

Updated PRB Advice to the Commission on RP3 Union-wide Targets

22 February 2019

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Note from the Chair

Summer 2018 was a wake-up call in many respects: the European air traffic management network handled a record number of flights safely, but not on time. On too many days, the system came to its limits. Hundreds of thousands of passengers were affected: airlines had to cancel flights and were left with the cost of insufficient air traffic management capacity.

Reaching the capacity limits of the European air traffic management network at this stage was not expected. Growth of traffic was still largely within the high forecasted scenario. However, it was unexpected what the effect of seven underperforming Air Traffic Control Centres (ATCCs) on the network would be.

The experience of Summer 2018 sharpened stakeholders' view of what the third reference period (RP3) has to deliver. European Air Traffic Management (ATM) has to stay safe and has to become more resilient, providing more capacity in a cost-efficient manner.

In September 2018, the PRB issued its advice on the targets for RP3 (from 2020 until 2024) to the European Commission. Since then, not only the experience of Summer 2018 has led the PRB to reconsider its targets, but also the new legal framework and the feedback received from Member States and stakeholders.

The PRB maintains that European Air Traffic management can and must improve. There are several Member States delivering stellar performance, including managing complex airspace and rostering their air traffic control officers (ATCOs) according to traffic. If all air navigation service providers (ANSPs) would perform like these bests in class, European air traffic management would be able to deliver.

The PRB thus advises the Commission to maintain ambitious targets to drive those, which are currently not providing sufficient capacity to improve. If needed, Member States can request through their Performance Plans additional financial measures to improve their capacity.

On a long-term perspective, training more ATCOs and improving rostering will not be sufficient. During RP3, those Member States, which have not already started the process must restructure and reform their air traffic management system and their airspace. A too large part of European air traffic is still managed by ANSPs using outdated technology and structures. Projects like the study on the Single European Sky (SES)/Single European Sky ATM Research (SESAR) airspace architecture and the updated ATM Master Plan are the beacons Member States will have to aim at. In view of the urgently needed reforms, RP3 is a transition period during which air traffic management can and should be optimised. The process must start now. The PRB advice contributes to this goal, keeping European aviation competitive and providing not only reliable mobility to European consumers, but also securing the employment for the 1.9 million employees of the European aviation sector. The EU internal aviation market is a success story and can continue to be if all stakeholders contribute.

In terms of process, the PRB urges Member States to agree on the Union-wide targets enabling development and agreement of the Performance Plans before the start of RP3. The PRB is looking forward to engaging with Member States and stakeholders in this process.

1. Introduction

1.1 Background

- 1 On 17 December 2018, the Single Sky Committee (SSC) approved the Commission Implementing Regulation laying down a performance and charging scheme in the Single European Sky and repealing Implementing Regulations (EU) No 390/2013 and (EU) No 391/2013 (below referred to as “the new Implementing Regulation”).¹ Based on this revised legal framework, the Commission is preparing Union-wide performance targets for the third reference period (RP3). The draft Implementing Decision will be submitted to Member States for approval.
- 2 The Commission held bilateral meetings with each Member State during January and February 2019 to discuss the new Implementing Regulation. The Performance Review Body (PRB) was represented at all these meetings.

1.2 This document

- 3 The new regulatory framework includes substantial changes affecting the target setting for RP3. The PRB has thus reviewed the recommendations for Union-wide targets published in September 2018 and has submitted updated recommendations to the Commission based on the latest data. Furthermore, in the process of this update, the PRB has also considered the feedback received from Member States and stakeholders.
- 4 The most important changes of the new Implementing Regulation concern the calculation of the so-called baseline value, i.e. the value from which the Single European Sky Member States should calculate the cost of providing the air traffic management services.² The Commission has asked the PRB to provide guidelines describing how to calculate these costs. In addition, the new Implementing Regulation requires the definition of alert thresholds and comparator groups. The PRB provides respective recommendations in this report, supported by documents in the Annexes.³

2. Target setting for RP3

2.1 Principles

- 5 For RP3, the new Implementing Regulation retains the same four **Key Performance Areas (KPAs)** for target setting as used during RP2. In its initial recommendations, the PRB defined its priorities and principles which it continues to apply:
 - **Safety** is an overriding objective. Improvements in the other three KPAs must not endanger the safety objectives laid down in Regulation (EU) 2018/1139⁴.

