



Performance Review Body
designated by
the European Commission



PRB advice to the Commission in the setting of Union-wide performance targets for RP2

Final Report



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Table of Contents

1	EXECUTIVE SUMMARY	3
1.1	INTRODUCTION	3
1.2	PROPOSED TARGETS	3
1.3	TOTAL ECONOMIC COSTS	6
2	INTRODUCTION AND CONTEXT	8
2.1	THIS DOCUMENT	8
2.2	THE PRB'S ROLE - WHAT IT DOES AND DOES NOT DO	9
2.3	UNION-WIDE KEY PERFORMANCE INDICATORS FOR RP2	9
2.4	GEOGRAPHICAL SCOPE	9
2.5	TRAFFIC OUTLOOK	10
2.6	THE PRB'S APPROACH FOR THE TARGET PROPOSALS	10
2.7	THE STAKEHOLDERS CONSULTATION PROCESS	11
3	LEVEL OF AMBITION AND REALISM	13
3.1	GENERAL APPROACH	13
3.2	IMPROVEMENTS MADE IN RP1	14
3.3	OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT IN RP2 AND RISKS	15
3.4	INTERDEPENDENCIES	19
3.5	TOTAL ECONOMIC COST (TEC)	20
4	STAKEHOLDER CONSULTATION	23
4.1	SCOPE OF CONSULTATION	23
4.2	COMMENTS RECEIVED	23
4.3	STATISTICAL ANALYSIS	24
4.4	CLUSTERING OF THE COMMENTS	24
5	SAFETY TARGET	25
5.1	PRB INITIAL PROPOSAL	25
5.2	STAKEHOLDERS' COMMENTS	25
5.3	NEW ELEMENTS CONSIDERED BY THE PRB	25
5.4	PRB OPINION	26
5.5	PRB RECOMMENDATIONS FOR RP2 UNION WIDE SAFETY TARGETS	29
6	RP2 UNION-WIDE ENVIRONMENT TARGET	31
6.1	PRB INITIAL PROPOSAL	31
6.2	STAKEHOLDERS' COMMENTS	31
6.3	NEW ELEMENTS CONSIDERED BY THE PRB	31
6.4	PRB OPINION	31
6.5	PRB RECOMMENDATIONS FOR RP2 UNION WIDE ENVIRONMENT TARGETS	32
7	RP2 UNION-WIDE CAPACITY TARGET	33
7.1	PRB INITIAL PROPOSAL	33
7.2	STAKEHOLDERS' COMMENTS	33
7.3	NEW ELEMENTS CONSIDERED BY THE PRB	33
7.4	PRB OPINION	33
7.5	PRB RECOMMENDATIONS FOR RP2 UNION WIDE CAPACITY TARGETS	35
8	RP2 UNION-WIDE COST EFFICIENCY TARGET	36
8.1	PRB INITIAL PROPOSAL	36
8.2	STAKEHOLDERS' COMMENTS	37
8.3	PRB OPINION	39
8.4	NEW ELEMENTS CONSIDERED BY THE PRB	41
8.5	PRB RECOMMENDATIONS FOR RP2 UNION WIDE COST-EFFICIENCY TARGETS	45
9	ADDITIONAL ELEMENTS	53
9.1	ANSP GROUPING	53

9.2 ALERT THRESHOLD.....	54
9.3 NEXT STEPS.....	54

Table of Figures

FIGURE 1-1: PROJECTED TEC (BASELINE TRAFFIC SCENARIO).....	7
FIGURE 1-2: IMPACT OF PROPOSED TARGETS ON TEC (BASELINE TRAFFIC SCENARIO)	7
FIGURE 1-3: PROJECTED TEC PER FLIGHT	7
FIGURE 2-1: GEOGRAPHICAL SCOPE FOR RP2 UNION-WIDE TARGETS	9
FIGURE 3-1: HORIZONTAL EN-ROUTE FLIGHT EFFICIENCY (2009-2014)	14
FIGURE 3-2: EXPECTED IMPLEMENTATION OF FREE ROUTE AIRSPACE AT END OF RP1	15
FIGURE 3-3: ESTIMATED TEC – SES AREA, EN-ROUTE ONLY	21
FIGURE 3-4: PROJECTED TEC (BASELINE TRAFFIC SCENARIO).....	21
FIGURE 3-5: IMPACT OF PROPOSED TARGETS ON TEC (BASELINE TRAFFIC SCENARIO)	22
FIGURE 3-6: PROJECTED TEC PER FLIGHT	22
FIGURE 3-7: BREAKDOWN OF TEC PER FLIGHT	22
FIGURE 4-1: DISTRIBUTION OF RESPONDENTS	23
FIGURE 5-1: 2012 EoSM SCORE FOR ANSPs	27
FIGURE 8-1: ACTUAL AND PLANNED TRAFFIC COMPARED TO INFORMATION PROVIDED IN NPPs FOR RP1.....	42
FIGURE 8-2: 2012 ACTUAL COSTS COMPARED TO DETERMINED COSTS IN ADOPTED NPPs.....	43
FIGURE 8-3: ACTUAL 2012 EN-ROUTE COSTS, RP1 DETERMINED COSTS AND STATES PLANS FOR 2015-2019	44
FIGURE 8-4: STARTING POINT FOR UNION-WIDE COST-EFFICIENCY TARGETS OVER RP2.....	46
FIGURE 8-5: STATES PROJECTIONS AND PRB PROPOSAL FOR EN-ROUTE COSTS REDUCTIONS OVER RP2.....	48
FIGURE 8-6: PROPOSED DUCs OVER RP2 COMPARED TO ACTUAL 2009 AND 2012 UNIT COSTS (€2009).....	49
FIGURE 9-1: PROCESS AND TIMING FOR PRODUCTION OF FAB PPS	54

Table of Tables

TABLE 1: PRB PROPOSED UNION-WIDE SAFETY TARGETS FOR RP2	4
TABLE 2: PRB PROPOSED UNION-WIDE ENVIRONMENT TARGETS FOR RP2	5
TABLE 3: PRB PROPOSED UNION-WIDE CAPACITY TARGETS FOR RP2	5
TABLE 4: PRB PROPOSED UNION-WIDE COST-EFFICIENCY TARGETS FOR RP2.....	6
TABLE 5: TRAFFIC ASSUMPTIONS FOR UNION-WIDE ALERT THRESHOLDS (STATFOR FORECAST SEPT. 2013)	6
TABLE 6: UNION-WIDE KPIS FOR RP2.....	9
TABLE 7: EN ROUTE SERVICE UNIT FORECAST (STATFOR SEPTEMBER 2013).....	10
TABLE 8: PROCESS TOWARDS ADOPTION OF UNION-WIDE TARGETS FOR RP2	12
TABLE 9: INTERIM DEPLOYMENT PROGRAMME AND PILOT COMMON PROJECT	17
TABLE 10: SUMMARY OF RESPONDENTS BY STAKEHOLDER TYPE.....	24
TABLE 11: PRB CONSULTATION PROPOSAL - SAFETY	25
TABLE 12: SAFETY PROPOSED UNION-WIDE TARGETS FOR RP2	30
TABLE 13: PRB CONSULTATION PROPOSAL – ENVIRONMENT	31
TABLE 14: ENVIRONMENT PROPOSED UNION-WIDE TARGETS FOR RP2	32
TABLE 15: PRB CONSULTATION PROPOSAL – CAPACITY	33
TABLE 16: CAPACITY PROPOSED UNION-WIDE TARGETS FOR RP2	35
TABLE 17: PRB CONSULTATION PROPOSAL – COST EFFICIENCY	36
TABLE 18: PRB PROPOSAL FOR EN-ROUTE COSTS REDUCTIONS OVER RP2	47
TABLE 19: PROPOSED TREND IN DUCs OVER RP2 (€2009).....	49
TABLE 20: PROPOSED TREND IN EN-ROUTE DUCs OVER RP2, INCLUDING CROATIA AND ADJUSTMENTS (€2012) 50	
TABLE 21: PROPOSED TREND IN EN-ROUTE DUCs OVER RP2 (€2009)	51
TABLE 22: PLANNED UNION-WIDE TERMINAL ANS COSTS OVER RP2 (STATES JUNE 2013 SUBMISSIONS)	52
TABLE 23: ANSP COMPARATOR GROUPS	53

1 Executive Summary

1.1 Introduction

- 1.1.1 In accordance with the Single European Sky Performance Regulation (EU 390/2013), Union-wide targets for the second Reference Period (RP2, 2015-2019) have to be set by end of 2013. This document presented the Performance Review Body's (PRB) proposals to this effect.
- 1.1.2 In making its proposals, the PRB applied the principles described in §2.6 below and carefully considered and analysed:
- The wider background and macro-economic conditions;
 - Historic trends in Air Navigation Services (ANS) performance within the European Union (EU);
 - The latest air traffic forecasts;
 - Experience in the first year of Reference Period 1 (RP1);
 - Opportunities for further improvement in ANS performance and associated risks; and
 - Evidence of best practice both within the EU and elsewhere.
- 1.1.3 The PRB also engaged States, National Supervisory Authorities (NSAs) and stakeholders in an extensive consultation process, involving document publication, questionnaires, public workshops and forums as well as bilateral meetings. The interdependencies between Key Performance Areas (KPA) have also been considered by the PRB.
- 1.1.4 As a result of this process, the PRB first notes that initial results achieved in RP1 are in line with targets adopted. This is encouraging and demonstrates that the Performance Scheme is playing its intended role of supporting the delivery of the SES.
- 1.1.5 The PRB concludes that there remains scope for significant further performance improvements during RP2 and beyond. The evolution of Air Navigation Services' (ANS) performance has to be assessed in a long-term context, and this report also considers the prospects for later Reference Periods.
- 1.1.6 Opportunities for such improvements during RP2 and beyond include:
- Efficiency gains in individual Air Navigation Service Providers (ANSPs), through e.g. rigorous cost control;
 - Airspace improvements, through e.g. Europe-wide application of free routes;
 - More flexible management of capacity to match demand;
 - New Technology;
 - Rationalisation of and greater cooperation in service provision and oversight; and
 - The start of ANS restructuring through Functional Airspace Blocks (FABs) or otherwise.
- 1.1.7 These opportunities are supported by the SES tools, such as the Network Manager, FABs, the Pilot Common Project and further SESAR Deployment, as well as EUROCONTROL's proposals on centralised services. These will all contribute towards achieving ambitious targets.
- 1.1.8 While performance targets define the intended outcome, it is for FABs, States and ANSPs to define their performance plans and decide how to reach the targets using these opportunities. The SES regulations are based on the principle of subsidiarity. It is important that this principle is applied in full.

1.2 Proposed targets

- 1.2.1 Table 1 to Table 4 summarise the PRB proposed Union-wide targets for RP2.

SAFETY

Union-wide KPI	EoSM: Effectiveness of Safety Management on States/NSAs
Baseline	Projected value (2014): Most but not all National Supervisory Authorities (NSAs) will have achieved at least EoSM Level C in all Management Objectives (MOs).
Union-wide consultation range for 2015-2019	All NSAs have achieved at least EoSM Level C in all MOs.
PRB final proposal for Union-wide targets for RP2	All NSAs have achieved at least EoSM Level C in all Management Objectives (MOs) in 2019.
Union-wide KPI	EoSM: Effectiveness of Safety Management on Service Providers
Baseline	Projected value (2014): All ANSPs will have achieved EoSM Level C in all MOs.
Union-wide consultation range for 2015-2019	All ANSPs have achieved EoSM Level D in all MOs.
PRB final proposal for Union-wide targets for RP2	All ANSPs have achieved EoSM Level D in all Management Objectives (MOs) in 2019
Union-wide KPI	Severity Classification: Application of the RAT Methodology by States
Baseline	Projected value (2014): It is not expected that all other investigation entities (e.g. CAAs/NSAs) should be applying severity classification via the RAT methodology by 2015.
Union-wide consultation range for 2015-2019	By the end of RP2, all NSAs/States should be reporting ATM Overall using the RAT methodology for severity classification for almost all reported occurrences (i.e. 99%).
PRB final proposal for Union-wide targets for RP2	By the end of RP2 all Regulators (NSAs)/States should be reporting ATM Overall using the RAT methodology of severity classifications for almost all reported occurrences (i.e. 99%) (separation minima infringements, runway incursions, and ATM specific events) and provide relevant information about the cases where ATM Overall using RAT methodology was not reported.
Union-wide KPI	Severity Classification: Application of the RAT Methodology by Service Providers
Baseline	Projected value (2014): It is expected that by the end of RP1, all ANSPs should be applying severity classification via the RAT methodology.
Union-wide consultation range for 2015-2019	By the end of RP2, all ANSPs should be reporting ATM Ground using the RAT methodology for severity classification for all reported occurrences (i.e. 100%).
PRB final proposal for Union-wide targets for RP2	By the end of RP2, all ANSPs should be reporting ATM Ground using the RAT methodology for severity classification for all (i.e. 100%) reported occurrences (separation minima infringements, runway incursions, and ATM specific events).

Table 1: PRB proposed Union-wide safety targets for RP2

ENVIRONMENT

Union-wide KPI	KEP: The average horizontal en route flight efficiency of the last filed flight plan
Baseline	Value 2009: RP1 baseline, i.e. 5.42% (measured as the flight extension in terms of proportion of the to the great circle distance). RP1 Target (2014): 4.67%, i.e. -0.75% in respect to 2009 baseline.
Union-wide consultation range for 2015-2019	4.1% to 4.4%.
PRB final proposal for Union-wide targets for RP2	4.1% in 2019

Union-wide KPI	KEA: The average horizontal en route flight efficiency of the actual trajectory
Baseline	N/A.
Union-wide consultation range for 2015-2019	2.5% to 2.75%.
PRB final proposal for Union-wide targets for RP2	2.6% in 2019

Table 2: PRB proposed Union-wide environment targets for RP2**CAPACITY**

Union-wide KPI	Average En-route ATFM delay
Actual performance	Value 2012: 0.63 minutes per flight.
RP1 Target	RP1 target (2014): 0.5 minutes per flight.
Union-wide consultation range for 2015-2019	0.3 – 0.6 minutes per flight.
PRB final proposal for Union-wide targets for RP2	0.5 minutes per flight in 2014-2019.

