need arise. For this last element, a minus counter was installed (at no extra cost) in light of the Covid-19 crisis, so that these shifts can be used for the remainder of RP3.

The salary indexation methodology was determined in 2014 on a Eurocontrol-level and was fixed for 10 years until 2024.



EUROPEAN COMMISSION DIRECTORATE-
GENERAL FOR MOBILITY AND TRANSPORT

Directorate E – Aviation
The Director

Brussels,
MOVE.DDG2.E

Mr Pierre JAEGER
Director General of Civil Aviation
Luxembourg

(By email only)
pierre.jaeger@av.etat.lu

Subject: Verification of completeness of Luxembourg's draft final performance plan including corrective measures

Dear Mr Jaeger,

I am writing concerning the draft final performance plan of Luxembourg dated 16 September 2023, which includes corrective measures for RP3.

Our services have now concluded the verification of completeness of your submission. Based on this verification, we have found that the draft final performance plan and the corrective measures included therein need to be updated with regard to certain elements, which are necessary in order to establish compliance with the requirements contained in Article 10(2) to 10(4) of Implementing Regulation (EU) 2019/317.

You are kindly requested to complement and/or amend the draft final performance plan including corrective measures in order to remedy the shortcomings and issues identified as part of the completeness verification. You will find in annex to this letter the detailed list of findings to be addressed.

Please submit the updated version of the draft final performance plan including corrective measures within a timeframe of three weeks from the date of this request. The updated documents are to be uploaded on the ESSKY portal in the relevant folder. We would like to ask you to include, as part of your updated submission, a list of all the amendments made to the draft final performance and its annexes in response to the points raised in this letter. That list should be filed in as Annex T of the updated draft final performance plan.

We look forward to receiving your updated draft final performance plan including corrective measures as soon as possible and thank you in advance for your cooperation.

Yours faithfully,

(e-signed)
Filip CORNELIS

Contact:

Kristian Sipiläinen, Kristian.SIPILAINEN@ec.europa.eu

Rolf Tuchhardt, Rolf.TUCHHARDT@ec.europa.eu

Enclosure: Annex – Findings from the verification of completeness of the draft final performance plan of Luxembourg dated 16 September 2023

c.c.: Christine Berg, Head of Unit, DG MOVE E3
Cathy Mannion, Chair of the Performance Review Body

ANNEX

Findings from the verification of completeness of the draft final performance plan of Luxembourg dated 16 September 2023

Nr	Performance Plan section ¹	Topic	Finding	Response
1.	1.3.5 and Annex C	Consultation with relevant stakeholders	<p>Member States are required to effectively consult relevant stakeholders on their performance plans. As specified by Luxembourg in the draft final performance plan, a stakeholder consultation was held on 31 August 2023 but on the basis of partial information and materials, which had not been shared well in advance of the consultation with the stakeholders. We note that Belgium and Luxembourg intend to jointly hold a second consultation meeting in order to ensure that stakeholder views are effectively taken into account in respect of the draft final performance plan and corrective measures contained therein.</p> <p><i>Please complete your submission with regard to the outcome of the complementary stakeholder consultation and explain how the received stakeholder comments have been taken into account.</i></p>	Please refer to TAB 1.3.5
2.	2.1	Details of new major investments	<p>The details for new major investments of skeyes are missing:</p> <ul style="list-style-type: none"> - For major investment 1, there is no information on the level of impact and on the quantitative impact for each KPA and there is no information on the outcome of the consultation of airspace users' representatives. - For major investments 2 and 3, there is no information on the benefits for airspace users. - For major investment 4, there is no information on the level of impact and the quantitative impact for KPA, and 	Please also refer to Annex E where deep dive on each major investment has been performed and shared with the BSA on the 12 of September – name of document - <i>Annex E_Skeyes Investment Plan 04092023v4</i>

¹ Reference to Excel template for RP3 performance plans and/or to associated Annexes.