¹ Commission Implementing Regulation (EU) 2019/317 of 11 February 2019

² EU Member States, Norway and Switzerland

³ Annex I: D412 - EUROCONTROL evidence for establishing the EU-wide RP3 targets

Annex II: Guidelines for calculating the baseline values

Annex III: Traffic Alert Threshold setting

Annex IV: Clustering analysis

⁴ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No

- **The European ATM network needs to provide sufficient capacity.** The fact that to date a few air traffic control centres (Karlsruhe, Marseille, Reims, Brest, Bordeaux, Maastricht and Nicosia ACCs) are unable to provide sufficient capacity to meet demand should not lead to increased delay targets for all other Member States. If needed and justified, the new Implementing Regulation allows specific local circumstances to be considered for setting cost-efficiency targets.
- **Cost-efficiency remains an equally important target.** In many Member States, cost-efficiency can still be improved. In the few cases where a Member State can demonstrate that its air navigation service provider needs more money to provide the required capacity, the new Implementing Regulation allows additional financial means to be considered.
- **Environmental performance** can still improve, especially until all Member States have introduced free route airspace and shorter routes are available to, and used by, airspace users. The PRB had concerns that the new measures mitigating the lack of capacity provided by Germany and by France may adversely affect the environmental performance, because aircraft will have to take longer routes. However, discussions with the Network Manager have indicated that these will have a negligible impact. The PRB will closely monitor the impact of the measures, ensuring that they do not add unnecessary costs for airspace users or impair environmental performance.

2.2 Union-wide key performance indicators for RP3

- 6 The new Implementing Regulation retains mostly the same key performance indicators (KPIs) for measuring the targets as applied under the previous regulation, as summarised in Table 1.

| KPA | Union-wide KPIs in the new Implementing Regulation |
|-----------------|---------------------------------------------------------------------------------------------------------------------|
| Safety | Effectiveness of Safety Management achieved by ANSPs |
| Environment | Horizontal flight efficiency using radar data for the actual trajectory |
| Capacity | Average en route Air Traffic Flow Management (ATFM) delay per flight |
| Cost-efficiency | Year-on-year change of the average Union-wide Determined Unit Cost (DUC) for en route air navigation services (ANS) |

Table 1: Union-wide KPIs in the new Implementing Regulation

3. Recent evolution of performance

- 7 Since the publication of the PRB advice report in September 2018, STATFOR has published an updated traffic forecast including a new seven-year traffic forecast. The PRB has taken

376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91

this new information into account when reviewing its recommendations. In addition, the PRB has considered the evolution of the performance of air navigation services in 2018 and the failure to provide sufficient air traffic management (ATM) capacity especially during peak times in certain areas of Europe:

- **Traffic growth:** The number of Instrumental Flight Rules (IFR) movements will continue to grow according to the STATFOR Base Forecast (February 2019). It increased by 3.8% in 2018, reaching over 10.2 million flights in the Single European Sky area.
- **Safety:** No updated data is available for the Safety KPA for 2018.
- **Environment:** The average deviation of the actual trajectory flown compared to the shortest route over the last quarter of 2018 was 2.78%, remaining at the same level as in 2017 (2.79%).⁵ This compares with the projected value of 2.65% presented in the PRB's target ranges report.⁶ The PRB will assess how the capacity constraints during the summer period contributed to the failure to achieve the Union-wide intermediate value of 2.67% in 2018.
- **Capacity:** En route air traffic flow management (ATFM) delay per flight nearly doubled in 2018, increasing from 0.94 minutes in 2017 to 1.83 minutes in 2018. This resulted in over 18.5 million minutes of en route ATFM delay incurred by airspace users and passengers.
- **Cost:** Actual cost data is not yet available for 2018. Member States will report the data in the second quarter of 2019.

4. Update of the Safety KPA

4.1 Proposal for RP3 targets

- ⁸ The PRB and EASA agree that the targets and the reasoning in the PRB's September 2018 advice to the Commission remain valid under the new Implementing Regulation for RP3: The target for maturity level for RP3 for the Management Objective Safety Risk Management should increase from Level "D" to Level "E" and the target for Safety Culture should increase from Level "C" to Level "D". For the other Management Objectives, i.e. Safety Policy and Objectives, Safety Assurance and Safety promotion the target level is maintained at Level "D".
- ⁹ Targets are set to:
 - Raise the level of safety risk management to ensure that future safety risks are predicted and mitigated, with on-going processes periodically reviewed and improved.
 - Raise the level of safety culture so all personnel (including outside of operational groups) are pro-active and committed to improving safety, with management having approved a continuous improvement plan.
 - Counterbalance targets set for other KPAs, mainly for capacity and cost-efficiency.

