

Performance Review Body: Advice on the revision of performance targets for RP3

March 2021

REMARKS FROM THE CHAIR

The PRB is publishing two reports in February 2021: the Monitoring Report on the Financial and Operational Impact of COVID-19 on the SES and its Report on the revision of the RP3 targets. This report is the latter and focusses on the revision of the targets for the remainder of RP3. Both reports reflect the extraordinary situation of 2020 and 2021, which justifies opening them with similar remarks from the Chair.

In the Monitoring Report 2019, published in autumn 2020, I had written that managing the financial consequences of COVID-19 would be a major challenge for stakeholders and Member States. Little did we know how difficult it would become to cope with the pandemic and how many lives would be lost. Despite the view of this bigger dimension, the concerns of a struggling aviation industry, which is one of the hardest hit, remains a critical factor as it connects people, families, businesses, countries, and provides a livelihood for millions.

The pandemic has changed basic notions about the aviation industry, especially in Europe which – compared to other regions of the world – showed the deepest decline in air travel. Continuing as before is not an option, and all stakeholders agree on this.

When the current legal framework for the Single European Sky was defined many years ago, no one considered events such as the current crisis. The SES Basic Regulation assumed a growing aviation industry where users would be able to pay for the services provided by ANSPs (users pay principle) with a stable stream of revenue from an increasing number of passengers. It is clear the risk sharing mechanisms do not effectively deal with the collapse of air travel due to unforeseeable events beyond the control of aviation stakeholders.

During pre-COVID times, structural deficiencies of European air traffic management became evident. One of them was the lack of flexibility and scalability of service provision. Until 2020, it resulted in a shortage of capacity in the core area of Europe, which impacted the entire network. Since traffic started to drop, the deficiencies converted into costly excess capacity.

In discussions about reasonable measures and cost-savings, Member States and ANSPs often point out that air traffic management is essential infrastructure. This is the case, which was demonstrated in the early days of the pandemic when air cargo was critical to bring medical equipment to Europe. But the issue needs a wider perspective: ANSPs point out how difficult it is to scale operations of air traffic management to actual demand. Considering that the highest cost bloc of ANSPs are staff costs followed by investments, adjustments will indeed be challenging. To contain future financial risks, as well as achieve scalability and resilience, ANSPs will have to overcome the silos they operate in and reform their way of working i.e. restructuring their companies and investing in new technologies, which will enhance digitalisation and enable cross-border services. This challenge is not new and it is addressed by the ATM Masterplan and SESAR deployment.

On behalf also of my colleagues, I would like to thank our colleagues from Eurocontrol, namely the Network Manager and the Aviation Intelligence Unit, colleagues from EASA and finally the PRB Support Team for their invaluable contributions to this report.



Regula Dettling-Ott
PRB Chair

EXECUTIVE SUMMARY

Legal framework and forecast

The travel restrictions implemented by governments to contain COVID-19 brought cross-border air travel to unprecedented low levels, in some regions to almost a standstill. Europe was and is especially hard hit with most flights serving city pairs in different countries. No one had predicted how deep the crisis would run and the volatility of air traffic remains a challenge.

Early on during the pandemic, Member States decided they did not want to change the Basic Regulation of the Single European Sky because of the pandemic. An adaptation of the Implementing Regulation was considered sufficient to manage the impact of lower traffic on the performance and charging scheme. Thus the exceptional measures Regulation was adopted, implementing the revision of the targets, assuming that air travel will resume early 2021. This scenario has proven to be too optimistic.

An economic regulation for monopolies such as the services for air traffic management depends on forecasts to set targets for quality and price, compensating for the lack of competition. The same holds true for the revision of targets. Since the beginning of the pandemic, Eurocontrol started to develop scenarios on how air traffic may evolve. These scenarios were and are impressively accurate. Based on a recommendation from Eurocontrol, the PRB has relied on the STATFOR forecast scenario 2 for its recommendations for the revision of the targets for RP3. Nevertheless, all stakeholders need to prepare for continuing uncertainties and variations of demand.

All stakeholders have an inherent interest in approving the revised Union-wide performance targets by spring 2021, because they are a prerequisite for Member States to revise their draft performance plans and submit them by October 2021. Similarly, Member States should do their utmost to ensure that their local performance targets are consistent with the Union-wide performance targets. This is essential for enabling the subsequent swift adoption of the performance plans. If a performance plan is not adopted in 2022 the whole process of adjusting the unit rates would also be delayed for the Member State concerned, including in respect of the adjustment which allows the ANSPs to start recovering the revenue shortfalls incurred due to the COVID-19 crisis.

Safety

During the pandemic, safety remains the highest priority for air traffic management. The PRB recommends maintaining the current safety targets for the Effectiveness of Safety Management Systems.

The PRB recommends the Commission to retain the current Union-wide safety targets.

Environment

Data from 2020 shows that with low traffic, Member States are able to offer more efficient routes and that airspace users operated on such improved routes. Many ANSPs, together with the Network Manager, made an impressive effort to lift thousands of restrictions in the first months of the pandemic with low traffic. These measures had a local impact. To reach an improvement at network level, all ANSPs must contribute. Data from the Network Manager also shows that Free Route Airspace will be implemented in all SES countries by the end of RP3 – another contribution to improve environmental performance. In addition, airlines should increase the use of the shortest available route. The planning tools both of airlines and the Network Manager can still be optimised in this respect. More ambitious targets are thus justified for the coming years when traffic remains below 2019 levels.

The PRB recommends revising the Union-wide targets for horizontal flight efficiency and to make them more ambitious.

Proposal for revised Union-wide environment targets					
	2020	2021	2022	2023	2024
Current Union-wide targets	2.53%	2.47%	2.40%	2.40%	2.40%
Proposal for revised Union-wide targets	2.53%	2.39%	2.37%	2.37%	2.37%

Capacity

Union-wide targets should ensure ANSPs offer sufficient capacity to meet actual and expected demand. Currently, there is costly excessive capacity which would call for zero delays. The PRB recognises that ANSPs need some flexibility in terms of capacity to restructure their business. The actions needed are defined by the ATM Master Plan. Without pressure on capacity, Member States and ANSPs should be better positioned to implement it.

In view of the forecasted traffic and factoring in a tolerance for restructuring, the PRB recommends revising the capacity targets. The revised targets reflect the substantially lower traffic for 2021 and – with gradually increasing traffic – the system-wide cost optimum for delays (0.5 minutes delay per flight) for the years 2023 and 2024. These targets will allow ANSPs to implement technological changes to respond to changes in demand which will be the hallmark of the remainder of RP3, putting capacity where and when it is needed.

The PRB recommends revising the Union-wide capacity targets for en route ATFM delay.

Proposal for revised Union-wide capacity targets					
	2020	2021	2022	2023	2024
Current Union-wide targets (min/flight)	0.9	0.9	0.7	0.5	0.5
Proposal for revised Union-wide targets (min/flight)	0.9	0.35	0.5	0.5	0.5

Cost-efficiency

The drastic drop in traffic in 2020 (> 50%) has a substantial impact on the revenues and costs of air navigation services.

With the additional monitoring for 2020, Member States were asked to report the measures put in place to address the financial and operational impact of the pandemic, specifying cost data for 2020 and the forward-looking data for the remainder of RP3. Despite the several measures reported by ANSPs, the Union-wide results show negligible effects. For 2020, ANSPs reported Union-wide costs which would be only 1% less than 2019 actual costs. For 2021 onwards, ANSPs assume that no reductions would be possible against the 2019 actual costs.

ANSPs were also asked to report any additional financing agreed or planned for 2020 and 2021. The data submitted shows that only a limited number ANSPs needed additional finance from third parties

(e.g. banks, States), while most of them were able to finance all or part of the revenue gap with their own means.

The PRB approached the revision of the cost-efficiency targets based on the following principles:

- The only verified cost data available for revising the targets are those of RP2 and namely 2019 (which were the highest in RP2).
- ANSPs had limited flexibility to immediately react to the sudden drop in traffic, with staff costs being their largest cost bloc and the need to maintain investments. Data from RP2 shows that around 4% of the 2019 Union-wide actual cost base was for overtime. In times of excess capacity, overtime is not needed. In addition, 4.5% of the 2019 actual costs was related to the remuneration of capital. During the most severe crisis of European aviation, Member States as shareholders of the ANSPs should waive this remuneration as a contribution to bear the cost of infrastructure. The two items alone would amount to a cost-reduction of around 9% against the 2019 actuals. In view of the crisis, a further -1% in cost reduction against 2019 actuals must be possible.
- Based on the current legal framework (including the exceptional measures Regulation), air space users will have to cover the revenue gap of 2020/21 starting in 2023. The unit rate of 2023 onwards will be increased by a substantial amount far into RP4, unless Member States agree to cover the revenue gap. This also justifies proposing targets requiring cost containment measures for ANSPs, because airlines will have to foot the bill for failing to do so.

The PRB recommends revising the Union-wide cost-efficiency targets.

Proposal for revised Union-wide cost-efficiency targets					
	2019 Baseline	2020/2021	2022	2023	2024
En route costs (€₂₀₁₇)	6,265,631,152	11,278,136,074	5,639,068,037	5,639,068,037	5,639,068,037
Service units (M3)	124,741,008	109,968,026	86,656,273	101,925,348	116,358,421
Determined unit costs (€₂₀₁₇)	50.23	102.56	65.07	55.33	48.46
Proposal for re- vised Union- wide targets		+104.2%	-36.5%	-15.0%	-12.4%

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1 INTRODUCTION

- In the course of 2020, it became apparent that the downturn would not be short-lived.
- In November 2020, the Commission and Member States adopted exceptional measures for RP3.
- This document contains the PRB advice and recommendation for the revision of the RP3 targets.