Table 3: PRB proposed Union-wide capacity targets for RP2

COST-EFFICIENCY

Union-wide KPI	Average determined unit cost (DUC) for en-route				
Baseline	€62.97/SU in 2014 (in € ₂₀₀₉ prices)				
Union-wide consultation range for 2015-2019	Proposed range for 2019 DUC: €53.0 - €43.3 (in € ₂₀₀₉ prices) (i.e. -2.5% to -5.8% p.a. over RP2)				
PRB final proposal for Union-wide targets for RP2					
	2015	2016	2017	2018	2019
Determined Costs (DC) M€ ₂₀₁₂	6.721	6.620	6.455	6.293	6.136
Determined Costs (DC) M€ ₂₀₀₉	6.103	6.011	5.861	5.714	5.571
Annual rate of DC reductions	-1.5%	-1.5%	-2.5%	-2.5%	-2.5%
Service Units (.000)	112.582	115.701	118.368	121.405	124.471
Proposed DUC targets for each year (in €₂₀₁₂ prices)	59.70	57.22	54.53	51.84	49.30
Proposed DUC targets for each year (in €₂₀₀₉ prices)	54.21	51.95	49.51	47.07	44.76
Annual % change in en-route DUC	-4.1%	-4.2%	-4.7%	-4.9%	-4.9%
PRB proposal will lead to an average reduction of the en-route DUC of - 4.6% p.a. over RP2					

Table 4: PRB proposed Union-wide cost-efficiency targets for RP2

- 1.2.2 In addition, the performance Regulation requires the PRB to propose a traffic alert threshold. For RP2, the PRB proposes to leave the threshold unchanged (i.e. 10%), and to use the en route service units shown in Table 5 as reference:

Traffic assumptions for Union-wide alert thresholds	2015	2016	2017	2018	2019
En route service units (thousands)	112.582	115.701	118.368	121.405	124.471

Table 5: Traffic assumptions for Union-wide alert thresholds (STATFOR forecast Sept. 2013)**1.3 Total Economic Costs**

- 1.3.1 The PRB's principal objective in proposing targets for RP2 was to reduce the Total Economic Cost subject to target setting- while maintaining safety levels and safeguarding the military's requirements.
- 1.3.2 Figure 1-1 shows that the en-route Total Economic Cost (TEC) in the SES area is in the order of €8 billion. It also presents the projected TEC under the baseline traffic scenario, which decreases in absolute terms, while traffic increases.
- Savings in cost-efficiency constitute the major part of savings in TEC;
 - Flight-inefficiencies, fuel burn and environmental impact of CO₂ emissions decrease in absolute terms while traffic increases. The proposed target therefore ensures carbon neutrality of aviation as far as ANS is concerned, before the target date of 2020;
 - The delay costs increase slightly, in line with traffic, starting from a small base thanks to a challenging target to be achieved at end of RP1.

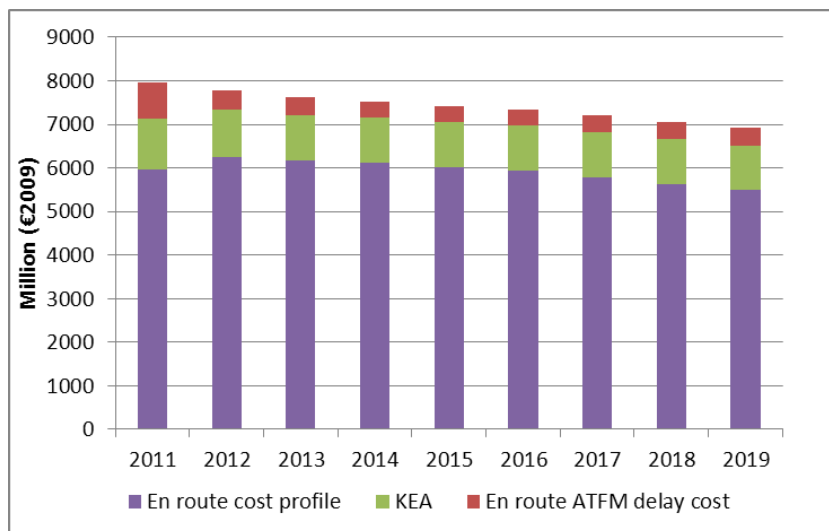


Figure 1-1: Projected TEC (Baseline traffic scenario)

1.3.3 Figure 1-2 shows the large positive impact of proposed targets on Total Economic Cost over the entire RP2 period, i.e. €7600M savings versus the 2012 performance baseline (some 21% of TEC cumulated over RP2). This shows a major contribution of the performance scheme towards achieving the objectives of the Single European Sky. These savings are sensitive to traffic and would reduce to €5400M in the low-traffic scenario.

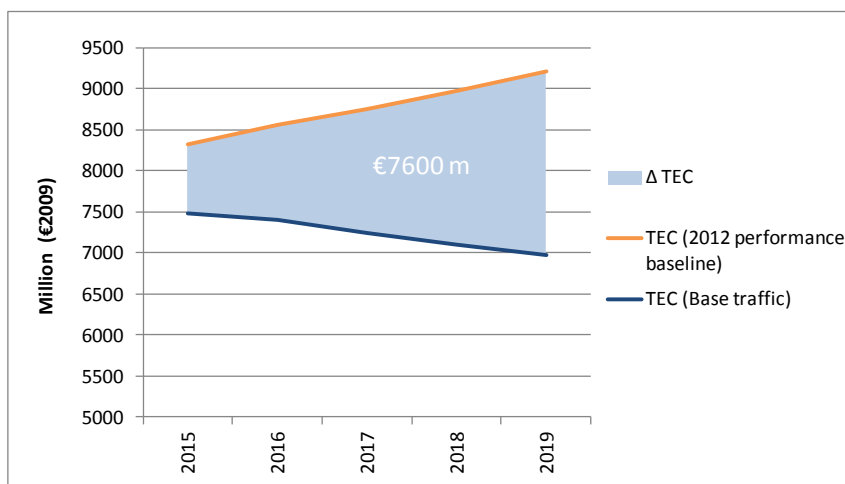


Figure 1-2: Impact of proposed targets on TEC (Baseline traffic scenario)

1.3.4 Figure 1-3 shows the impact of proposed targets on total economic cost per flight, which is of most immediate relevance to civil airspace users. The proposed targets will result in strongly decreasing TEC per flight in RP2. There is a marked influence of traffic growth on improvement.

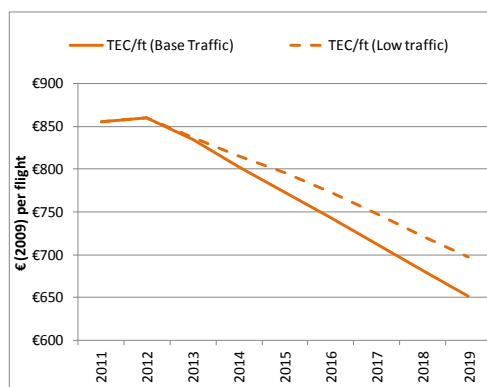


Figure 1-3: Projected TEC per flight

2 Introduction and context

2.1 This document

- 2.1.1 By the end of 2013, the European Commission is required to adopt Union-wide (EU) Performance targets for European Air Navigation Services (ANS) for the second reference period (RP2 2015-2019) in accordance with the Single European Sky (SES) legislation, i.e. the revised performance [Ref. i] and charging [Ref. ii] regulations, which were adopted by the Commission on 9 May 2013.
- 2.1.2 The first reference period (RP1: 2012-2014) is currently underway. The process leading to the adoption of Union-wide targets for RP2 is presented in Section 2.7 below.
- 2.1.3 This report sets out the recommended values and rationales for the Union-wide targets to be adopted by the Commission for RP2 and includes description of target (ranges), the rationale used to construct the targets, including a review of the assumptions made and stakeholder comments received during consultation.
- 2.1.4 This report is organised in nine chapters:
- Chapter 1 is the executive summary;
 - Chapter 2 presents the context;
 - Chapter 3 presents the rationale for the level of ambition and realism of the proposed Union wide proposed targets and an impact analysis using the Total Economic Cost concept;
 - Chapter 4 presents the main results and statistics from the stakeholder consultations;
 - Chapters 5 to 8 are dedicated to the individual performance areas. They describe:
 - PRB's initial proposals;
 - a summary of the stakeholder consultation comments/responses as well as PRB's opinion;
 - New elements and information which have been considered by the PRB in refining the ranges presented in the consultation document [Ref. iii];
 - PRB's final proposals for the Union-wide targets.
 - Chapter 9 presents additional elements, some of them being mandatory such as ANSP groups and Alert Threshold.
- 2.1.5 This Report includes:
- Appendix A: "Union-wide targets for the second reference period of the Single European Sky Performance Scheme" [Ref. iii], published on 17 May 2013, and its corrigendum.
 - Appendix B: "Union-wide target proposals – Summary of Response document".
 - Appendix C: Reference values for capacity and flight efficiency targets prepared by the Network Manager.
- 2.1.6 This report has been prepared by the Performance Review Body (PRB) of the SES. EUROCONTROL, acting through its Performance Review Commission (PRC) supported by the Performance Review Unit (PRU) which has been designated [Ref. iv] as the PRB to assist the Commission in the implementation of the performance Scheme until mid-2015.

2.2 The PRB’s role - what it does and does not do

- 2.2.1 The Performance Review Body’s (PRB) role is to advise the European Commission on the setting of targets. The PRB has sought to set targets which are ambitious and challenging but also realistic and achievable by States over a given time period.
- 2.2.2 The PRB does not prescribe actions. It is for States and ANSPs to determine how best to meet the targets. Progress in achieving the targets will be carefully monitored through the PRB’s annual monitoring report.

2.3 Union-wide Key Performance Indicators for RP2

- 2.3.1 The Key performance indicators to be used for Union-wide performance targets for RP2 are defined in Annex I of the new performance Regulation [Ref. i]. They are summarised in Table 6.

SAFETY	<ul style="list-style-type: none"> • Effectiveness of Safety Management (NEW). • Application of severity classification scheme based on the Risk Analysis Tool (RAT) methodology (NEW).
ENVIRONMENT	<ul style="list-style-type: none"> • Horizontal flight efficiency: <ul style="list-style-type: none"> ○ Using last filed flight plans ○ Using radar data for the actual trajectory (NEW)
CAPACITY	<ul style="list-style-type: none"> • En route ATFM delay per flight.
COST-EFFICIENCY	<ul style="list-style-type: none"> • Determined Unit Cost for en route air navigation services. • Determined Unit Cost for terminal air navigation services (NEW, but not before 2017, depending on a future Commission Decision).

Table 6: Union-wide KPIs for RP2

2.4 Geographical scope

- 2.4.1 Unless otherwise indicated, the proposed Union-wide targets for RP2 refer to ANS performance in the airspace depicted in Figure 1.
- 2.4.2 It covers the airspace controlled by the RP2 SES States in the ICAO EUR and AFI regions. Therefore, it covers the airspace controlled by the 28 EU Member States as well as the airspace controlled by Norway and Switzerland (total 30 States) in the ICAO EUR region, as well as the Canaries FIR (Spain), Bodø FIR (Norway) and the two oceanic transition areas NOTA/SOTA (UK/IRL).

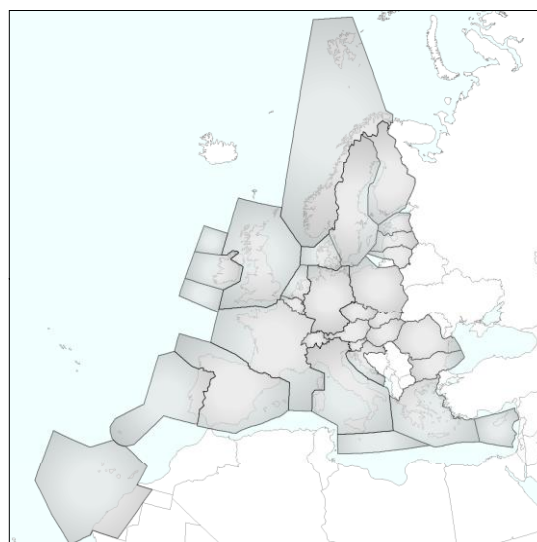


Figure 2-1: Geographical scope for RP2 Union-wide targets

2.4.3 The process of incorporation of Regulation 1070/2009 into EEA Agreement is on-going. Once the process is concluded, Iceland and the Commission will examine the modalities of cooperation between Iceland and PRB for RP2.

2.5 Traffic outlook

2.5.1 Traffic volume and distribution in time and space are key influencing factors for ANS performance. Traffic forecasts are therefore key determinants in setting targets for ANS performance.

2.5.2 It is clear that targets for RP2 will have to be set in a context of considerable uncertainty about traffic levels. The performance Regulation includes an alert threshold currently set at $\pm 10\%$ for RP1; this alert threshold needs to be set for RP2 according to Article 10(4) of the new performance Regulation [Ref. i]. Performance plans should be robust enough to accommodate a range of traffic outcomes within the alert threshold.

2.5.3 In order to reflect the latest available information, Table 7 presents the final traffic data for 2012 (-1.4%), the respective traffic growth values from latest STATFOR medium term forecast [Ref. v]. Data refer to EU States including Croatia, Norway and Switzerland..

