SES Performance Scheme:
Preparations
for the second reference period (RP2)

Working paper for the Informal Stakeholder Workshop on RP2 (10 November 2011)

Produced by the Performance Review Body of the Single European Sky

3 November 2011
This document constitutes a working paper for the informal stakeholder workshop in preparation for the second reference period of the SES performance scheme (RP2: 2015-2019). It will be held at EUROCONTROL Headquarters in Brussels on Thursday 10 November 2011.

Feedback from the workshop discussions will be used to develop the regulatory approach, which will be subject to formal stakeholder consultations in early-2012.
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1 Introduction

1.1 SES background

1.1.1 The second Single European Sky package (SES II) adopts a total system, gate-to-gate approach for ANS. It is based on five closely interrelated pillars all converging towards the keystones of aviation performance and sustainability:

- The legislative pillar includes the performance scheme and the associated Performance Regulation (EU) No 691/2010, a strengthening of Functional Airspace Blocks (FAB), as well as a central network management function fostering an increased efficiency of the network.
- The safety pillar extends the competence of the European Aviation Safety Agency (EASA) to ATM and airports, which puts aviation safety under the authority of a single entity at EU level. EASA cooperates with the Performance Review Body (PRB) for all the safety-related aspects of the performance scheme.
- The technological pillar, SESAR, aims to develop state of the art technology supporting Member States in their efforts to improve performance, safety and sustainability.
- The airport pillar, comprising the creation of the Airport Capacity Observatory is complemented by gate-to-gate performance indicators in the performance scheme. The European Commission is expected to present an “airport package” by end-2011, including a link with the SES and its performance scheme.
- The human factor pillar, materialised initially by consultation of staff representatives at all stages of the performance scheme implementation and the introduction of a safety performance indicator addressing “just culture”.

1.1.2 EU-wide performance targets for the first reference period (RP1: 2012-14) were agreed in 2010 and corresponding national/FAB performance plans are being adopted.

1.1.3 The Performance Regulation has to be revised in preparation for the second reference period (RP2) starting in 2015.

1.1.4 The European Commission has tasked EUROCONTROL, in its capacity as designated Performance Review Body (PRB), to assist in the revision of the performance scheme (Single Sky Committee 41, 6-7 April 2011).

1.2 Purpose of this working paper

1.2.1 The purpose of this working paper is to provide stakeholders with background information and initial PRB views on the revision of Regulation 691/2010, in preparation for the informal workshop to be held on 10 November.

1.2.2 The PRB started work on the revision of the Performance Regulation in June 2011. The informal phase, conducted between June and November 2011, included a web-based stakeholder consultation (via questionnaire), bilateral meetings with stakeholders and the informal public workshop to be held on 10 November 2011.

1.2.3 The results of this informal phase will be fed into the formal part of the revision of the Performance Regulation, which starts in 2012.

1.2.4 The goal of the informal workshop is to recall the policy objectives and regulatory timeline for RP2, present the PRB’s initial views on RP2, building on lessons learnt, hear stakeholders’ views and provide input to the formal process.
1.2.5 The documentation for this workshop consists of:

- the draft agenda;
- a summary of the responses to the questionnaire received from stakeholders;
- this working paper;
- a document summarising the workshop conclusions, to be issued shortly after the workshop.

1.2.6 This chapter sets the scene whilst the remaining chapters provide input to the workshop discussions, in line with the workshop agenda.

1.3 **Applicable legislation**

1.3.1 Annex I of the Performance Regulation 691/2010 requires the development and adoption of Key Performance Indicators (KPIs) for RP2 to allow appropriate target-setting in all four Key Performance Areas (KPAs): Safety, Capacity, Environment and Cost-efficiency, for en route, terminal and airport air navigation services.

1.3.2 EU-wide targets for RP2 have to be proposed by mid-2013 and adopted by the Commission by end-2013, in accordance with the Performance Regulation. The legal basis on which these targets will be set must therefore be adopted early in 2013.
2 Schedule for RP2 preparation

2.1.1 The PRB is using an iterative process to progressively refine its proposals for the revised Performance regulation. The timeline is illustrated in Figure 1 and more details are given in Table 1 below.

Figure 1: Timeline until proposal for EU-wide targets in RP2

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Document(s) &amp; event(s)</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Announcement of the RP2 preparation process in the SSC</td>
<td>SSC papers</td>
<td>Mar-July 2011</td>
</tr>
<tr>
<td>1</td>
<td>Soliciting initial views from Stakeholders</td>
<td>Meetings with Stakeholders and structured questionnaire with open-ended questions</td>
<td>July-Sept 2011</td>
</tr>
<tr>
<td>2</td>
<td>Discussion on initial views of Stakeholders and PRB</td>
<td>Informal public workshop; Summary of initial Stakeholder views; PRB working paper</td>
<td>10 Nov 2011</td>
</tr>
<tr>
<td>3</td>
<td>Formal consultation on draft regulatory approach (RA)</td>
<td>Regulatory approach document; Written consultation</td>
<td>March-April 2012</td>
</tr>
<tr>
<td>4</td>
<td>Public consultation on the draft amended regulation</td>
<td>Summary of responses to RA consultation Draft amended regulation; Workshop + written consultation</td>
<td>June-Sept 2012</td>
</tr>
<tr>
<td>5</td>
<td>Submission of PRB proposal to the Commission</td>
<td>Draft amended regulation</td>
<td>Q4 2012</td>
</tr>
<tr>
<td>6</td>
<td>EC consultation and adoption process</td>
<td>Amended regulation</td>
<td>Late 2012, Early 2013</td>
</tr>
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</table>

Table 1: Process for the revision of the Performance Regulation

2.1.2 Following the publication of the amended performance scheme regulation, the PRB will support the European Commission in proposing EU-wide targets for RP2 for adoption before the end of 2013. This process will be accompanied by another stakeholder consultation process in 2013.

2.1.3 States/FABs and the Network Manager will prepare performance plans for RP2 in the first half of 2014 for assessment and adoption in the second half of the year.
3 Lessons learned during RP1 preparation

3.1 Introduction

3.1.1 In the Stakeholder survey held from July through September 2011 (the RP2 questionnaire), Stakeholders were asked to share their opinion on what went well during the preparations for RP1 and should be retained, and what should be improved when the process is repeated for RP2.

3.1.2 The following is an overview of the stakeholders’ responses. A more detailed summary can be found in a separate document, which is circulated as part of the documentation for the informal workshop (see §1.2.5).

3.2 Overview of Stakeholder Feedback

Scope of the Performance Scheme

3.2.1 The Performance Regulation is an element of the total systems approach. Ideally, the revised Performance Regulation should fit within the wider scope of aviation performance, including safety performance, and clearly reflect the ANS contribution to the total systems approach.

3.2.2 The proliferation of different criteria defining airport inclusion in the performance scheme and charging scheme (scope, data requirements...) should be streamlined.

3.2.3 One stakeholder considered that applying market forces can be a valid alternative to performance regulation and encouraged the PRB to consider this alternative in the preparation of RP2.

3.2.4 The geographical scope should also be considered carefully, in particular in relation to the number of States.

3.2.5 There were requests to follow the “better regulation” principles of subsidiarity, proportionality, transparency and accountability.

Timing, synchronisation and coordination of processes

3.2.6 All Stakeholders found that the timing of RP1 was too tight to fit all performance plan preparation activities (in particular consultations at national level). A suggestion was to move a number of milestones forward to create more room in the timetable for the National/FAB part of the process.

3.2.7 It was noted that the ANSP Business Plan cycle and performance plan cycle did not match, which raised an issue of synchronisation.

3.2.8 Some inconsistencies between various European planning and reporting tools were noted (e.g. ATM Master plan, ESSIP, LSSIP, EU and national/FAB performance targets, Network Strategic Plan, Network Operational Plan, Capacity Enhancement Plan). There is a need to streamline, ensure consistency and synchronise these tools.

3.2.9 There was a suggestion for RP2 to be somewhat shorter than 5 years: Five years is quite long and introduces risks in forecasting, especially in the changing environment brought about by the current worldwide economic concerns, by the implementation of FABs, and by the first deployment phase of the ATM Master Plan.

3.2.10 The process for RP1 preparation was found to be quite complex. It should be simplified and streamlined in RP2.
3.2.11 Moreover, the regulatory impact should be assessed: the benefits resulting from the performance scheme should clearly outweigh the cost and effort of running the scheme.

**Consultation process**

3.2.12 The consultation organised by NSAs with stakeholders at national level was an important success factor for the preparation of Performance Plans. This being said, the lack of coordination between all NSA consultation meetings was evident and many stakeholder groups said that their group was insufficiently consulted during RP1, or that there was not enough time for consultation, or that their inputs have not (always) been taken into account.