1.1 Context for proposing revised targets

- 1 The revision of the Union-wide targets is an unprecedented event in the implementation of the Single Sky framework. There were several cases of revision of performance plans, but never the revision of targets at Union wide level.
- 2 The COVID-19 pandemic has reduced traffic substantially. In April 2020, traffic was over 85% lower than in April 2019. In the summer of 2020, the number of flights in Europe recovered slightly. However, traffic levels remained below 50% of those experienced in 2019. In addition, airlines experienced lower seat load factors on these remaining flights caused by low passenger demand decreasing by 83% in Europe during October 2020, compared to 2019.¹
- 3 In the course of 2020, it became apparent that the downturn would not be short-lived and the traffic forecasts on which the performance plans Member States had submitted for 2020 and for the 2020-2024 reference period (RP3) were no longer valid. The performance and charging Regulation had not foreseen such drastic changes to basic assumptions and needed to be urgently reviewed.
- 4 In November 2020, the Commission adopted exceptional measures for RP3 altering the provisions for the cost-efficiency KPA of the performance and charging Regulation (hereafter the “exceptional measures Regulation”).²

- 5 The pandemic struck at a time when the Commission was preparing its Decision on the draft performance plans of Member States for RP3 which they submitted in October 2019. Following the Single Sky Committee of March 2020, the Commission decided not to adopt the proposed Decision and the status of the draft performance plans of 2019 remains unchanged, i.e. they remain a draft. Instead, the Commission adopted the exceptional measures Regulation, initiating the revision of the RP3 targets. For the PRB, this meant that the Commission would require its advice and recommendation for the revision of the Union-wide performance targets by February 2021, enabling the adoption of the revised targets by 1st May 2021.
- 6 Based on the exceptional measures Regulation, Member States were required to provide to the Commission initial forward looking cost data for RP3 as well as data on measures taken to address the impact of the COVID-19 pandemic by 15th December 2020. The PRB has analysed these submissions in its Monitoring Report on the financial and operational impact of COVID-19 on the SES, published in February 2021.³
- 7 The PRB wishes to thank Eurocontrol and EASA for their support in the preparation of this report.

1.2 PRB approach to setting revised targets

- 8 Revising the targets for RP3 is challenging. The development of the pandemic remains uncertain and forecasting is difficult in view of the unpredictability of the factors defining the return of cross-border travel by air. As in previous target setting activities, the PRB relied on the traffic forecast published by Eurocontrol.
- 9 The PRB has analysed how the decrease in traffic affects the validity of current targets and whether the methodology and assumptions for calculating

¹ IATA Press Release No: 105. Passenger Recovery Disappoints in October. Date: 8 December 2020. Revenue Passenger Kilometres were -83% lower in Europe in October 2020 compared with October 2019. This compares to a reduction of 70% in the available seat kilometres.

² Commission Implementing Regulation (EU) 2020/1627.

³ Monitoring Report on the financial and operational impact of COVID-19 on the SES.

them remains adequate. The PRB has found that whilst its basic assumptions remain valid, certain modifications were necessary due to the different timeline and the extraordinary circumstances affecting European air traffic.

10 The PRB assessed what resources ANSPs had at their disposal in 2019 and how they performed in 2020. In addition, the PRB considered the financial situation of ANSPs as reported in December 2020.

11 The data from 2020 indicated that during the two months when traffic was still at forecasted levels, the problems with performance experienced in RP2 remained: delays were above the targets and environmental performance did not comply with the targets either (i.e. extension of routes remained). The picture only changed after traffic decreased. The following can be concluded:

- **Safety:** The traffic downturn creates challenges for ANSPs and NSAs. Modifications in the other three KPAs must not endanger the safety objectives laid down in Regulation (EU) 2017/373.
- **Environment:** Performance improved because of the traffic downturn. Airlines flew more direct en route trajectories than ever before, yet the targets were only just achieved. This highlights scope for further improvement, especially because reducing the output of CO2 emission, including the emissions from aviation, has become a top priority for the European Union.

- **Capacity:** The downturn of traffic caused an oversupply of capacity. Traffic reduced drastically within a very short period. As it is expected to remain below the 2019 values for the next five years, ANSPs should be able to meet more ambitious delay targets.
- **Cost-efficiency:** ANSPs must provide air navigation services even if only a few aircraft operate through their skies. Nevertheless, the drastically reduced traffic in 2020 and the forecasted reduction for the remaining years of RP3 justify requiring ANSPs to adapt their costs to the new situation. Data shows that in 2020, in general, ANSPs were not able to adjust their costs to the downturn. Costs in 2020 are estimated to be only 1% lower than in 2019. In 2019, Member States and their ANSPs needed 6.3B€₂₀₁₇ to manage 9.9M flights. ANSPs are expected to adapt their cost for the remainder of RP3.

12 The PRB held a consultation meeting on 4th February 2020 with stakeholders. This gave the opportunity for airspace users, air navigation services providers and professional staff organisations to present their views on the revision of targets for RP3. It also provided an opportunity for the broader stakeholder community to ask questions regarding the ongoing work of the PRB. The outcomes of these discussions have been considered during the preparation of this report.

Key principles for the revision of targets

Safety remains the highest priority. Safety levels have to be maintained or improved.

Target setting must consider that there is currently 50% less traffic than in previous years, with expectation of a partial recovery by the end of RP3.

ANSPs need to deliver improvements in terms of environmental and capacity performance, restructure their business where possible and accelerate the implementation of the European ATM Master Plan to achieve the targets.

Cost levels must reflect the drop in traffic and the forecasted duration of the downturn of traffic due to the pandemic.

2 TRAFFIC FORECAST

- Traffic forecasting is difficult during volatile times, resulting in high levels of uncertainty and significant differences between the scenarios.
- The PRB advises the Commission to use of the November 2020 STATFOR Scenario 2 (most likely scenario) as the basis for the revision of the targets.

- 13 As stipulated in Article 9 of the Commission Implementing Regulation (EU) 2019/317, the traffic forecast for Union-wide targets should be based on the latest available Eurocontrol Statistics and Forecast Service (STATFOR) base forecast.
- 14 STATFOR published its latest five-year traffic forecast for IFR movements in November 2020.⁴ Previous STATFOR publications have provided high, base and low forecasts. This latest forecast is based on three scenarios linked to the availability and effectiveness of vaccinations for travellers or the end of the pandemic:
- Scenario 1 – Vaccine summer 2021: vaccine widely made available for travellers (or end of pandemic) by summer 2021, with traffic returning to 2019 levels by 2024.
 - Scenario 2 – vaccine summer 2022: vaccine widely made available for travellers (or end of pandemic) by summer 2022, with traffic returning to 2019 levels by 2026. Eurocontrol considers this the ‘most likely’ scenario.
 - Scenario 3 – vaccine not effective: lingering infection and low passenger confidence, with traffic returning to 2019 levels by 2029.
- 15 Traffic forecasting is difficult during volatile times, resulting in high levels of uncertainty and significant differences between the scenarios presented. The most likely scenario, Scenario 2, suggests that traffic in 2021 may return to approximately 50% of the traffic movements of 2019. By the end of RP3 the scenario estimates that traffic movements could return to 93% of 2019 and then take a further two years of RP4 to return to the traffic levels of 2019.
- 16 **The PRB advises the Commission to use the November 2020 STATFOR Scenario 2 as the basis for the revision of the targets.**

⁴ <https://www.eurocontrol.int/publication/eurocontrol-five-year-forecast-2020-2024>.

3 SAFETY

- The PRB advises the Commission to retain the current Union-wide safety targets.

3.1 Introduction to the safety KPA

17 The pandemic does not change the overall goal related to safety, which remains the highest priority and should be further improved. The impact of the pandemic on aviation underlines the importance of having a robust and vigilant safety management system, able to retain safety levels under significantly varying circumstances.

3.2 Analysis of the safety KPA

Current status

18 At the time of writing of this report, there is no verified data available for the monitoring of the Safety KPA (EoS M for ANSPs) for 2020. The PRB expects that ANSPs continue the positive developments seen under RP2 and recognise that the ability to adapt to COVID-19 requires a robust and vigilant safety management system to manage unforeseen developments.

19 Compliance with Regulation 2017/373 will help to improve the maturity of the safety management systems.

Outlook for the safety KPA

20 When setting the current targets for RP3, it was assumed a continued increase in traffic and a need to provide additional capacity without a corresponding increase in the cost base. Changes to operational concepts (e.g. Free Route Airspace, Advanced Flexible Use of Airspace, dynamic airspace configuration) and technical air traffic management systems (e.g. virtualisation, increased automation) were expected. Thus, the targets for safety performance were counterbalancing targets for other KPAs, mainly for capacity and cost-efficiency.

21 The pandemic has changed the priorities, going from the need to provide additional capacity to adapting operations to reduced traffic, whilst reducing the CO₂ output of aircraft and reducing costs without compromising safety levels:

- ANSPs must be able to provide required lower capacity at reduced cost due to the significant

drop in revenue, without compromising safety.

- ANSPs must implement changes to operational concepts, technical systems and their organisations under financial constraints without compromising safety.
- The recovery is likely to be unpredictable as the return of traffic is uncertain. ANSPs must implement measures to safely accommodate the forecasted increases in traffic rather than awaiting potential future drops in demand.
- Traffic will grow again, and the year-to-year increase may be higher than seen in RP2. This will challenge ANSPs differently depending on what measures they implemented in response to the financial impact from the pandemic. Changes may occur within short time-scales requiring ANSPs to react promptly while maintaining safety.

22 The EASA survey on the safety issues arising from the pandemic highlighted the need for well-functioning management systems to ensure that organisations can identify and manage risks effectively.⁵ Retaining the current targets will ensure that ANSPs maintain their safety achievements.

3.3 PRB recommendations for the safety KPA

23 Based on the analysis and after coordination with EASA, **the PRB advises the Commission to retain the current Union-wide safety targets** - i.e. maturity Level D in the safety management objective "risk management" and Level C on all other objectives.

⁵ Review of Aviation Safety Issues Arising from the COVID-19 Pandemic, EASA, <https://www.easa.europa.eu/newsroom-and-events/news/easa-published-review-aviation-safety-issues-arising-covid-19-pandemic>.