⁵ KEA: Key performance Environment indicator based on Actual trajectory

⁶ Figure 7: Horizontal en route flight efficiency (EU-wide) of the PRB target ranges report document, June 2018

- Ensure the developments expected in ATM over RP3 do not affect safety performance. Such developments include:
 - Expected continued increase in traffic.
 - Expected changes of operational concepts (e.g. Free Route Airspace, Advanced Flexible Use of Airspace, dynamic airspace configuration) and technical systems in ATM (e.g. virtualisation, increased automatisisation).
- 10 European aviation has an excellent safety performance. This must not lead to complacency and safety continues to have the highest priority. Europe has a very robust regulatory approach. The continuing improvements of the safety management processes, including the “Just Culture” and open reporting, are important pillars of this safety system and strengthen monitoring, reporting and identification of safety issues. These established processes will ensure that ambitious targets to improve performance, in particular capacity and cost effectiveness, will not impair safety.
- 11 Achieving the targets in other KPAs, during a period of high traffic growth, may require substantial changes to be introduced in the ATM functional system. Increasing the maturity of Safety Risk Management to Level “E” will support an improved and forward-looking management of safety risks.
- 12 The recommendations are based on the following information:
 - All ANSPs reached the target for Safety Culture before the end of RP2.
 - Most likely, all ANSPs will achieve the RP2 target for the Effectiveness of Safety Management (EoS) for all Management Objectives. Eight ANSPs have already achieved the target proposed for RP3 (i.e. Level “E”).
 - The Commission Implementing Regulation (EU) 2017/373⁷ will require ANSPs to improve their safety risk management processes at the beginning of RP3. The additional effort needed to reach Level “E” is therefore not extensive or disproportionate and would not add substantial cost or affect capacity or cost-effectiveness.
- 13 EASA, together with a group of industry stakeholders - within the Rulemaking Group RMT0723 - are updating the EoS questionnaire to ensure that it is operating correctly as a leading indicator and reflects on the most up-to-date practices. This reformation of the questionnaire is based on the CANSO Standard of Excellence (SoE) and is focused on improving readability and understanding of the questions and updates the meaning of severity levels. It will be published in the second quarter of 2019. The resulting level of maturity per component is harder to achieve and therefore the target proposed based on the RP2 EoS indicator needs to be updated with the new EoS indicator. The equivalence is described in the table below.

⁷ Commission Implementing Regulation laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011

| Proposed targets for Effectiveness of Safety Management – ANSPs | | | |
|-----------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| Management Objectives | PRB advice for EoSM target from September 2018 (current AMC) | Updated proposal (using the current EoSM AMC) | Updated proposal (New EoSM AMC ⁸) |
| Safety Policy and Objectives | D | D | C |
| Safety Risk Management | E | E | D |
| Safety Assurance | D | D | C |
| Safety Promotion | D | D | C |
| Safety Culture | D | D | C |

Table 2: Proposed targets for EoSM - ANSP for RP3

- 14 The level of ambition with respect to the safety KPA should not be influenced by a specific Member State. Therefore, the PRB recommends the Commission to retain the Union-wide safety targets in the event of the United Kingdom leaving the European Union and not remaining a member of the Single European Sky Update.

5. Update of the Environment KPA

5.1 Proposal for RP3 targets

- 15 The main changes to the Environment KPA under the new Implementing Regulation are:
- The KPI for the horizontal flight-efficiency of the last filed flight plan (KEP) was downgraded from a KPI to an indicator for monitoring, removing the requirement to set targets for this metric.
 - Route charging will consider the route flown according to the actual trajectory rather than the planned trajectory.
- 16 These changes could impact the performance of the Environmental KPA. For example, given that route charging will be based on the actual rather than planned route, airspace users may decide to plan and fly longer routes to avoid charging zones with higher unit rates. This may reduce the difference between the values of the KEP and the actual flown trajectories (KEA) indicators but at the expense of environmental performance. It is not possible to predict the impact of the new Implementing Regulation on the airspace users' behaviours, however, EUROCONTROL is undertaking a study to analyse what the impact would have been on previous years to identify any shifts in service units between charging zones.
- 17 The PRB will monitor the evolution of the Environmental KPI to, where possible, identify and measure the impact of such consequences.

⁸ To be published in the second quarter of 2019

- 18 Based on these changes, the PRB believes that the targets proposed in the September 2018 report remain achievable given the plans in place to improve flight-efficiency across the European ATM network.
- 19 This assessment implies a reservation: Following the heavy delays experienced in 2018, the Network Manager (NM) proposed measures to shift traffic away from the French and German Flight Information Regions (FIRs) within the July 2018 Network Operations Plan (NOP). These measures may continue to apply throughout RP3 considering the capacity shortage in the Marseille, Reims and Karlsruhe Area Control Centers (ACCs).
- 20 Based on information obtained from the Network Manager, Member States and ANSPs have agreed - for 2019 at least - to re-route up to 1000 flights per day away from Marseille and Karlsruhe ACCs. 300 of those flights destined to fly through Karlsruhe’s airspace will be re-routed away from German airspace.
- 21 Following simulations of the proposed re-routing, the Network Manager found that the impact on KEA amounts to 0.4 nautical miles per flight of route extension, leading to a minimal impact on the KEA key performance indicator. Hence, the PRB recommends keeping the targets unchanged as proposed in September 2018.
- 22 The proposed targets for the environment KPI are provided in Table 3.