Nr	Performance Plan section ¹	Topic	Finding	Response
			<p>there is no information on the benefits for airspace users.</p> <p>In addition, we note that there are no other new investments listed in section 2.1.3.</p> <p><i>Please ensure the completeness of the abovementioned elements.</i></p>	
3.	3.3.1	ATCO planning (MUAC)	<p>There is no explanation concerning the significant changes (compared to the 2022 revised performance plan) in the presented ATCOs FTEs for MUAC for the years 2022, 2023, and 2024.</p> <p><i>Please complete your submission with a detailed explanation on this point.</i></p>	<p>Please refer to TAB 3.3.1 d) ATCO planning in the additional comments frame. A complement is added with the title:</p> <p>Explanation of the changes from the previous version of the plan</p>
4.	3.4.6	Capacity measures	<p>There is no detailed explanation and justification regarding the change in the amounts for Measure 1 compared to the 2022 revised draft performance plan.</p> <p><i>Please complete your submission.</i></p>	<p>Please find detailed explanation of the reported amounts with regards to measure #1 within the performance plan TAB 3.4.6. Note that the difference compared to 2022 revised performance plan mainly relates to the inclusion of the salary cost of the new ATCO as associated cost of measure #1.</p>
5.	3.4.7 and Annex Z	Corrective measures	<p>Annex Z on the corrective measures does not explain sufficiently the changes applied in respect of the costs of skeyes and MUAC, compared to the 2022 revised draft performance plan.</p> <p><i>With regard to both skeyes and MUAC, please complete your submission with <u>details and explanations</u> on the following elements:</i></p> <ul style="list-style-type: none"> - <i>changes in staff costs and other operating costs</i> - <i>changes in respect of the costs of new and existing investments, and the related CAPEX and cost allocation (including for other new investments and existing investments)</i> 	<p>Annex Z on the corrective measures explains the changes applied in respect of the costs of skeyes and MUAC, compared to the 2022 revised draft performance plan. See part Changes with the 2022 revised performance plan</p>

Nr	Performance Plan section ¹	Topic	Finding	Response
6.	3.4.7 and Annex Z	Corrective measures	<p>Annex Z on the corrective measures does not explain sufficiently how the results of the compliance review of keyes and MUAC have been taken into account for the establishment of corrective measures.</p> <p><i>Please complete your submission and provide a detailed summary of the results of the compliance review and how they were taken into account.</i></p>	Annex Z is completed with a summary of the results of the compliance review and the justification of what Belgium selected to be included in the final performance plan. See part Results of the compliance review and part Measures selected by Belgium and Luxembourg
7.	Annex A	Reporting tables (en route)	<p>ANA Lux does not include any cost of capital in their planned costs 2022-2024. The RoE should be set to 0%. The same applies to the actual 2022 RoE.</p> <p><i>Please correct.</i></p>	The RoE was set to 0%.
8.	Annex B	Reporting tables (terminal – Luxembourg)	<p>Computation of the 2023 determined inflation index has not been updated, as it is still using the planned value for 2022 in the computation, rather than the actual value.</p> <p><i>Please correct in line with what is correctly done for the en route reporting tables.</i></p>	Corrected.
9.	Annex B – Additional information	Reporting tables (terminal – Luxembourg)	<p>The Additional information document does not include the outcome of year 2022, which was provided in the Additional Information document of June 2023.</p> <p><i>Please correct.</i></p>	Corrected.
10.	Annex A – Additional information, Annex B – Additional information	Reporting tables	<p>For both Annex A and B, throughout Additional Information documents, it is referred to “draft FABEC performance plan submitted in September 2023.”</p> <p><i>Please correct.</i></p>	Corrected.

Annex Z – replies towards corrective measures corrective measures

The following text gives an overview of the measures included in Commission Implementing Decision (EU) 2023/1336 of 16 June 2023 and the replies from Belgium and Luxembourg. As described in consideration 131 of Commission Implementing Decision (EU) 2023/1336, Belgium intended to carry out a compliance review of the performance of skeyes and MUAC. This compliance review was executed by an independent consultant over the summer period. The results of this review are taken into account in the replies below.