En route traffic forecast (Thousands SUs)	2011A	2012A	2013P	2014P	2015P	2016P	2017P	2018P	2019P	% 2019/2014	% 2019/2014 CAGR
Baseline scenario	106,760	105,251	106,707	109,606	112,582	115,701	118,368	121,405	124,471	13.6%	
% annual changes		-1.4%	1.4%	2.7%	2.7%	2.8%	2.3%	2.6%	2.5%		2.6%
High scenario	106,760	105,251	107,084	111,697	116,136	120,603	124,680	129,191	133,351	19.4%	
% annual changes		-1.4%	1.7%	4.3%	4.0%	3.8%	3.4%	3.6%	3.2%		3.6%
Low scenario	106,760	105,251	106,327	107,439	108,541	110,196	111,436	112,884	114,305	6.4%	
% annual changes		-1.4%	1.0%	1.0%	1.0%	1.5%	1.1%	1.3%	1.3%		1.2%

A = Actual, P = Projection

Source: STATFOR Seven-Year Forecast September 2013

Table 7: En route Service Unit forecast (STATFOR September 2013)

2.5.4 Service Units (SUs) are forecast to increase by +16.6% between 2011 and 2019 in the base case.

2.5.5 Under the base case, the average annual growth rate during 2014-2019 (+2.6%) is higher than during 2009-2014 (+2.0%).

2.6 The PRB's approach for the target proposals

2.6.1 In developing Union-wide targets for RP2, the PRB applied the following principles:

- **Primacy of Safety:** ANS safety is ensured through the safety pillar of the SES II package based on EASA rule making (compliance with regulations), and through performance targets (performance beyond compliance). The PRB aims to contribute in continuously improving the current level of Safety.
- **Independence:** the PRB preserved its total independence from any internal or external economic, corporate or political interests, including bias related to political, economic, social, philosophical or ethical considerations. PRB advice is collegial. The principle of independence applies equally to all members of the PRU and any person supporting the PRU.
- **Robustness of evidence:** the evidence presented is based on thorough and rigorous analysis.

- **Consultation and transparency:** the PRB ran an extensive consultation programme to ensure a maximum level of transparency and take account of all comments received in its proposed Union-wide targets.
- **Consistency:** the analysis is based on a consistent set of assumptions and traffic forecasts.
- **Ambition combined with realism:** the PRB was careful in weighing the evidence and balancing the diverging comments received, so that the targets are simultaneously challenging, stretching boundaries, while being realistic and achievable. This delicate balancing act involved the use of rigorous analysis and expert judgement.
- **Balance between KPAs:** when proposing targets, due account was taken of the interdependencies and trade-offs between different KPAs (Environment, Capacity and Cost-efficiency) at a Union-wide level, on the understanding that Safety cannot be compromised.
- **Balance over time:** Performance targets should be set with a perspective longer than one reference period, as change may generate costs in the short term and significantly improved performance in the longer term.
- **Outcome-oriented targets:** The PRB takes a view on outcomes, reflected in Union-wide targets, and leaves it up to the FABs, States and Network Manager to decide how to achieve them. Solutions-oriented targets, such as implementing common projects, are taken into account in the target-setting phase, assessment of performance plans and also in the monitoring phase to ensure that expenditure earmarked for investments is targeted towards SESAR priorities, and in particular the Pilot Common Project, and then actually applied.

2.7 The Stakeholders consultation process

2.7.1 In developing proposals for Union-wide targets, the PRB has sought stakeholders' opinions via a range of methods, including document publication, questionnaires and meetings, from 2012 to 2013. The main steps are described below.

First consultation on ranges for Union-wide targets for RP2

2.7.2 The process leading to the adoption of Union-wide targets for RP2 began with a PRB open workshop on 6 February 2013, which was attended by some 230 stakeholder representatives. In preparation for this workshop, the PRB circulated, on 25 January 2013, a document entitled "EU wide targets for RP2: Indicative Performance Ranges for consultation" [Ref. vi]. Stakeholders were invited to submit their comments both at the workshop and afterwards in writing. Details are available on the PRB website [Ref. vii]. The workshop was broadcast by web streaming [Ref. viii].

Second consultation on Union-wide targets for RP2 (17 May-3 July 2013)

2.7.3 The PRB refined its target ranges for a second consultation document which reflected the comments received by stakeholders to date (at the February stakeholder workshop, through the questionnaire returned after the February workshop and through bilateral meetings.

2.7.4 The second consultation was performed through a Commission online questionnaire conducted using "Your voice" [Ref. ix], which was open from 17 May until 3 July 2013. This consultation period was intended to allow for stakeholders to give the maximum possible input sufficiently early on in the process to provide a robust basis for adoption. A summary of the comments received is provided in Chapter 4.

Bilateral and multilateral meetings

2.7.5 During the process of preparation of Union-wide targets, the PRB held bilateral meetings with stakeholders' representatives at their request and answered a number of requests for clarification.

2.7.6 The PRB is grateful for the constructive engagement of stakeholders. A detailed summary of responses gathered during the consultation is provided in Appendix B and the impact of the consultation on proposed targets is described in Chapter 4.

Drafting the final PRB report on Union-wide targets for RP2

2.7.7 The PRB considered different inputs when preparing this document. These inputs include, but are not limited to:

- Observed performance until summer 2013;
- New data received, including the latest traffic forecasts from STATFOR;
- Stakeholders' answers to the second consultation described above;
- Views expressed in bilateral consultations;
- States' annual monitoring reports for 2012;
- States' reporting tables with forecast cost-efficiency figures covering RP2 and final cost data for 2012;
- Pilot Common Project proposed by the SESAR JU.

EC consultation process on Union-wide targets for RP2

2.7.8 The process leading to the adoption of Union-wide targets for RP2 by end 2013 is now under the auspices of the Commission and Single Sky Committee.

Summary of processes leading to the adoption of Union-wide targets for RP2

2.7.9 Table 8 summarises the processes leading to the adoption of Union-wide targets for RP2.

Phase	2013	Events
Consultation on performance target ranges	Jan-Feb.	First consultation on ranges for Union-wide targets for RP2, including "EU wide targets for RP2: Indicative Performance Ranges for consultation" published 25 January
Consultation on performance targets	17 May – 3 July	Second consultation period on ranges published 17 May 2013
	Early Sept.	PRB report to the Commission on proposed Union-wide targets for RP2 (this report)
EU decision process	October	Draft Commission Decision on Union-wide targets sent to SSC
	Oct-Dec.	Consultation led by the Commission (ICB, expert group, etc.)
	22-23 October	SSC meeting, addressing Union-wide targets for RP2
	17-18 Dec.	SSC meeting. Adoption of Union-wide targets for RP2

Table 8: Process towards adoption of Union-wide targets for RP2

3 Level of ambition and realism

3.1 General approach

3.1.1 In making its proposals for European Union-wide targets for RP2, the PRB applied the principles described in §2.6 above and carefully considered and analysed:

- The wider background and macro-economic conditions;
- Historic trends in ANS performance within the EU;
- The latest air traffic forecasts;
- Experience in the first year of RP1;
- Opportunities for further improvement in ANS performance and associated risks;
- Evidence of best practice both within the EU and elsewhere.

3.1.2 The PRB also engaged States, National Supervisory Authorities (NSAs) and stakeholders in an extensive consultation processes, involving document publication, questionnaires, public workshops and forums as well as bilateral meetings. The interdependencies between Key Performance Areas (KPAs) have also been considered by the PRB.

3.1.3 As a result of this process, the PRB first notes with pleasure that initial results are being achieved in Reference Period 1 (RP1), in line with targets adopted for RP1. This is very encouraging and demonstrates that the Performance Scheme works, and fully plays its role in delivering the SES. This is even more impressive as RP1 can be considered as a transitional phase, thus further improvements are feasible. Improvements in 2012 are summarised in §3.2. More details can be found in PRB's first monitoring report addressing year 2012 [Ref. x].

3.1.4 The PRB also concludes that there is significant scope for further significant performance improvements during RP2 and beyond. The evolution of air navigation services' performance has to be seen in a long-term context, and this report also considers the prospects for later Reference Periods.

3.1.5 Opportunities for such improvements during RP2 and beyond include:

- Efficiency gains in individual ANSPs, through e.g. rigorous cost control;
- Airspace improvements, through e.g. Europe-wide application of free routes;
- More flexible management of capacity to match demand;
- New Technology;
- Rationalisation of and greater cooperation in service provision and oversight;
- The start of ANS restructuring through FABs or otherwise.

These opportunities are developed in §3.3.

3.1.6 These opportunities are supported by the SES tools, such as the Network Manager, FABs, the Pilot Common Project and further SESAR Deployment, as well as EUROCONTROL's proposals on centralised services. These will all contribute towards achieving ambitious targets.

3.1.7 While performance targets define the intended outcome, it is for FABs, States and ANSPs to define their performance plans and decide how to reach the targets using these opportunities. The SES regulations are based on the principles of subsidiarity. It is important that this principle is applied in full.

3.1.8 The PRB aims at proposing Union-wide performance targets which it considers ambitious and challenging - but realistic. Opportunities do bring risk with them – these risks will need to be identified as the FAB Performance Plans are developed and then they must be managed. But the PRB, after lengthy discussion and consultation, is persuaded that the targets can be achieved and that they will substantially improve European air traffic management. The evidence for the foregoing is outlined below, across all KPAs, and then detailed in the various sections for each individual KPA.

3.2 Improvements made in RP1

- 3.2.1 RP1 is a transitional period in the Performance Scheme with greater improvement expected in RP2 and subsequent Reference Periods. Progress made so far in RP1 is noteworthy and good results were achieved in 2012, even though traffic was significantly lower than planned in 2011. This helped States to meet the Capacity target but made the Cost-Efficiency target more difficult to achieve.
- 3.2.2 Nevertheless, in 2012, States and ANSPs succeeded in reducing en route costs €206M (3.3%) below the determined costs in the adopted Performance Plans. This is more than the reduction in revenue arising from the new risk-sharing mechanism. States, therefore, were able to adjust their costs as traffic reduced and to maintain margins overall.
- 3.2.3 Over RP1, the cost-efficiency target is due to generate significant savings against the performance baseline of 2009.
- 3.2.4 In 2012, improvements in flight-efficiency were broadly in line with the performance profile established by the Network Manager, aimed at reaching the target set for 2014 (a reduction of 0.75% in the horizontal flight extension KPI). This profile foresees a faster rate of improvement in 2013-14 as illustrated in Figure 3-1.

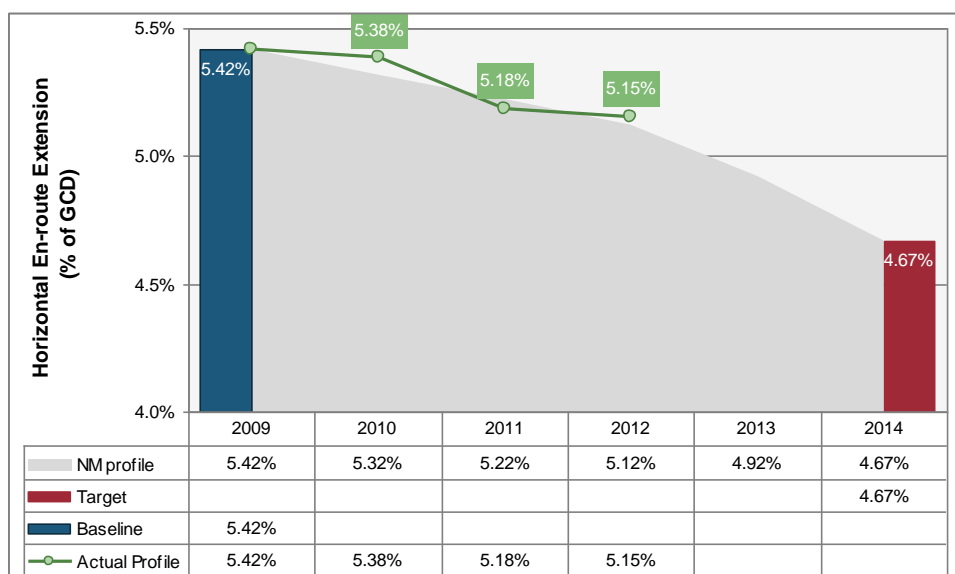


Figure 3-1: Horizontal en-route flight efficiency (2009-2014)

- 3.2.5 By 2014, as part of the Network Strategy Plan (NSP), various steps of Free Route Operations will have been implemented in at least 16 of the 64 European Area Control Centres, as shown in Figure 3-2. This will mean a reduction of some 7.5 million nautical miles in real distances flown, 45,000 tonnes less fuel burnt and 150,000 fewer tonnes of carbon dioxide emitted.