| Proposed KEA Targets remain unchanged | | | | | |
|---------------------------------------|-------|-------|-------|-------|-------|
| Year | 2020 | 2021 | 2022 | 2023 | 2024 |
| PRB advice from September 2018 | 2.53% | 2.47% | 2.40% | 2.40% | 2.40% |
| Updated KEA target | 2.53% | 2.47% | 2.40% | 2.40% | 2.40% |

Table 3: Proposed targets for KEA for RP3

- 23 The recommendations represent a compromise between the best achievable KEA according to the European Route Network Improvement Plan (ERNIP) and uncontrollable factors such as weather, staffing, capacity, etc. and the recognition that elements of flight-efficiency are outside of the control of ANSPs.
- 24 In the event of the United Kingdom leaving the European Union and not remaining a member of the Single European Sky, the PRB recommends the Commission to retain the Union-wide targets for the Environment KPA. For the benefit of the airspace users and for the global achievement of the environmental targets, the continuity of the flight trajectory across the United Kingdom should be retained within the Environment KPA targets.

6. Update of the Capacity KPA

6.1 Proposal for RP3 targets

- 25 For the European air traffic management system, capacity will most likely be the most challenging issue during RP3. The excessive delays experienced in Summer 2018 triggered a discussion whether the targets recommended by the PRB in June 2018 and September 2018 were realistic and achievable, let alone sufficiently ambitious.
- 26 The high delays during July and August 2018 were mainly caused by seven Air Traffic Control Centres, of which the ones in France and Germany contributed the most to high delay figures, through not being able to provide sufficient capacity. DFS and DNSA did not open the sectors necessary to manage the traffic due to a lack of air traffic controllers. At the same time, most ACCs were able to provide the required capacity and their delays were consistent with achieving the Union-wide delay target of 0.5 minutes per flight. Many of them absorbed and mitigated the lack of capacity in Germany and France through new rostering and staffing measures. In most cases, the contribution of those air traffic controllers was the result of a fruitful social dialogue and adequate long-term planning of resources for which both employees and employers deserve credit.
- 27 The costs of en route ATFM delays in 2018 were enormous. According to EUROCONTROL, they amounted to over €1.8bn. Under the current regulatory framework, it is not the ANSPs bearing these costs but the airspace users. They absorb the financial consequences of delays to their operations, and they re-route, accommodate and reimburse passengers, in some cases also compensate them under Regulation (EC) No 261/2004 (passenger rights).⁹
- 28 In view of this situation, the PRB had to decide whether the entire network should adapt to the lowest performers or whether to retain the targets based on the current – in many cases – excellent capacity performance of most ACCs. The Network Operations Plan 2018 (Edition of 3 July 2018) identifies seven ACCs that will most likely continue to generate delays at higher levels than the network capacity requirements agreed as part of the local capacity plan.
- 29 Operations during Summer 2018 confirm that the European network can and must improve if all ANSPs contribute adequately. Friday, 7 September 2018 is the point in case. More aircraft moved through European airspace than ever on that day: comparing 7 September with two Fridays in the peak season (22 June 2018 and 27 July 2018), both with slightly less traffic, there were more than 60% capacity- and weather-related delays on the June and July days. Why was the system able to handle the traffic so much better on 7 September compared to the June and July days? The apparent reason is that the ACCs in the middle of Europe were fully staffed on 7 September 2018. This demonstrates that the system is able to provide higher capacity even on peak days if the available resources are used effectively.
- 30 Increasing the delay targets to accommodate the low output of the few underperforming ACCs would have a detrimental effect in the long run on the entire network, as the past

⁹ Regulation (EC) No 261/2004 of the European Parliament and of the Council of 11 February 2004 establishing common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights, and repealing Regulation (EEC) No 295/91

has shown: Well performing ANSPs would have no incentive to further optimise their performance in the coming years because they would easily meet the delay target. They may stop investing in new technology and sector optimisation. The overall goals of the Single European Sky, making European Air Traffic Management more efficient, would be in jeopardy. It is therefore crucially important to retain the delay target of 0.5 min per flight for RP3.

31 The PRB therefore recommends not to adapt the capacity targets to the lowest performers. However, to remain realistic accounting for the latest performance and information available from the Network Manager, the PRB recommends to slightly increase the delay targets for the intermediate years and to retain the target of 0.5 min per flight for 2023 and 2024.

32 Table 4 shows the updated Capacity KPA targets for RP3 as recommended by the PRB.

| Proposed Capacity KPA targets | | | | | |
|-----------------------------------------------------------------------------|------|------|------|------|------|
| Year | 2020 | 2021 | 2022 | 2023 | 2024 |
| PRB advice from September 2018 | 0.8 | 0.7 | 0.6 | 0.5 | 0.5 |
| Updated Capacity KPI RP3 Target (minutes of en-route ATFM delay per flight) | 0.9 | 0.9 | 0.7 | 0.5 | 0.5 |

Table 4: Proposed targets for Capacity for RP3

33 Following a consultation with the Network Manager, the PRB has been informed that in case the United Kingdom leaves the European Union and does not remain a member of the Single European Sky the impact on Union-wide capacity targets is negligible. Therefore, the PRB recommends the Commission to retain the Union-wide capacity targets under all eventualities.