Replies to findings

(a) Incorrect application of the respective legal provisions governing traffic risk sharing, cost risk sharing and incentive schemes in respect of MUAC

Belgium and Luxembourg recognize that due to the nature of MUAC it is not possible to apply the traffic risk sharing, cost risk sharing and incentive mechanisms in a direct way. Belgium and Luxembourg do however consider that these effects can be enforced in an indirect way via the member states who decide on the budget and strategies in the governing bodies of MUAC and the fact that finally the states are bearing the risks themselves.

Currently, the contribution of MUAC is paid by skeyes who receives the corresponding charges in return from the CRCO. This mechanism is based upon art. 204 from the Belgian law of 29 December 1990 containing social provisions (text only available in French or Dutch). The current arrangement might create unwanted effects on the cost base of skeyes.

Two directions are investigated today:

- A change at MUAC level requiring the agreement of the 4 MUAC states that might take some time
- A change at the national level

Belgium, which chairs the MDMB, will put this subject on the agenda of this organization with the target to plan the needed works.

At the national level, Belgium is taking the opportunity of the discussions with skeyes on the renewal of the management contract of skeyes with the Belgian state to investigate the different possibilities: A mechanism allowing to isolate the incentive bonus/malus of MUAC from skeyes cost base is studied. However, in the absence of changes at MUAC level, MUAC would remain exempt from traffic risk sharing and financial incentives.

(b) Requested verification by the NSAs that the costs charged in RP2 for the cancelled and delayed investments in fixed assets are not double-charged to airspace users in the event that those investments materialize at later stage

On the basis of the results of the compliance review, it was found that some of the amounts included in the cost base for charging investments in RP3 were already provided for in RP2 (and not carried out or only partially carried

out during RP2).. In order to avoid double charging these amounts are being included in the 2024 determined cost base as a negative exceptional cost.

For skeyes, an amount of 5.120.957,02 euros was identified, which could be reconciled with their accounts.

In addition, a buffer of 500.000 euros to cover potential higher costs related to depreciation and cost of capital during RP2 was identified. At that moment in time with the then applicable legislation the existence of this buffer was justified. However, since this buffer was not used, it was considered by the Belgian NSA that this amount should also be deducted from the 2024 cost base.

For the cost-efficiency-part of MUAC related to Belgium according to the then used sharing keys, an amount of 2.012.900 euros was identified, which could be reconciled with their accounts. The amount identified for MUAC Luxembourg is 62.262 euros.

(c) Incorrect financing arrangements for the costs incurred for services provided in cross-border areas.

Belgium and Luxembourg wish to highlight that it is not possible to resolve this item alone. International negotiations are needed and take time to come to an agreement. First steps have been initiated but will likely not be resolved before the end of RP3.

As an example, it took several years to come to an agreement concerning the modification of the MUAC sharing key.

(d) Incorrect allocation of the approach costs between en route and terminal air navigation services in respect of skeyes

The Commission argues in its decision (EU) 2023/1336 that the revised cost allocation methodology introduced as of RP3 is not in line with the requirements laid down in Article 15(2), point (e), of Regulation (EC) No 550/2004 and in Article 22(5) of Implementing Regulation (EU) 2019/317.

We wish to express that Belgium and skeyes did deliver all information with regard to the cost allocation keys used, its principles and its output towards the Commission, in addition to earlier numerous presentations and explanations during the various consultations organised during the preparations of RP3 and the revisions of 2021 and 2022. We therefore disagree with the Commission that the requirements with regard to transparency were not fulfilled.

On the subject matter, the cost allocation model was (again, after verification by an independent consultant on request of skeyes, as well as after verification of the Belgian NSA) verified during the compliance review. It was concluded that no inconsistencies which would be in contradiction with the applicable legislation were found and that the methodology was transparent, auditable and based upon principles which were consistently applied.

Belgium therefore will not change the currently applied cost allocation methodology.

(e) Lack of adequate justifications for excessive terminal cost-efficiency targets of Belgium

Based upon the revision of the performance plan, the cost base for Brussels Airport (EBBR Terminal Charging zone) will be revised downwards with 780K for 2023 and 185K for 2024.