4 ENVIRONMENT

- Member States should improve environmental performance in years with excess capacity.
- Planned network improvements, lower traffic levels, and reduced congestion allows for more ambitious targets.
- The PRB advises the Commission to revise the Union-wide environment targets.

4.1 Introduction to the environment KPA

- 24 The pandemic impacted travel by air at a time when the environmental footprint of aviation was in the spotlight. The sharp decrease of flight movements contributed to the global reduction of greenhouse gases (-9%).⁶ For the revision of the environment targets, the PRB has considered that the number of flight movements will remain at levels lower than 2019 for the remainder of RP3.
- 25 The environmental key performance indicator measures the extension of horizontal routes at Union-wide level. In 2020, horizontal flight efficiency improved because of more direct en route flight trajectories showing that ANSPs and airspace users can fly more directly when there are no capacity constraints.

4.2 PRB analysis of the environment KPA

- 26 The current Union-wide performance targets for the environment KPA were calculated based on the following elements:
- historic performance;
 - the contribution of factors that are outside of the control of ANSPs i.e. weather and airspace user route choices;
 - improvements to the route network design expected by 2024 according to the Network Manager, including the implementation of Free Route Airspace;⁷
 - feedback from stakeholders.

The PRB analysed these factors when proposing revised targets.

Historic performance

- 27 The data for 2019 shows that a high volume of traffic and a lack of capacity leads to poorer flight efficiency. In 2019, months with lower traffic and lower delays show lower route extension (Figure 1).

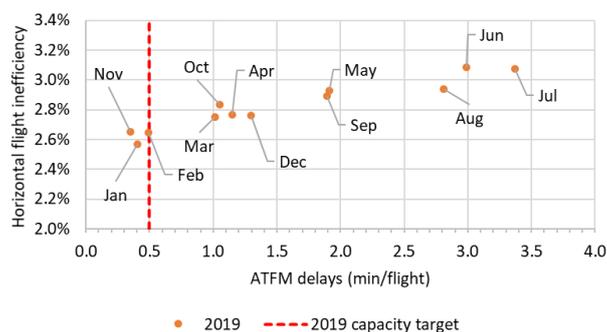


Figure 1 - 2019 monthly environment performance against monthly capacity performance (source: PRB elaboration), showing a correlation between the two. 2020 data is less clear as delays were almost zero in most months.

- 28 For 2020, delays were zero in most Member States, but route extensions continued to exist. Thus, flight efficiency was analysed with respect to its correlation with traffic i.e. IFR movements.
- 29 The data for 2020 shows that environmental performance depended on the level of traffic irrespective of capacity constraints and followed a similar correlation as 2019 - i.e. months with fewer IFR movements showed lower route extension. In summer 2020, when traffic recovered slightly, flights had a higher extension, demonstrating the sensitivity between environmental performance and traffic levels under the current structures/airspace design (Figure 2, next page).

⁶ [https://www.nature.com/articles/s41467-020-18922-7#:~:text=Near%2Dreal%2Dtime%20daily%20emissions,\(1551%20Mt%20CO2\).](https://www.nature.com/articles/s41467-020-18922-7#:~:text=Near%2Dreal%2Dtime%20daily%20emissions,(1551%20Mt%20CO2).)

⁷ <https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-2>.

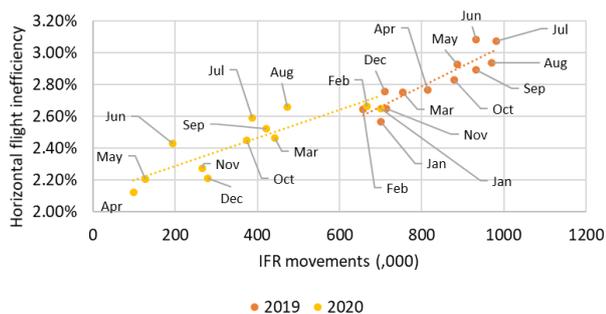


Figure 2 – 2019 and 2020 horizontal flight inefficiencies against the number of IFR movements (source: PRB elaboration), showing a correlation between traffic levels continued to exist in 2020 despite many months of zero delays.

- 30 Taking into account these results, Member States should be able to improve the environmental performance in years with excess capacity and low traffic. The available figures for 2020 confirm this: the lower traffic helped Member States achieve the target of 2.53% for 2020.
- 31 All three scenarios of the traffic forecast suggest that during RP3, traffic will increase from the historic low but the levels of 2019 are unlikely to return during RP3. Member States should therefore be able to improve environmental performance.
- 32 Data show that there is a correlation between KEA and delay (en route ATFM delay in minutes per flight). For each additional minute of en route ATFM delay per flight, KEA increases by +0.15 percentage points.
- 33 Considering the proposed revision of the current capacity targets (see Chapter 5), this change translates to a reduction in the current environmental targets of 0.08 percentage points in 2021 and 0.03 percentage points thereafter.

External Factors

- 34 The PRB analysed whether the original buffers applied to the current Union-wide targets to account for external factors such as weather, network disruptions etc. are still valid. The PRB found that the analysis remained valid with the new data available since the previous target setting process and therefore no further adjustments are needed to account for external factors.

Improvement to the route network

- 35 In the European ATS Route Network Version 2020-2024, published in July 2020, the Network Manager expects the route extension to decrease from 2.22% in December 2019 to approximately 1.85%

by 2024, due to improved airspace design. This assumes that all recommended airspace projects are implemented, including Free Route Airspace throughout the SES area.

- 36 The calculation of the Network Manager also assumes that all flights can use the route network without any restrictions and with all CDRs permanently available, which cannot be fully implemented in day to day operations.

4.3 Proposal for revised targets for the environment KPA

- 37 **The PRB advises the Commission to revise Union-wide environment targets** (Table 1, next page). The target for 2020 is unchanged, as this would amount to a retroactive adjustment of the target for the environment KPI.
- 38 The revised breakdown values for the environment KPA as calculated by the Network Manager are shown in Annex I.
- 39 The proposed targets are based on lower forecasted traffic, less congestion and lower delays, as well as an improved network. The recommended revision of the current targets for horizontal flight efficiency may at first glance seem modest (from -0.08 percentage points in 2021 to -0.03 percentage points for the remainder of RP3). However, it should be considered that the current targets were ambitious and would have required a substantial effort from Member States. Nevertheless, Member States and stakeholders should still be challenged with respect to environmental performance and complacency would not be compatible with overall priority to reduce CO2 emissions of aviation.

Proposal for revised Union-wide environment targets					
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Proposal for revised Union-wide targets	2.53%	2.39%	2.37%	2.37%	2.37%

Table 1 – Proposals for revised Union-wide environment targets.

5 CAPACITY

- Previous reference periods focused on increasing capacity and coping with strong and continuous traffic growth.
- Due to the steep drop in traffic and the excess capacity, ANSPs are expected to provide adequate capacity to meet the (low) demand.
- The PRB advises the Commission to revise the Union-wide capacity targets.

5.1 Introduction to the capacity KPA

- 40 Union-wide performance targets for capacity aim to ensure that sufficient capacity is offered to meet demand. After the drop in traffic due to the COVID-19 pandemic, the assumptions behind the current capacity targets are no longer valid.
- 41 The focus of previous reference periods was on increasing capacity and coping with strong and continuous traffic growth in certain regions of Europe, and with saturated airspace in the core area. In RP2, structural capacity and staffing issues were responsible for high levels of delay. Since the introduction of travel restrictions following the outbreak of the pandemic in Europe, the European network has a costly excess of capacity.

5.2 PRB analysis of the capacity KPA

- 42 The PRB analysed whether the methodology and assumptions used to calculate the current Union-wide performance targets for capacity remain valid for RP3.
- 43 The current Union-wide performance targets for capacity were calculated based on a methodology built on the following elements:
- the system-wide cost optimum of en route ATFM delays;
 - the historical statistical calculations for delays caused by adverse weather;
 - the historical statistical values for delays caused by disruptions (technical or industry action related);
 - the status of the network and the structural issues and staffing problems during RP2.

System-wide cost optimum of en route ATFM delays

- 44 The system-wide cost optimum delay is calculated by the Network Manager to identify the optimum balance between the cost of delay and the cost of providing additional capacity.
- 45 The calculation compares the cost of a unit of delay and the cost of additional capacity to eliminate a unit of delay. When there is excess capacity, the cost for accommodating additional flights is probably zero.⁸ Therefore, the system-wide optimum of en route ATFM should be close to zero until the excess capacity has either been eliminated by reducing resources or absorbed by increased demand.

Allowances for weather and disruption-related delays

- 46 Data from 2020 shows that as traffic levels have decreased, en route ATFM delays associated with disruptions and weather also diminished.⁹
- 47 Delays relating to weather and disruptions thus occur when capacity is constrained. When there is an excess of capacity these delays are greatly reduced, although it can be assumed that the weather conditions have not changed in 2020. ANSPs are less able to manage the impact of weather when capacity is constrained and, during RP2, the allocation of the weather code for explaining delays was more likely a capacity issue.
- 48 The PRB considers that as traffic will start to gradually recover, ATFM delays caused by adverse weather and disruptions could also start to increase, because ANSPs again will have difficulty to manage expected weather occurrences without causing delays. Given the fact that it will take years for traffic levels to reach 2019 levels, ANSPs can be expected to implement processes to manage

⁸ If the costs associated with providing additional capacity is zero (i.e. there is an excess of capacity), then delay should also be zero (otherwise there would be a cost associated with reducing the cost of delay).

⁹ It is reasonable to assume that the weather in 2020 was not significantly different from other years and therefore there is a strong link between the drop in traffic and the fall in delays related to weather.

weather and disruption-related issues and to minimise respective delays once traffic rebounds to 2019 levels. Delays relating to capacity and staffing constraints should be allocated as such and weather delays must only be allocated in the exceptional case when weather is the sole cause for delays.