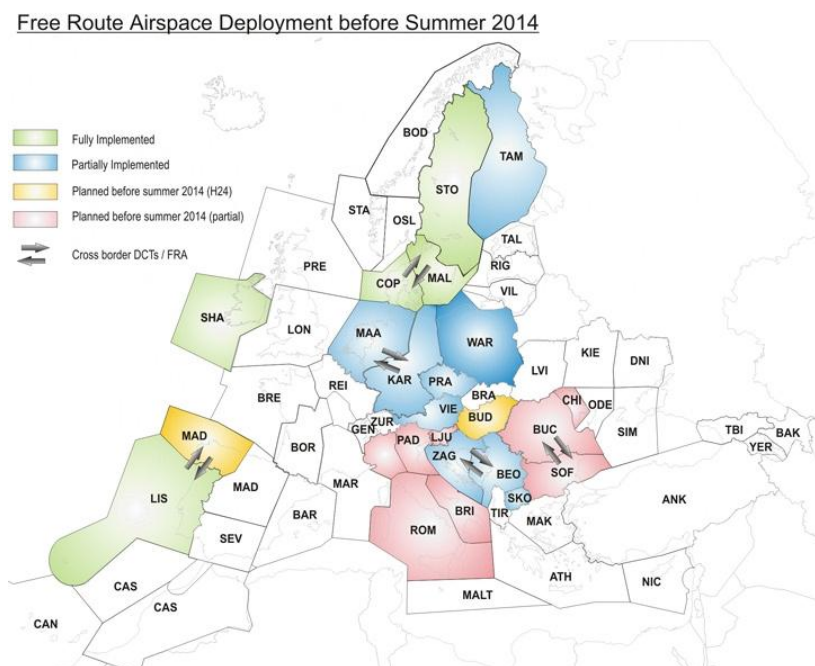


Figure 3-2: Expected implementation of free route airspace at end of RP1

- 3.2.6 The capacity target for RP1 (0.5 minute per en-route ATFM delay per flight in 2014) is ambitious, in recognition of the cost that delay creates for airspace users. The interim target for 2012 (0.7 min/flight) was achieved (0.63 min/flight), resulting in the best delay levels ever achieved. The Network Manager is working with ANSPs to ensure that the RP1 capacity target, set for 2014, will be met.
- 3.2.7 Although the traffic figures were lower than expected, the Performance Scheme helped drive the positive behaviours that contributed to the excellent capacity results.
- 3.2.8 Given that operational issues are to a large extent being addressed in RP1 - as was the original intention, the PRB believes that the operational improvements delivered in RP1 should be consolidated and maintained in RP2.
- 3.2.9 Finally, safety falls under the auspices of EASA and the NSAs; performance is monitored under the performance scheme through safety indicators.

3.3 Opportunities for performance improvement in RP2 and risks

- 3.3.1 While a good start has been made in RP1, this is only a transitional period and significantly more improvement can be achieved in RP2. This section highlights several opportunities to further improve performance, so as to identify targets that are not only challenging, but also achievable. Risks associated with opportunities also have to be considered and managed carefully.

Efficiency gains in individual ANSPs

- 3.3.2 Firstly, progressive improvement in performance can be achieved by individual ANSPs through efficiency gains, e.g. rigorous cost control, as in any industry. ANSPs have been successful in doing so in the past, and have the capabilities to continue to do so.

Airspace improvements

- 3.3.3 Secondly, improvements in both airspace design and usage offer opportunities for significant gains in Flight-efficiency and environmental impact during RP2. Positive results in RP1 can be amplified in RP2 in several ways.
- 3.3.4 The Europe-wide application of Free Route Airspace (FRA) will reinforce individual initiatives (see Figure 3-2) and enable significant further performance improvements to be

achieved. In contrast with other modes of transport, changes to en-route airspace do not require major infrastructure. Most associated performance improvements can be achieved during RP2.

- 3.3.5 Additional opportunities to improve flight efficiency and capacity are expected from the application of the Advanced FUA concept (AFUA) which is currently being developed.
- 3.3.6 Implementation of both FRA (Objective 3 the Network Strategy Strategic Plan) and AFUA will be strongly supported by the Network Manager on the operational side.
- 3.3.7 The Pilot Common Project (PCP) is due to provide technical enablers for FRA (see AF#3 in Table 9 below) and EUROCONTROL proposes Centralised Service #4 to optimise the services associated with AFUA.
- 3.3.8 The PCP will also deliver benefits in Flight-efficiency and environmental impact in the Terminal area. This is not subject to targets, but will be measured and will generate benefits for users and the environment in RP2 (See the New Technology section below).

More flexible management of capacity to match demand

- 3.3.9 Thirdly, there is an essential opportunity to be seized in improving both capacity and cost-efficiency through better matching of capacity with demand. Too little en-route capacity generates high delay and too much capacity generates unnecessary costs.
- 3.3.10 Currently, there are many sectors with spare capacity (some 600 out of 700 en-route sectors) and a few sectors with capacity shortages generating high delays. Better matching of capacity with demand would lead to significant improvements in both Capacity and Cost-Efficiency.
- 3.3.11 In spite of a faster increase of average ATCO-hour productivity compared to other network industries (Section 8.8 of Appendix A) in the period of 2002-2010, benchmarking indicates a potential for further improvement in ATCO productivity. Better understanding of the influencing factors (such as public service requirements, H24 operations, density, night restrictions, etc.) will assist to improve the understanding and management of this metric.
- 3.3.12 In recent years, some ANSPs have made significant efficiency gains through dynamic management of sectors and staff rostering that is more closely tailored to demand. Adopting best practices in capacity and human resource management in co-ordination with the Network Manager represents a major opportunity to significantly improve both capacity and cost efficiency. This has an impact on ATCO and en-route ATFM Delay costs, i.e. some €3B per annum.
- 3.3.13 Moreover, airspace released by military stakeholders during periods of high civil demand under the Advanced FUA concept (AFUA) would further help to improve capacity at minimal cost.
- 3.3.14 In the longer-term, the implementation of advanced concepts such as Virtual Centres will facilitate a shift in capacity also between Area Control Centres (ACCs). Extra training and licensing would be necessary. For example, skyguide plans to combine both Zürich and Geneva Centres into a Virtual Centre in RP2. This will allow them to improve efficiency by combining operations at night and in many other ways.
- 3.3.15 Sectors should also be made easily reconfigurable - e.g. combining sectors together in light traffic. This is already done by a number of ANSPs.
- 3.3.16 Common projects should include the corresponding technical enablers.

New technology

- 3.3.17 Fourthly, the deployment of new technology, in line with the ATM Master Plan, including the Interim deployment programme (IDP), the Pilot Common Project (PCP) and other items agreed through the new deployment governance arrangements, should also lead to faster and stronger performance improvements - The Commission has clearly stated that deployment should be performance-based. Corresponding opportunities and constraints must be taken into

account in proposing performance targets. The adoption of corresponding interoperability Regulations could facilitate the convergence of the different initiatives.

3.3.18 Table 9 gives a list of IDP and PCP tools that are designed for more efficient and safer operations.

Interim Deployment Programme	Pilot Common Project
1. Collaborative flight planning and demand/capacity balancing	AF#1: Extended AMAN and PBN in high density TMAs
2. Airspace management improvements and data sharing	AF#2: Airport integration and throughput functionalities
3. Airport CDM	AF#3: Flexible Airspace Management and Free Route
4. Air-Ground Data Link	AF#4: Network Collaborative Management (Flow and NOP)
5. Automated assistance to controllers for seamless coordination, transfer and dialogue	AF#5: iSWIM functionality
6. RNP approaches	AF#6: Initial Trajectory Information Sharing (i4D)
7. CDO/CCO application	

Table 9: Interim Deployment Programme and Pilot Common Project

3.3.19 Implementation of the PCP is expected to have a positive impact on ANS performance towards the end of RP2 and beyond. PRB analysis shows that some IDP elements and PCP AF#3, 4 and 5 (see Table 9) will help to meet the performance targets proposed for capacity and flight-efficiency in RP2. The deployment timing is therefore an important item to be taken into account in setting targets for RP2.

3.3.20 Approximately half of the benefits from the PCP are expected in the terminal areas and at airports, according to the PCP's cost-benefit analysis. As this is not subject to target-setting in RP2, these benefits will be in addition to those to be achieved under RP2 targets. This fact highlights the complementary nature of SES tools - the Performance Scheme and SESAR deployment - which all help to meet the broader SES objectives.

3.3.21 Several concepts will help optimising flight profiles from/into airports and airport throughput, such as the Extended Arrival Manager (Extended AMAN), Point Merge, Airport Collaborative Decision-Making (A-CDM), Continuous Descent Operations/Continuous Climb Operations (CDO/CCO). The Pilot Common Project will help to deploy the technical infrastructure, standardisation and procedures supporting these concepts where required (AF#2: airport integration and throughput functionalities).

3.3.22 A large part of capital expenditure associated with the implementation of the PCP on the ground will be borne during RP2. The PRB assumed in its report on target ranges for RP2 (published in January 2013) that capital expenditure corresponding to technology deployment could be accommodated within current values in the order of €1 billion per annum. The PCP Proposal indicates that the PCP should be deployed without any increase in total investment costs. The PRB's assumption is therefore confirmed and capital expenditure for deployment of the PCP is included in the PRB's proposal.

3.3.23 The PRB proposes a slower decrease in cost over the first two years of RP2, in order to allow States and ANSPs time to plan for the greater reductions required in the later years of RP2. This profiling also enables investment in the early years that are potentially required over RP2. Capital expenditure on new infrastructure is vital to keep the ATM system running well, but it can be shared and so optimised. Centralised services are one way to achieve this.

Rationalisation of service provision and oversight

- 3.3.24 Another opportunity for major improvements in all performance areas is through rationalisation of Air Navigation service provision and oversight. The current fragmentation of the European ANS system is acknowledged as a weakness [Ref. xi] and results in significantly lower performance than achievable in a true Single European Sky. States and ANSPs working together can achieve much more than in isolation.
- 3.3.25 The main objective of FABs is to reduce the fragmentation of ANS and rationalise service provision and oversight. FABs are progressing, but the performance benefits are slow in materialising. To a large extent, ANSPs still tend to operate in silos, independently from others, and there is limited cooperation between oversight authorities. This fragmentation compounds inefficiency.
- 3.3.26 There is clear potential to strongly improve ANS performance in Europe through rationalisation of service provision and oversight. It could be done in many ways, including:
- Consolidation or sharing of oversight authority, which EASA rules should facilitate;
 - Consolidation or sharing of support services, such as administration, safety management, procurement, infrastructure, maintenance, meteorological services, training and flight calibration in a FAB or group of ANSPs;
 - Centralised services for services best provided at pan-European level, as proposed by EUROCONTROL;
 - Consolidation of en-route facilities, such as merging some ACCs in one state or in several - like NUAC;
 - Virtual centres, offering nearly the same operational and technical benefits as facility consolidation, without the human and transition issues associated with relocation;
 - Liberalisation of CNS provision and of ATS at towers (as has been done in Germany, Spain, Sweden and the United Kingdom).
- 3.3.27 The largest part of investment costs is related to software. The common procurement, operation and maintenance of software-based systems offer opportunities for large savings through scale effects. Moreover, it helps interoperability, the synchronisation of upgrades and maintenance. Finally, it gives more buying power to ANSPs, which helps reducing procurement costs.
- 3.3.28 Infrastructure, such as data-link and surveillance, can be optimised by the sharing of ground stations in overlapping areas.
- 3.3.29 Defragmentation and rationalisation can be achieved through FABs or other forms of regional co-operation. Some ANSPs already share the costs of system development, deployment and upgrades. For example, six ANSPs are associated in COOPANS; one of them - the Irish Aviation Authority - has stated that it has managed to reduce the costs of replacing its flight data processing systems by 30% to date. Similar orders of magnitude can be expected elsewhere.
- 3.3.30 The PRB considers that the combination of enforceable targets and incentives will give FABs and States opportunities to significantly improve performance, in particular by encouraging the rationalisation of service provision through FABs or otherwise.
- 3.3.31 The rules applying to SESAR deployment governance and any related EC funding should encourage and possibly even mandate the rationalisation of technical services and harmonisation of systems.
- 3.3.32 Finally, States can also collaborate on oversight matters.
- 3.3.33 It is important to start the rationalisation of service provision and oversight already in RP2 so that initial performance benefits can accrue in RP2, and that full benefits materialise as early as possible.

The start of ANS restructuring

- 3.3.34 Finally, while some level of rationalisation can happen through collaborative arrangements, deeper restructuring of ANS will be needed to fully achieve the benefits of ANS rationalisation. This has already been done before in Europe: consider the airframe industry and the changes it underwent in creating Airbus in a competitive environment.
- 3.3.35 The range and magnitude of performance improvements that can be achieved through restructuring are massive - but they will take time to put into place and so will extend into RP3 and beyond. It is however important to take a long term perspective on ANS performance and establish now the basis upon which benefits can be delivered in RP3 and beyond.
- 3.3.36 Restructuring should apply to ANSPs and oversight authorities over the next 10 - 15 years. Of course, this will entail costs but provision has been made in Article 7 (4) of the Charging Regulation for one-off restructuring costs.
- 3.3.37 ANS restructuring can take many forms. Any restructuring should be performance-driven, well planned and managed, and involve all concerned parties. The SES fifth pillar could provide the framework for addressing associated Human Capital issues at European level.
- 3.3.38 Restructuring would prepare the ground for major performance improvements beyond RP2. It is not expected to have much impact on performance targets for RP2 as benefits would arise mainly beyond RP2 and authorised one-off restructuring costs are outside the target setting process.

3.4 Interdependencies

- 3.4.1 In proposing performance targets, it is also important to understand interdependencies between KPAs, as performance improvements in one area could have negative consequences in other areas. Dependencies with external factors such as traffic volume and complexity also need to be considered.

Safety

- 3.4.2 Safety establishes mandatory requirements in ATM operations and is a KPA to which assessments of all the other performance areas should be linked. It is the only KPA that is not assessed in monetary values, using e.g. the Total economic cost concept (TEC, see § 3.5).
- 3.4.3 Today, Europe is assessed as being well above the minimum acceptable air safety levels, as defined by EASA. However, within these boundaries, there is still room for improving safety performance levels overall and hence specific safety targets are being set for RP2. These will help the change management process by identifying and managing safety risks through reporting and monitoring systems.
- 3.4.4 The PRB maintains that safety performance is about managing risk - and feels that safety management systems, safety plans and safety cultures can still be significantly improved by national Just Culture programmes, as well as by Community-wide initiatives and targets.
- 3.4.5 The PRB recognises that efforts will be required within most States and ANSPs during RP2 in order to reach safety targets. Safety should continue to have primacy and should never be compromised whilst trying to achieve a target in a different KPA.
- 3.4.6 Evidence show that implementation of Safety Management Systems comes at an affordable price. Therefore, Safety targets, even if challenging for some, can be met without unduly affecting cost-efficiency.
- 3.4.7 The PRB recognises that certain interdependencies between safety and other KPAs exist, however firmly believes that the system is far from the state when these can have a negative influence on the ability to achieve targets in RP2.