7. Update of the Cost-efficiency KPA

34 The new Implementing Regulation substantially modifies the method for defining the Cost-efficiency KPA. In view of these changes, the PRB has adapted its recommendations for cost-efficiency targets. This paragraph first describes the main changes of the new Implementing Regulation and then defines the PRB’s updated recommendations.

7.1 Main changes in the new Implementing Regulation for Cost-efficiency

35 The new Implementing Regulation includes the following modifications for the setting of the cost-efficiency target:

- Revised inflation calculations:
 - The reference year for the inflation index is 2017, instead of 2009.

The shift of the base year for the inflation index is a simple computation. Given that inflation has been generally positive from 2009 onwards, monetary values are proportionally higher when expressed in €₂₀₁₇. The PRB has updated its estimation of the baseline, the forecast and the targets accordingly.

- The inflation index is no longer applied to all items within the cost base.¹⁰

Determined costs incurred by competent authorities, qualified entities and EUROCONTROL, as well as depreciation costs and cost of capital are not corrected for inflation using the inflation indexes defined in Article 2 (11) and (12) and are not subject to inflation adjustment.

- The new ‘baseline value for determined costs’ and for the ‘baseline value for the determined unit cost’:¹¹
 - The concept of a ‘baseline value’ (i.e. previously starting point) for the determined costs (DC) and determined unit cost (DUC) was already used for RP2 and in the proposal for RP3 targets, as published in September 2018 by the PRB, but without a statutory definition.¹²
 - The baseline value has to be based on actual costs available for the preceding reference period (i.e. based on actual RP2 data). That value is to be adjusted considering the latest available cost estimates, traffic variations and their relation to costs.

EUROCONTROL has updated the Union-wide historical cost series evidence for establishing the Union-wide RP3 targets.¹³

As a consequence of the new legal definition, the PRB has estimated a new baseline value. During the bilateral meetings conducted between the Member States, the Commission and the PRB on the target setting, not all Member States provided updated cost-estimates. Therefore, the PRB for the time being retains its calculation of the baseline value based on the last available verified data from all Member States.

- Member States will have to use the same (new) method for estimating the baseline when setting the baseline values at charging zone level.

To ensure consistency in the methodology to calculate both local and Union-wide baseline values, the PRB provides guidelines in Annex II.

7.2 Proposal for RP3 targets

New baseline for setting the targets and updated STATFOR forecast

- 36 The new method to define the baseline (i.e. the starting point) substantially changes the setting of the cost-efficiency target for RP3. As the targets for cost-efficiency are set in

¹⁰ Points (c) and (d) of Article 22(4) and Second sub-paragraph of Article 26 of the new Implementing Regulation

¹¹ Point (a) of Article 9(4) of the new Implementing Regulation

¹² In its PRB’s September 2018 advice to the EC, the PRB defined the 2019 Union-wide baseline value based on historical data (2006-2016 actual total costs and traffic), see Advice Report p. 39, paragraph 189.

¹³ Annex I - D412 - EUROCONTROL evidence for establishing the EU-wide RP3 targets. Updated historical and forecast Cost series based on the rules of the new performance and charging Regulation for RP3

percentage change of determined unit cost, the baseline value becomes the point of reference for the percentage change. If the determined unit cost for the reporting period needs to reach a certain endpoint, a high baseline would imply a high percentage reduction, whereas with a low baseline, a lower percentage would be sufficient to reach the same end point.

- 37 In the recommendation on target ranges and in the advice on targets to the Commission (issued in June and September 2018 respectively under the previous performance Regulation), the PRB defined the baseline/starting point for assessing the (total) cost taking into account the costs over RP1 and RP2 to date. This method is not in line with the new Implementing Regulation.
- 38 In addition to the changes in the new Implementing Regulation, a new STATFOR traffic forecast (February 2019) has become available, which the PRB has also taken into account.
- 39 The February 2019 STATFOR Base scenario traffic forecast is higher than the February 2018 STATFOR Base scenario. At Union-wide level, the forecasted en route service units increase from 136M to 140M in 2019 and from 152M to 157M in 2024. The effect of this increase in the forecasts is a decrease in the projected RP3 determined unit costs.