3.2.13 Airlines noted that the calendar of NSA stakeholder consultations was not coordinated between States (several consultations took place on the same day), forcing individual airlines to miss key consultations, and dividing the airline community’s resources. Some suggested that the PRB should coordinate the consultation calendar in RP2.

3.2.14 Several stakeholders considered that the consultation on EU-wide targets should not take place during the summer, as was the case for RP1. This point has to be considered together with the update of the Performance scheme implementation schedule, in particular, when States have to provide their inputs.

3.2.15 Finally, several stakeholders considered that the consultation of States during the precise definition of safety indicators for RP1 had been only minimal (through the E3 group) and requested the EC to ensure that States remain closely in the loop.

**Clarity and stability**

3.2.16 The PRB noted recurring comments about the lack of clear definitions in several areas, in particular Safety.

3.2.17 The reasoning and analysis behind national and FAB reference values for capacity was not always understood. An effort should be made to better communicate this. Some stakeholders considered that these reference values should take more account of local circumstances and performance needs.

3.2.18 Stability is also important. The priority should be to strengthen the implementation of the performance scheme work in RP2 rather than exploring completely new avenues.

3.2.19 The assessment criteria which will be used by the PRB should be clearly known and precisely communicated before the start of the preparation of Performance Plans.

3.2.20 In particular, the update of Service unit forecasts in February and May 2011 caused problems during the preparation of Performance Plan (for example, with Stakeholder consultation). However, other stakeholders were concerned about the use of “outdated” forecasts when it is already known that traffic develops differently, prior to national/FAB target setting.

3.2.21 The late specification of missing parts (in particular in the area of safety) hampered the Performance Plan planning.

**Guidance material and PRB support**

3.2.22 Stakeholders appreciated the guidance material prepared by the PRB, the interaction with the NCP Performance WG, bilateral contacts with the PRB/PRU, the website; and in general the professionalism and accessibility of the PRB/PRU.
3.2.23 However the status of the guidance material could be improved by presenting and discussing it at the Single Sky Committee.

3.2.24 The structure of Performance Plans could be more standardised, in both content and format. Plans should be shorter, contain less free-text and more tables, except for the narrative of the particular circumstances and justifications.

3.2.25 One stakeholder considered that the Performance Plans should be complementary to LSSIP (appropriate fit and no duplication, some LSSIP material transferred to Performance Plans).

3.2.26 Some Stakeholders remarked that the two FAB Performance Plans were mainly a sum of parts (i.e. sum of each States inputs), rather than a real consolidated and coordinated FAB plan.

**NSA expertise**

3.2.27 Notwithstanding different levels of expertise, all States managed to deliver their Performance Plan within the agreed deadlines. It appeared clearly that finding the correct balance between the autonomy of the ANSP and the oversight responsibility of the NSA was not easy for NSAs.

3.2.28 RP1 preparation generated a very high workload and some NSAs suffered from understaffing. This was identified as a significant risk factor. More support by the PRB would be needed in RP2 to make up for the lack of resource/expertise in some domains.

3.2.29 There were also some concerns expressed that, due to significant staff constraints and the constant development of new tasks for NSAs, the expertise might not be available when drafting the performance plans for RP2.

3.2.30 NSAs wish to stay informed of the initiatives and the discussions between the Network Manager and the ANSPs to improve capacity.

3.2.31 Cooperation and sharing of expertise within FABs was considered as a good way forward for RP2.

3.2.32 Some training should be organised by the PRB, notably on economic aspects. Moreover, since RP1 implied a steep learning curve, airspace users suggested that more stakeholder information meetings should be held ahead of the RP2 process in order to “train” any newcomers to the industry.

**Roles and responsibilities**

3.2.33 RP1 succeeded in fully engaging the NSAs in the Performance Plans’ preparation process. This created the necessary subsidiarity and is a solid foundation for the future.

3.2.34 Some stakeholders encouraged the PRB to fully utilise the performance regulatory capability of NSAs to analyse ANSP performance and strengthen their ability to set targets that are appropriate to local circumstances.

3.2.35 Some stakeholders have the perception that NSAs are not always truly independent (being influenced by the State and/or the ANSP).

3.2.36 The role of ANSPs was not always recognised; some feeling that there was insufficient involvement.

3.2.37 There was a suggestion that the role of FABs should be increased in RP2.

3.2.38 Another suggestion was that all stakeholders playing a role in the sector should be subject to the performance scheme (e.g. extending the scope from ANSPs and Network Manager to airports and airspace users).
3.2.39 Some stakeholders considered that the Commission should have the final say after the second loop (i.e. the EC Decision should be adopted through the advisory procedure).

**Key Performance Indicators**

3.2.40 Some considered that safety indicators are reactive to events and show little potential as leading indicators to identify risk or potential accidents. A “Total systems approach” was recommended for RP2.

3.2.41 New KPIs should be introduced only after a thorough development & consultation process and after having gained experience during a monitoring phase.

3.2.42 The development of airport indicators should be done carefully, taking account of the airport CDM KPIs.

3.2.43 There was a remark that some indicators (e.g. delay) contain factors (e.g. Weather) which are not under the control of those having to meet the target.

**Ambition of EU-wide targets**

3.2.44 There were contrasted views between stakeholders on the level of ambition of EU-wide targets: some considering the EU targets to be unrealistic and others as not challenging enough.

3.2.45 Similar diverging views emerged in relation to the use of policy objectives quoted in the ATM Master Plan and of US-Europe comparisons when preparing EU-wide targets.

3.2.46 Some stakeholders considered that efforts made prior to the reference period should be more recognised when adopting targets for RP2.

3.2.47 Others considered that the target setting was too much top-down and theoretical and that it should take more account of local factors.

**Interdependencies between KPAs**

3.2.48 Many stakeholders considered that interdependencies between different KPAs should be better recognised in RP2. This could be in the form of additional guidance material.

3.2.49 For some stakeholders, RP2 should focus more on Quality of Service compared to RP1, which was considered as more Cost-efficiency oriented.

3.2.50 Others considered that Safety, Environment and civil-military should be considered when assessing interdependencies between KPAs.

**Data quality, provision and dissemination**

3.2.51 Some stakeholders considered that financially incentivised targets required metrics which are much more robust than those used for general monitoring.

3.2.52 Airports noted that current airport data provision requirements were based on a threefold delivery of the same data by ANSPs, airports and airlines. They would expect that this would not be necessary any more in RP2 as CDM platforms should be able to provide a single source for harmonised data.

3.2.53 The rules for the dissemination of the data provided under Annex IV should be clearly defined.
3.3 **Suggestions for RP2**

3.3.1 The analysis of the lessons learnt from RP1 is a good way to improve the implementation of the Performance Scheme and to prepare for RP2. Key points to be considered for RP2 include:

- Careful definition of the scope of the Performance scheme.
- Improved timing and coordination of processes.
- Improved consultation processes both at National level on the performance plans and at EU level for EU-wide targets.
- Clarity and stability of KPIs, definitions and assessment criteria.
- Continue and improve guidance material and PRB support.
- Develop NSA expertise.
- Clarify roles and responsibilities of various stakeholders.
- Selection of new KPIs after thorough development and consultation process.
- Need to ensure that EU-wide targets are both ambitious and achievable.
- The length of the reference period.
- Interdependencies between KPAs.
- Ensure data quality, provision and dissemination.
4 Main objectives and scope for RP2

4.1 A full implementation of the performance scheme

4.1.1 The second SES package was launched in a context of growing delays, weak progress in cost-efficiency, increasing fuel prices and strong industry demand for a more efficient European aviation. The adoption of the legislative package by the European Parliament and the Council took place in a record time of nine months after the Commission’s proposal. All European institutions and the public opinion were indeed aware of the importance of the principles carried within the package.

4.1.2 The economic downturn of 2009 and 2010, the ash cloud crisis of April 2010 and the high delays notwithstanding traffic decreases added an even stronger sense of priority to the adoption and implementation of the SES II package and in particular its cornerstone, the performance scheme. Several Transport Councils and High Level Conferences (Madrid, Bruges, and Budapest) gave all stakeholders and political players opportunities to renew their commitment to an ambitious performance scheme, to be implemented in an accelerated way.

4.1.3 It is in this context that the performance Regulation No 691/2010 was adopted on 29th July 2010, allowing a concrete start of the performance scheme on 1 January 2012. The first reference period, acknowledged as being a transitional period of three years only, does not address the full gate-to-gate scope and does not have all the key performance indicators. It aimed at bringing early benefits to the industry, focussing on en route ANS, while enabling lessons to be learnt before the scope is extended in RP2.

4.1.4 The political intention and legal requirement is that the SES performance scheme is fully developed and implemented from RP2 onwards, with a gate-to-gate scope, and ANS performance targets in all four Key Performance Areas of Safety, Capacity, Environment and Cost-efficiency.