In addition, we want to reiterate that the finding of the Commission does not take into account annual subsidy of +/- 25% granted via Royal Decree to the EBBR terminal charging zone. While we recognize this is not a cost reduction, If this subsidy would be taken into account, the Determined Unit Cost would only be +/- 16% over the median, and not 55% as described in the decision of the Commission.

(f) Incorrect level of the maximum financial disadvantages in the incentive schemes of Belgium and Luxembourg supporting the achievement of en route and terminal capacity targets

The Commission argues in its decision that the maximum disadvantage , based upon expert judgement of the PRB, that the current malus included in the incentive scheme does not have sufficient material impact at a level having a material impact on the revenue at risk, as required by Article 11(3), point (a) of Implementing Regulation (EU) 2019/317. In the Commission's view the revised incentive scheme should lead to a maximum financial disadvantage equal to or higher than 1 % of determined costs.

Belgium first wants to reiterate that the applicable legislation allows for a maximum financial advantage which can be set at a lower level than 1%.

Secondly, apart from the statement of the Commission that the material impact on the revenue at risk is insufficient no written argumentation was provided on this issue.

Thirdly, BE and LUX NSA disagree with the assessment of the Commission and consider the current malus as having sufficient material impact based upon the fact that the current traffic situation is still not normalized and that the revision of the performance plan resulting in cost reductions put additional pressure on the cost base of the service providers subject to the aforementioned incentive schemes.

Results of the compliance review

#	Potential adjustment for En route in k€	Involved organisation	structure/on e-off	2023 nominal	2023 real	2024 nominal	2024 real	RP4
1	Applied inflation for MUAC (BE) in 2022	MUAC	one-off			-9.569	-7.854	
1	Applied inflation for MUAC (LUX) in 2022	MUAC	one-off			-296	-243	
2	Applied inflation for MUAC (BE) in 2023	MUAC	one-off			-6.163	-5.058	
2	Applied inflation for MUAC (LUX) in 2023	MUAC	one-off			-190	-156	
3	Mechanical recovery between planned inflation and actual inflation	skeyes				-1.847	-1.516	
4	Depreciation costs of investments RP2 to RP3	MUAC	one-off			-2.013	-2.013	
5	Review of the cost base 2024	MUAC	one-off			-2.566	-2.106	
6	MUAC cost sharing key revision	MUAC	structurel					-9.055
7	Delegated airspace costs for France	MUAC	structurel					-x.xxx
7	Delegated airspace costs for Germany	MUAC	structurel					-x.xxx
8	Review of the cost base 2024	skeyes	one-off	-5.530	-4.636	-5.212	-4.278	
9	Difference between determined cost 2022 and actual cost 2022	skeyes	one-off			-445	-365	
10	Mechanical recovery between planned inflation and actual inflation	skeyes	one-off			-3.099	-2.544	
11	Depreciation costs of investments RP2 to RP3	skeyes	one-off			-5.121	-5.121	
12	Depreciation costs of investments RP2 to RP3 - Buffer	skeyes	one-off			-500	-500	
13	Correction on capacity measure ATM Next Generation	skeyes	Capacity measure			xxxx	xxxx	
14	HR costs	skeyes	one-off			-1.289	-1.058	
15	Costs of wages of ATCO in ab initio training	skeyes	Capacity measure			-2.212	-1.816	
TOTAL				-5.530	-4.636	40.522	34.627	15.641

Measures 7 amounts are not shared because it is subject to negotiation with other parties.

Measure 13 amount is not shared because it is subject to negotiation with other parties.

#	Potential adjustment for Terminal in k€	Involved organisation	structural/one-off	2023 nominal	2023 real	2024 nominal	2024 real
1	Grant of Factor F at EBBR included at cost level instead of other revenues	skeyes	structural	-10.000	-8.383	-10.000	-8.208
2	Difference between the determined cost 2022 and the actual cost 2022	skeyes	one-off	-996	-817		
TOTAL				-10.000	-8.383	-10.996	-9.025

Measures selected by Belgium and Luxembourg

The results of the compliance review of MUAC were fully taken into account for the establishment of corrective measures. Savings proposed in the compliance review were fully reflected in the revised performance plan, as shown in the table below.