Existing structural issues and staffing problems

- 49 The PRB Annual Monitoring Report 2019 and the first two months of 2020 highlighted the persisting issues in airspace structures, inadequate deployment of new technologies, and staffing problems in some Member States. This contributed to the Union-wide delay targets not being met in RP2. These issues would have remained in 2020 if traffic had not reduced so significantly.
- 50 Member States have reported various measures to contain costs in 2020. Some of these measures may affect the capacity offered by the ANSPs through the reduction of ATCO hours. They can be temporary, such as the cancellation of overtime or the adjustments of rostering schemes or the reduction of working hours. Certain measures could have long-term effects such as laying-off controllers, accelerated retirement schemes, and postponed recruitment of new ATCOs. Once the recovery is established, ANSPs must find the right balance between cost containment measures and the provision of adequate capacity. Based on the information received in December 2020, it is not possible to assess the extent to which ANSPs have taken such measures. The PRB will review this further during the assessment of the performance plans.
- 51 The PRB expects ANSPs to use the downturn of traffic to address structural issues and staffing problems, recognising that planning of training and staffing in times of highly uncertain traffic forecasts is challenging. Approaching these problems in the same way as during RP2 will most likely repeat the dire consequences experienced in 2018 and 2019 with considerable capacity issues in some area control centres impacting the entire network and causing billions of euros of delay cost.

Outlook for the capacity KPA

- 52 Until traffic levels recover significantly, ANSPs are expected to provide adequate capacity, as excess capacity will continue to be present in the network. Once traffic reaches 70-80% of the levels in 2019, ANSPs need to provide required capacity to avoid delays rising. ANSPs will have had sufficient time to provide solutions enabling them to match the offered capacity to actual demand.
- 53 Considering the data of 2020 and the uncertainties of traffic forecasting, plus the potential impacts of adverse weather and disruptions, it would be ambitious and pragmatic to set the target for 2020 and 2021 at the actual average en route ATFM delay per flight of 2020.¹⁰
- 54 Traffic is expected to recover gradually over the remaining years of RP3 and absorb excess capacity. Therefore, the target for average en route ATFM delays for the period of 2022-2024 is recommended at 0.5 minutes per flight.
- 55 During most of the remaining years of RP3 there will be excess capacity (“buffer capacity”) available. The PRB recommends using this “buffer capacity” to implement projects which in the past were constrained by a lack of skills, and mission critical human resources (e.g. ATCOs, engineers, experts) and/or operational restrictions during the implementation. “Buffer capacity” also gives ANSPs flexibility to accelerate the implementation of the ATM Master Plan and restructuring measures.
- 56 The PRB recommends that ANSPs define and plan these measures and identify the costs and benefits associated. This must include yearly milestones of the implementation process for monitoring purposes. For milestones that are not met, the PRB will recommend to the Commission to require corrective measures for the Member State in question.

Impact of military activities

- 57 It may be assumed that the COVID-19 pandemic has affected military airspace use activities, although not as significantly as in civil air transport. However, considering the traffic and capacity out-

¹⁰ When setting the current targets, the upper bound for the contribution from weather related delays was 0.22 minutes per flight. For other disruptions it was 0.12 minutes per flight. Therefore an allowance of 0.34 minutes per flight should be sufficient to cover delays relating to these causes.

look for RP3, the impact of military activities is expected to continue to be low, but it may gradually become an issue in regions with capacity constraints.

58 The PRB expects that ANSPs will use the downturn of traffic to further improve civil-military cooperation.

5.3 Proposal for revised targets for the capacity KPA

59 **The PRB advises the Commission to revise the Union-wide capacity targets** (Table 2). The target for 2020 is unchanged. This is because this would amount to a retroactive adjustment of the target for the capacity KPA.

60 The revised breakdown values for the capacity KPA as calculated by the Network Manager are shown in Annex II.

Proposal for revised Union-wide capacity targets					
	2020	2021	2022	2023	2024
Current Union-wide targets (min/flight)¹¹	0.9	0.9	0.7	0.5	0.5
Proposal for revised Union-wide targets (min/flight)	0.9	0.35	0.5	0.5	0.5

Table 2 – Proposals for revised Union-wide capacity targets.

¹¹ As for the case where Union law ceases to apply to the United Kingdom.

6 COST-EFFICIENCY

- The 2019 baseline should be based on 2019 actual values, no further adjustments to the baseline are justified.
- The 2019 actual costs should be the starting point for the revision of the targets.
- The PRB advises the Commission to revise the Union-wide cost-efficiency targets.

6.1 Introduction to the cost-efficiency KPA

- 61 Given the downturn in traffic and the traffic forecast for the remainder of RP3, the current targets for the cost-efficiency KPA are no longer valid.
- 62 The limited time available for the revision of the targets did not allow the PRB to undertake a cost benchmarking study as done when setting the current targets.¹²
- 63 The revised targets for cost-efficiency and the evaluation of the future costs are based on the data submitted by Member States on 15th December 2020, as well as on the RP2 actual costs, namely 2019.

6.2 PRB analysis of the cost-efficiency KPA

Cost-efficiency baseline applied for the revision of targets

- 64 Setting the Union-wide targets requires establishing a baseline value for determined costs and for the determined unit costs. Article 9(4)(a) of the Implementing Regulation (EU) 2019/317 specifies: *“The baseline value for determined cost shall be estimated by using the actual cost available for the preceding reference period and adjusted to take account of latest available cost estimates, traffic variations and their relation to costs”*. With respect to the baseline values for the determined unit cost, it states that *“[they] shall be derived by dividing the baseline value for the determined cost with the traffic forecast expressed in service units for the year preceding the start of the reference period”*.

- 65 Neither the Implementing Regulation (EU) 2019/317, nor the exceptional measures Regulation specify how to establish the baseline values in case the Commission revises the targets.
- 66 When the Commission adopted the baseline values for RP3 in 2019, it used estimates for 2019, as the actual values for 2019 were not yet known at the time of adoption. Now, in 2021, the actual values for 2019 are known. The PRB is of the opinion that these actuals should be considered for the revision of the baselines, as this follows the principle of using the latest available actual data. Therefore, the revised cost-efficiency 2019 baseline should be based on 2019 actual values, adjusted for inflation and RP3 rules relating to the calculation of en route service units.¹³
- 67 The 2019 actual costs were the highest of any year in RP2, even higher than the determined cost for the same year. The increase is mainly attributable to staff costs, due to the capacity shortage, i.e. extensive use of overtime hours and staff training/hiring. Given that these extra costs are included in the baseline, no further provision (i.e. adjustments) in the baseline would be justified.
- 68 In the 2020 data submission, Member States reported a wide range of adjustments to the 2019 baseline. The eligibility of such adjustments will be analysed during the assessment of the revised draft performance plans. But it is already apparent for the reasons stated above that such adjustments could only be justified in proven and specific exceptional circumstances such as a modification of the scope of services (e.g. addition of new entities, modified allocation of en route and terminal costs). In the assessment of the draft performance plans submitted in 2019, the PRB has indicated the elements eligible for each of the Member States.¹⁴

¹² Advice on benchmarking of ANSPs and EU-wide cost targets. Academic Group: Nicole Adler, Peter Bogetoft, and Nicola Volta. https://webgate.ec.europa.eu/eusinglesky/e_library_en.

¹³ Service units based on M3 method.

¹⁴ PRB assessment of RP3 performance plans, https://webgate.ec.europa.eu/eusinglesky/e_library_en.

69 The PRB proposal of the revised 2019 baseline values for the purpose of setting the cost-efficiency targets is presented in Table 3.

	Current 2019 baseline ¹⁵	Proposal for revised 2019 baseline
En route costs (€ ₂₀₁₇)	6,245,065,000	6,265,631,152¹⁶
Service units (M3)	126,712,000	124,741,008
Determined unit costs (€ ₂₀₁₇)	49.29	50.23

Table 3 – Proposal of the revised 2019 baseline values.

Cost base for 2020 and 2021

70 The revision of cost-efficiency performance targets at Union-wide (and local) level should cover the determined costs of calendar years 2020 and 2021 as a single period.¹⁷

71 The calendar year 2020 showed a drop in traffic, with service units decreasing 58% compared to actual 2019 service units (56% less movements). The situation most likely will continue in 2021, with service units being forecasted 54% lower than actuals in 2019 (48% less movements).

72 In the data submitted in December 2020, Member States overall indicate the 2020 Union-wide en route costs being -1% less than the 2019 actual costs. In 2021, they would be 2% higher than 2019 actual costs. Several Member States, however, show a decrease in their 2020 and 2021 cost base, some with a remarkable decrease: in 2020 they plan to lower costs up to -24% against 2019 actuals, and in 2021 up to -21%.¹⁸ These Member States prove that the cost base can be substantially lower when traffic shows a dramatic decrease.

73 Setting the 2020 and 2021 cost base the PRB considers that:

- for the revision of targets, the 2019 actual costs should be the starting point and not the

costs Member States included in their draft performance plans submitted in October 2019. These plans were not approved and the PRB in February 2020 published a detailed assessment of issues to be resolved. ANSPs had sufficient time to react and consider these requirements for improvement. Moreover, COVID-19 and its effects on traffic started in March 2020. Therefore, Member States had nine months in 2020 to act.

- Part of the ANSPs cost base is composed of costs that cannot be reduced in the short term. Moreover, ANSPs operate in a regulated market in which they must provide the infrastructure and related services even in times of reduced demand. Nevertheless, several Member States were able to substantially decrease their costs against 2019 actuals for 2020 and 2021 without compromising the availability and quality of their services.
- 2019 was the year with the highest costs of RP2, including payments for overtime to alleviate delays. The PRB estimates the Union-wide costs related to overtime being approximately 4% of the 2019 actual costs.¹⁹
- During RP2, Member States charged approximately 4.5% of the cost base in 2019 for the remuneration of the capital. In times of crisis, Member States should reconsider whether it is appropriate to charge airspace users the remuneration of capital.
- In preparation for RP2, Member States submitted forward looking costs which on average were 8% higher than the actual costs, indicating that they overestimated their costs.²⁰ It can be assumed that the latest submission from most Member States includes a similar margin.