4.2 …Building on and consolidating achievements in RP1…

4.2.1 The EU-wide targets adopted for RP1 seek to ensure that en-route delays are reduced, that ANS-related emissions and real en-route charges are kept nearly constant while traffic grows. Simultaneously, applicable regulations and safety performance metrics will ensure that performance gains are not made at the expense of safety. This is illustrated in Figure 2 below.

![Figure 2: ANS-related costs and emissions over 2009-14](image-url)
4.2.2 RP2 should build on and consolidate the achievements in RP1.

4.3 **Linking with other SES tools and EC initiatives**

4.3.1 The review and revision of the performance Regulation should be done giving due consideration to the need to ensure consistency with and to complement other key instruments of the SES II package, including the Network Manager (Network Strategy Plan, etc), FABs that should foster a “FAB approach” to performance, and SESAR (European ATM Master Plan update, deployment governance and financing, etc). The full implementation of SES tools will provide additional opportunities for improvements of ANS performance.

4.3.2 The performance scheme should also be consistent with, complement and reinforce other related EC initiatives, such as the forthcoming Airport package.

4.4 **Taking a balanced approach, Delivering added value**

4.4.1 A key theme emerging from comments received from stakeholders is the need for a solid approach to interdependencies and trade-offs, e.g. between risks and opportunities, between capacity and charges, between capacity, delays, flight-efficiency and environmental impact.

4.4.2 Besides safety, the performance scheme has a bearing on some €12 billion per annum, i.e. some €60 billion over a 5-year reference period.

4.4.3 Figure 3 shows orders of magnitude of direct and indirect ANS-related costs, all of which are borne by airspace users in Europe. The direct costs are incurred through ANS charges (en route and terminal) and the indirect costs consist in the cost of ATFM delays and flight inefficiencies.

4.4.4 Putting too much pressure on one area may well generate losses in other areas, which exceed the expected gains.

4.4.5 A key success factor for the performance scheme could be to minimise the total ANS-related costs while ensuring appropriate levels of safety.

![Figure 3: Orders of magnitude of yearly ANS-related costs in Europe](image-url)
4.5 Guiding principles for RP2

4.5.1 The PRB plans to apply a number of guiding principles for developing its proposals as well as on the selection of indicators. These are summarised below:

<table>
<thead>
<tr>
<th>Guiding Principle</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Credibility</td>
<td>The proposal is based on evidence and robust analysis</td>
</tr>
<tr>
<td>Transparency</td>
<td>Stakeholders are consulted all the way (from regulatory approach to drafting of the implementing rule) in a transparent manner, following EU consultation standards</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>The approach will seek to ensure regulatory certainty, drive the right behaviours, target the accountable entities</td>
</tr>
<tr>
<td>Proportionality</td>
<td>In developing its proposals, the PRB will seek to ensure that the costs are in proportion to potential benefits/added value</td>
</tr>
<tr>
<td>Subsidiarity</td>
<td>The PRB proposals will seek to allocate accountabilities for performance at the most appropriate level (EU, FAB/ national).</td>
</tr>
<tr>
<td>Feasibility/Administrative burden</td>
<td>The PRB will consider feasibility and administrative burden on all stakeholders (including the Commission)</td>
</tr>
</tbody>
</table>
5 Safety

5.1 Introduction

5.1.1 The Performance Regulation (EU) No 691/2010 establishes a new mechanism to improve safety performance of NSAs, ANSPs and network functions through target setting and continuous monitoring at national/FAB and EU-wide level.

5.1.2 The performance scheme complements EASA’s obligations to monitor the application of safety regulations through standardisation inspections under European Regulation 216/2008 (the Basic Regulation). Under this new approach, the Commission, PRB, EASA and all participating Member States will closely cooperate with ICAO’s Continuous Monitoring Approach (CMA) towards enhanced air transport safety.

5.1.3 This chapter provides a brief description of the current regulatory framework including RP1 safety performance indicators, and initial views on safety in RP2 including strategic direction, objectives, requirements and the general approach for the development of Safety Key Performance Indicators (KPIs) and target setting.

5.2 Current position: RP1

5.2.1 Currently Regulation (EU) No 691/2010 and its amendment define three KPIs that should be monitored at both European and national/FAB levels and used for the safety performance assessment during RP1:

- the Effectiveness of Safety Management (EoSM) for air navigation services providers (ANSPs) and national supervisory authorities (NSAs), as measured by a methodology based on the ATM Safety Framework Maturity Survey (SFMS),
- the application of the severity classification based on the Risk Analysis Tool methodology to the reporting of, as a minimum, Separation Minima Infringements, Runway Incursions and ATM-specific occurrences at all Air Traffic Control Centres and at airports. Member states may decide not to apply the methods for airports with less than 50 000 commercial air transport movements per year, and
- the reporting by Member States and their air navigation providers, through a questionnaire, which measures the level of presence and corresponding level of absence of Just Culture (JC).

5.2.2 The metrics for these KPIs were developed jointly by the Commission (assisted by the PRB), the Member States, EASA and EUROCONTROL and shall be adopted by the Commission prior to the first reference period, i.e. before end 2011.

Effectiveness of safety management KPI

5.2.3 The EoSM KPI is designed to measure on State level the capability of the States to manage their SSP and on Service Provision level, Service Provider’s capability to manage an effective SMS. Starting point is the ICAO State Safety Programme (SSP) and Safety Management System (SMS) framework while additional components and elements have been added to better reflect the European context.

Severity classification of risks KPI

5.2.4 The application of the RAT severity classification methodology KPI is designed to support and allow harmonised reporting of the severity classification of occurrences. The way to implement the RAT methodology is left up to States.
**Reporting of just culture KPI**

5.2.5 The Just Culture KPI aims at measuring the level of presence and the corresponding level of absence of Just Culture at State level and at ANSP level. The Just Culture KPI is defined through three main areas: policy and implementation, legal/judiciary, and occurrence reporting.

**What is expected at the end of RP1**

5.2.6 Based on the current regulatory proposal in place and the three safety performance indicators, it is expected that by the end of RP1 Europe will benefit from an improved and harmonized reporting in the ANS/ATM and for the first time initial safety picture (with regards to safety performance) at the EU level will be available. In addition, mature monitoring and measurement of the three RP1 indicators will be in place.

5.2.7 It is expected that States will advance with the implementation of their SSPs, which shall provide a fundamental basis for further safety improvements.

**5.3 Opportunities in RP2**

**Strategic direction**

5.3.1 Article 1 of the Framework regulation (EC) No 549/2004 defines SES objectives in qualitative terms: “The objective of the single European sky initiative is to enhance current air traffic safety standards, to contribute to the sustainable development of the air transport system and to improve the overall performance of ATM and ANS for general air traffic in Europe, with a view to meeting the requirements of all airspace users”.

5.3.2 The policy objective for ANS safety defined in the ECAC ATM Strategy for the Years 2000+ (ATM 2000+ Strategy) remains relevant. It is “To improve safety levels by ensuring that the number of ATM induced accidents and serious, or risk bearing, incidents do not increase and, where possible decrease”. This means that preventive actions must be taken to ensure that ATM safety in the ECAC area is enhanced. Moreover, the safety objective in the ATM Master Plan is to “improve the safety performance by a factor of 10”, when traffic has increased 3-fold.

5.3.3 Considering both high level objectives, the strategic direction for safety in RP2 should be maintaining and improving safety levels while traffic is increasing. However it is important to note that this high level statement might be updated based on the output of the Communication from the Commission to the Council and the European Parliament on Setting up an Aviation Safety Management System for Europe, which should be published before the end of this year.

**Proposed objectives**

5.3.4 It became evident in the recent years that these very high European aviation safety objectives can be only achieved by establishing a reliable, robust, sound and standardised common reference baseline, at both national/FAB and EU level, for safety monitoring, reporting, and assessment. Therefore, if the main safety objective of RP1 was to improve and harmonize reporting across Europe, the logical step in RP2 is the improvement of risk management. In other words, the RP2 Safety KPIs and their targets should be able to build on RP1 KPIs by improving the management of safety risk.

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**RP2 Safety objective should be improving of safety risk management.**

13
What should be achieved in RP2?

5.3.5 The overreaching safety ambition of RP2 should be to create a framework that takes into account the needs and challenges of ultra complex and safe systems, while allowing an improvement of ATM safety at the macro level. This can be achieved with introduction of the following:

- improved lagging indicators (to improve the assessment of existing risk),
- a set of leading indicators (to highlight areas where future actions might need to be taken), and
- a high-level systemic approach to measure the tension between the other performance areas and safety at the national/FAB level.

5.3.6 Ultimately the introduction of the above should lead to harmonised and effective safety risk management across Europe.

