

# PRB assessment of the revised draft performance plans for RP3

Annex III - Assessment of the Network Performance Plan



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#### 1 INTRODUCTION

### 1.1 Background

- The European Union established the Network Management function under the Single European Sky (SES) II legislative package (Regulation (EU) 677/2011, subsequently amended and repealed by Implementing Regulation (EU) 2019/123. The aim was to address operational issues and to have a seamless European airspace better managed at network level.
- The European Commission appointed Eurocontrol as the Network Manager (NM) to carry out the Network Management functions. The NM is given specific tasks for the Single European Sky. In addition to achieving its own performance targets, one of the key objectives of the NM is to support Member States to achieve their local targets for RP3 and to balance performance across Member States to the benefit of the network.
- The NM also calculates the local reference values for the performance and charging scheme. These have been updated following the adoption of new Union-wide targets in 2021 to reflect the changes in operations with lower traffic demand.

### 1.2 Current situation

- During the second reference period (RP2), traffic recovered significantly from the downturn which followed the financial crisis in 2008-2009. The network handled its highest ever number of flights in 2010
- In March 2020, traffic numbers reduced to unprecedented levels as the consequence of the COVID-19 pandemic. Traffic began to recover in 2021 following the rollout of vaccination programmes and improved testing regimes, enabling governments to reduce restrictions, which in turn opened up international travel.
- The STATFOR traffic forecast update released in October 2021 shows a stronger 'bounce-back' in 2022 with traffic set to be above the previous high forecast<sup>1</sup>. From 2023 the growth is forecasted to slow with traffic returning to 2019 levels in 2024.
- Despite the STATFOR forecasts in the past being remarkably accurate, there remains significant

uncertainty how the pandemic will impact traffic demand. The NM will have a crucial role to respond to changing demand and to support the recovery of the industry during the remaining years of RP3.

### 1.3 Preparation and submission of the draft Network Performance Plan

- The NM has prepared a revised Network Performance Plan (NPP) for RP3 (2020-2024), based on the performance and charging scheme Regulation (EU) 2019/317 and the ATM network function Regulation (EU) 2019/123 (NF Regulation).
- The PRB received the draft NPP on 30<sup>th</sup> September 2021 following its endorsement by the Network Management Board (NMB).
- The network management functions apply to the Member States of the SES. Third countries including those Eurocontrol States, which are not part of the SES have bilateral agreements with the NM. Based on such agreements, some of the objectives defined in the NPP are applicable also to the pan-European scope.
- 11 The PRB has assessed this plan in accordance with Article 3 of Commission Implementing Regulation(EU) 2019/317 and on the basis of the criteria laid down in Annex V of the Regulation.

# 1.4 Completeness of the draft Network Performance Plan

The PRB found no issues regarding missing and/or incomplete elements as required by the performance and charging scheme Regulation. The PRB will request additional information from the NM, as required, during RP3.

#### 1.5 Stakeholder consultation

- 13 The draft NPP describes consultation undertaken during its preparation:
  - With the PRB and European Commission in June/July 2021.
  - With the NM social partners in August 2021.
  - With the NMB in August and September 2021.

<sup>&</sup>lt;sup>1</sup> Known as scenario 1: Vaccine 2021, recovery 2024 in the May 2021 forecast update.

#### 2 SAFETY

### 2.1 Criteria for the assessment of the Network Performance Plan relating to the Safety KPA

- The criteria for the assessment of the network performance plan are defined in Annex V of the performance and charging Regulation. The key element relating to the assessment of the NPP for the safety KPA is:
  - Annex V (c): consistency of the target on the level of effectiveness of safety management of the Network Manager with the Union-wide performance targets (section 2.2).
- In addition to the assessment requirements in Annex V, Annex III requires the NM to describe the measures that the NM puts in place to:
  - Achieve this target (section 2.3);
  - Address ATFM over-deliveries (section 2.4).
- Annex III also requires the NM to describe its work on the support to network safety and the implementation, monitoring, and improvement of local safety performance (section 2.5).