Other KPAs

- 3.4.8 Providing greater capacity may entail extra costs, through investment in new technology and procedures (e.g. RVSM) or extra staff. It may also involve reducing cost by deploying ATCOs according to traffic demand. The interdependency between capacity and cost-efficiency is relatively well understood. Optimum capacity is defined as when the marginal cost of additional capacity equals the cost of additional delays. Optimum capacity is taken into consideration by both the PRB in setting capacity targets and by the Network Manager.
- 3.4.9 There is some interdependency between en-route capacity and flight-efficiency: more structured routes, such as one-way routes, offer more capacity but are less efficient from the environmental and operational perspectives. This does not appear to be a hard constraint at the moment, as a high level of flight-efficiency can be achieved with Free Route Airspace, even in very dense en-route areas.
- 3.4.10 There is some interdependency between flight-efficiency and cost-efficiency. Sophisticated flight planning systems take unit rates into account; they can plan longer but cheaper routes as they fly round more expensive ANSPs. This wastes capacity already made available in the States with higher costs - and drives up costs in those States which used to have lower costs, as demand on non-traditional route structures increases. Behaviours induced by the performance and charging regulations will need to be monitored and analysed further.
- 3.4.11 Complex interdependencies exist between ANS capacity and flight efficiency in terminal areas, airport capacity and noise. At this stage, performance in these areas is subject to measurement but not to target-setting. The Pilot Common Project and the European Commission's airport package - both of which will be introduced during RP2 - are expected to tackle some of these issues, in a way that will be complementary to target-setting.

Dependencies with external factors

- 3.4.12 There are dependencies between all KPAs and external factors, such as traffic and complexity.
- 3.4.13 Traffic volume is a key parameter of performance. It has a positive impact on cost-efficiency as costs can be spread over a larger volume. But higher traffic requires higher capacity. The traffic risk sharing mechanism offers additional revenue to ANSPs when traffic is higher than planned within the alert threshold, which generally covers the marginal costs of additional capacity.
- 3.4.14 Other external factors include traffic complexity, variability, etc. While these may have an influence at local level, no significant influence is expected at aggregate EU level over RP2.

PRB conclusions on interdependencies as far as EU targets for RP2 are concerned

- 3.4.15 Flight efficiency and capacity will need to be understood and integrated in the users daily operations plan, in order to get the full benefit of the Network Manager's proposed measures over RP2.
- 3.4.16 Overall, the PRB concludes that there are significant margins for improvement in all KPAs during RP2 and that interdependencies between them do not form an insuperable barrier to the setting of ambitious targets at EU level.
- 3.4.17 The same is not necessarily valid at local level. It is expected that greater clarity on local interdependencies will be provided by FABs in their performance plans.

3.5 Total Economic Cost (TEC)

- 3.5.1 Over the years, the PRB has used the Total Economic Cost concept (see box below) to quantify the ANS-related costs borne by airspace users, to identify opportunities for improvements and their magnitude, and to obtain insights into the interdependencies.

Total economic cost concept

Airspace users pay for route and terminal charges, but also for indirect costs caused by delay and flight inefficiency. The three added together make up the Total Economic Cost (TEC).

Airborne equipment is not included in the TEC computation due to lack of precise information, and would need to be added to get a full picture of ANS-related costs borne by airspace users.

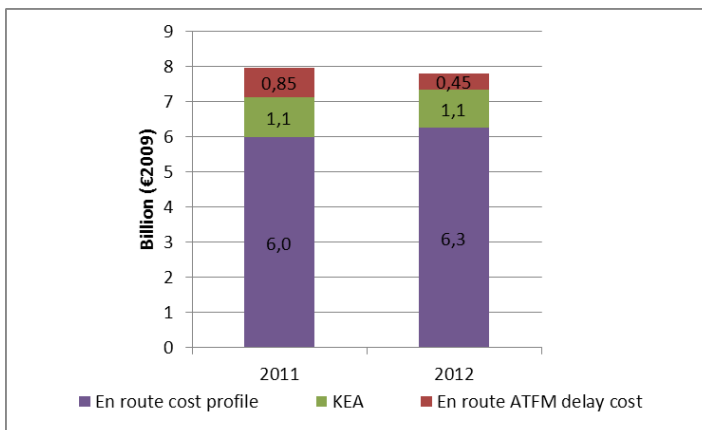


Figure 3-3: Estimated TEC – SES area, En-route only

- 3.5.2 The en-route TEC in the SES area is in order of 8 billion euro per annum, as shown in Figure 3-3, i.e. 40 billion euro over five years. This estimate is different from that published in PRR 2012 (figure 2-28) [Ref. xii], as it covers a different scope (en-route vs. gate-to-gate; SES area vs. EUROCONTROL area) and uses more precise models to compute flight-efficiency values.
- 3.5.3 The PRB’s principal objective in proposing targets for RP2 was to reduce the Total Economic Cost subject to target setting- while maintaining safety levels and safeguarding the military’s requirements.
- 3.5.4 Figure 3-4 shows the projected TEC under the baseline traffic scenario. It decreases in absolute terms while traffic increases.
 - Savings in cost-efficiency constitute the major part of savings in TEC.
 - Flight-inefficiencies, fuel burn and environmental impact of CO₂ emissions decrease in absolute terms while traffic increases. The proposed target therefore ensures carbon neutrality of aviation as far as ANS is concerned, before the target date of 2020.
 - The delay costs increase slightly, in line with traffic, starting from a small base thanks to a challenging target to be achieved at end of RP1.

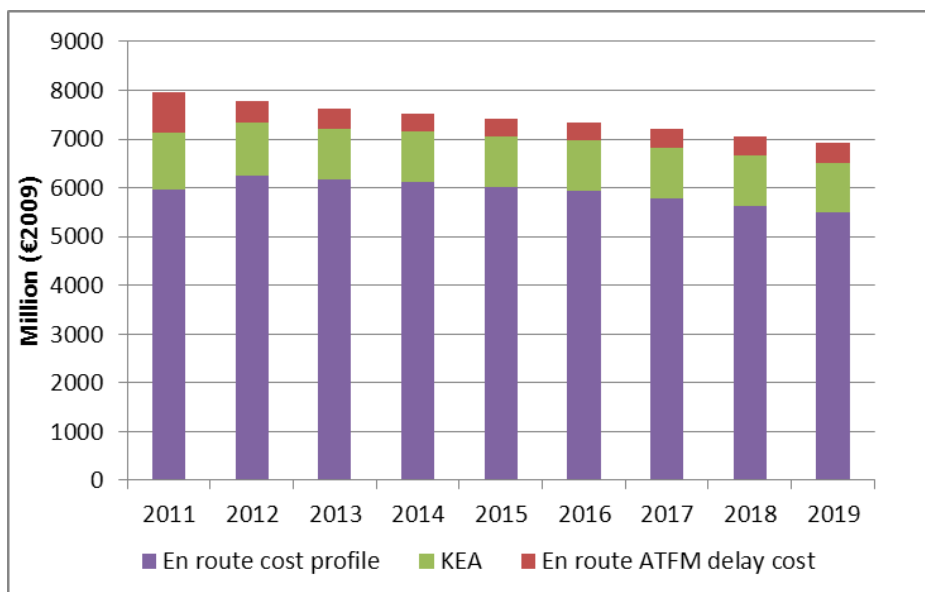


Figure 3-4: Projected TEC (Baseline traffic scenario)

3.5.5 Figure 3-5 shows the large positive impact of proposed targets on Total Economic Cost over the entire RP2 period, i.e. €7600M savings versus the 2012 performance baseline (some 21% of TEC cumulated over RP2). This shows a major contribution of the performance scheme towards achieving the objectives of the Single European Sky. These savings are sensitive to traffic and would reduce to €5400M in the low-traffic scenario.

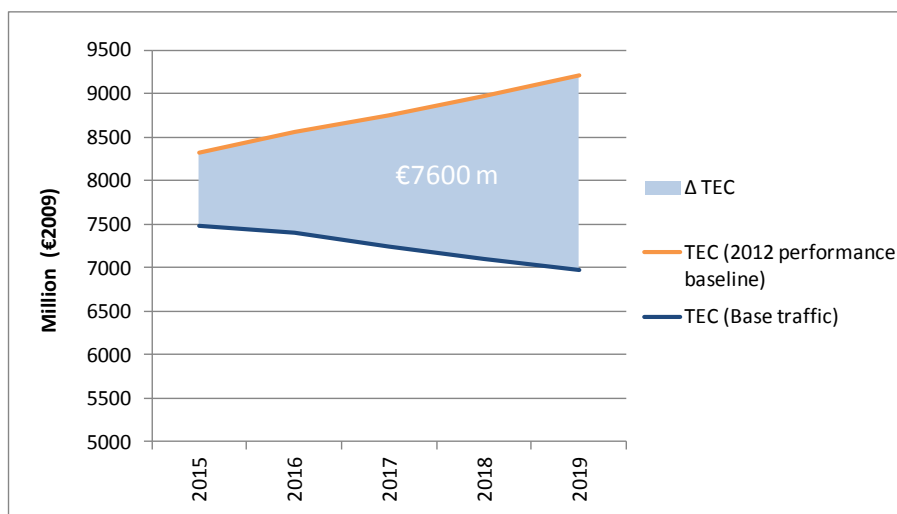


Figure 3-5: Impact of proposed targets on TEC (Baseline traffic scenario)

3.5.6 Figure 3-6 shows the impact of proposed targets on total economic cost per flight, which is of most immediate relevance to civil airspace users. The proposed targets will result in strongly decreasing TEC per flight in RP2. There is a marked influence of traffic growth on improvement.

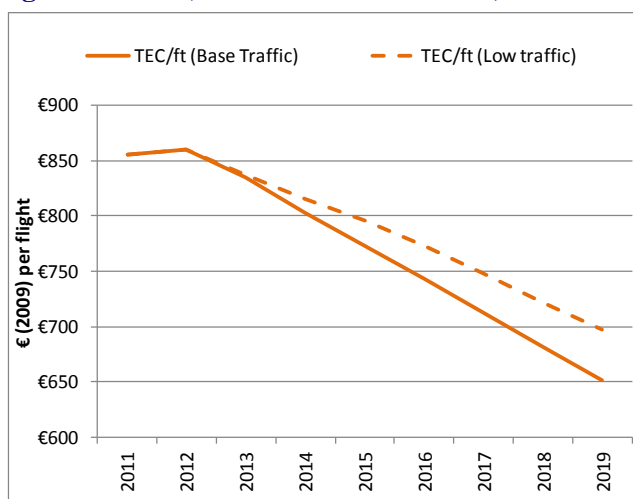


Figure 3-6: Projected TEC per flight

3.5.7 Finally, Figure 3-7 shows the breakdown of actual/projected TEC per flight in the three KPAs resulting from PRB’s proposed targets.

	2012A	2014P	2019P
TEC per flight (€2009)			
En route ATFM delay cost	50	40	40
Route extension cost (KEA)	119	115	98
En route cost profile	691	648	513
Total	860	803	651

Figure 3-7: Breakdown of TEC per flight

4 Stakeholder consultation

4.1 Scope of consultation

- 4.1.1 The public consultation document [Ref. iii] contained 16 questions covering Safety, Environment, Capacity, Cost-efficiency and Union-wide targets and Alert thresholds. The consultation was conducted through the European Commission's 'Your Voice' web based questionnaire. This document provides an analysis of the comments received and the PRB responses to the comments. This analysis has informed the development of the PRB's final recommendations to the Commission.
- 4.1.2 A detailed consultation report "Union-wide target proposals - Consultation response document" is attached to the Report as "Appendix B".

4.2 Comments received

- 4.2.1 By 3 July 2013, the closing date, comments were received from 63 organisations and individuals representing all aspects of the air transport industry. A full list of respondents is provided in Table 10. The responses cover 24 States and 11 European or multinational organisations. At least one response was received from each State, except: Malta, Cyprus, Lithuania, Slovakia, Croatia and Iceland. The magnitude and quality of responses received from all stakeholders provides a clear indication of the importance of the Union-wide targets.
- 4.2.2 EASA's response was provided as free-form comments and is not included in the statistics presented in the following chapters; the comments are, however, discussed in the relevant sections.
- 4.2.3 Respondents were characterised by their industry sector. Figure 4-1 provides a breakdown of responses by stakeholder type.