5.3.7 The SES performance scheme builds on the ICAO SSP. National SSPs should include safety performance indicators capable of measuring identified safety risks and setting corresponding risk mitigation measures and targets. These SSPs will be consolidated into successive European Aviation Safety Plans under the European Aviation Safety Programme (EASP). Therefore, development of Safety KPIs for RP2 should take into account the three tier level approach described in the EASP as well as ICAO SSP/SMS principles and accommodate the need to mitigate key safety risks.

5.3.8 A common and harmonised European methodology for development of safety performance indicators and corresponding targets on State level (taking into account EU-wide performance targets) is needed. Accordingly, the PRB made a recommendation to the European Commission in their Performance Plan Assessment Report that the European Commission invites EASA to develop, with the support of EUROCONTROL as appropriate, an acceptable means of compliance for this programme to be deployed prior to the second reference period.

How to continue with the RP1 KPIs?

5.3.9 The expectation is that the application of three safety performance indicators during RP1 will improve and harmonize reporting across Europe. Nevertheless, the level of poor harmonization of the safety data reporting that characterizes the present situation indicates that this effort will need to be continued in RP2.

5.3.10 Indeed, the level of implementation of SSP/SMS significantly differs from one State/Service Provider to another. In addition, currently the monitoring of safety data sources in ANS/ATM is not systematic and the available data sources are not fully utilised in a coherent way. This all ultimately leads to a limited safety data quality on European level. Hence, the ambition should be to continue with a strong harmonization of the safety data reporting process between the different entities.

5.3.11 It is evident that regardless of the development of RP2 performance indicators, RP1 Safety KPIs should further developed and be kept as complementary items and be reported based on self-assessment followed by subsequent verification. The emphasis in RP2 should be to influence all entities to report, classify and investigate more efficiently than today in a rapid and open way.

1 Assessment of National / FAB Performance Plans with Performance Targets for the period 2012-2014, 20th September 2011
**RP1 KPIs should be further developed and kept as complementary items in RP2.**

**What performance to improve?**

5.3.12 As mentioned previously, based on the current level of SSP/SMS implementation across Europe there is room for improvement in safety performance in every entity. Therefore, RP2 should aim to improve safety performance levels of all entities not just the weakest performers. Understandably, few entities that already have a relatively high level of safety performance will not improve very much in absolute terms. Hence, initially it would be more efficient to focus on the weakest performers as they are the weakest link in the chain. Nevertheless, achieving a minimum by all is a goal as the overall result is important, not the micro approach.

**RP2 should aim to improve safety performance levels of all entities not just the weakest performers.**

**RP2 Safety performance indicators - ideas and development**

5.3.13 Setting RP2 safety performance indicators proves to be a very challenging task as these indicators should have applicability in the future and be designed to measure and drive performance improvement in technical and business environments that are not yet fully known. An additional problem lies in the fact that even though the implementation of the Safety KPIs in RP1 will help to collect basic data on ANS/ATM performance, and hence inform on the feasibility and future requirements for development of new and improved KPIs for implementation in RP2, it is impossible to rely on RP1 experiences and lessons learnt, as the required timescales for delivering RP2 indicators do not allow for that (end of 2011).

5.3.14 The proposed safety performance measures in RP1 (based on the need to establish basic SMS within the Member States and ensure that the culture of reporting is present) were necessary to evolve safety reporting from its current state and to deliver a process by which safety performance indicators and targets can be set objectively and quantitatively.

5.3.15 Nevertheless, the intentions and purpose of the Safety KPIs in RP1 were appropriate for implementation in the context of EU-wide ANS/ATM environment prevailing in RP1. However they are not able to express risk based measures or to deliver outcome oriented attributes. Hence, essential work to refine current and develop new Safety KPIs for RP2 must ensure that ‘real outcomes’ which are derived from input and action taken by NSAs, ANSPs, and rules and regulations in respect of safety performance, capability and culture can be detected and measured.

5.3.16 It is fundamental that the real risks in ANS/ATM are identified comprehensively and fully addressed by Safety KPIs in RP2. However, RP1 Safety KPIs are very reactive to events and they show very little potential as leading indicators or precursors to identifying safety risk or potential accidents and incidents.

5.3.17 To successfully close the risk management loop, it is very important that the process, from the time the safety issue is identified and reported through to its closure, including corresponding actions taken and the results, is documented. An effective method and measurement that will provide evidence that the areas being reviewed have been addressed and safety issues have been resolved is necessary in RP2.

5.3.18 The following figure (4) describes a safety framework for the development of performance indicators and targets for RP2 that allows the considerations above to be addressed. At the top there is a high level safety objective / strategic safety direction for RP2. The aim is to increase safety levels. In order to achieve that specific objective, it is necessary to improve not just the risk management but also
the system of safety assurance. This should ultimately allow that safety performance monitoring and measurement (including verification of safety performance and validation of effectiveness of controls which are in place) as well as management of change are working properly.

![Diagram](image)

**Figure 4: Development framework for RP2 Safety KPIs**

5.3.19 Based on PRB input and the Stakeholders’ responses to the SES Questionnaire about RP2, three risk management/safety assurance areas/levels, with a high potential for improvement in RP2 were identified. These are:

1. Improvement of data reporting (addressing the issue of under-reporting),
2. Quality of reports and quality of analysis (addressing issues of common taxonomy, identification of causal factors during report analysis, etc), and
3. Development, implementation and effectiveness of action plans (addressing effective application of corrective/mitigation measures and controls to address key risk areas).

5.3.20 Safety occurrences in ANS/ATM system happen every day. Entities (States, NSAs, and ANSPs) have a task to collect and report, analyse, and propose necessary mitigations. Safety data can be gathered through all available data sources from both voluntary and mandatory (e.g. the investigation of accidents and serious incidents as per Regulation (EU) No 996/2010) reporting processes, including systems for automatic monitoring. However, as mentioned previously, further work to improve reporting and quality of reporting is necessary. Hence, the area where behaviour can be influenced in the future lies within data/information collection and reporting, and assuring that the quality of reports is improved and harmonised, such as use of common taxonomy and causal factors.

5.3.21 Gathered safety data, even with the improved quality, does not provide instant improvement in risk management without quality analysis. Therefore, the quality of investigation/analysis that follows should be improved and possibly harmonized at EU-level. That should ultimately allow organisations to identify key risk areas (through risk assessment), and the possibility to set (new or improved) lagging indicators that are based on occurrences. Furthermore, risk analysis of both the severity and causes of safety occurrences will allow identification of causal factors

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2 Note that risk analysis can be done for the current ANS/ATM system, as well as for changes and future systems, allowing the process to be proactive.
and effectiveness of current risk barriers (mitigations). Both can be potentially identified as leading indicators that should tell where things are most likely to go wrong before they actually go wrong.

5.3.22 Based on the set of both lagging and leading indicators and the identified key risk areas, actions required to mitigate identified risks will be defined. However, development of the Action Plan itself does not assure improvement of safety levels without proper implementation that is effective. Hence, measures of effectiveness of application of corrective/mitigation measures to address key risk areas are needed.

**RP2 performance targets - ideas and development**

5.3.23 A revised Performance Regulation defining KPIs for safety targets in RP2 will need to be adopted early in 2013, so that EU-wide targets can be proposed by September 2013.

5.3.24 The safety data collection and the KPI validation process will start as soon as possible and be concluded by end of 2012 to allow the Commission, States, EASA and the PRB to gain experience in safety KPIs, with a view to target setting for RP2.

5.3.25 To guarantee that safety continues to be the overall priority in the ANS/ATM service provision, the Safety targets for RP2 should be ambitious. RP2 must include solid and measurable (not based on self-assessment or expert opinion) safety targets to maintain credibility of the SES performance framework. Nevertheless, the interrelatedness of KPAs needs to be considered especially in relation to the safety KPA.

**RP2 must include solid and measurable safety targets.**

**Open questions**

5.3.26 Open issues/questions:

- Are the three risk management / safety assurance areas/levels introduced in section 5.3.19 the most relevant areas where performance indicators shall be developed for RP2?
- What additional behaviour should be influenced?
- What is the NSA and ANSP experience with “rare normal events” and “non-predictable events” leading into the question whether resilience should be addressed during RP2?
- In what form should safety targets be set for RP2?

**Summary**

5.4 The following is a list of (potential) issues to be addressed with regards to safety in RP2, associated objectives, and further actions.

- Three safety KPIs that will be monitored from 2012 onwards, at both European and national/FAB levels, will improve and harmonize reporting across Europe, and should prepare the ground for target setting in RP2.
- Monitoring of RP1 Safety KPIs will provide initial views of ANS/ATM safety across Europe. However, additional work on safety metrics for RP1 Safety KPIs should be done, investigating a possibility to avoid self-assessment concepts and qualitative assessment. Furthermore, the possibility for an improved assessment of EoSM and JC should be examined.
• ATM/ANS safety performance targets at both European and national/FAB level should be adopted for RP2 and should apply from 2015 onwards.