# 2.2 Consistency of the target on the level of effectiveness of safety management of the NM with the Union-wide targets

- 17 The NM maturity levels of the effectiveness of safety management (EoSM) during RP3 are defined as a minimum level in each of the Management Objectives for each calendar year as shown in Table 1 including the achieved maturity levels in 2020 (based on the RP2 questionnaire).
- 18 Targets within the draft Network Performance Plan for the end of RP3 are consistent with the Union-wide targets. Planned maturity levels are defined for all five years in RP3.
- 19 The NM used the RP2 Accepted Means of Compliance (AMC) to assess the achieved levels in 2020 and the RP3 AMC to set targets for 2020. Therefore, the achieved and planned maturity levels cannot be directly compared.
- The European Union Aviation Safety Agency (EASA) Supporting Material does not provide specific principles for measuring the maturity of the safety management to be applied to the NM. The NM applies the AMC for air traffic service providers for RP3 with necessary adaptations agreed by EASA.

Network Manager EoSM targets	2020 Actual	2020 Targets	2021 Targets	2022 Targets	2023 Targets	2024 Targets	Consistent with Un- ion-wide target
Safety Policy and Objectives	С	В	С	С	С	С	~
Safety Risk management	D	В	В	В	В	D	✓
Safety Assurance	С	В	В	В	С	С	✓
Safety Promotion	С	С	С	С	С	С	✓
Safety Culture	D	В	В	С	С	С	<b>✓</b>

Table 1 – RP3 targets for EoSM.

### 2.3 Measures planned to reach the target

- The measures the NM proposes to meet the targets include:
  - Generalised measures, covering the overall approach to continuous improvement based on measurements of the EoSM, combined with regulatory oversights by EASA, and;
  - Specific measures, aimed at improving the individual Management Objectives as required to reach the targets for RP3.

# 2.4 Measures that the Network Manager puts in place to address ATFM over-deliveries

the NM has introduced to improve the monitoring of over-deliveries (OVDs). The NM has defined measures to continue the improvement of the monitoring in order to identify over-deliveries and the associated root causes. Over-deliveries related to issues of predictability and volatility of traffic demand are addressed (e.g. the Flight Plan Predictability project, which aims to improve traffic predictability) by reducing unanticipated traffic. Initiatives were already implemented during RP2 (e.g. addressing Yo-Yo flights).<sup>2</sup> Equally, improvements related to collaborative decision making (CDM) processes will continue during RP3.

### 2.5 Support to network safety

Activities are defined for RP3, which should contribute to the implementation, monitoring and improvement of local safety performance.

In addition, the performance plan describes the principles for managing network safety risk through identifying the top five safety priorities. The approach to monitoring the risk associated with specific incident types (e.g. blind spot and airspace infringement) is defined, as well as the use of operational studies to share lessons learned from incidents and facilitate implementation of best practices.

### 2.6 PRB assessment regarding the safety KPA

- 26 Assessing the safety KPA, the PRB considers that:
  - The targets for the safety KPA are consistent with the Union-wide targets.
  - The measures defined within the NPP are relevant and sufficient to meet the targets if implemented effectively.
  - The NM defines measures that can be used to address over-deliveries and address the different factors causing over-deliveries, alone or in combination.
  - Activities within the draft NPP can contribute to improved network safety.
- 27 The PRB considers the draft NPP to be consistent with the requirements of the performance and charging scheme Regulation for the safety KPA.

<sup>&</sup>lt;sup>2</sup> A yo-yo flight is a flight flown to a plan that includes a descent of two to ten thousand feet and then a climb back to the original level to avoid restricted airspace or congestion.