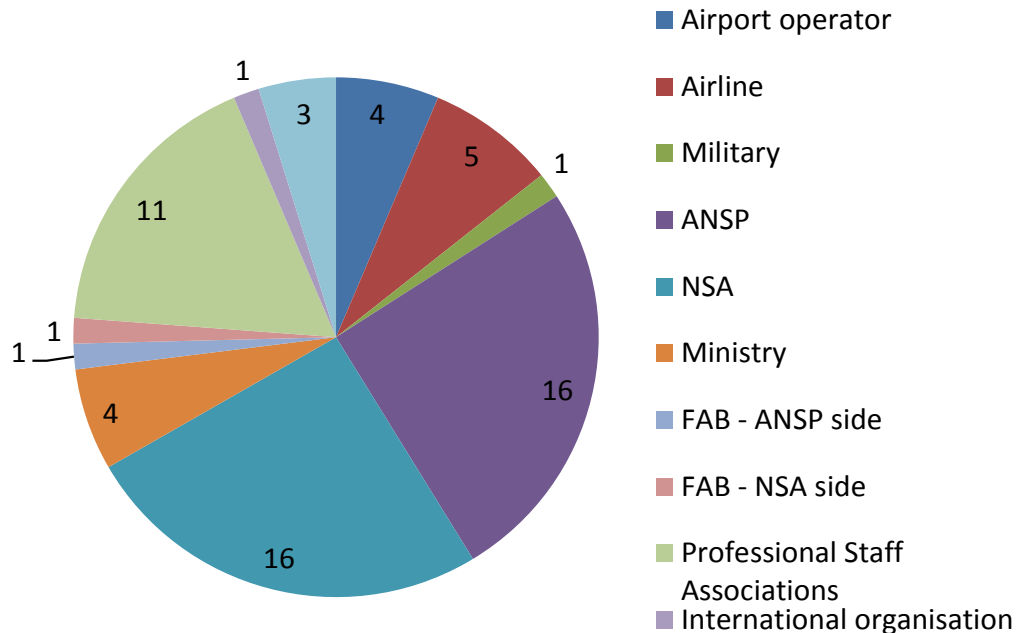


Figure 4-1: Distribution of respondents

Stakeholder type	Total	Names of respondents
Airport operator	4	ADP, Dusseldorf Airport, Heathrow Airport, Swedavia
Airline	5	IATA and AEA, IACA, LOT, Ryanair, ERA
Military	1	Spanish Air Force
Air Navigation Service Provider (ANSP)	16	AENA, ANS CR, Austro Control, BULATSA, CANSO, EANS, ENAV, EUMETNET, HungaroControl, IAA (ANSP), LFV, LGS, NATS, Nav Portugal, Polish ANSA, ROMATSA
National Supervisory Authority (NSA)	16	AESA, Belgian CAA + Belgian NSA, Bundesaufsichtsamt für Flugsicherung, CAA Czech Republic, CAA-Norway, Civil Aviation Authority of Italy, DGCAA Bulgaria, Estonian CAA, Finnish NSA, Hellenic ANSA, IAA (NSA), Polish CAA, Portuguese CAA, Romanian CAA, The Danish Transport Authority, UK national authorities
Ministry	4	Federal Office of Civil Aviation Switzerland, French State, Ministry of Infrastructure and Environment (Netherlands), Ministry of Transport (Czech Republic)
FAB - ANSP side	1	FABEC ANSPs
FAB - NSA side	1	FABEC Financial & Performance Committee
Professional Staff Associations	11	ACV TRANSCOM, European workers Transport Federation (ETF), Finnish Air Traffic Controllers association, GATCO, IFATCA, IFATSEA, Prospect Trade Union and PCS Trade Union, SINCTA, SwissATCA – Swiss Air Traffic Controllers’ Association, USCA - Air Traffic Control Officers Spanish Trade Union, ZZKRL (Polish ATC Union)
Int. organisation	1	EUROCONTROL
Other	3	Citizens

Table 10: Summary of respondents by stakeholder type

4.2.4 The following responses represented multiple organisations:

- Airlines: IATA and AEA, IACA and ERA;
- ANSPs: CANSO, EUMETNET and FABEC ANSPs (no individual responses);
- National Authorities: Belgian CAA and NSA (under NSA), UK Authorities (CAA, DfT and MoD) (under NSA), FABEC NSAs (additional individual responses included).

4.3 Statistical analysis

4.3.1 Most of the questions asked had a range of predefined answers (for example Yes, No, Other) and a free-form comment. In order to analyse the comments, statistics are presented on the level of each fixed response for each stakeholder group.

4.3.2 The PRB has considered the range of responses from each stakeholder group in order to determine the nature of the feedback received. In particular the PRB note that the written comments often indicate that stakeholders would have preferred an additional option. The statistics are only presented to help readers understand the range of responses.

4.4 Clustering of the comments

4.4.1 When similar comments on proposed targets or methodology were received, they were put into clusters and handled together. They are identified by a reference number, for instance “ECO 01”, which is used in this Report for ease of reference and traceability.

5 Safety target

5.1 PRB Initial Proposal

5.1.1 Table 11 contains the PRB initial proposed targets for the two Safety performance indicators as contained in the Consultation Document (see Appendix A).

EoSM: Effectiveness of Safety Management of States/NSAs	
Projected value (2014)	Target (2019)
Most but not all NSAs will have achieved at least EoSM Level C in all Management Objectives (MOs).	All NSAs have achieved at least EoSM Level C in all MOs.
EoSM: Effectiveness of Safety Management of Service Providers	
Projected value (2014)	Target (2019)
All ANSPs will have achieved EoSM Level C in all MOs.	All ANSPs have achieved EoSM Level D in all MOs.
Severity Classification: Application of the RAT Methodology by States	
Projected value (2014)	Target (2019)
It is not expected that all other investigation entities (e.g. CAAs/NSAs) should be applying severity classification via the RAT methodology by 2015.	By the end of RP2, all NSAs/States should be reporting ATM Overall using the RAT methodology for severity classification for almost all reported occurrences (i.e. 99%).
Severity Classification: Application of the RAT Methodology by Service Providers	
Projected value (2014)	Target (2019)
It is expected that by the end of RP1, all ANSPs should be applying severity classification via the RAT methodology.	By the end of RP2, all ANSPs should be reporting ATM Ground using the RAT methodology for severity classification for all reported occurrences (i.e. 100%).

Table 11: PRB consultation proposal - Safety

5.2 Stakeholders' comments

EoSM 01 Most stakeholders consider proposed EoSM target ambitious but achievable. ANSPs suggest that a more granular approach to target setting for EoSM might be needed.

EoSM 02 Some stakeholders are concerned with potential costs of requiring all ANSPs to move to EoSM Level D for all MOs.

RAT 01 Stakeholders see the proposed RAT target as being too ambitious for NSAs.

RAT 02 Most stakeholders, however, support the ANSP target albeit with reservations about the approach to ATM specific events.

5.3 New elements considered by the PRB

5.3.1 PRB considered that during the period following the stakeholder consultation and leading up to the publication of this report that no further elements emerged which could have affected the PRB analysis and/or suggested targets.

5.4 PRB opinion

5.4.1 Based on the rationale provided in the consultation document and in reply to the stakeholders comments described above, the PRB is of the opinion that:

EoSM 01

5.4.2 PRB considers the suggestion that a more granular approach to target setting for EoSM for ANSPs might be required was a valid one. They asked EASA whether there is a need to revise the proposed target. Several options were considered, including:

- Setting target on EoSM score;
- Introducing more focused targeting, concentrating on only MOs where a higher maturity level is mostly desired to ensure an effective management of safety and going beyond pure compliance;
- Setting EoSM targets on Level C in EoSM with an overall EoSM score of 75 or 80 (out of maximum 100).

5.4.3 The proposal to achieve level D in all MOs is indeed challenging. However, the PRB and EASA feel that it is still achievable (as well as necessary) by the end of 2019. This is also the opinion of the majority of stakeholders (who responded to the consultation questionnaire). Some 80% of stakeholders supported the current PRB proposal for EoSM targets and either fully or partially agree with the proposal (note that 13% have no opinion, so this percentage would be even higher if that portion of stakeholders were to be excluded).

Note that a Maturity Level is assigned to each MO and is defined to be the lowest response (A - E) in each MO. An overall Maturity Level for the NSA or ANSP is similarly defined to be the lowest response to any MO. So, achieving level D in one MO assumes that the lowest response of all questions within that MO is Level D.

5.4.4 The PRB's view is that setting the target for EoSM on Level C only for ANSPs, might be not challenging enough, as the majority of ANSPs (65%) were already on that level in 2012 (see Figure 3 of RP2 Union-wide Targets Ranges for Stakeholders Consultation-May 2013). In addition, simply setting targets merely on EoSM overall scores could hide the real problems in an organisation's safety management.

5.4.5 As is indicated in §5.4.14 in the target setting consultation proposal, it is indeed important to look at the EoSM results both in terms of EoSM overall maturity score and in terms of maturity levels. However, as EoSM Score gives only a high-level picture of the general status of the organisation's SMS, and it shows whether the ANSP is mostly managing performance or it is still in the process of implementing the mandatory regulations and achieving the minimum standards of maturity, it can hide the lack of effort and unimproved performance levels in some of the most critical areas of safety management. Therefore, the PRB's proposal to set targets for EoSM on all MOs will avoid this significant smoothing effect, and it is deemed more appropriate. Nevertheless, by combining the two, a more complete picture can be built, so the PRB and EASA will continue to monitor EoSM overall scores in the future as well.

5.4.6 Moreover, 2012 results show that already more than half of service providers are at or above an EoSM score of 75, therefore, setting an Union-wide target for EoSM for ANSPs to reach 75 or 80 by end of 2019 seems not challenging enough, as Safety in the Performance Scheme again can be seen as not being given sufficiently high priority.

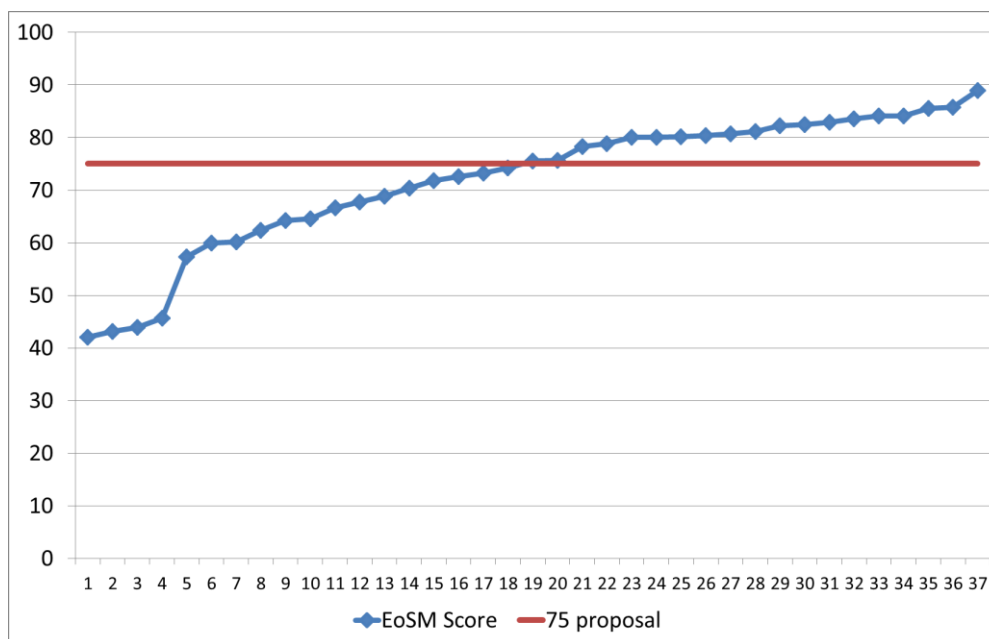


Figure 5-1: 2012 EoSM score for ANSPs

- 5.4.7 Indeed, the whole concept of SMS was introduced many years ago, before the introduction of the Performance Scheme. One would assume that it would already have been implemented by many, if not all, service providers in Europe. However, the fact that this is not the case raises several issues. The PRB and EASA are of the view that improvements in safety management are of highest importance: stakeholders need to make Safety their highest priority.
- 5.4.8 For this reason, the PRB and EASA are of the opinion that even though there is a possibility that small number of ANSPs might not be able to reach Level D in all MOs by the end of 2019 it is important to set challenging targets in order to motivate all stakeholders to consecrate additional effort into implementing safety management throughout the European ATM system. This will in turn help in achieving, and maintaining the high level of safety - an essential objective of both ATM and of the SES initiative.
- 5.4.9 Lastly, the PRB agrees that by basing targets on the lowest level achieved within MOs, the full picture for either a FAB - or for the States that make up FABs - will not be reflected in the target level achieved. Therefore, as also suggested in the Performance Regulation 390/2013, it is necessary and important to continue to monitor the individual Member States scores so as to obtain an overall picture as well as the targeted minimum score.

EoSM 02

- 5.4.10 The PRB has taken into consideration the concern of some stakeholders about the potential costs of requiring all ANSPs to move to EoSM Level D for all MOs. The PRB recognises that material progress will be required within ANSPs during RP2 in order to reach Level D in all MOs. However, it is of the opinion that safety should be the number one priority and that a generally low perceived value of safety initiatives that clash with the predominantly financially driven decision making processes in ANSPs should not be an impediment to safety improvements in Europe.
- 5.4.11 The perception of some ANSPs that the PRB may have underestimated the cost and amount of work required to move from Level C (or below) to Level D, is therefore deemed to be unsupported, although the PRB acknowledges that substantial effort will be required by some ANSPs - not only in the production of more formal SMS processes, but in embedding these processes within the organisation. In establishing their plans for RP2, both Member States and ANSPs must ensure the necessary high level of safety through adequate resources planning and sufficient investment. This is clearly not negotiable.

5.4.12 For this reason, the PRB and EASA are of opinion that target for EoSM for ANSPs to reach Level D in all MOs by the end of 2019 is appropriate, although challenging. They consider that this will allow for substantial improvements in both the implementation and performance of safety management throughout the European ATM system. Performance targets are set with a long term perspective, and although changes may generate costs in the short term, the overall system will benefit from greatly improved performance in the longer term.

RAT 01

5.4.13 The PRB considers that a valid point was made by the stakeholders so it re-checked the assumptions about the proposed severity classification (RAT) target, seen as challenging for NSAs. After careful review, the PRB is of the view that some organisations will find the target very challenging, due to factors such as: a lack of available resources for investigation and risk assessment that are adequately trained; the absence of a strong reporting culture; or if they do not have the embedded automated systems to enable easy reporting and analysis of data. Moreover, EASA also considers this target very challenging, but fully supports the drive towards improved and increased severity classification of occurrences.

5.4.14 The target is seen as challenging because many NSAs still lack sufficient resources, skills and competence to ensure that all (or almost all) occurrences are classified. Furthermore, the continuing increase in reporting levels may exacerbate the resourcing problem. There is a clear need for dedicated resources that deal with the analysis and classification of the reported occurrences, however, the experience of EASA Standardisation Directorate is that this has not yet been implemented in many States.