• One shortcoming of previous safety programs and initiatives (e.g. just culture and SMS) is the lack of opportunity to provide objective measures of safety. The contribution of existing safety programs and changes to the air transport system to risk reduction is difficult to assess objectively or quantifiably. RP2 Safety KPIs should provide objective measures of safety.

• A proactive approach to safety should be taken in RP2 to identify key risks areas, causal factors and the effectiveness of current barriers of the ANS/ATM system.

• The Safety KPIs to be developed for RP2 must be sensitive to, and clearly indicate, the influence from actions taken to address other KPAs in the SES Performance scheme. The new KPIs should be able to account for the tension between the other performance areas and safety.

• Development of Safety KPIs for RP2 should take into account both the three tier level approach described in EASP and EASp as well as the relevant ICAO context.

• Interrelatedness of KPAs needs to be considered especially in relation to the safety KPA.
6 Environment

6.1 Problem statement

6.1.1 The environmental impact of aviation is primarily related to CO₂ emissions (closely related to fuel efficiency) as well as local noise and air quality.

6.1.2 Emissions from aviation contribute to 3.5% of total CO₂ emissions in Europe. CO₂ emissions are considered to be an important contributor to Green House Gas (GHG) with the largest cumulative impact on climate.

6.1.3 In context, Air Navigation Services contribute to only 6% of the 3.5% aviation part of the total European CO₂ emissions. Additional en-route distance is considered to be the main contributor to the additional emission followed by additional time in the Terminal area (ASMA), in taxiing and finally vertical flight inefficiencies.

6.1.4 Although aviation makes a modest contribution to Local Air Quality (LAQ), particularly for NOx emissions in the vicinity of airports, this may contribute to legal limits being exceeded at some airports when combined with emissions from road traffic in the vicinity.

6.1.5 ANS contributions to reduction in LAQ are limited to management of taxi times and arrival and departure procedure design.

6.1.6 Aircraft noise at airports is a challenging social issue that requires a balanced strategy to reduce noise exposure to inhabitants living and working in the vicinity of an airport. It is estimated that some 2.5 million people are exposed to noise from 71 major European airports.

6.1.7 Noise and local air quality are delicate subjects which are subject to trade off between CO₂, cost and quality of service whilst ensuring safety.

6.2 Current Position

6.2.1 Annex I of the Performance Regulation specifies three EU-wide KPIs for Environment:

- average horizontal en-route flight efficiency;
- effective use of civil/military airspace structures (not subject to target-setting in RP1)
- a third KPI to be defined and applied from RP2 addressing specific Airport ANS-related environment issues.

6.2.2 In preparation for measuring the effective use of civil/military airspace KPI, two new indicators will be monitored:

- the extent to which reserved airspace is actually used when booked;
- the extent to which CDRs are used by flights that could have used them.

6.2.3 Two additional capacity indicators have to be monitored from RP1 at specified airports, which are also relevant for Environment:

- Additional time in the taxi out phase, and
- Additional time for ASMA (Arrival Sequencing and Metering Area)

6.2.4 The Performance Regulation currently does not address noise or LAQ. However, noise is addressed by other legislation.
6.3 RP2 Opportunity - CO₂

Proposed Objectives

6.3.1 Reduce Air Navigation Services related CO₂ emissions through flight efficiency improvements both in the air and on the ground.

What should be achieved in RP2?

Continue to drive improvement in en-route flight efficiency

6.3.2 Extension of Free-route and FAB related airspace design and enhanced utilisation of civil/military airspace structures should drive further horizontal flight efficiency improvement. This could include enhancements to:

- En-route airspace design through improvements to the European route network including the implementation of additional CDRs and extension of free routes;
- Airspace utilisation and network availability including support to aircraft operators to improve flight plans and the civil/military use of airspace.

Reduce additional fuel burn in the arrival phase.

6.3.3 Additional fuel burn in the arrival phase constitutes the 2nd largest source of flight inefficiency.

6.3.4 Whilst some in-flight airborne delay is necessary to achieve a high runway utilisation at major airports, improvements may be realised through better strategic and tactical management of arrival traffic flows and airspace design improvements.

Improve taxi-out time

6.3.5 Collaborative action between stakeholders and a clear identification of who is accountable and mitigation concerning “uncontrollable elements” such as severe weather can drive performance improvements at the gate, on the apron and taxiways.

6.3.6 To maintain “take off” pressure on the runway, some holding of aircraft is necessary, inducing additional taxi out time. As it is better for the environment not to have additional “taxi out” time, there is a real trade off opportunity that can be best managed through Collaborative Decision Making.

6.3.7 Stakeholder feedback suggested that “Taxi In” be included. Additional taxi in time may be a result of airport apron/gate congestion and this is a local issue depending on individual airport configuration.

A coherent gate to gate view

6.3.8 A gate to gate measure integrating both horizontal and vertical flight efficiency components across all phases of flight and taxi times between off-block and in-block will provide a coherent understanding of performance related actions focused on CO₂ emission reduction.

RP2 performance – ideas and development

6.3.9 The indicators already defined in the performance scheme (below) appear to be suitable flight efficiency measures:

- En-route horizontal extensions based on aircraft actual flown trajectory;
- Additional time in terminal airspace (ASMA additional time);
- Effective use of civil military airspace, and
- Additional taxi out time.
ASMA and taxi out are most likely only significant in congested/coordinated airports and the optimum values are probably dependent on the airport concerned.

6.3.10 Additional indicators were suggested by stakeholders:
- Vertical component of flight efficiency (although closely linked with the additional time in the terminal airspace);
- Number of airports with Continuous Descent Operations available;
- Wind optimised routing, and
- Additional taxi-in time.

6.3.11 In view of the lower level of maturity of flight efficiency performance of ANS at airports and of the importance of the local context, the value of a top down approach at airports requires further discussion. The regulatory approach will need to consider carefully at which level targets should be set, e.g. EU-wide, FAB/National and how should such targets be cascaded down to individual airports?

6.4 RP2 Opportunity – Noise and Local Air Quality

Proposed Objectives

6.4.1 Collect, consolidate and monitor key aspects of noise in and around the vicinity of airports with a view to defining KPI(s) in the third reference period.

Noise – Sufficiently mature for inclusion in RP2?

6.4.2 Given the relatively low impact of ANS on noise and the fact that noise is covered by other regulations, it may be appropriate to ask the question: “what added value can the Performance Scheme bring?”

6.4.3 Noise is a complex and emotive subject based on a delicate relationship between airports and local communities. As such, the ability to have hard data to remove emotion and support dialogue is important.

6.4.4 Furthermore, noise is related to population distribution in an airport’s vicinity, the complexity of the airport and associated airspace configurations, geographical location and associated land based transport infrastructure. There would not appear to be any obvious simple indicators to drive ANS performance.

6.4.5 Aviation noise has a wider scope than ATM. The ICAO “balanced approach” to noise management introduced four pillars:
- Reduction at source (certification standards);
- Land-use planning and restrictions (residential development within noise contours);
- operational procedures (preferred runway and noise routes), and
- Operating restrictions (night curfews and denial of access to marginally compliant aircraft).

6.4.6 There are a number of European legal instruments currently in force or in preparation:
- EC2002/30 covers consultation and assessment before operating restrictions are implemented;
- EC2002/49 which addresses the assessment and management of environmental noise across all transport modes;
• the future airport package will cover environment at and around airports and may focus initially on updating EC2002/30.

6.4.7 It is important that the performance scheme remains consistent with, complements and does not duplicate the instruments listed above.

**Managing Local Air Quality**

6.4.8 The opportunity to reduce the impact of ANS-related emissions on Local air quality is limited to reducing the time spent manoeuvring on the airport surface and optimisation of arrival and departure procedures.

6.4.9 However, this will involve a complex trade off between safety, noise, flight efficiency and associated costs.

**Approach to performance targets – ideas and development**

6.4.10 Should the approach be to develop a better understanding of noise during RP2 with a view to possible performance targets in RP3?

6.4.11 Some options could include assessing existing noise abatement measures, e.g.:

• Size of the noise contour and of the population impacted by Noise;
• Application of procedures for example, measuring the number of excursions from standard arrival and departure procedures (SID and STAR) and noise abatement procedures, and
• Impact of noise constraints on other Performance areas (flight efficiency, CO₂ emission, LAQ).

6.4.12 Would a qualitative noise maturity survey, building on Collaborative Environment Management (CEM), enhance knowledge-capture?

6.4.13 The level at which the regulatory approach should focus: EU, National or Local. Is this a case for subsidiarity?
7 Capacity

7.1 Problem statement

7.1.1 According to PRR 2010, en-route ATFM delay (~50% of ATM delay) and congestion at main airports are key factors to be addressed in order to improve the overall aviation network performance. This is valid notwithstanding: (i) the traffic downturn in 2009 and (ii) capping of demand through the airport co-ordination process.