#### 3 ENVIRONMENT

### 3.1 Criteria for the assessment of the Network Performance Plan relating to the Environment KPA

- The criteria for the assessment of the performance plan are defined in Annex V of the performance and charging Regulation. The key elements relating to the assessment of the NPP for the environment KPA are:
  - The development and harmonisation of airspace projects based on network priorities (section 3.2);
  - The measures to reduce inefficient use of route network and available airspace (section 3.3).
- 29 Annex III of the Regulation requires the NM to set performance targets for the environmental KPI along with a description of the measures to achieve the performance targets for the European Route Network Development (ERND) function (section 3.4)

### 3.2 Measures to develop and harmonise airspace projects based on network priorities

- The NM's European Route Network Improvement Plan (ERNIP) published in June 2021 defines how the development and harmonisation of airspace projects will be achieved.<sup>3</sup> It contains information regarding the Route Network Development function of the NM. During RP3, over 300 packages of airspace improvements are planned.
- The main objectives of the projects are to implement:
  - Cross-border free route airspace (FRA), at least at and above FL310, in European airspace;
  - Optimised route structure below FRA ensuring efficient connectivity to/from terminal airspace;
  - A simplification of the route availability document (RAD);

- More efficient flexible use of airspace (FUA) procedures and the associated system support to enable better utilisation of civil/military airspace structures;
- A closer cooperation between the NM, the airspace users and the computer flight plan service providers aimed at ensuring better utilisation of available airspace structures.
- The PRB agrees that the NM should focus on FRA implementation. However, even in a FRA environment, a "route network" will still exist in the form of waypoint restrictions within Member States that do not implement FRA from the ground to upper airspace.
- The implementation of the ERNIP has the potential to significantly improve flight efficiency if all projects are fully implemented.
- The ERNIP states that RTE-DES<sup>4</sup> (flight extension due to route network design) is expected to improve from 2.18% in December 2020 to approximately 1.85% in 2030.
- The previous ERNIP from June 2019 stated that the same improvement (to achieve 1.84%) was possible by 2024. Therefore, the ERNIP from June 2021 represents a lower ambition since it plans to achieve the same improvement six years later than was planned in the ERNIP in 2019.
- The airspace design performance indicator (RTE-DES) improved in each year of RP2. Performance in December 2018 was the same as in December 2017 (2.31%), and recent performance shows a reduction in the rate of improvement. Local restrictions have a greater influence as performance approaches the minimum RTE-DES.

# 3.3 Measures to reduce inefficient use of route network and available airspace

37 The route design indicator (RTE-DES) improved during RP2. However, the utilisation of the route network both in terms of planning and actual flown trajectories did not.<sup>5</sup> Therefore, the gap increased between the use of the route network and what was feasible based on the design of the

<sup>&</sup>lt;sup>3</sup> ERNIP Part 2 - ARN Version 2021 – 2030.

<sup>&</sup>lt;sup>4</sup> The route extension due to airspace design if all flights would have used the route network without any route restrictions and with all CDRs permanently available.

<sup>&</sup>lt;sup>5</sup> Planning - Flight extension due to route network utilisation (RTE-FPL). Actual - Horizontal flight efficiency of the actual flown trajectory (KEA).

- airspace. This gap represents an opportunity for improved environmental performance.
- The NM also supports airlines through the group re-routing tool (GRRT) and offers re-routing proposals to those airspace users subscribing to the service. To understand whether this service is effective, the PRB would require further information, specifically regarding how many airspace users currently use the service, the number of rerouting proposals issued during RP2 and the number of these proposals adopted by airspace users during RP2 and the first year of RP3. Furthermore, the improvement in total distance offered by the re-routing proposals compared with the RTE-FPL would also indicate the effectiveness of the NM's performance in reducing inefficient utilisation of the route network and available airspace. This information is not available in the draft Network Performance Plan.