Calculation of the new baseline/starting point

- 40 In accordance with the new Implementing Regulation, the PRB calculated the new baseline value using historical data from 2015 to 2017 for each Member State. The computations are based on the converted €₂₀₁₇ costs. The results for all Member States were summed together to calculate the Union-wide value.
- 41 The updated RP3 Union-wide baseline value for determined costs is equal to 6,720 M€₂₀₁₇. Considering the 2019 STATFOR Base scenario service unit forecast, the updated RP3 Union-wide baseline value for the determined unit cost is equal to 48.15€₂₀₁₇. These values are lower than the RP2 determined unit cost and the values forecasted by the Member States for the end of RP2.
- 42 Figure 1 presents the basis of the new baseline calculation. The orange line shows the evolution of actual costs, the black line represents the RP2 determined costs as the sum of the Performance Plans, and the blue line is the forecasted costs for 2018 and 2019.¹⁴ This forecast was carried out as a linear regression in line with the consistency criterion described in point 1.4 (b) of Annex IV of the new Implementing Regulation, and as described in Annex II to this report.

¹⁴ For the sake of comparability, RP2 determined costs have been transformed in €₂₀₁₇ applying RP3 inflation rules.

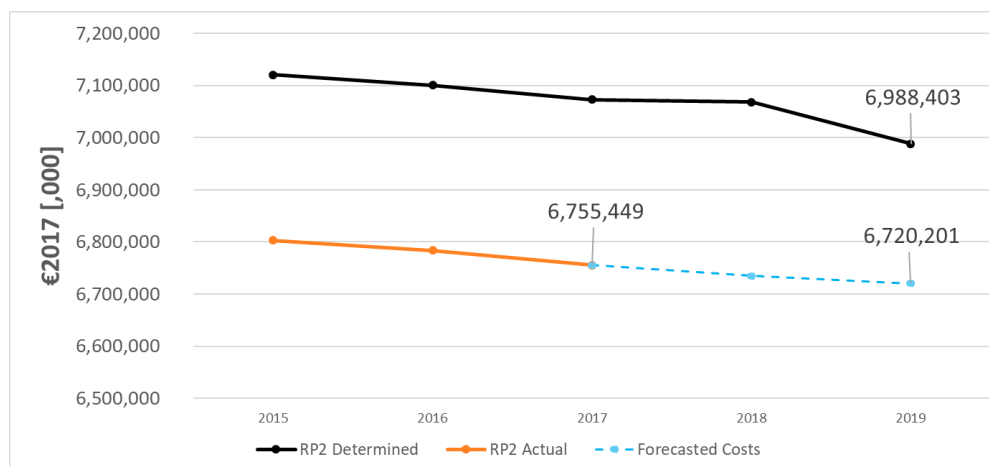


Figure 1: Union-wide costs evolutions and baseline forecast

- 43 The updated baseline is lower relative to the PRB proposal of September 2018. The previous calculation included the estimated additional cost of providing sufficient capacity in the initial years of RP3. This led to a higher starting point and then proposed an ambitious reduction of determined unit cost.¹⁵ Keeping the rate of reduction in determined unit costs proposed in September 2018 would have led to an excessive reduction in costs due to the proposed lower baseline value. To avoid setting unrealistic targets and to accommodate stakeholders' comments, the PRB has revised the Union-wide cost-efficiency targets.
- 44 The new Implementing Regulation provides the flexibility to allow Member States to deviate from the cost-efficiency targets if the additional determined costs are for the implementation of measures required to achieve the capacity targets. This negates the need to increase the baseline value at the start of RP3.
- 45 The PRB proposes to balance the lower baseline values by closing a lower percentage of the cost-inefficiency gap (as defined in the PRB advice to the Commission published in September). The PRB suggests closing around 50% of the cost-inefficiency gap by the end of RP3 with respect to the cost forecasts provided by the Member States (which are similar to the no-action scenario defined in the September 2018 advice). This end point leads to constant total costs during the third reference period. Additionally, this approach is supported by the actual total costs over the last ten years.
- 46 In view of these considerations, the PRB proposal corresponds to a -2.3% yearly change in determined unit cost over RP3. The PRB deems this to be realistic based on the projected traffic growth within the forecast while still requiring improved cost efficiency.
- 47 After evaluating the comments provided by stakeholders, the PRB recommends:
- A determined unit cost trend of -2.3% per year in 2020, 2021, 2022, 2023, and 2024.
 - Starting from a Union-wide baseline value for DUC for RP3 of 48.15€₂₀₁₇.
 - Ending with a Union-wide DUC of 42.84€₂₀₁₇ in 2024.

¹⁵ See page 46 paragraph 224 of the PRB's advice to the Commission on Union-wide targets published in September 2018.