Distribution of average daily ATFM delays by cause of delay ('000 min.)

![Distribution of average daily ATFM delays by cause of delay](image)

Source: EUROCONTROL CEFMU

Figure 5: Distribution of average daily ATFM delays by cause of delay

7.1.2 En-route delays are driven almost entirely by ATC capacity, airspace design and staffing-related constraints which are primarily planning issues. Although delivery of capacity is increasing every year it is generally lagging behind demand. These are key points that should be addressed by ANSPs in RP2, as already is the case in RP1.

7.1.3 Airport related delays are multifaceted with different stakeholders interacting in a complex operational environment which can be severely impacted by weather. Furthermore, airport capacity is limited by infrastructure and environmental factors.

7.1.4 At congested airports where there is a permanent imbalance of capacity and demand, demand is coordinated, meaning schedules are constrained to preserve a level of quality of service. The quality of service is rarely explicit (although in the UK it is quantified in terms of minutes of delay) and is a trade off between scheduling intensity and delay.

7.1.5 A quantifiable performance-based approach based on explicit performance targets would be a first step to derive additional benefit from the coordination process.

7.1.6 The complex airport operating environments require collaborative action between stakeholders and a clear identification of who is accountable and what are the “uncontrollable elements” such as severe weather.
7.1.7 ANS contribution to increasing airport capacity exists, but it is limited. However identification of delay causes and accountability will provide focus for improvement.

7.2 Current Position

7.2.1 For RP1, the performance scheme specified an EU-wide capacity KPI in minutes of en-route ATFM delay per flight for a whole calendar year.

7.2.2 Additional indicators have been identified for monitoring in RP1, and will form the basis for developing a second EU-wide capacity indicator addressing specific airport ANS-related capacity issues from RP2 onwards:

- the total of ATFM delays attributable to terminal and airport ANS;
- the additional time in the taxi out phase, and;
- for selected airports, the additional time for ASMA (Arrival Sequencing and Metering Area)

The latter two indicators are also relevant for environment and flight efficiency.

Figure 6: ANS related airport efficiency areas

7.3 RP2 Opportunity - En-Route

Proposed Objective

<table>
<thead>
<tr>
<th>DEVELOPMENTS (outbound)</th>
<th>ARRIVALS (inbound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-departure delays (at gate)</td>
<td>Upstream ATFM delays (at gate)</td>
</tr>
<tr>
<td>Additional time in the taxi-out phase (ground)</td>
<td>Additional time within the ASMA (airborne)</td>
</tr>
</tbody>
</table>

What should be achieved in RP2?

Pursue the efforts initiated during RPI

7.3.1 Effort will need to continue through RP1 and RP2 to ensure that delivery of future capacity is ahead of demand. The Network Manager and FABs together with airspace design could be tools to support this goal.

Mitigate the impact of bad weather and exceptional events

7.3.2 Although weather delay represents a small proportion of the en-route delay, this proportion can be different from one year to another and it can have a significant influence on performance. Its impact has been relatively significant in recent years.

7.3.3 ANSPs have a responsibility for effective management and mitigation of adverse weather situations.

RP2 performance – ideas and development

7.3.4 In view of stakeholders’ comments, it is proposed to retain the current EU-wide capacity KPI for en-route, expressed in minutes of en-route ATFM delay per flight per calendar year.

7.3.5 The Network Manager is deemed to be best placed to continue providing the reference values.
7.3.6 The capacity target for RP1 included all causes of delay, including weather-specific disruptive events. “Non attributable” causes need to be identified and taken into account when assessing their impact on performance. Should “adverse weather” and “non-nominal events” be treated differently in RP2?

7.3.7 Stakeholder consultation identified incentives as an option to achieve performance targets although there was a wide range of views. Nevertheless, the treatment of accountability and delay causes such as adverse weather would have to be considered.

7.4 RP2 Opportunity - Airport

Proposed Objective

| Optimise airport throughput, given the available infrastructure, weather conditions and traffic mix. |

What should be achieved in RP2?

Stimulate development of airport throughput?

7.4.1 There is an opportunity to deliver airport throughput improvements, even if limited, from future SESAR capabilities that address runway throughput, airport surface management and stakeholder collaboration processes.

Explicit and measurable performance?

7.4.2 At a coordinated airport, under nominal conditions, there should be no significant ATFM delay. When demand exceeds capacity, the slot coordination process should ensure a balance is kept between scheduling intensity, capacity and the cost of delay. The performance criteria used in determining the allocation of slots are, in general, not explicit.

7.4.3 The ANS challenge is to maximise the use of available airport capacity, whilst mitigating the impact of adverse weather and non-nominal situations.

Foster a collaborative approach to performance?

7.4.4 Collaboration between airport stakeholders has provided quantifiable performance benefits in airport surface flight efficiency and sustaining capacity at a number of major European airports.

A Gate to Gate performance?

7.4.5 The introduction of Network Management and FABs together with the airport coordination process, amongst others, provides an opportunity to take a gate to gate view of performance at major European airports. This should be considered in a coherent approach including the proposed European airport package which will be known before the end of 2011 and will address slot allocation.

7.4.6 A gate to gate approach should consider off-block and in-block punctuality. Measuring turn-around, as proposed by some stakeholders, is more complex because Airport Operators and ground handlers are significantly involved.
RP2 performance – ideas and development

7.4.7 The Performance Regulation contains 3 PIs that address ANS capacity at airports (see §7.2.2):
- Total ATFM delays attributable to terminal and airport ANS;
- The additional time for ASMA (Arrival Sequencing and Metering Area), and
- Taxi Out.

The last two indicators are perhaps more relevant to flight efficiency and environment performance.

7.4.8 The stakeholder consultation suggested additional measures such as:
- Runway throughput at peak time and/or declared capacity;
- Taxi-in time (an indicator of apron/gate congestion), and
- Adherence to ATFM slots (an airline performance indicator).

7.4.9 As already said, the complexity of airport operations, stakeholder interactions, weather, infrastructure and environmental factors present a challenge to driving ANS performance. Furthermore, accountability and distribution of delay causes are not clearly allocated.

7.4.10 Many questions remain open and require a clear response to be able to build the RP2 proposal, including:
- The benefits of future capacity capabilities proposed by SESAR are not yet quantified. Will they be available in time for RP2 target-setting (2013)?
- Should the performance scheme focus on coordinated Airports? Trade-offs between different KPAs is significant at coordinated airports.
- Would explicit and measurable performance targets derive additional performance benefit from the slot coordination process and drive collaborative behaviour?
- Is there a need for an EU-wide gate to gate performance measure to deliver additional performance benefit, or is it a case for subsidiarity?
- Should A-CDM be fostered for coordinated airports, or imposed?
- Which indicator is the most significant to measure airport quality of service: average annual delay, average annual delay in peak hours, % of flights delayed by more than 15mins…?
- Should financial incentives be considered in RP2?
- Should the performance scheme address the allocation of delay responsibilities?
- Should weather and non-nominal events be excluded from target-setting?

7.4.11 The link with the upcoming airport package needs to be considered.
8 Cost-efficiency

8.1 Context and problem definition for the ANS Cost-Efficiency KPA

8.1.1 Commission Regulation (EC) No 1794/2006 of 6 December 2006 laying down a common charging scheme for air navigation services (the Charging Scheme Regulation) is in force since 1.1.2010.

8.1.2 Commission Regulation (EU) No 691/2010, laying down a performance scheme for air navigation services and network functions (the Performance Scheme Regulation) is in force since 1.1.2011.

8.1.3 The Cost-efficiency KPA is distinctive from other KPAs in the SES Performance Scheme in particular because its regulatory requirements and those of the charging scheme regulation are very much interwoven. This has a number of implications that adds complexity in the establishment, collection and monitoring of cost-efficiency performance indicators (PI/KPI) since the underlying data flows and related reporting requirements are dependent on the regulatory provisions in the charging scheme regulation. In addition, there are two pieces of related primary legislation, providing in general wider potential for legal and regulatory discrepancies (some of which are identified in this paper).

8.1.4 Another important element to bear in mind from the outset is that there is a significant difference between airports where ANS operational performance indicators apply (81 airports) and where terminal ANS cost-efficiency indicators apply (200+ airports, of which some major airports are excluded from target setting). Therefore, the capacity/quality of service performance indicators for ANS at airports do not match the terminal ANS cost-efficiency performance indicators. This is important to remember for future discussions on interdependencies.

8.1.5 Terminal ANS costs represent almost 20% of total gate-to-gate costs, covering the cost of services provided to traffic taking off and landing at more than 200 airports in the EU-27 States plus Norway and Switzerland (EU-29).