# 3.4 Performance targets specific to the ERND function

### Statutory KPI

- The performance and charging Regulation requires the NM to specify targets and objectives for each network function. For the targets and objectives for the environmental performance, Annex III requires the NM to specify performance targets for defined performance indicators.
- 40 Annex I Section 3 point 3.1 of the Regulation defines the KPI for the NM as:
  - "The en route flight efficiency improvement generated by the European Route Network Design function related to the last filed flight plan trajectory, expressed as a percentage point of the year-on-year variation of the en route flight efficiency of the last filed flight plan trajectory and calculated in accordance with point 2.2(a) of Section 1".
- To put a target on KEP, the NM used the same ambition as the Union-wide improvement of 0.20% for KEA in RP3 relative to the 2019 target. Thus, it sets a target of 3.90% (= 4.10% 0.20%).
- The NM further modulates the target considering that its functions cover the ICAO EUR region and uses the average historic gap of +0.1% between the KEP of the SES States and the wider NM area

- to define a target of 3.78% (3.90% 0.12%) for 2024.6
- The NM further reduces this by 0.05% to adopt a final target of 3.73% for 2024. The reason to apply a 0.05% reduction is to close the gap between KEA and KEP performance, thereby increasing predictability in the network.
- The annual targets for RP3 (Table 2) were calculated by identifying the 2024 target and distributing the improvement equally between 2021 and 2024.

	2021	2022	2023	2024
KEP NM Area (%)	4.36	4.15	3.94	3.73
Year-on-year change (%)	-0.21	-0.21	-0.21	-0.21

Table 2 – Annual targets for the KEP indicator for the NM area.

# Measures aimed at achieving the performance targets for the ERND function

- Through the implementation of the NOP and ERNIP, the NM plans to support Member States to achieve their KEA reference values.
- The main measures the NM aims to deploy to achieve the targets are:
  - Continuing support to the implementation of FRA including cross-border FRA.
  - Regularly reviewing and simplifying the RAD via a flight efficiency task force.
  - Focussing on specific improvements to the most inefficient city-pair routes.
  - Developing the application of advanced FUA.
  - Harmonising conditional route (CDR) initiatives
  - Providing strategic re-routing options to airspace users.
  - Assisting computerised flight plan service providers to develop tools for airlines.
  - Relaxing RAD restrictions during less busy hours.

<sup>&</sup>lt;sup>6</sup> Note that the value used in the NPP is 0.12% not 0.1%.

# 3.5 PRB assessment regarding the environment KPA

- 47 Assessing the environment KPA, the PRB considers that:
  - The targets for the environment KPA are realistic and achievable.
  - The measures defined in the draft NPP are relevant and sufficient to meet the targets.
- The PRB concludes that the draft NPP is consistent with the requirements of the performance and charging Regulation for the environment KPA.
- The PRB recommends to have a strong alignment between the NM and the PRB to assess the effects of NM measures on local performance, including on the environment, and to monitor the assumed effects against actual performance.

#### 4 CAPACITY

- 4.1 Criteria for the assessment of the Network Performance Plan relating to the capacity KPA
- 50 The criteria for the assessment of the NPP are defined in Annex V of the performance and charging Regulation. The key elements relating to the capacity KPA are:
  - Performance targets for en route and arrival ATFM delay savings from collaborative decision making (CDM) procedures and Network Manager Operations Centre (NMOC) actions.
  - Measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure.

# 4.2 Performance targets for en route and arrival AFTM delay savings

### En route ATFM delay savings

- The NM has presented data on its historical performance (last four years) from direct actions by the operations centre (NMOC). Savings are between 10.2% and 16.5% of en route ATFM delay per year. The PRB notes that these benefits are calculated without the delay savings resulting from the capacity optimisation processes of the NM (CDM process with the flow management positions (FMPs) to fine tune capacity according to the latest known demand), and are only the direct results of NMOC actions and processes on individual flights.
- 52 The NM lists the following measures and initiatives expected to bring benefits and provide additional capacity during RP3:
  - Weekend delay reduction;
  - Individual flight penalties;
  - Increased air traffic flow and capacity management;
  - Mitigation of weather-generated delays;
  - Reduction of first rotation delays.
- 53 The NM has presented the RP3 target for its yearon-year savings in total en route ATFM delays as 10% for each calendar year of RP3.