- 48 The resulting long-term determined unit cost trend is equal to -3.4% p.a. (from 60.33€₂₀₁₇ in 2014 to 42.84€₂₀₁₇ in 2024).
- 49 Table 5 summarises the updated PRB recommendations with respect to the cost-efficiency KPA.

| Average determined unit cost for en route | | | | | |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------|---------|---------|---------|
| 2019 Baseline for RP3 proposed by the PRB | Determined Unit Cost: 48.15 € ₂₀₁₇ Determined Total Cost: 6,720 M€ ₂₀₁₇ | | | | |
| Proposed Cost-efficiency KPA targets | | | | | |
| | 2020 | 2021 | 2022 | 2023 | 2024 |
| Determined Costs (DC) [M€ ₂₀₁₇] | 6,720 | 6,720 | 6,720 | 6,720 | 6,720 |
| Annual Change in DC [%] | 0% per annum. | | | | |
| Service Units [,000] | 144,333 | 147,446 | 150,871 | 153,854 | 156,855 |
| Determined Unit Cost (DUC) [€ ₂₀₁₇] | 46.56 | 45.58 | 44.54 | 43.68 | 42.84 |
| Determined Unit cost trend (%) | -2.3% | -2.3% | -2.3% | -2.3% | -2.3% |
| Long Term (2014-2024) Determined Unit cost trend (%) | -3.4% per annum | | | | |

Table 5: Proposed Cost-efficiency KPA targets for RP3

- 50 To mitigate the impact of the United Kingdom leaving the European Union and not remaining a member of the Single European Sky, the PRB have computed the baseline values by excluding the United Kingdom from the previously described approach. The Union-wide baseline value for DUC for RP3 is equal to 47.07€₂₀₁₇, corresponding to a baseline for determined costs of 5,986M€₂₀₁₇. The relative impact on the determined unit cost trend is negligible, therefore the PRB recommends retaining the Union-wide cost-efficiency targets under all eventualities.

8. Additional elements of target setting

8.1 Overview of additional elements

51 Under the new Implementing Regulation, the European Commission can ask the PRB to assist it on setting the alert thresholds for a revision of national Performance Plans and in defining the ANSP comparator groups (Article 3 (c) of the new Implementing Regulation).

8.2 Alert Thresholds

Traffic alert thresholds

52 Alert thresholds define one of the possibilities allowing a Member State to modify its Performance Plan (Article 18 (1) of the new Implementing Regulation). The revision of Performance Plans should remain a measure of last resort. Economic regulation implies a degree of uncertainty because it relies on forecasts. The alert threshold therefore should be set at a level which is beyond the normal and expected deviations from the forecast and should only be possible if a deviation cannot be mitigated by other means or if it is due to unforeseeable circumstances (Article 18 (1) of the new Implementing Regulation). These restrictive conditions are important in order not to jeopardise the credibility of the Performance Plans.

53 For RP1 and RP2, the alert threshold setting was equivalent to the variation within the traffic risk sharing mechanism (+/- 10%).¹⁶

54 The new Implementing Regulation uses three alert thresholds:

1. The first alert threshold for the deviation of actual IFR movements in comparison to the traffic forecast over a given calendar year.
2. The second alert threshold for the deviation of the actual service units from the forecast.
3. The third alert threshold regarding the variation of the reference values between the seasonal updates of the Network Operations Plan in comparison to those of the latest version of the Network Operations Plan available at the time of drawing up the Performance Plan (Article 9 (4) (b) of the new Implementing Regulation).

55 The described alert thresholds apply Union-wide and Member States may no longer set their own local alert thresholds.

56 The STATFOR forecast from September 2018 showed that 19 Member States may exceed an alert threshold of 10% towards the end of RP3 despite their actual traffic remaining within the bounds of the STATFOR forecast. This could suggest that the alert thresholds should be increased above 10%.

57 However, the updated forecast from February 2019 has reduced the difference between the high and low forecast. Based on this new information, five Member States may exceed

¹⁶ The STATFOR Base forecast provided the reference for the Union-wide traffic assumptions in RP1. For RP2 the alert threshold mechanism was applied with respect to the low forecast.

an alert threshold of 10% towards the end of RP3 even if their actual traffic remains within the bounds of the STATFOR forecast.

- 58 The PRB also reviewed the precedents of approved revision requests during RP2, assessing whether, if retrospectively applied, the envisaged thresholds for RP3 would have permitted the Member States to request revisions that were successful in RP2. This is the case.
- 59 The PRB therefore recommends the following alert thresholds:
- At Member State level:
 - A variation of **±10%** of actual IFR movements in relation to the forecast used in the Performance Plan.
 - A variation of **±10%** of actual service units in relation to the forecast used in the Performance Plan.