Figure 7: Total gate-to-gate ANS cost and charges, EU-29 average

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8.1.6 An estimated 5% of all gate-to-gate ANS costs are outside the scope of the terminal ANS cost-efficiency target setting: some of these airports fall below the threshold of the Regulation or are exempted under the “contestability argument”, mostly in the UK (14 UK airports are above the 50 000 commercial air transport movements threshold and are filing for exemption after assessment).

<table>
<thead>
<tr>
<th>En-route ANS costs and unit rates</th>
<th>Terminal ANS costs and unit rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% costs (EU average)</td>
<td>20% costs (EU average) – of which 15% fall under the scope of potential performance targets</td>
</tr>
<tr>
<td>Common formula for 40 years</td>
<td>No common formula (due by 2015)</td>
</tr>
<tr>
<td>Harmonised principles / comparable data</td>
<td>Data comparability is weak</td>
</tr>
<tr>
<td>EU-wide average is computed</td>
<td>No EU-wide average can be directly computed</td>
</tr>
<tr>
<td>Full geographical coverage</td>
<td>Partial geographical coverage</td>
</tr>
<tr>
<td>39 EUROCONTROL States (incl. EU)</td>
<td>Not all EU-wide and partial data reporting</td>
</tr>
<tr>
<td>Long time data series, collected, validated, analysed</td>
<td>Data collection just started</td>
</tr>
<tr>
<td></td>
<td>(data quality issue)</td>
</tr>
<tr>
<td>12 years of benchmarking experience and direct control of data flows for en-route ATM/CNS</td>
<td>Benchmarking is about to start</td>
</tr>
<tr>
<td>39 States (including EU)</td>
<td>29 States; 31 Terminal Charging Zones and close to 220 airports</td>
</tr>
</tbody>
</table>

Table 2: Comparison of En-route and Terminal ANS costs and charges features

What is the political context of the regulatory proposal? How does this relate to past and other EU initiatives/policies?

8.1.7 Operations at and around airports are more and more focusing the attention of policy makers at national and EU levels. This reflects concern that future demand growth might not be accommodated due to scarcity of ground (airport) infrastructure which in turn requires more effective use of existing capacity. For this purpose, the Commission intends to launch an “Airport Package”.

8.1.8 It is important to distinguish between Terminal Navigation Charges (“TNC”) and “Airport charges”. Airport charges typically include landing charges, passenger charges, cargo charges, parking and hangar charges, security charges, noise charges… and are covered by Directive 2009/12/EC. Airport charges represent some €15 billion/year compared to some €1.5 billion/year for TNC.

8.1.9 Regulation (EU) No 691/2010 envisages the extension of the ANS performance scheme to airport ANS to ensure a genuine gate-to-gate ANS performance review system (airport ANS operational/capacity KPIs are being worked out for some 81 airports covering all EU-29 States without exception).

8.1.10 In considering ANS cost efficiency performance in RP2, the following factors need to be considered:

- There is a growing trend towards opening Terminal ANS provision to competition for the market (provision of ATC services at specific airports through concessions/contracts). This is already the case in the UK (and Germany for smaller airports) and underway for Sweden and Spain. In this instance, ANS related costs are not necessarily recovered through TNC (i.e. no

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5 Art. 1(6) and Annex I of the charging scheme regulation
6 Airport capacity assessment and inventory; Revision of the ground handling directive, Revision of the slot regulation, Communication expected by end 2011.
unit rate for TNC) paid by airlines to the State/ANSP but through the contract. In such case, ANS related costs are usually embedded into the airport charges and/or financed by revenues from other commercial sources.

- In a number of cases terminal navigation charges paid by airspace users are lower than actual Terminal ANS costs because of explicit State intervention and/or cross-subsidies;
- The terminal ANS represent around 20% of total gate-to-gate ANS costs, 25% of which may be exempted from target setting.
- The regulatory approach needs to be in phase with the market evolution and with the specific context of terminal ANS provision (in line with Art 11.5 of Regulation EC No549/2004).

**Problem analysis: What are the main policy issues and problems identified?**

8.1.11 The SES performance scheme identified as a main issue that total gate-to-gate ANS costs in Europe are deemed too high; mainly because:

- Factual comparison with US indicates scope for significant improvement (lower productivity and higher support costs in Europe, high level of fragmentation of air navigation service provision);
- European ANSPs benchmarking indicates room for efficiency improvements using best practices;
- Full cost recovery system for monopoly ANSPs (including for Terminal ANS in most cases) with so far perceived lack of incentive to improve performance.

8.1.12 The bulk of ANS costs are recovered through en-route charges (on average 80% in the EU). Therefore 80% of the problem is likely to be captured by en-route ANS cost-efficiency targets.

8.1.13 Historically there has been a strong incentive to reallocate costs towards en-route, due to the influencing power of local carrier(s) to keep down terminal charges. As binding targets are now set for en-route ANS, without downward pressure on terminal costs, either through local competition for the market or regulation, there are perceptions of incentives to re-allocate costs towards terminal. Thus, there is a perceived risk that efficiency improvements in en-route ANS would come at the expense of Terminal ANS cost-efficiency.

**What are the lessons learned from RP1? What are the stakeholders’ initial views and expectations on RP2?**

**Main RP1 lessons learned (PRU/PRB)**

8.1.14 One of the main lessons learned from the Commission/PRB assessment of performance plans for the cost-efficiency KPA is that the 5th criterion (“Return on Equity”) will need to be upgraded to a “cost of capital” criterion, for instance to account for differences in the size of asset bases between States, which have a non-negligible impact on the cost-efficiency performance.

**Informal Stakeholders feedback**

8.1.15 The PRB understands that in general stakeholders expect the Commission/PRB to ensure legal and regulatory certainty/stability in the SES Performance Scheme in general and the cost-efficiency KPA in particular. Therefore, the priority should be on ensuring a well functioning scheme before adding new KPAs (in addition to Safety, Capacity, Environment and Cost-efficiency) or setting targets (new KPIs).

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8 Or an equivalent of some 5% of gate to gate costs.
8.2 **Objectives of the proposal for the ANS cost-efficiency KPA.**

What are the main objectives for the regulatory proposal with respect to the ANS cost-efficiency KPA?

8.2.1 Contribute to a regulatory framework that:

- Ensures gate-to-gate ANS costs are effectively managed;
- Ensures that performance indicators contribute to cost-efficiency improvements;
- Avoids over-regulation/undue administrative burden;
- Does not prevent moves towards competition for the market;
- Limits opportunistic behaviour (e.g. reallocation to disguise performance improvements);
- Ensures a global balanced approach taking into account “interdependencies” between all KPAs in the SES performance scheme (i.e. the economic value added)

8.3 **Current Position**

8.3.1 The SES performance scheme specifies the ANS cost-efficiency indicators for the RP1 timeframe (2012 to 2014):

- The first key performance indicator (KPI) is the determined unit rate for en-route ANS (hereinafter ‘DUR’) for which targets are set for EU-wide\(^9\) and national/FAB levels (and consistency assessment carried out by the Commission through the submission of national/FAB performance plans);
- Two performance indicators (PI) (the Terminal ANS costs and Terminal unit rates)\(^10\) are to be used by the Commission/States for monitoring.

<table>
<thead>
<tr>
<th></th>
<th>RP1 (2012-2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EU-Wide</td>
</tr>
<tr>
<td>80% costs</td>
<td>Average En-route ANS DUR KPI</td>
</tr>
<tr>
<td>20% costs</td>
<td>Terminal ANS Costs PI +Average Terminal unit rate PI</td>
</tr>
</tbody>
</table>

**Table 3: Cost-efficiency indicators during RP1**

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9 Regulation EU No 691/2010: Annex I – Section 1: For EU-wide target setting (…)

10 For the first reference period, terminal air navigation services costs and unit rates shall be collected, consolidated and monitored by the Commission in accordance with Regulation (EC) No 1794/2006.
8.3.2 Despite transparency improvements on terminal ANS costs and unit rates, there is still a great deal of diversity across EU States, as illustrated in figure 8. The number of aerodromes for which terminal ANS costs and unit rates are reported vary widely from one State to another, ranging from one single aerodrome (e.g. Belgium, Finland, Greece, Hungary, Luxembourg, and Romania) up to more than 60 aerodromes (France).

Two countries have more than one charging zone: Sweden (1 for Landvetter and 1 for Arlanda) and the United Kingdom (a charging zone A for a group of 10 airports with between 50,000 and 150,000 commercial air transport movements, and a charging zone B with 4 aerodromes with more than 150,000 commercial air transport movements. If the latter are assessed by the Commission as falling under the requirements of Article 1(6) and annex I of Regulation EU No 1794/2006 – “contestability argument”, then they may be exempted from the requirements to set determined costs and any potential terminal cost-efficiency targets/KPI.