74 In view of the above considerations, the PRB advises the Commission to set the 2020 and 2021 cost base as 90% of the 2019 actual costs, expecting that ANSPs can manage a cost base which 10% lower than in 2019. Therefore, the determined costs for the 2020 and 2021 as a single (combined)

¹⁵ As for the case where Union law ceases to apply to the United Kingdom.

¹⁶ The actual costs 2019 are not including the DFS corporate action programme.

¹⁷ As defined in the exceptional measures Regulation.

¹⁸ Percentages computed at charging zone level. 2020 cost base: Slovakia -24%, Austria -16%, Portugal -14%, Bulgaria -14%, Malta -13%, Latvia -13%, Slovenia -11%. 2021 cost base: Slovakia -21%, Latvia -14%, Czech Republic -11%.

¹⁹ Estimation based on the action taken by ANSPs as reported in the 15th December 2020 submission.

²⁰ Detailed analysis provided in Annex III.

period should amount to 11,278,136,074€₂₀₁₇. Considering that 2020 and 2021 are combined to a single period, those ANSPs which have not yet taken adequate measures to lower their cost will have to react and adapt their business, as several Member States have done.

Cost base from 2022 to 2024

75 Despite an expected modest increase of traffic for the last three years of RP3, the service units and movements forecast show lower figures than the 2019 actuals, i.e. ANSPs will still have to manage fewer flights than in 2019.²¹ Member States data submissions show that, following their plans, the Union-wide en route cost would increase in the last three years of the period, reaching 6.9B€₂₀₁₇ in 2024 (+11% compared to 2019 actuals).

76 In setting the cost base from 2022 to 2024, the PRB considers that:

- The industry long term technical improvements (e.g. allocation and utilisation of resources) and the implementation of SESAR solutions should be taken into account and factored into the cost-efficiency targets, as they will improve the performance of air navigation services.
- Service providers have a pivotal role in the aviation industry and need to contribute to its economic sustainability and to its recovery. Despite being regulated monopolies, service providers should react to demand contraction by adjusting their cost base.
- Service providers need to adapt and must improve the flexibility and scalability of their operations. This includes structural changes to their cost base. In the cases where required structural changes can only be reached through a deviation from the targets, Implementing Regulation (EU) 2019/317 may allow it if the measures lead to restructuring costs in the meaning of the Regulation resulting in a net financial benefit for airspace users by the end of RP4 at the latest.
- Most of the draft performance plans that Member States submitted in October 2019 contained issues with respect to cost-efficiency, which the PRB and subsequently the Commission had asked to be addressed.

These reservations remain valid and Member States should adapt their cost base.

- The PRB recognises the uncertainty related to the forecast of traffic for the last years of the reference period. Considering that the pandemic could (again) take an unforeseeable turn, the alert threshold defining the possible revision of the performance plan allows for the flexibility needed (as described in Section 7).

77 The PRB advises the Commission to set the 2022, 2023, and 2024 determined costs at 90% of the actual costs of 2019 taking into account the reasons listed above (i.e. 5,639,068,037€₂₀₁₇ for each year). The values proposed should not impair the investment plans nor the training of staff, and provisions for these activities are considered in the proposed amounts. Costs are composed by quantities, prices and allocation of resources. Member States have several ways to reduce costs without simply cutting staff and investments.

6.3 Proposal for revised targets for the cost-efficiency KPA

78 **The PRB advises the Commission to revise the Union-wide cost-efficiency targets as follows:**

- The year-on-year change of en route cost should be calculated starting from a baseline value of 6,265,631,152€₂₀₁₇ for determined costs, and 50.23€₂₀₁₇ for determined unit costs;
- A year-on-year change of the average Union-wide determined costs of +104.2% for the single/combined period 2020/2021, -36.5% for 2022, -15.0% for 2023, -12.4% for 2024 (Table 4, next page).

²¹ Service units -31% in 2022, -17% in 2023, -7% in 2024 with respect to 2019 actuals. Detailed analysis provided in Annex III.

Proposal for revised Union-wide cost-efficiency targets					
	2019 Baseline	2020/2021	2022	2023	2024
En route costs (€₂₀₁₇)	6,265,631,152	11,278,136,074	5,639,068,037	5,639,068,037	5,639,068,037
Service units (M3)	124,741,008	109,968,026	86,656,273	101,925,348	116,358,421
Determined unit costs (€₂₀₁₇)	50.23	102.56	65.07	55.33	48.46
Proposal for re- vised Union- wide targets		+104.2%	-36.5%	-15.0%	-12.4%

Table 4 - Proposals for revised Union-wide cost-efficiency targets.

6.4 Simulation of retroactive adjustments with revised targets

- 79 Under normal circumstances, the en route costs are charged to airspace users through the unit rates. The unit rate accounts for actual traffic and cost, ringfencing the (financial) risk for ANSPs with the traffic-risk sharing mechanism and shifting the risk for reduced actual revenues to airspace users, as well as sharing higher revenues with them. Given the steep fall in traffic and thus revenues, these mechanisms were no longer adequate to cope with the realities of 2020 and 2021, especially covering the huge lack of revenues of ANSPs in 2020 and 2021.
- 80 Arguing that the SES basic Regulation stipulates the “users pay principle”, the Commission and Member States decided that, ultimately, airspace users would have to cover the gap in revenues for 2020 and 2021. However, given that airlines are not able to shoulder any additional financial burden in the current crisis and are fighting for survival, the exceptional measures Regulation prescribes that the necessary adjustment of the unit rate should be delayed to 2023 and be spread equally over a period from five to seven calendar years to avoid a disproportionate effect on unit rates.²²
- 81 The PRB has undertaken a simulation to assess the expected impact of the adjustments based on the proposed revised targets on the average Union-wide unit rates for RP3 (Table 5). The simulation is

based on several assumptions and should be considered as indicative only:²³

- only retroactive adjustments are considered. Carry-overs from RP2 or that could be generated during RP3 are not included;
 - retroactive adjustments are spread over five years;
 - performance plans will be approved in 2022 and retroactive adjustments will be applied as of 2023;
 - values provided in real €₂₀₁₇ instead of nominal terms.
- 82 The simulation shows that with the revised targets, a total amount of 5.4B€₂₀₁₇ will be recovered through retroactive adjustments (of which 2.2B€₂₀₁₇ in RP3 and the remaining amount in RP4). For at least five years, airspace users will have to pay a substantially higher unit rate to cover the lack of revenue ANSPs incurred due to the downturn of traffic during the pandemic. Because of the retroactive adjustment, the unit rates will most likely be higher than in 2019 both during RP3 and part of RP4, effectively erasing any cost-efficiency gains. The PRB is aware that it would take a decision at political level to avoid this sobering outcome.

	2020	2021	2022	2023	2024
En route costs (B€₂₀₁₇)	5.6	5.6	5.6	5.6	5.6
Service units (M3) (M)	53	57	87	102	116
Missing revenues (B€₂₀₁₇)	2.8	2.6			
Retroactive adjustments (B€₂₀₁₇)				1.1	1.1
Simulated unit Rate (€₂₀₁₇)	53.53	53.72	65.07	65.88	57.71
Remaining amounts to be recovered during RP4 (B€₂₀₁₇)	3.2				

Table 5 - Simulation of unit rates including retroactive adjustments with proposed revised targets.

²² Article 5 (4) and (5); the remaining paragraphs of the Article describes the changes to be applied to the N+2 carry-overs, which are not covered in this simulation.

²³ Exact values can only be calculated by analysing each Member State when performance plans will be approved and when actual traffic is known.

7 OTHER ELEMENTS

- The PRB advises the Commission to retain the current alert thresholds.
- The PRB advises the Commission to retain the current comparator groups.

7.1 Alert thresholds

83 The Commission Implementing Regulation (EU) 2019/317 requires the Commission to set three different types of alert thresholds (IFR movements, service unit and reference values) beyond which Member States may request a revision of the performance targets contained in their performance plan.

84 The alert thresholds adopted in the Commission Implementing Decision (EU) 2019/903 for RP3 are triggered under the following conditions:²⁴

- actual traffic deviates from the traffic forecast in the performance plan adopted over a given calendar year by at least 10% of IFR movements;
- actual traffic deviates from the traffic forecast in the performance plan adopted over a given calendar year by at least 10% of service units;
- the variation of the seasonal updates of the NOP in comparison to the reference values from the latest NOP available at the time of drawing up the performance plan is:
 - at least 0.05 minutes of en route ATFM delay if the reference values from the latest NOP available at the time of drawing up the performance plan is less than 0.2 minutes or
 - 0.04 minutes increased by 5% of the reference value, if the reference values from the latest NOP available at the time of drawing up the performance plan is greater than or equal to 0.2 minutes.

85 These thresholds grant Member States adequate options to react to changed circumstances and developments beyond the forecast, both under normal circumstances but also in situation as the current uncertainty in traffic. In this context, it should be noted that the STATFOR Scenarios 1 and 3 deviate more than 10% from Scenario 2 in all years of RP3 (both in terms of IFR movements and ser-

vice units). Should one of these scenarios materialise, the thresholds for traffic may be easily triggered leading to a revision of the performance plan.

86 **The PRB advises the Commission to retain the current alert thresholds.**

7.2 Comparator groups

87 The current RP3 targets use comparator groups for the baseline 2019 which refer to an external study.²⁵ The study used a similar approach as during RP2, relying on traffic complexity, traffic volume, cost of living indices, traffic variability and unit ATCO employment costs. Member States were grouped to maximise the similarities within each group and minimise the similarities between groups.