The NM states that these targets cannot be achieved without the strong involvement and commitment of all operational actors through the NM CDM process.

### Arrival ATFM delay savings

- In terms of arrival ATFM delay savings, the NM has presented the historical performance (last four years) for arrival delay savings from direct actions by the NMOC (i.e. calculated time over, calculated take-off time and override slots). These savings amount to between 3.9% and 9.7% of arrival ATFM delay per year.
- The NM details measures and initiatives expected to bring positive benefits and provide additional capacity during RP3, such as:
  - Mitigation of weather-related delays and airport area actions;
  - Reduction of first rotation delays;
  - Improvement of airport slot usage.
- 57 The NM presented the RP3 target for arrival ATFM delay savings from the CDM network procedures and NM Operations Centre actions, as 5% for each calendar year over RP3.
- PRB notes that measures aimed at improving airport capacity performance in the network should remain a focus. Arrival ATFM delays in 2020 demonstrate that there is currently less excess capacity in the network on and around airports than in en route airspace.
- 59 The PRB highlighted the lower level of ambition applied for arrival ATFM delay savings compared to en route ATFM delay savings. The NM justified the difference in ambition with the limited influence it has when intervening in operations at or around airports compared to the influence in the en route environment, especially noting that rerouting traffic is not an option to resolve airport related congestions.

- 4.3 Adequacy of measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure
- The NM defines a set of measures to enhance the air traffic flow capacity management (ATFCM) processes, such as:
  - Elaboration and harmonisation of network and regional operational concepts (i.e. such as FRA, airport terminal manoeuvring area (TMA) network integration, cooperative traffic management, and others). The NM defined the steps envisaged over the next 5-10 years to address the interdependencies between various network and regional operational concepts and to facilitate the introduction of new operational concepts.
  - Airspace management (ASM) and advanced FUA evolution (i.e. improve existing ASM/AT-FCM processes by putting more emphasis on the better utilisation of existing ASM processes, enhancing performance-driven ASM/ATFCM processes and introducing more dynamic and flexible ASM/ATFCM/ATS processes).
  - Development of ATFCM processes (i.e. transition towards to a flow centric ATFM approach) whereby the flights are considered within a flow and network context rather than as segmented portions of its trajectory.
  - Harmonised capacity planning and measurement of operational performance (i.e. development of the NOP, together with the implementation of CDM processes and improved information management), ensuring better use of the capacity available on the network and improved management of both planned and unplanned events and constraints.
  - Supporting the resolution of air traffic controller shortages across the network (i.e. identification of a number of best practices in the European ATM network on controller and sector mobility), and the implementation of the Airspace Architecture Study will further support the abovementioned issue through concepts like sector-independent air traffic service and flight/flow centric operations.

- Ouring 2020, the NM introduced the European Network Operations plan (NOP) Rolling Seasonal Plan, which is issued weekly. It focuses on the planning of the next six weeks and the implementation of the five-year NOP. The NM will continue to produce these rolling plans in RP3 to support ANSPs in planning and coping with the volatility and uncertainty of traffic.
- While these issues must be addressed during the early years of RP3, when traffic is considerably lower than in previous years, the NM should also focus on supporting ANSPs and other operational stakeholders in accommodating the recovery of traffic after the pandemic.
- 63 With RP2 performance in mind, the NM should focus on ensuring that when traffic reaches 70-80% of 2019 values, the delays do not also begin to rise.

### 4.4 PRB assessment regarding the capacity KPA

- The PRB assesses the targets and measures of the NM for the capacity KPA as follows:
  - The targets for the capacity KPA are realistic and achievable.
  - The measures defined in the draft NPP are focused on resolving long-standing capacity issues, which were the main causes of high delays in RP2.
- The PRB considers the draft NPP to be consistent with the requirements of the performance and charging scheme Regulation for the capacity KPA.
- 66 The PRB recommends to have a strong alignment between the NM and the PRB to assess the effects of the NM measures on local performance, including on capacity and delay, and to monitor the assumed effects against actual performance.