60 The analysis and data behind these recommendations are available in Annex III.

Capacity alert thresholds

- 61 The Commission has introduced a new alert threshold mechanism for RP3, defined as the variation of the annual en route ATFM delay reference values calculated by the Network Manager for each Member State.
- 62 Article 9 (4) (b) (iii) specifies the variation of the reference values as a result of the seasonal updates of the Network Operations Plan pursuant to point (a) of Article 9 (4) and Article 9 (8) of revised Network Functions Implementing Regulation in comparison to the reference values from the latest version of the Network Operations Plan available at the time of submission of the Performance Plan. This variation shall be expressed as a percentage of variation or as a fraction of minutes of en route ATFM delay, depending on the magnitude of the reference values.
- 63 In addition, the alert threshold for capacity is linked to the incentive mechanism calculation for financial advantages and disadvantages (Article 11 (3) of the new Implementing Regulation). However, at this stage, the PRB finds it difficult to define a capacity alert threshold that is suitable for both criteria. Therefore, the PRB has taken a pragmatic approach prioritising the eligibility for the revision of a Performance Plan as this is the focus of the capacity alert threshold.
- 64 The PRB has consulted the Network Manager who concurs that it is difficult to determine the future impact of the alert thresholds on both the incentive schemes and the eligibility for revisions due to a lack of forward looking and historical data. Using best efforts, the Network Manager has recommended capacity alert threshold values, which the PRB supports. The PRB therefore recommends the alert thresholds of 0.05 minute of en route ATFM delay or the percentage of variation as set out in Table 6.

| NOP Reference Value - x (minute per flight) | Alert Thresholds (Percentage of variation) |
|--------------------------------------------------|-----------------------------------------------|
| $0.01 < x \leq 0.1$ | 50% |
| $0.1 < x \leq 0.2$ | 25% |
| $0.2 < x \leq 0.3$ | 17% |
| $0.3 < x \leq 0.4$ | 12.5% |
| $0.4 < x$ | 10% |

Table 6: Recommended capacity alert threshold values

65 The PRB recommends monitoring the application of abovementioned values to assess whether they are fit for purpose and to recalculate them if necessary, once sufficient historical data is available.

8.3 Comparator groups

66 Comparator groups are a means to assess the cost-efficiency performance targets. They should allow a comparison between similar operational and economic environments for air navigations services (Article 9 (4)(c) of the new Implementing Regulation).

67 The clustering analysis developed by Steer, commissioned by the EC and annexed by the PRB to the report “EU-wide target ranges for RP3” of 20 June 2018, has been updated. The updated version is included in this document as Annex IV.

68 The PRB has evaluated these studies. The PRB considered that comparator groups should not be too small in order to render tangible results. However, the PRB is aware that the Member States assigned to one group may deviate substantially in one of the variables used to define a comparator group. The PRB thus recommends to modify the group average by not including in the computation the outliers deviating significantly from the rest of the comparator group.

69 The PRB recommends the Comparator groups as included in the updated Steer analysis and as shown in Table 7.

| Cluster | Member States |
|------------------|----------------|
| Cluster 1 | France |
| | Germany |
| | Italy |
| | Spain |
| | UK |
| Cluster 2 | Denmark |
| | Finland |
| | Ireland |
| | Norway |
| | Sweden |
| Cluster 3 | Bulgaria |
| | Croatia |
| | Czech Republic |
| | Hungary |
| | Poland |
| | Portugal |
| | Romania |
| | Slovakia |
| | Slovenia |

| Cluster | Member States |
|------------------|-----------------|
| Cluster 4 | Cyprus |
| | Estonia |
| | Greece |
| | Latvia |
| | Lithuania |
| | Malta |
| | |
| Cluster 5 | Austria |
| | Belgium-Lux. |
| | MUAC |
| | the Netherlands |
| | Switzerland |

Table 7: Comparator groups

9. Summary of recommendations

70 Table 8 presents a summary of the PRB’s final proposal for performance targets for RP3.

| Summary of the PRB’s final proposals for Union-wide performance targets for RP3 | | |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety | Current EoSM (ANSPs) | Level E for Safety Risk Management Level D for all other Management Objectives |
| | New EoSM (ANSPs) ¹⁷ | Level D for Safety Risk Management Level C for all other Management Objectives |
| Environment | Horizontal en route flight efficiency of actual trajectory (KEA) | 2.40% in 2024 Annual target values: 2020: 2.53% 2021: 2.47% 2022: 2.40% 2023: 2.40% 2023: 2.40% |
| Capacity | Average minutes of en route ATFM delay per flight attributable to air navigation services | 0.50 minutes per flight in 2024 Annual target values: 2020: 0.90 mins per flight 2021: 0.90 mins per flight 2022: 0.70 mins per flight 2023: 0.50 mins per flight |
| Cost-efficiency | Year-on-year change of the average Union-wide Determined Unit Cost for en route air navigation services | 2019 Baseline value: € 48.15 (in €₂₀₁₇ prices) 2024 End point: € 42.84 (in €₂₀₁₇ prices) 2019 – 2024 DUC trend: -2.3% p.a. 2014 – 2024 DUC trend: -3.4% p.a. |

Table 8: Summary of PRB’s final proposal for Union-wide performance targets for RP3

¹⁷ To be published in the second quarter of 2019