88 Five comparator groups were identified and adopted in the Commission Implementing Decision (EU) 2019/903:²⁶

- Group A: air navigation service providers of Germany, France, Spain and Italy.
- Group B: air navigation service providers of Norway, Sweden, Denmark, Finland and Ireland.
- Group C: air navigation service providers of Czech Republic, Croatia, Slovenia, Hungary, Slovakia, Bulgaria, Poland, Romania and Portugal.
- Group D: air navigation service providers of Cyprus, Malta, Estonia, Latvia, Lithuania and Greece.
- Group E: air navigation service providers of Austria, Switzerland, Belgium-Luxembourg and the Netherlands.

89 The comparator groups are defined for the purpose of assessing performance targets in the draft performance plans. They are used to assess the consistency of the charging zone determined unit cost against the average of the comparators. The cost baseline refers to 2019, the year preceding

²⁴ As for the case where Union law ceases to apply to the United Kingdom.

²⁵ Study provided for the Commission by Steer in 2018.

²⁶ As for the case where Union law ceases to apply to the United Kingdom.

the COVID-19 crisis. Therefore, the crisis and the related exceptional measures are later and not relevant for 2019. **The PRB advises the Commission to not revise the comparator groups.**

8 SUMMARY OF RECOMMENDATIONS

- The PRB advises the Commission to retain the current Union-wide safety targets.
- The PRB advises to Commission to revise the Union-wide environment targets.
- The PRB advises to Commission to revise the Union-wide capacity targets.
- The PRB advises to Commission to revise the Union-wide cost-efficiency targets.
- The PRB advises the Commission to retain the current alert thresholds.
- The PRB advises the Commission to retain the current comparator groups.

ANNEX I – ENV BREAKDOWN VALUES

Breakdown values for the environment KPA - KEA					
	2020	2021	2022	2023	2024
Austria	1.90%	1.96%	1.96%	1.96%	1.96%
Belgium	7.09%	3.10%	3.05%	3.00%	3.00%
Bulgaria	1.95%	2.25%	2.25%	2.23%	2.23%
Croatia	1.49%	1.46%	1.46%	1.46%	1.46%
Cyprus	4.10%	3.84%	3.84%	3.84%	3.84%
Czech Republic	2.26%	2.05%	2.05%	2.05%	2.05%
Denmark	1.21%	1.14%	1.14%	1.14%	1.14%
Estonia	1.33%	1.22%	1.22%	1.22%	1.22%
Finland	0.97%	0.88%	0.88%	0.88%	0.88%
France	2.90%	2.93%	2.81%	2.81%	2.81%
Germany	2.81%	2.31%	2.30%	2.30%	2.30%
Greece	1.94%	2.00%	1.92%	1.92%	1.92%
Hungary	1.45%	1.50%	1.49%	1.49%	1.49%
Ireland	1.56%	1.13%	1.13%	1.13%	1.13%
Italy	2.83%	2.67%	2.67%	2.67%	2.67%
Latvia	1.30%	1.25%	1.25%	1.25%	1.25%
Lithuania	1.90%	1.93%	1.92%	1.92%	1.92%
Malta	1.46%	1.82%	1.80%	1.80%	1.80%
Netherlands	7.22%	2.63%	2.62%	2.62%	2.62%
Norway	1.43%	1.55%	1.55%	1.55%	1.55%
Poland	1.67%	1.65%	1.65%	1.65%	1.65%
Portugal (Continental)	1.76%	1.80%	1.80%	1.80%	1.80%
Romania	1.55%	2.10%	2.05%	2.00%	2.00%
Slovakia	2.10%	2.15%	2.13%	2.13%	2.13%
Slovenia	1.68%	1.55%	1.55%	1.55%	1.55%
Spain	3.23%	3.09%	3.08%	3.08%	3.08%
Sweden	1.26%	1.05%	1.05%	1.05%	1.05%
Switzerland	4.62%	3.95%	3.95%	3.95%	3.95%

Table 6 – Breakdown values for KEA.

ANNEX II – CAP BREAKDOWN VALUES

Breakdown values for the capacity KPA – minutes of en route ATFM delay per flight					
	2020	2021	2022	2023	2024
Austria	0.37	0.10	0.17	0.17	0.16
Belgium	0.20	0.07	0.12	0.13	0.12
Bulgaria	0.17	0.04	0.08	0.07	0.08
Croatia	0.33	0.09	0.16	0.17	0.17
Cyprus	0.36	0.10	0.16	0.15	0.15
Czech Republic	0.20	0.06	0.11	0.11	0.11
Denmark	0.14	0.03	0.06	0.06	0.05
Estonia	0.05	0.01	0.03	0.03	0.03
Eurocontrol	0.36	0.13	0.19	0.19	0.19
Finland	0.09	0.03	0.05	0.05	0.05
France	0.43	0.18	0.25	0.25	0.25
Germany	0.52	0.18	0.24	0.25	0.24
Greece	0.34	0.10	0.14	0.15	0.15
Hungary	0.14	0.06	0.11	0.11	0.11
Ireland	0.07	0.01	0.03	0.03	0.03
Italy	0.25	0.07	0.11	0.11	0.11
Latvia	0.06	0.01	0.03	0.03	0.03
Lithuania	0.05	0.01	0.03	0.03	0.03
Malta	0.02	0.01	0.01	0.01	0.01
Netherlands	0.13	0.06	0.09	0.09	0.10
Norway	0.18	0.06	0.11	0.11	0.11
Poland	0.30	0.07	0.12	0.12	0.12
Portugal (continen-	0.23	0.09	0.13	0.13	0.13
Romania	0.14	0.02	0.04	0.04	0.04
Slovakia	0.18	0.05	0.07	0.08	0.07
Slovenia	0.23	0.05	0.09	0.09	0.09
Spain	0.36	0.12	0.20	0.19	0.19
Sweden	0.15	0.05	0.07	0.08	0.08
Switzerland	0.33	0.12	0.19	0.19	0.19
Baltic	0.29	0.07	0.11	0.12	0.12
BLUE MED	0.32	0.09	0.14	0.14	0.14
DANUBE	0.25	0.04	0.09	0.09	0.09
FABCE	0.18	0.15	0.25	0.26	0.25
FABEC	0.5	0.27	0.37	0.37	0.37
NEFAB	0.69	0.04	0.08	0.09	0.08
DK-SE	0.14	0.05	0.08	0.09	0.08
SW	0.41	0.15	0.22	0.22	0.22
UK-Ireland	0.35	0.15	0.27	0.26	0.27

Table 7 – Breakdown values for en route ATFM delay per flight.

ANNEX III – DATA SUBMISSIONS

December 2020 forward looking data submission

- 90 This section analyses the data submitted in December 2020 by the national supervisory authorities as input for the setting of the revised Union-wide targets according to Article 2 of Commission Implementing Regulation (EU) 2020/1627. The data contains the baseline values and the latest traffic and costs forecasts for RP3 en route activities. This analysis has been conducted taking into consideration the information and data provided by Eurocontrol.
- 91 The United Kingdom has not been included in this analysis since it is no longer part of the Single European Sky.
- 92 To ensure consistency and comparability with historical values, the cost data has been converted into real €₂₀₁₇ applying the latest available inflation rates according to the legal provision applicable for RP3. Similarly, the service units are presented in M3 values.
- 93 A few corrections have been applied to the data submitted:
 - Ireland included the NSA costs in real terms in the cost base. These values have been revised to nominal terms.
 - Malta and Slovakia did not submit cost data related to the NSA. The missing values have been replaced with the actual NSA costs of 2019.
 - DFS' corporate action programme is not considered in the analysis.

En route cost base evolution

- 94 The RP3 data submitted in December 2020 shows a 12% increase in costs during the reference period, from 6.2B€₂₀₁₇ in 2020 to 6.9B€₂₀₁₇ in 2024 (Figure 3). Compared to 2019 actuals, the costs are first expected to decrease by 1% in 2020 and to increase thereafter (i.e. +2% in 2021, +6% in 2022, +9% in 2023, and +11% in 2024).
- 95 When analysing RP2, the Union-wide 2015 actual cost base amounted to 6.1B€₂₀₁₇ with the actual cost base remaining rather stable during the period (i.e. 0% in 2016, 0% in 2017, +2% in 2018, and +3% in 2019).
- 96 According to the data submitted in December 2020, the cumulated Union-wide costs for the entire RP3 would amount to 33B€₂₀₁₇, 8% higher than the cumulated actual costs of RP2 (31B€₂₀₁₇).
- 97 In the December 2020 submission, Member States provided initial data regarding the baseline cost values for both 2014 and 2019. Article 9(4) of Implementing Regulation (EU) 2019/317 defines the baseline value for determined costs as an estimate based on the actual costs of the preceding reference period and adjusted for the latest available cost estimates, traffic variations and their relation to costs.
- 98 As outlined in point 4.1 of section 1 of Annex I of Implementing Regulation (EU) 2019/317, the baseline values are used for target setting purposes. More specifically, the 2019 cost baseline divided by the traffic baseline results in the baseline determined unit cost (DUC). The cost-efficiency target, being the year-on-year percentage change of DUC, is calculated based on the DUC baseline.

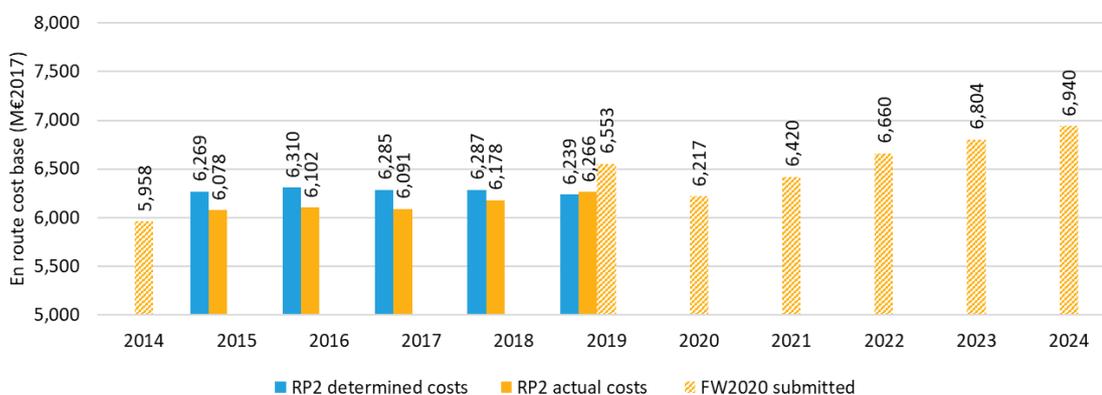


Figure 3 - Union-wide en route cost base evolution, showing rather stable costs throughout RP2 and increasing costs in RP3.