5.4.15 Indeed, the main common European issue at the moment appears to be the lack of NSA resources or the lack of efficient use of NSA resources. The PRB has already reported on the imbalance of NSA resources across Europe in their assessment of the National Performance Plans for RP1. To address this, the PRB and EASA during the review of the National Performance Plans for RP1, have recommended to EUROCONTROL that it increases the training and support that it provides to RAT users, focussing particularly on NSAs. Furthermore, where small NSAs do not have sufficient resources, they should consider creating working arrangements with their FAB partners to pool their resources and make the process more efficient.

5.4.16 The PRB and EASA are of view that the proposed severity classification target for NSAs is indeed very challenging however still achievable by the end of 2019, provided that they receive adequate technical support on the use of the RAT methodology and pool resources wherever necessary. The PRB agrees however, that the formula "for almost all reported occurrences" leaves room to variation in interpretations and that indeed the clear guidance materials are required to cover the data collection processes.

5.4.17 In addition to adequate resources, the application of the severity classification by NSAs depends on the quality and timely availability of information from both the ANSPs and other entities, including in some cases entities for which NSA has no oversight authority. It is assumed that the reports received by NSAs from ANSPs should already contain ATM Ground classification; however if this is not the case, or if input from other sources suggest that severity was different to that assessed by the ANSP, NSA may need to perform a more in-depth analysis of occurrence. The chain of reporting implies that NSAs may be powerless to properly apply the severity classification and to meet the target, without simply resorting the coding "D-not determined". This will be counter-productive to the aim of both improving and increasing severity classification of occurrences.

5.4.18 Although very similar, the severity classification schemes for operational and technical occurrences are quite different in scope. Whilst the operational occurrences are classified according to the severity of their effect on the safe operations of aircraft and occupants, the severity of the technical occurrences (i.e. ATM specific events) is measured based on their effect on the ability to provide safe Air Traffic Management Services. For this type of

occurrence the ATM Ground score is identical to the ATM Overall. It is therefore expected that Member States will be in the possession of all the data necessary to review the severity of such reported occurrences.

- 5.4.19 Overall, as indicated in Consultation Document, during RP2, the application of the RAT methodology could significantly increase provided that:
- States/NSAs optimise use of resources and calculate the “ATM Overall score” whenever it cannot be calculated by ANSPs, obtaining data from airspace users as required.
 - All Stakeholders establish an appropriate SMS interface and exchange data and expertise to investigate specific occurrences.
- 5.4.20 Therefore, after careful examination of current evidence and consultation with EASA, the PRB suggests that proposed severity classification (RAT) target for NSAs is, although very challenging, highly required. The extensive and consistent use of standardised taxonomy and RAT methodology will contribute to the quality, consistency and harmonisation of safety reports and analysis on EU-level.
- 5.4.21 In addition, the PRB recommends that all Regulators (NSAs)/States should provide relevant information about the cases where ATM Overall using RAT methodology was not reported. This information should include whether the occurrence has an on-going investigation or whether information has not yet been submitted to the NSA or awaits clarification.
- 5.4.22 The PRB acknowledges that the application of reporting of the severity classification using the RAT methodology is not sufficiently well explained to the stakeholders and this may lead to differing interpretations and expectations of the proposed future target and impending resource requirements. As a result, both EASA and PRB will have to consider the best means to provide support and guidance to the stakeholders in both achieving and reporting on this safety target.

RAT 02

- 5.4.23 The PRB re-checked the severity classification target for ANSPs with regards to the application of RAT methodology for ATM specific events. The PRB found that the margin of uncertainty is within the tolerance so it sees no need to revise the proposed target.
- 5.4.24 Indeed, for ATM specific events it will be very important to obtain consensus on using the scheme in a consistent way across all ANSPs in Europe. Nevertheless, the PRB and EASA are of opinion that although the application of the RAT methodology for ATM specific events will not be easily applied at the beginning, as there still might be some uncertainties with application and definitions, they fully support its full implementation across Europe. Implementation of the RAT methodology will, besides full harmonisation of severity classification of occurrences, allow ANSPs across Europe to learn from each other in dealing with events that occur with a very low frequency.
- 5.4.25 Overall, States will need to apply additional effort to enable further enhancements in reporting and application of RAT methodology by seeking, planning and applying training on this matter. Both the PRB and EASA are committed to work with stakeholders to provide support and guidance in reporting of this safety indicator.

5.5 PRB recommendations for RP2 Union Wide Safety Targets

- 5.5.1 The PRB considers the proposed Safety RP2 targets challenging but achievable. Table 12 provides a snapshot of the proposed safety targets. Some of the elements considered by the PRB as a basis in proposing the Safety RP2 targets are:
- Results of the EoSM and severity classification monitoring;
 - On-going and planned pan-European activities for the optimisation and harmonisation of the RAT methodology application;

- On-going and planned support and guidance by EUROCONTROL, PRB and EASA in reporting severity classification safety indicator.

5.5.2 Considerations on the adequate level of ambition:

- PRB considers Safety to be number one priority

KPI	Target 2019
EoS: Effectiveness of Safety Management of States/NSAs	All NSAs have achieved at least EoS Level C in all MOs.
EoS: Effectiveness of Safety Management of Service Providers	All ANSPs have achieved EoS Level D in all MOs.
Severity Classification: Application of the RAT Methodology by States	By the end of RP2 all Regulators (NSAs)/States should be reporting ATM Overall using the RAT methodology of severity classifications for almost all (i.e. 99%) reported occurrences (separation minima infringements, runway incursions, and ATM specific events) and provide relevant information about the cases where ATM Overall using RAT methodology was not reported.
Severity Classification: Application of the RAT Methodology by Service Providers	By the end of RP2, all ANSPs should be reporting ATM Ground using the RAT methodology for severity classification for all (i.e. 100%) reported occurrences (separation minima infringements, runway incursions, and ATM specific events).

Table 12: Safety proposed Union-wide targets for RP2

6 RP2 Union-wide Environment target

6.1 PRB Initial Proposal

6.1.1 Table 13 contains the PRB initial proposed range for the Environment KPI targets as contained in the Consultation Document (see Appendix A).

KEP: The average horizontal en route flight efficiency of the last filed flight plan		
Value (2009)	RP1 target (2014)	Range (2019)
RP1 Baseline	4.67%	4.1%-4.4%
KEA: The average horizontal en route flight efficiency of the actual trajectory		
Value (2009)	RP1 target (2014)	Range (2019)
N/A	N/A	2.50%-2.75%

Table 13: PRB consultation proposal – Environment

6.2 Stakeholders' comments

- 6.2.1 **ENV 01** Many stakeholders indicated that the horizontal flight efficiency (HFE) metrics failed to measure ANSPs' behaviour as they are directly affected by other factors.
- 6.2.2 **ENV 02** Many stakeholders indicated that the Environment KPA metrics are not yet sufficiently mature. Many stakeholders felt that there is insufficient data to comment on the KEA and KEP target proposals.
- 6.2.3 **ENV 03** Some stakeholders point out the implementation of Free Route Airspace (FRA) is indeed a key enabler of horizontal flight efficiency. However, some stakeholders point out that those who have already achieved FRA will not have room for further improvement.

6.3 New elements considered by the PRB

- 6.3.1 There were no further elements emerging from the consultation which could affect the suggested range of targets (the range proposed by the PRB is contained within the range of targets suggested by the stakeholders -3.2% to 4.9% for KEP and 2.0% to 2.75% for KEA).
- 6.3.2 Daily KEA values have been computed for 2011 and 2012 and a few of them are below the target proposed. This confirms that the proposed target, albeit challenging, is not impossible to achieve.

6.4 PRB opinion

ENV 01

- 6.4.1 The PRB recognises that the indicators reflect the outcome of a complex system which involves multiple processes and multiple actors. As a consequence collaboration and engagement of different stakeholders is needed in order to reach the targets. Whilst it is true for example that the ANSP cannot impose a flight plan on an airspace user, it is also true that an airspace user might not be able to file its preferred trajectory because of constraints imposed by ANSPs. The PRB has also highlighted the important difference between KEP and KEA which suggests there is room for improvement in the way the different constraints are considered and the information is shared.

ENV 02

- 6.4.2 The horizontal flight efficiency indicator has been in existence and measured for several years now. There is a long history available for what concerns the indicator based on the last filed

flight plan (KEP),). The KEA trends used to define the initial proposed range were linked to the (mature) KEP trends through the offset between KEP and KEA.

ENV 03

6.4.3 The PRB proposes a target at the Union-wide level. The current level of achievement will be part of the elements taken into account when considering the expected contribution of the FABs to the overall level.

6.5 PRB recommendations for RP2 Union Wide Environment Targets

6.5.1 In establishing the targets, the PRB has taken into consideration:

- The historical performance of the KEP indicator.
- The current performance of the KEP and KEA indicators, in particular for what concerns the offset between the two (used as basis to compute the KEA target).
- Performance improvements achievable from the current airspace planning.
- Performance improvements achievable through the widespread implementation of FRA.
- The conformance with EU policy objectives on emissions.
- Considerations on the adequate level of ambitions.

6.5.2 The gap between KEP and KEA should be closed by making KEP improve at a faster rate than KEA.

6.5.3 In order to avoid the influence of outliers, it is proposed to discard the 10 best and worst days (at Union-wide level) from the calculation of the annual value.

KPI	Target 2019
KEP: The average horizontal en route flight efficiency of the last filed flight plan	4.1%
KEA: The average horizontal en route flight efficiency of the actual trajectory	2.6%

Table 14: Environment proposed Union-wide targets for RP2

6.5.4 PRB considers the proposed targets challenging but achievable.

6.5.5 When the Union-wide target is broken down to FAB level, the PRB recommends that due consideration is given to the current level of achievement.

6.5.6 PRB recommends intermediate annual values to be set, both at FAB and Union-wide level.

7 RP2 Union-wide Capacity target

7.1 PRB Initial Proposal

- 7.1.1 Table 15 contains the PRB initial proposed range for the Capacity KPI target as contained in the Consultation Document (see Appendix A).

Minutes of en route ATFM delay per flight		
Actual Performance (2012)	RP1 target (2014)	Range (2015-2019)
0.63	0.5	0.3-0.6

Table 15: PRB consultation proposal – Capacity

7.2 Stakeholders' comments

Stakeholders' comments, which were focussed on several areas, are addressed in this section.

- 7.2.1 **CAP 01:** Stakeholders' comments revealed differences in interpretation of the legislation regarding the indicator, the target setting and 'exceptional events'.
- 7.2.2 **CAP 02:** Stakeholders had many comments about the existing ATFM delay causes (including ANS controllable / attributable delay); about how delays are classified into the various categories, and about the lack of transparency into the process for attributing delays.
- 7.2.3 **CAP 03:** Stakeholders queried the likely benefits to be gained through SESAR deployment in RP2.
- 7.2.4 **CAP 04:** Stakeholders queried the link between Union-wide capacity targets and local capacity targets especially regarding traffic levels, traffic complexity, and local capacity management.
- 7.2.5 **CAP 05:** Stakeholders queried the specific relationship between the cost of additional capacity and the cost of delay.
- 7.2.6 **CAP 06:** Stakeholders queried the relationship between capacity performance and cost effectiveness.
- 7.2.7 **CAP 07:** Stakeholders queried the possibility of setting capacity targets according to traffic levels, or using bands of capacity performance.
- 7.2.8 **CAP 08:** Stakeholders queried the ability to implement capacity enhancements within the timeframe of RP2.

7.3 New elements considered by the PRB

- 7.3.1 PRB considered that during the period following the stakeholder consultation to the publication of this report there were no further elements emerging which could have affected the PRB analysis and / or suggested targets.

7.4 PRB opinion

CAP 01

- 7.4.1 The indicator, as defined in legislation, and the target setting include ALL causes of en route ATFM delay. The legislation makes it clear that when the EACCC has been activated by the Network Manager as a result of an abnormal reduction in ATM capacity, the delay associated with such a capacity shortfall will not be considered in the capacity performance monitoring. However, such delay shall be recorded and highlighted in the annual monitoring report of the performance scheme.

CAP 02

- 7.4.2 The PRB understands that ANSPs are not able to control all aspects of ATFM delay. The PRB is also conscious of the limitations of today's system for monitoring and attributing delays: delays are often due to multiple factors rather than a single delay cause; the decision on the attribution of delay is the responsibility of the local FMP asking for the regulation; there is no auditing process for ensuring that delays are attributed in a consistent manner across the network. The legislation defines the indicator as including ALL causes of ATFM delay. By monitoring and targeting all delay causes, the improvement of one or more categories will see an improvement in overall performance but the inconsistencies in particular delay attribution will not have an effect on the performance scheme.

CAP 03

- 7.4.3 The PRB gave stakeholders examples of expected capacity improvements, including SESAR related improvements, in the consultation document in order to show stakeholders that the PRB had considered the possible capacity enhancements that may arise. The PRB does not consider that the deployment of SESAR is a critical enabler in meeting the targeted capacity performance, the PRB believes that more effective use of existing technology and processes, such as Flexible Use of Airspace, can produce the required improvements at network level.

CAP 04

- 7.4.4 Although this consultation was specifically focussed on the setting of a Union-wide target for capacity during RP2, the PRB is conscious that the delivery of Union-wide performance depends entirely upon local capacity performance. The network is constructed of individual traffic configurations within individual ATC sectors, within individual sector groups, within individual ACCs, within individual FABs. The characteristics which apply in a specific case do not apply across the network, and vice versa.
- 7.4.5 The PRB considers that the Network Manager, in consultation with the FABs, should break down the Union-wide targets to FAB level.
- 7.4.6 Individual FABs should then, with the assistance and expertise of the Network Manager, break down the FAB targets into local targets, based on the constraints and opportunities that apply at local level.