Summary of corrective measures	Amounts (in nominal terms in K€)
RP2 investment cost not realized: MUAC BE	-2,013
RP2 Investment cost not realized: MUAC LU	-62
2022 difference between determined costs and actual costs (staff and other operating costs: MUAC BE	-9,299
2022 difference between determined costs and actual costs (staff and other operating costs: MUAC LU	-288
2023 reduced determined cost MUAC BE	-6,801
2023 reduced determined cost MUAC LU	-211
2024 reduced determined cost MUAC BE (except exceptional items already taken into consideration)	-2,791
2024 reduced determined cost MUAC LU (except exceptional items already taken into consideration)	-86
TOTAL reductions (nominal terms)	-21,551

The total savings proposed by MUAC amount to more than **21 million €** (in nominal terms) which are fully reflected in 2024 proposed determined costs.

The results of the compliance review of skeyes were fully taken into account for the establishment of corrective measures. Savings proposed in the compliance review were fully reflected in the revised performance plan with the exception of HR costs given that this measure was subject to social negotiations with uncertain results.

#	Potential adjustment for En route in k€	2024 nominal
3	Mechanical recovery between planned inflation and actual inflation	-1.847
8	Review of the cost base 2024	-5.212
9	Difference between determined cost 2022 and actual cost 2022	-445
10	Mechanical recovery between planned inflation and actual inflation	-3.099
11	Depreciation costs of investments RP2 to RP3	-5.121
12	Depreciation costs of investments RP2 to RP3 - Buffer	-500
13	Correction on capacity measure ATM Next Generation	+1.073
15	Correction on capacity measure ATCO training (incl. costs of wages of ATCO in ab initio training)	-1.381
TOTAL reductions (nominal terms)		-16,532

The total savings proposed by skeyes amount to more than **16 million €** (in nominal terms) which are fully reflected in 2024 proposed determined costs.

For the terminal, the cost base has been reviewed downwards for 2023 and 2024.

Savings included in the performance plan

The following table provides an overview of the savings:

<i>In K</i>	<i>2023 nom</i>	<i>2023 real</i>	<i>2024 nom</i>	<i>2024 real</i>	<i>RP4 (nom)</i>
<i>Traffic + inflation</i>	-7.330	-5.918	-14.272	-11.444	
<i>MUAC infl 2022 BE</i>			-9.299	-7.351	
<i>MUAC infl 2022 LUX</i>			-288	-228	
<i>MUAC infl 2023 BE</i>	-6.801	-5.584			
<i>MUAC infl 2023 LUX</i>	-210	-173			
<i>non exec investm. skeyes – RP2 vs RP3</i>			-5.620	-5.620	
<i>non exec investm. MUAC BE – RP2 vs RP3</i>			-2.013	-2.013	
<i>non exec investm. MUAC LUX – RP2 vs RP3</i>			-62	-62	
<i>Review MUAC CB 2024 BE</i>			-2.790	-2.281	
<i>Review MUAC CB 2024 LUX</i>			-86	-71	
<i>Review MUAC SK BE</i>					-9.055
<i>review MUAC SK LUX</i>					-303
<i>Review skeyes CB</i>	-373	-4.636	691	-4.278	
<i>Diff det. vs act. CB skeyes 2022</i>			-154	-122	
TOTAAL	-14.714	-16.311	-33.893	-35.042	-9.358

Note

As all amounts which are included in the exceptional cost item are subject to the transposition from nominal to real terms using the inflation index, the real costs including in the reporting tables for en route and terminal do not give an accurate reflection of the savings in real terms. We therefore ask both PRB and Commission to take this difference into account.

Traffic + inflation

This item reflects the inclusion of the updated traffic forecast was on the basis of STATFOR March 2023 forecast, and an update of the inflation forecast on the basis of the IMF April 2023 forecast.

MUAC infl 2022 (BE + LUX)

When revising the performance plan in 2022, the MUAC cost base in nominal terms was adjusted to the inflation scenario used. As the amounts in the end were not necessary, they will be included in the 2024 cost base excluding the elements subject to cost-exempt as an exceptional cost (minus).