#### 5 COST-EFFICIENCY

## 5.1 Assessment of the Network Performance Plan relating to the cost-efficiency KPA

The performance and charging Regulation requires the NM to highlight measures it puts in place to improve its cost-efficiency.

## 5.2 Impact of the measures to improve cost-efficiency

The NPP describes a set of cost containment initiatives for the years 2022-2024 reported to amount to 8.7M€ (5.2% of the NM budget). The NM commits in its performance plan to a further set of cost-efficiency measures that will be implemented gradually during the period 2022-2026. The NM cost base is reported to decrease from 197M€<sub>2017</sub> in 2020 to 170M€<sub>2017</sub> in 2024.

# 5.3 PRB assessment regarding the cost-efficiency KPA

The PRB finds these measures comprehensive to achieve improvements in the cost-efficiency KPA, and will monitor their execution and benefit during the reference period.

### **6 SUMMARY OF RECOMMENDATONS**

- 71 Considering the criteria defined in Annex V of the performance and charging Regulation (Table 3), the PRB recommends to approve the draft Network Performance Plan.
- 72 The PRB also recommends:
  - To focus on helping ANSPs accommodate the traffic recovery without generating delays;
- To focus on FRA implementation and in particular the effect of waypoint restrictions with Members States that do not implement FRA from ground to upper airspace;
- To have a strong alignment between the NM and the PRB to assess the effects of the NM measures on local performance, including on capacity and delay, and to monitor the assumed effects against actual performance.

Annex V – Criteria for the assessment of the draft Network Performance Plan	PRB analysis
Completeness of the draft Network Performance Plan in terms of the elements needed to assess com- pliance with the requirements listed in Article 10(5) and Annex III.	The PRB found no issues regarding missing and/or incomplete elements. Where during the reference period there would be a requirement for more details, the PRB will contact directly the NM for such information.
Comprehensiveness of the actions taken by the Network Manager to contribute to network optimisation covering the actions listed in point 2 of Annex III.	The PRB concludes that the plan includes various actions throughout the document to contribute to network optimisation.
Consistency of the target on the level of effectiveness of safety management of the Network Manager with the Union-wide performance targets, by which, for each calendar year of the reference period, the level of effectiveness of safety management is equal to, or higher than, the corresponding Union-wide performance targets.	The PRB concludes that the targets for the safety KPA are consistent with the Union-wide targets.
Flight efficiency improvement measures generated by the European Route Network Design function.	The PRB notes that the NM targets a value of 3.73% for the flight efficiency of the planned route (an improve- ment of 0.83 percentage points). The main measures to achieve this target are highlighted in paragraph 46.
En route ATFM delay savings from the Cooperative Decision-Making network procedures and Network Manager Operations Centre actions.	The PRB concludes that the targets for en route ATFM delay savings are realistic and achievable.
Arrival ATFM delay savings from the Cooperative Decision-Making network procedures and Network Manager Operations Centre actions.	The PRB notes that the targets on arrival ATFM delay savings are less ambitious than the en route delay saving targets, yet this is justified by the different operational environment of airports, and the limited availability of delay saving means. Thus the PRB concludes that the targets on arrival ATFM delay savings are realistic and achievable.
Adequacy of the measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure as regards the European ATM Master Plan, the common projects referred to in Article 15a of Commission Regulation (EC) No 550/2004 and Commission Implementing Regulation (EU) No 409/2013, and, where applicable, the Network Strategy Plan.	The PRB concludes that the measures listed in the NPP are extensive and adequate and are appropriately targeted on resolving the long-standing issues which were the main drivers behind delays during RP2.

Table 3 – Summary of criteria for assessment of the draft Network Performance Plan.