8.4 **RP2 Opportunity - extending to gate-to-gate**

8.4.1 The SES performance scheme specifies the ANS cost-efficiency indicators for the RP2 timeframe (2015 to 2019):

- The first “EU-wide” and national/FAB Cost-Efficiency KPI is the determined unit rate for en-route ANS (‘DUR’) for which targets are set for EU-wide and national/FAB levels (and consistency assessment carried out by the Commission through the submission of national/FAB performance plans);
- the second “EU-wide” and national/FAB Cost-Efficiency KPI is the determined unit rate for Terminal ANS.\(^{11}\)

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\(^{11}\) See Regulation EU No 691/2010; Annex I – Section 1: For EU-wide target setting (…)

4. **COST-EFFICIENCY INDICATOR**
8.4.2 However the PRB has identified a number of “regulatory discrepancies” between the charging scheme regulation and the performance scheme regulation:

<table>
<thead>
<tr>
<th>Terminal ANS Cost-Efficiency</th>
<th>Scope</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance scheme (EU N° 691/2010)</td>
<td>&gt;50 000 CATM + at least main airport for all States</td>
<td>Adopt target (EU-wide) by 2013</td>
</tr>
<tr>
<td>Charging Scheme (EU N° 1794/2006 as amended by 1191/2010)</td>
<td>Not mandatory for all States (no airports &gt;50 000 CATM)</td>
<td>Harmonised SU/formula by 2015</td>
</tr>
</tbody>
</table>

Figure 9: Identified regulatory discrepancies

8.4.3 There is a ‘Scope mismatch’; currently some States who have no airports with less than 50 000 commercial air transport movements are not reporting for the purpose of the charging scheme requirements. At the same time, States have to report, for the purpose of the performance scheme, at least the terminal ANS costs and charges in relation to the main airport. Art 1(5) of EU 1794/2006 (as amended by 1191/2010) aims to realign the scope of these regulations. However, the transitional provisions postpone such realignment until end-2014.

8.4.4 In addition, there is a ‘timing mismatch’: there will be no harmonised terminal service unit formula and therefore no harmonised terminal unit rates before 2015. Therefore, EU-wide targets would be set in 2013, i.e. before consistent data series are recorded.

What should be achieved in RP2?

8.4.5 Consolidate the efforts initiated during RP1. The bulk of ANS costs are allocated to en-route (80% on average in the EU) and, therefore, attention and expectations will still focus on delivering the en-route ANS cost-efficiencies. For these reasons, and for the purpose of regulatory continuity and legal consistency, the EU-wide and national/FAB en-route ANS cost-efficiency KPI (en-route determined unit rate - DUR) used for RP1 should remain a stable KPI for RP2.

8.4.6 Effectively deliver on RP2 objectives, quoted in §8.2.1 above.

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4.2 As from the second reference period, the second European Union-wide cost-efficiency key performance indicator shall be the average European Union determined unit rate for terminal air navigation services
8.4.7 The Performance Scheme should remain focussed on a limited number of KPIs at European level. States should however be encouraged to add additional elements in their performance plans for improving performance at local level.

8.4.8 As binding targets are now set for en-route ANS, there is a perceived risk that en-route cost-efficiency performance will improve at the expense of terminal ANS. This should be addressed by the cost-efficiency KPA during RP2.

8.4.9 However, as this Chapter has described, there are issues to be addressed, including the lack of a consistent and comparable data series. It also needs to be borne in mind that terminal ANS costs account for 20% of gate to gate ANS costs.

8.4.10 The PRB is minded to ensure that (K)PI contribute to genuine gate-to-gate ANS cost-efficiency performance improvements – and as they are intrinsically linked, not to focus on terminal independently of the en-route part. The PRB is minded to propose a balanced approach which respects the subsidiarity and proportionality principles among other better regulation principles.

8.4.11 Some of the questions that the PRB will be addressing are:

- Can a relevant and meaningful EU-wide DUR target for terminal ANS be set for RP2 given identified issues in §8.4.2 to §8.4.4?
- To which extent should subsidiarity (ref. §4.5.1) apply to terminal ANS cost-efficiency? Should target setting focus at national/FAB level?
- Is the influencing power of local carriers enough to ensure that national terminal ANS costs are effectively managed? Are there other influencing factors that ensure that national terminal ANS costs are effectively managed?
- How best to ensure that performance indicator(s) is(are) set to capture the issues of potential re-allocation of costs from en-route to terminal ANS?
- In extending the scope to gate-to-gate, should there also be a gate-to-gate indicator in addition to the current en-route and terminal indicators for RP1?

8.4.12 The diversity of scope and added complexity of performance at terminal level presents clearly a more important challenge than en-route. The feasibility issue will be seriously considered by the PRB together with administrative burden. The PRB will elaborate its thinking further in the formal consultation on the proposed Regulatory Approach for PR2.
**ANNEX I: GLOSSARY OF ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACE Reports</td>
<td>Air Traffic Management Cost-Effectiveness (ACE) Benchmarking Reports</td>
</tr>
<tr>
<td>ANS</td>
<td>Air Navigation Service. A generic term describing the totality of services provided in order to ensure the safety, regularity and efficiency of air navigation and the appropriate functioning of the air navigation system.</td>
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<td>ANSP</td>
<td>Air Navigation Services Provider</td>
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<tr>
<td>ASMA</td>
<td>Arrival Sequencing and Metering Area</td>
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<tr>
<td>ATC</td>
<td>Air Traffic Control. A service operated by the appropriate authority to promote the safe, orderly and expeditious flow of air traffic.</td>
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<tr>
<td>ATFM</td>
<td>Air Traffic Flow Management. ATFM is established to support ATC in ensuring an optimum flow of traffic to, from, through or within defined areas during times when demand exceeds, or is expected to exceed, the available capacity of the ATC system, including relevant aerodromes.</td>
</tr>
<tr>
<td>ATM</td>
<td>Air Traffic Management. A system consisting of a ground part and an air part, both of which are needed to ensure the safe and efficient movement of aircraft during all phases of operation. The airborne part of ATM consists of the functional capability which interacts with the ground part to attain the general objectives of ATM. The ground part of ATM comprises the functions of Air Traffic Services (ATS), Airspace Management (ASM) and Air Traffic Flow Management (ATFM). Air traffic services are the primary components of ATM.</td>
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<tr>
<td>ATS</td>
<td>Air Traffic Service. A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service.</td>
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<tr>
<td>CANSO</td>
<td>Civil Air Navigation Services Organisation (<a href="http://www.canso.org">http://www.canso.org</a>)</td>
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<td>CDR</td>
<td>Conditional Routes</td>
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<tr>
<td>CEM</td>
<td>Collaborative Environment Management (CEM)</td>
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<tr>
<td>CNS</td>
<td>Communications, Navigation, Surveillance.</td>
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<tr>
<td>CO₂</td>
<td>Carbon dioxide</td>
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<tr>
<td>EASA</td>
<td>European Aviation Safety Agency</td>
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<tr>
<td>EASP</td>
<td>European Aviation Safety Programme</td>
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<tr>
<td>ECAC</td>
<td>European Civil Aviation Conference.</td>
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<tr>
<td>ESSIP</td>
<td>European Single Sky ImPlementation</td>
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<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EU27+2</td>
<td>EU States + Norway and Switzerland</td>
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<tr>
<td>FAB</td>
<td>Functional Airspace Blocks</td>
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<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<tr>
<td>IFR</td>
<td>Instrument Flight Rules. Properly equipped aircraft are allowed to fly under bad-weather conditions following instrument flight rules.</td>
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<tr>
<td>KPA</td>
<td>Key Performance Area</td>
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<td>KPI</td>
<td>Key Performance Indicator</td>
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<tr>
<td>LSSIP</td>
<td>Local Single Sky Implementation reports</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>NCP</td>
<td>NSA Co-ordination Platform</td>
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<tr>
<td>NSA</td>
<td>National supervisory Authorities</td>
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<tr>
<td>PI</td>
<td>Performance Indicator</td>
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<tr>
<td>PRB</td>
<td>Performance Review Body (SES)</td>
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<tr>
<td>PRC</td>
<td>EUROCONTROL Performance Review Commission</td>
</tr>
<tr>
<td>PRR</td>
<td>Performance Review Report</td>
</tr>
<tr>
<td>PRU</td>
<td>Performance Review Unit</td>
</tr>
<tr>
<td>RP 1</td>
<td>First reference period of the SES performance scheme (2012-2014)</td>
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<tr>
<td>SES</td>
<td>Single European Sky legislation</td>
</tr>
<tr>
<td>SESAR</td>
<td>The Single European Sky implementation programme</td>
</tr>
<tr>
<td>SSP</td>
<td>State Safety Programmes</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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