MUAC infl 2023 (BE + LUX)

When revising the performance plan in 2022, the MUAC cost base in nominal terms was adjusted to the inflation scenario used. Based upon further assessment, the adjustment was overestimated. The 2023 cost base will correspondingly adjusted.

Non exec investm. Skeyes & MUAC – RP2 vs RP3

See item (b) above

Review skeyes & MUAC CB 2024 (BE + LUX)

Based upon further assessment, the cost base of skeyes and MUAC was revised downwards. Please note that for skeyes there is a rise in nominal terms due to automatic indexation of wages. In real terms though a decrease can be identified. See comparison of cost base of skeyes below as justification (RP3v5 = version submitted in July 2022; RP3v6 is the version submitted with this annex):

NOMINAL	RP3v5		RP3v6		Diff NOMINAL	
Cost details	2023	2024	2023	2024	2023	2024
1. Detail by nature (in nominal terms)						
1.1 Staff	118.149	123.921	119.587	128.901	1.438	4.980
1.2 Other operating costs	29.193	30.294	27.735	26.765	-1.458	-3.529
1.3 Depreciation	8.868	11.058	9.050	10.960	183	-99
1.4 Cost of capital	2.746	3.622	2.211	2.962	-535	-661
1.6 Total costs	158.956	168.896	158.583	169.587	-373	691
Index	119,6	121,8	123,9	126,5		

REAL

RP3v5	RP3v6	Diff real
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Cost details	2023	2024	2023	2024	2023	2024
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1. Detail by nature (in nominal terms)

1.1 Staff	98.814	101.710	96.554	101.898	-2.261	188
1.2 Other operating costs	24.416	24.865	22.393	21.158	-2.023	-3.706
1.3 Depreciation	8.868	11.058	9.050	10.960	183	-99
1.4 Cost of capital	2.746	3.622	2.211	2.962	-535	-661
1.6 Total costs	134.844	141.255	130.209	136.977	-4.636	-4.278

Review MUAC sharing key (BE + LUX)

An agreement in principle was concluded on the revision of the sharing key in relation to the costs of MUAC. This agreement will enter into force after RP3 and therefore has no effect on the RP3 cost base. The amount included is the application of the newly estimated sharing key (based upon 2019 data) and gives an accurate estimate on the effect of the sharing key.

Diff det. vs act. CB skeyes 2022

The difference between the 2022 determined and actual costs excluding the elements subject to cost-exempt will be included in the 2024 cost base as an exceptional cost (minus).

Changes with the 2022 revised performance plan

Concerning MUAC, find below a table showing for the years 2022, 2023, and 2024 the changes applied in the PP submitted in September 2023 (v3), compared to the 2022 revised draft performance plan (v2) per nature of expenditure, for both MUAC BE and MUAC LU.

Cost details MUAC BE				2022				2023				2024			
	Version 3 (K€)	version 2 (K€)	Variance (K€)		Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)		Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)		
1. Detail by nature (in nominal terms)															
1.1 Staff	67 862	67 862	0		66 584	72 260	-5 676	-8%		72 102	75 121	-3 019	-4%		
<i>of which, pension costs</i>	12 576	12 576	0		12 842	13 572	-730	-5%		13 680	14 364	-684	-5%		
1.2 Other operating costs	11 762	11 762	0		10 155	10 797	-642	-6%		11 039	10 453	586	6%		
1.3 Depreciation	2 069	2 069	0		1 997	2 458	-461	-19%		2 171	2 639	-468	-18%		
1.4 Cost of capital	98	98	0		93	115	-22	-19%		246	136	110	81%		
1.5 Exceptional items	0	0	0		0	0	0			-11 312	0	-11 312			
1.6 Total costs	81 791	81 791	0		78 829	85 630	-6 801	-8%		74 246	88 349	-14 103	-16%		
Total % n/n-1															