- 99 To ensure consistency between RP2 and RP3 in the scope of services, the baseline can be adjusted. Examples of eligible adjustments for changes with respect to the scope of services between RP2 and RP3 are the addition of new entities or the change in allocation of en route and terminal costs.
- 100 In the data submitted, 13 Member States presented an adjustment to the 2019 actual costs, while only one adjusted the 2014 actual costs. The Union-wide adjustment to the 2019 actual costs amounts to 287M€₂₀₁₇, which leads to a 5% higher baseline value compared to the actual costs of 2019. The largest adjustments of the 2019 baseline compared to the actual costs are reported by Germany (+20%), Norway (+15%), Poland (+14%), and Greece (+12%). The adjustment of 2014 baseline is limited to a 0.1% increase of 2014 actual costs.
- 101 The eligibility of the adjustments will be evaluated when assessing the performance plan. However, several adjustments submitted by Member States are similar to the ones already evaluated during the 2019 performance plan assessment.

En route traffic evolution

- 102 Article 9(3) of the Commission Implementing Regulation (EU) 2019/317, requires the Commission to set revised Union-wide performance targets based on the latest available STATFOR base forecast. Additionally, the national supervisory authorities were requested to provide information about traffic forecasts covering RP3 based on Article 2(2)

of the Commission Implementing Regulation (EU) 2020/1627.

- 103 The latest available forecasts were provided by Eurocontrol in November 2020 and are composed of: (i) scenario 1, an optimistic scenario in terms of post-COVID traffic recovery, (ii) scenario 2, a less optimistic scenario, and (iii) scenario 3, a pessimistic traffic recovery scenario. The scenario 2 is considered as the base forecast and the most probable traffic scenario for RP3.
- 104 According to Article 10(2) of the Commission Implementing Regulation (EU) 2019/317, national supervisory authorities need to set the traffic forecasts based on the STATFOR base forecast. However, deviation from the STATFOR base forecast is allowed after consulting airspace users' representatives and ANSPs. Differences with Eurocontrol's STATFOR base forecast can be related only to specific local factors not sufficiently addressed by Eurocontrol's STATFOR base forecast.
- 105 Service units as forecasted in the December 2020 Member States' submission (FW2020) deviate slightly from the STATFOR scenario 2 forecast (Figure 4). The minor difference is due to six countries, which selected a different traffic scenario. Austria and Norway use a more conservative forecast, while Bulgaria, Germany, Poland and Cyprus²⁷ are more optimistic about traffic recovery compared to STATFOR scenario 2. The difference between the December 2020 submission and the STATFOR scenario 2 is greatest in 2021, where a deviation of +7% is observed, and the smallest in 2024 (+0.4%).

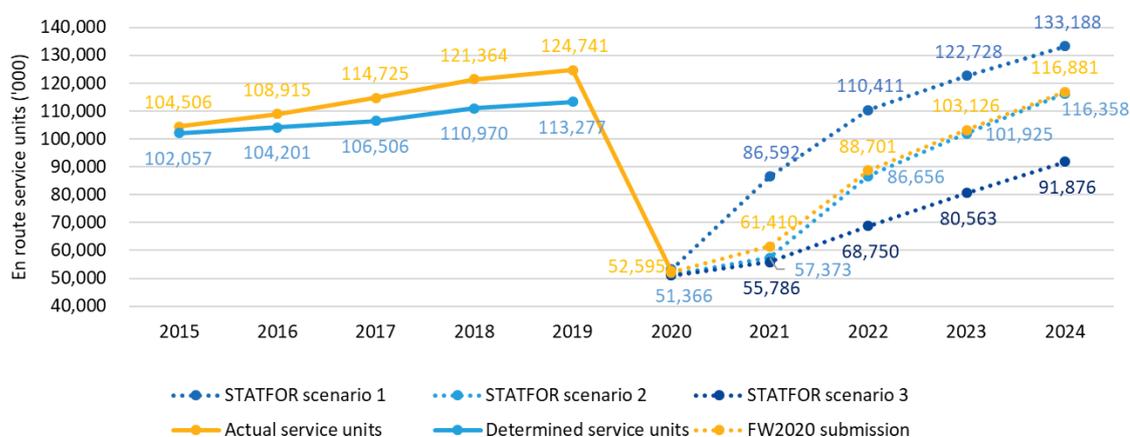


Figure 4 - Union-wide traffic evolution and STATFOR forecast scenarios (M3).

²⁷ In the additional information provided by Cyprus, it is stated that STATFOR Scenario 2 is adopted. However, the forecasts submitted by Cyprus deviate between 21% and 10% from the STATFOR Scenario 2 for RP3.

En route unit cost evolution

- 106 This section analyses the yearly evolution of unit costs, which is defined as the ratio of the submitted costs and traffic within the respective year. Article 4 of the Commission Implementing Regulation (EU) 2020/1627 defines 2020 and 2021 as one single period due to the exceptional circumstances of the pandemic. Therefore, for 2020 and 2021 the determined unit cost is calculated as a single value for those two years.
- 107 The unit costs show a peak for the combined period 2020/2021, 111.35€₂₀₁₇ per service unit (Figure 5). The significant increase in unit cost compared to 2019 (+122%) is mainly caused by the drastic decrease in traffic (-58%) in 2020 as outlined in the previous section. Starting from 2022, the unit costs are expected to decrease due to the increase of traffic (i.e. -33% in 2022, -12% in 2023, -10% in 2024). However, despite this evolution, the submitted unit cost of 2024 is 18% higher than the actual 2019 unit cost.

Forward looking data submitted in December 2020 against actuals 2019

- 108 In this section, RP3 forward-looking data submitted in December 2020 is compared against the actual costs and traffic of 2019 (Figure 6).
- 109 The Union-wide actual costs amounted to 6.3B€₂₀₁₇ in 2019. Based on the December 2020 submissions, costs are expected to decrease first by 1% in 2020 and to increase afterwards, leading to 6.9B€₂₀₁₇ forecasted costs in 2024.
- 110 The percentage difference between the 2019 actuals and the forecasted RP3 costs ranges between -1% and +11%.

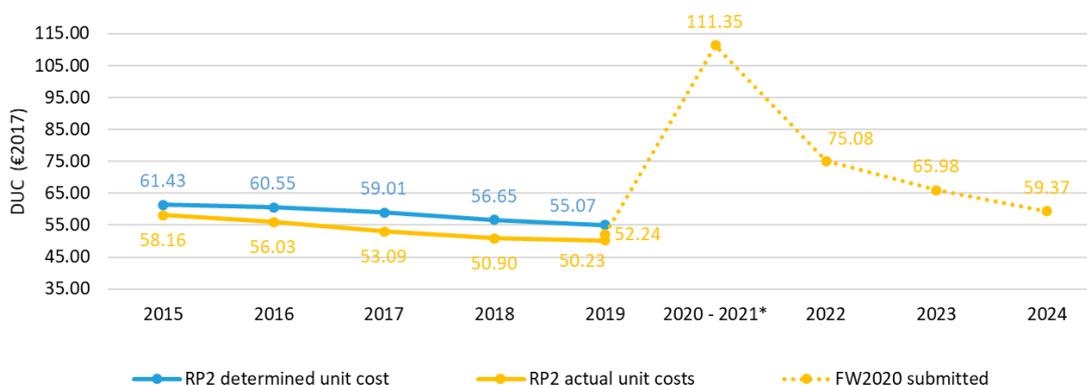


Figure 5 - DUC historical and forecasted evolution with 2020 and 2021 considered as a single year (€₂₀₁₇), showing an historical high in 2020/2021 due to a significant decrease in traffic.

- 111 In 2020 traffic decreased by 58% dropping to 53M service units compared to 125M service units in 2019. Starting from 2021, the year-on-year percentage changes in service units vary between +13% and +44%, reducing the difference between forecasted service units and 2019 actual service units year after year. However, the forecasted service units of 2024 remain lower (-6%) than the actual service units of 2019.

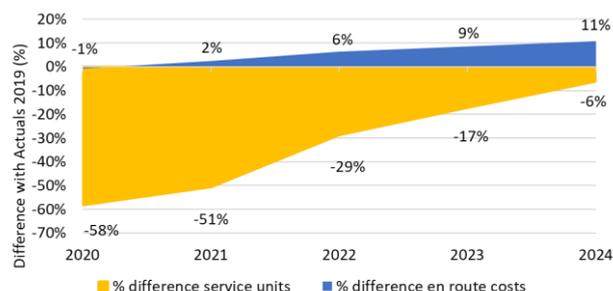


Figure 6 - Yearly difference between 2019 actuals and December 2020 RP3 forecasts for both costs and traffic, showing a limited reduction in costs in 2020 and a significant fall in 2020 traffic.

Main drivers affecting the cost base

- 112 In the data submission of December 2020, Member States provided additional information on the main drivers for each en route ANS cost by nature - i.e. staff costs, other operating costs, depreciation, cost of capital and exceptional costs – for the periods 2020-2021 and 2022-2024. The PRB notes that most of the information provided is related to the measures implemented or planned, rather than describing cost drivers.