Cost details MUAC LU				2022				2023				2024			
	Version 3 (K€)	version 2 (K€)	Variance (K€)		Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)		Version 3 (K€)	version 2 (K€)	Variance (K€)	Variance (%)		
1. Detail by nature (in nominal terms)															
1.1 Staff	2 099	2 099	0		2 059	2 235	-176	-8%		2 230	2 323	-93	-4%		
<i>of which, pension costs</i>	389	389	0		398	420	-22	-5%		423	444	-21	-5%		
1.2 Other operating costs	364	364	0		314	334	-20	-6%		341	323	18	6%		
1.3 Depreciation	64	64	0		62	76	-14	-18%		67	82	-15	-18%		
1.4 Cost of capital	3	3	0		3	4	-1	-25%		8	4	4	100%		
1.5 Exceptional items	0	0	0		0	0	0			-350	0	-350			
1.6 Total costs	2 530	2 530	0		2 438	2 649	-211	-8%		2 296	2 732	-436	-16%		

Following the instructions provided, no changes were applied in 2022.

for the years 2023/2024, the detailed explanations for the variances are the following:

- Staff costs were reduced significantly in version 3 compared to version 2 (-8% in 2023, -4% in 2024). The main reason is that the actual salary indexation in 2022/23 was lower than expected. The salary indexation methodology applied in EUROCONTROL and EU institutions is smoothing the impact of inflation. In other words, it will take some time to reflect in the remuneration the high inflation observed in 2022 and 2023.
- Other operating costs for 2023 were reduced by 6%. It is based on a reassessment of OPEX needs and slightly lower indexation than foreseen. For 2024, other operating costs was increased by 6% because some contracts with external parties were indexed significantly in the course of 2023 (partial impact in 2023) but with full impact as from 2024.
- Depreciation costs were reduced by around 18% in 2023 and 2024 due to reduced/postponed CAPEX investments in these years. Also delays in procurement were observed in 2022/23. The main projects affected by delays are building renovations, main and sub power distributors, data centre modernisation and new access control system.
- Cost of capital was reduced in 2023 (still low financial conditions on bank loans) but increased significantly as from 2024 to reflect the much higher financial conditions on financial markets (EURIBOR 1 Year is now close to 4%)

Concerning skewes the difference is summarize in the graphic below.

Revised Cost base 2023-2024 (incl. exceptional items)



- For the **revised version of the performance plan** for the year 2023 and 2024 skyes based its financial projections on **2022 actuals**
- Difference of -5.1K€ nominal and -8.6K€ in real terms** between the July submission and the revised performance plan. The remaining part is mainly related to the cost savings efforts in the other operating costs (e.g. utilities, maintenance, etc.)

Reconciliation between MUAC budget and the Belgium-Luxembourg performance plan

		2023	2024
SHARE	TOTAL MUAC Costbase as per annual budget	249.258.000	260.471.000
	Germany	116.755.937	122.069.995
	Netherlands	47.952.753	50.196.929
	Belgium	82.012.861	85.557.951
	Luxembourg	2.536.449	2.646.125
MUAC costs included in Belgium & Luxembourg revised RP3 Plan submitted in September 2023			
MUAC BE Reporting Table		2023	2024
Staff		66.583.553	72.102.342
Other Operating Costs		10.155.270	11.038.697
Depreciation		1.997.400	2.171.213
Cost of Capital		93.311	245.699
TOTAL before exceptional items		78.829.535	85.557.951
Exceptional items		-	- 11.312.368
TOTAL after exceptional items		78.829.535	74.245.583
MUAC LU Reporting Table		2023	2024
Staff		2.059.260	2.229.972
Other Operating Costs		314.077	341.403
Depreciation		61.775	67.151
Cost of Capital		2.886	7.599
TOTAL before exceptional items		2.437.997	2.646.125
Exceptional items		-	- 349.928
TOTAL after exceptional items		2.437.997	2.296.197

For 2023, the amounts included in the MUAC BE and MUAC LU reporting tables are below the amounts included in the MUAC budget prepared in September 2022 (highlighted in green). This is because the latest revised Performance Plan submitted in September 2023 took into account savings identified during 2023 execution of the budget.

For 2024, the amounts included in the MUAC BE and MUAC LU reporting tables are exactly the amounts included in the MUAC budget prepared in September 2023 (highlighted in orange)