Staff costs

- 113 Table 8 (next page) categorises the main staff cost drivers reported by the Member States for RP3. The most common driver (22 Member States) aiming at reducing staff costs for the period 2020-

2021 is “FTE” (full time equivalent). This category includes the postponement or reduction of future recruitment. Such actions do not affect existing labour agreements and are therefore straightforward to implement. Member States also report a reduction in the number of current FTEs as lay-offs or reductions of non-operational staff. The second most common driver (18 Member States) is the reduction of salaries, and the postponement of wage increases and staff promotions. Another recurring cost driver lowering staff costs is to reduce or cancel variable compensations (10 Member States). Under this driver category, Member States report mainly the cancellation of bonuses, decreased allowances and extra benefits. Nine Member States reported a reduction of working hours and cancellation of overtime. Four Member States reported a cost driver regarding “pension and early retirement”. Germany and Sweden reported an increase in pension costs due to a change in interest rates. Cost drivers reported under the “other” category are mainly reductions of training and travel costs and changes in cost allocation.

- 114 Between 2022 and 2024, the same categories appear as drivers for increasing staff costs. FTE evolution is identified as the most recurring driver of staff costs for the period 2022-2024 (reported by 28 Member States). Out of these 28 Member States, 18 are planning to gradually increase FTEs to manage the forecasted increase in traffic, of which eight reported hiring of new ATCOs. 13 Member States reported salaries as cost drivers, of which 11 are forecasting an increase in salaries. Four Member States reported “variable compensations” (increased extra-legal compensations compared to 2020-2021) as a cost driver. An increase in pension costs is mentioned by four Member States, of which two indicated early retirement and Germany and Sweden reported a change in interest rate. Concerning the working schedule, two Member States reported a decrease in overtime and working hours, while one expects overtime to amount to the 2019 level. The “other” category mainly consists of regulatory changes impacting staff costs and other cost drivers that are not sufficiently explained.

Driver category	Number of AN-SPs reporting the driver for 2020-2021	Number of ANSPs reporting the driver for 2022-2024
FTE	22	28
Salaries	18	13
Variable compensations	10	4
Overtime and working hours	9	3
Pension and early retirements	4	4
Other	4	5

Table 8 - Staff cost drivers.

Other operating costs

- 115 Table 9 (next page) categorises the main other operating cost drivers reported by the Member States for RP3. The most common driver (18 Member States) for the period 2020/2021 is the reduction of “travel and training expenses”. Member States reported cancelling, decreasing or postponing missions and ATCO training. However, one Member State detailed increased training costs for newly hired ATC trainees, while another Member State mentioned that training will have to continue in 2021. The second most common driver (15 Member States) reducing other operating costs is “equipment and facilities”, Member States have reported reduced building maintenance and energy costs. Member States have also indicated lowering external services, by cancelling or reviewing external contracts. Cost drivers reported under “other” are changes in cost allocation, increase in insurance costs and reduced car fleet. Three Member States have reported increased costs due to the impact of IFRS16 and an increase in provision for doubtful debtors (the driver category “accounting”). Three Member States have reported drivers decreasing costs due to a review of investment plans. Four Member States do not report specific cost drivers.
- 116 Several Member States described the evolution of other operating cost for 2022-2024 in general terms, not providing a detailed breakdown of cost drivers. Moreover, for the period 2022-2024,

most of the Member States (16) expect an increase in other operating costs. This is explained by the fact that most cost reducing measures related to other operating costs taken in 2020/2021 are temporary and not structural. Only two Member States reported to continue cost saving measures. “Equipment and facilities” is the most common category driving other operating costs (17 Member States). Five out of these 17 Member States specified an increase in maintenance costs compared to 2020-2021, which mainly consists of a resumption of 2020-2021 postponed maintenance. Changes in travel and training are the second most common driver of other operating costs, mentioned by 12 Member States. In general, Member States are expecting to increase both travel and training costs, while one Member State reported further postponement of training and travel limitations. The “other” cost driver category contains among others unspecified price increases. Five out of the six Member States reviewing RP3 investments reported to increase them, and thus foresee an increase in other operating costs. Six Member States outlined that “External services” contracts will be either postponed, increased or renegotiated. Finally, six Member States do not report specific cost drivers.

Driver category	Number of AN-SPs reporting the driver for 2020-2021	Number of AN-SPs reporting the driver for 2022-2024
Travel and training expenses	18	12
Equipment and facilities	15	17
External services	11	6
Other	5	8
Accounting	3	1
Review of RP3 investment plan	3	6

Table 9 – Other operating cost drivers.

Depreciation costs

117 Table 10 categorises the main depreciation cost drivers reported by the Member States for RP3. The most common driver for the period 2020-2021 aiming at reducing depreciation costs is

“change in asset base” (23 Member States). Member States postponed projects, reviewed the RP3 investment plans (i.e. rescheduling of investments and project’s change of scope) and cancelled investments. Cost drivers reported under the “other” category are changes in cost allocation and accounting, expecting to increase depreciation costs. Three Member States did not report specific cost drivers.

118 For the 2022-2024 period, “change in asset base” remains the most prominent driver of depreciation costs (25 Member States). More specifically, 14 Member States reported postponed investments, of which eight indicated that previously postponed investments will be (re-) launched in 2022-2024, pushing depreciation costs upwards. The remaining six Member States that mentioned postponed investments further delay investments to reduce costs. In “change in asset base”, three Member States reported to implement a new ATM system and eight Member States indicated a review of the RP3 investment plans. However, two out of these eight Member States are still revising their investment plan for 2022-2024. The Impact of IFRS implementation and a change in investment life compose the “other” cost driver category. Four Member States do not report specific cost drivers.

Driver category	Number of AN-SPs reporting the driver for 2020-2021	Number of AN-SPs reporting the driver for 2022-2024
Postponed investments	23	24
Other	4	2

Table 10 – Depreciation cost drivers.

Cost of capital

119 Table 11 (next page) categorises the main cost of capital drivers reported by the Member States for RP3. The most common cost driver for the period 2020-2021 is “change in asset base”, reported by 14 Member States. Some Member States reported the changes in the asset base, while others specified that the reduced asset base was achieved by changing the investment plans. A change in WACC components were mentioned by six Member States. Cost drivers reported under the category “other” concerns Member States

that did not provide sufficient detail. Nine Member States do not report specific cost drivers.

120 For the 2022-2024 period, “change in asset base” remains the most prominent cost driver for cost of capital, reported by 18 Member States. A “change in WACC” is reported by nine Member States. The “other” cost driving category consists of two Member States reporting a decrease in cost of capital without providing further detail. Finally, eight Member States do not report specific cost drivers.

Driver category	Number of AN-SPs reporting the driver for 2020-2021	Number of AN-SPs reporting the driver for 2022-2024
Change in asset base	14	18
Change in WACC	6	7
Other	3	2

Table 11 – Cost of capital drivers.

Exceptional costs

121 For the period 2020-2021, most Member States did not report cost drivers regarding exceptional costs, except for (i) Sweden, reporting an increase in exceptional costs due to voluntary resignations, (ii) Spain indicating an impact attributable to the adaptation of international accounting standards (IAS) and (iii) Finland reporting costs related to cross border service provision.

122 Similarly to 2020-2021, most Member States did not report any exceptional cost driver for 2022-2024. Germany notes that the originally planned increase in costs due to IFRS no longer applies, while Finland expects increasing costs during 2022-2024 due to the cross border service deployment.

June 2013 forward looking data submission for RP2

123 This section analyses the forecasts of costs and traffic for RP2 (2015-2019), submitted in June 2013. The aim of this section is to evaluate the differences between the forward looking cost data submitted for RP2 and the actual costs over the period.

124 At the time, not all Member States provided the data:

- Croatia joined the Single European Sky after the June 2013 submission, therefore data for both traffic and costs are missing.
- Estonia did not provide a cost forecast for the last year of RP2.
- Ireland and the Netherlands did not submit traffic forecasts for RP2.

125 The Union-wide costs are calculated replacing the missing cost data of Croatia and Estonia with the determined costs as reported in the RP2 performance plan (Figure 7). The same approach is applied for the traffic analysis (Figure 8), meaning that the Union-wide traffic is calculated with the determined values of Croatia, Ireland and the Netherlands (missing values) as reported in the RP2 performance plan.

126 The cost data submitted for RP2 was on average 4% higher compared to RP2 determined costs and 8% higher than RP2 actual costs (Figure 7).

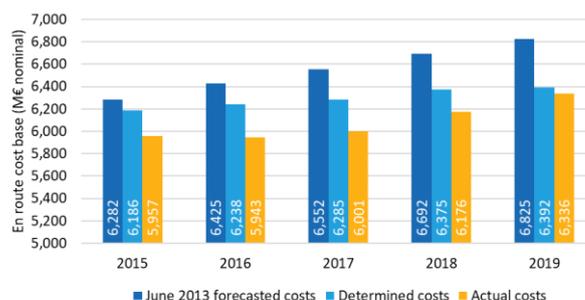


Figure 7 - June 2013 submitted costs against determined costs and actual costs, showing an overestimation of cost forecasts. Costs are expressed in nominal euros.

127 At the same time, the traffic figures submitted in June 2013 were on average lower than determined and actual traffic by respectively -3% and -9% (Figure 8).

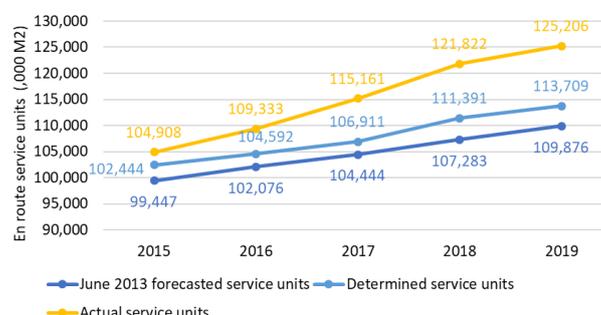


Figure 8 - June 2013 forecasted service units (M2) against determined and actual service units, showing an underestimation of forecasts.