CAP 05

- 7.4.7 As explained above, whilst the PRB considers that the relationship is valid at network level, it has accepted that this will not always apply in specific cases. The PRB would suggest, however, that the onus should be on an ANSP to show that all options for improving capacity have been considered and judged unsuitable based on factual evidence, rather than a preconception.

CAP 06

- 7.4.8 PRB considered that the same arguments provided for the relationship between the cost of additional capacity and cost of delays (cfr. § 7.4.7 above) are also applicable to this query.

CAP 07

- 7.4.9 Since the legislation requires the capacity target to be set in terms of delay, and notified to Member States in advance of the start of the reference period, it is impossible to set capacity targets according to traffic levels. However, it is possible for individual FABs to consider the differing traffic levels within the FAB and manage the required contribution from each ACC or sector group accordingly.

CAP 08

7.4.10 The performance scheme was established to improve the provision of air navigation services to airspace users. The PRB has noted the tendency for ANSPs to reduce or postpone existing capacity plans whilst providing a level of capacity that is inconsistent with the requisite effort to meet the Union-wide capacity target, and then relying on the superior performance of other ANSPs to counteract the shortcoming. Since capacity enhancements require a significant lead-time to implement, the PRB is concerned about the strategy of some ANSPs that are not implementing sufficient plans now, and wonders how they will be able to respond to any future growth in traffic levels.

7.5 PRB recommendations for RP2 Union Wide Capacity Targets

7.5.1 Taking due consideration of the stakeholder feedback received as part of the consultation process the PRB reviewed the target setting process, including the methodology, for capacity.

7.5.2 Following discussions with the Network Manager, the PRB recommends that the Network Manager should be accountable for the Union-wide capacity performance, with individual FABs being accountable for their respective FAB capacity performance.

7.5.3 The PRB recommends that the Union-wide target should be broken down to FAB level by the Network Manager, in consultation with the FABs.

7.5.4 The PRB recommends that both the Union-wide targets and FAB targets should be binding for each year of the reference period.

7.5.5 Table 16 below shows the proposed Union-wide en route Capacity target, which the PRB considers challenging but achievable.

7.5.6 The PRB accepts the statement made by several stakeholders that capacity improvements take time to be delivered and therefore strongly recommends that Member States, together with the Network Manager, address existing capacity shortfalls and give sufficient priority to implementing additional capacity in advance of traffic growth.

KPI	Target 2015-2019
Minutes of en route ATFM delay per flight	0.5

Table 16: Capacity proposed Union-wide targets for RP2

7.5.7 In proposing this target, PRB considered the past experience. According to PRB analysis, 0.5 minutes of delay per flight is equivalent to more than 98% of flights not constrained by ATC, and this is considered to be acceptable. The focus in this coming RP will need to be on those flights which suffer lengthy delays. This issue is expected to be addressed in the Network Manager's Strategy and Operational Plans.

8 RP2 Union-wide Cost Efficiency target

8.1 PRB Initial Proposal

8.1.1 The Consultation Document published in May 2013 presented the detailed analysis undertaken to support the PRB's initial proposed range for the Cost Efficiency KPI target. The analysis included consideration of:

- Historical trends in the ATM industry;
- The cost structure for ANS provision;
- A comparison against continental US;
- Intra-ANSPs group benchmarking;
- Econometric benchmarking; and
- Cross-industry productivity trends.

8.1.2 In the May 2013 Consultation Document, the PRB described the methodology used to determine the starting point for the cost-efficiency Union-wide targets for RP2. In particular, the PRB considered that the starting point shall refer to the year 2014 (last year of RP1). The starting point shall be expressed in terms of en-route costs and then converted into unit costs using the latest STATFOR traffic forecasts. The PRB also considered that the starting point shall reflect the results of the traffic risk sharing mechanism and therefore possible cost reduction measures implemented by the SES States over RP1 in response to the lower traffic growth than planned.

8.1.3 The PRB proposed using a starting point based on the determined costs (DCs) underlying the Union-wide target adopted by the EC (€6,179M). The PRB considered that this amount which is some €127M lower than the determined costs provided in the adopted NPPs (€6,306M) allowed reflecting the impact of potential cost reduction measures on States costs in 2014 and also to maintain the EC original level of ambition for RP1.

8.1.4 Based on the results arising from the technical evidences and considering that the Performance Scheme in RP2 should bring significant improvements in cost-efficiency performance, the PRB proposed reductions in total en-route determined costs ranging from -1.0% p.a. to -3.0% p.a. between 2014 and 2019 (see Table 17 below).

Determined Unit Cost for en route air navigation services (€2009)		
En-route ANS costs (2009)	Determined costs from EC Decision (2014)	Range proposed by the PRB (for the year 2019)
€6,248M	€6,179M	€5,876M - €5,306M (-1.0% to -3.0% p.a. compared to the determined costs arising from the EC Decision in 2014)

Table 17: PRB consultation proposal – Cost Efficiency

8.1.5 The PRB computed that, considering STATFOR February 2013 SUs forecasts, this would lead to reducing the en-route Determined Unit Costs (DUC) by -2.5% p.a. to -5.8% p.a. between 2014 and 2019.

8.2 Stakeholders' comments

8.2.1 In the following section we summarise the stakeholders' comments received during the consultation under the key questions and themes:

Technical evidence:

ECO 01	Stakeholders showed greatest support for use of historic data and intra-ANSP benchmarking; the least support was for econometric and productivity analysis. Stakeholders expressed mixed views on US-Europe comparison.
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8.2.2 There was greatest support for use of historic data and intra-ANSP benchmarking and least support for econometric and productivity analysis. Views the US-Europe comparison were along stakeholder lines:

- For the airspace users (IATA, AEA, IACA, ERA, LOT and Ryanair), the US-Europe analysis is of high relevance. They consider that the EU/US comparison “is the best available basis for setting targets” even if it is not at “the efficiency frontier”;
- For the ANSPs, NSAs and States, the US-Europe analysis is of low relevance. They state that the two systems and networks are not comparable for regulatory, social, cultural and legal reasons.

8.2.3 A number of Airports suggested comparisons with other ANSPs outside Europe, and ANSPs argued that over the period examined Europe had performed comparatively better than the US, by closing the gap. Some ANSPs and NSAs argued that projected future performance was also important for the PRB to take into consideration.

8.2.4 On the evidence based on the ANSP benchmarking, an ANSP (NAV Portugal) criticised the size of groups (as being too small) leading to results which are not robust. Aena viewed the general evidence presented as not robust enough to set targets.

Importance of historic trends:

ECO 02	Stakeholders showed majority support for analysing historical trends, however many noted that one-off events and/or local circumstances should be taken into account, as well as performance in RP1.
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8.2.5 There was some support from all stakeholder types for analysing historic trends and noting that trends can be useful for future. However one-off events (NSA), local circumstances and legacy changes that have already taken place need to be considered (ANSPs). Some believe volatility in the business means looking at history is not useful. A limited number of NSAs/ANSPs stated that step changes from FABs and SESAR mean these trends need to be amended. Most airline respondents believe history reflects the cost recovery mechanism so is not relevant in a performance regime environment. PANSAs stated that the analysis needed to recognise that some States did not make enough effort in RP1.

Influence of co-operation initiatives:

ECO 03	Stakeholders had mixed views on the potential for co-operation initiatives, with FAB performance to date and lack of political will cited as constraints. Most stakeholders believe that co-operation improvements will not materialise until the end of RP2.
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8.2.6 Some ANSPs and NSAs believe co-operation initiatives are possible in medium term (procurement, training, operational solutions – Free Route Airspace). Some Airlines are sceptical, highlighting the lack of benefits from FABs, and the realisation of restructuring

costs that need to be taken into account. Some ANSPs believe a lack of political will constrains likely benefits. NATS identified different sources of co-operation benefits such as common approaches to AIS provision, FDP procurement and programme management for example when introducing Free Route Airspace.

8.2.7 Most States and ANSPs respondents believe that any improvements will only materialise in the long-run towards the end of RP2 or RP3.

Support costs provide the greatest opportunities for improvement:

ECO 04	Stakeholders suggested a spectrum of sources for cost improvement opportunities, with the most common support being for support cost, ATCO (and training) cost areas. A number of stakeholders stated that the source of cost reduction opportunities is a decision that should be left to the State/FAB.
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8.2.8 Airlines and the Eurocontrol Agency agree that support costs provide the greatest scope for improvement. However in addition, some Airlines and two ANSPs consider ATCO costs (and training costs) need to be addressed, linked to findings from the US-Europe comparison. Some view savings need to come from a spectrum of sources (NSAs and ANSPs representative), including investments and cost of capital (Airlines), separation of services (an airline), and centralised services (Eurocontrol Agency). A number of ANSPs and NSAs view this as a micro-management issue that is not for the PRB and should be left to the State/FAB.

Capital expenditure programme will remain around €1 Billion per annum:

ECO 05	Stakeholders agreed on the need for capex rationalisation and the importance of linkage to the SESAR timetable. Some stakeholders noted that the delay of capex in RP1 may have implications in RP2.
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8.2.9 Stakeholders agree that there are opportunities for rationalisation and that the outcome depends on the SESAR deployment programme timetable. Some ANSPs, NSAs and staff representatives assess that widespread postponement of capex in RP1 may have implications for catch-up in RP2. Airlines and UK Authorities consider a programme of much smaller scale is needed. A number of ANSPs, and CANSO linked the level of capex to the agreed SESAR outcome.

Total cost basis of targets:

ECO 06	Stakeholders generally accept that splitting total costs from the traffic-determined unit costs is sensible, although there is disagreement about the level of ambition proposed. The importance and potential unpredictability of traffic forecasts was widely noted.
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8.2.10 There was some recognition from ANSPs, Airlines and NSAs that basing the analysis on reductions in total costs rather than DUCs is sensible. The importance of traffic forecasts, largely outside ANSP control was emphasised, and some ANSPs raised the point that the interaction between total costs and traffic needs to be recognised by the PRB.

8.2.11 Some Airlines were concerned that traffic will be underestimated when setting the targets, while the unpredictability, variability of traffic is a consideration which might lead to increased risk premium according to some ANSPs, NSAs and staff representatives respondents.

Proposed range:

ECO 07	Stakeholder comments on the proposed range were aligned within stakeholder groups, with ANSPs and NSAs generally preferring the lower end of the range and airspace users the higher end.
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- 8.2.12 Responses were clearly based on stakeholder groups, with ANSPs and NSAs generally proposing the bottom value of the range (en-route DUC reduction of -2.5% p.a.) and Airlines heading to the top of the range (en-route DUC reduction of -5.8% p.a.). A number of ANSPs said that the proposed level of ambition was too high and that some of the initiatives which could be implemented to achieve this level of costs reduction could lead to significant restructuring costs over the period.
- 8.2.13 Some staff organisations proposed a freeze in the current DUC, while some ANSPs and staff representatives suggested a freezing of the total cost base. It was recognised that the final traffic projections should influence the final level of ambition of the targets.
- 8.2.14 The starting point proposed was criticised by Airline trade associations which consider that the proposed starting point of costs underlying the RP2 Union-wide target should be adjusted for cost efficiencies achieved in 2012.
- 8.2.15 CANSO proposed that the starting point should be the aggregate of local cost efficiency targets for 2014 in the revised and approved Performance Plans, and adjusted to reflect the latest STATFOR traffic forecasts.
- 8.2.16 Finally, two ANSPs emphasised the need to recognise the local specificities which affect the starting point of particular States (e.g. level of traffic in 2014 compared to planned) as these impact on the contribution of the local/FAB cost-efficiency target to the Union-wide target.

Terminal Air Navigation Services (TANS):

ECO 08	Stakeholders generally supported setting TANS targets at local level, although there was some dissent (suggesting no targets or monitoring only). A number of NSAs and ANSPs considered the data required to set terminal targets is not mature enough.
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- 8.2.17 There was some support for the PRB approach as some analysis based on gate-to-gate ANS. Some Airlines respondents and one State respondent support the application of the same targets as set for the en-route segment, as it avoids incentives for changing allocation of costs. A number of NSAs, ANSPs and Staff representative respondents viewed that Terminal Air Navigation Services (TANS) should be left to local targets. A number of ANSPs viewed that local targets should be retained until the 2015 consultation and 2017 implementation contained in the legislation and that the indicative target goes against better regulation principles.
- 8.2.18 A number of NSAs and ANSPs considered that the data was not mature enough, or that the traffic forecasts were not reliable enough and terminal area definition were not mature enough to set targets.

8.3 PRB opinion

- 8.3.1 This section provides the PRB's high level response to Stakeholders views, categorised under the same key themes as presented above in Section 4.2 above .

ECO 01 – Technical evidence

- 8.3.2 In the May document, the PRB presented the results of a range of evidence which provides a robust basis for setting Union-wide targets. This analysis showed that there is a potential scope for improving cost-efficiency and reducing unit costs in a range of -10% to -40%.

Achieving significant unit costs reductions, in particular the upper bound of the range (-40%) requires a step change approach and genuine costs reductions. However the PRB also recognised the need to balance these over time to avoid unnecessary disruption and too high risks to service delivery.

8.3.3 The May document also recognised some of the advantages and limitations of the different approaches identified by stakeholders. This has led to the PRB placing greater emphasis on intra-ANSP and US-Europe comparisons which are based on data and analysis which have been refined over a ten-year period. The PRB still considers that the US-Europe comparison is relevant for assessing the potential scope for cost-efficiency improvement over the long run.

8.3.4 The PRB has carefully considered the size of ANSPs groupings trying to balance on the one hand the relevance of the ANSPs within a groups to ensure "like-with-like" comparison and on the other hand the number of ANSPs to infer the potential scope for improvement.

ECO 02 – Importance of historic trends

8.3.5 As discussed below, the PRB has taken full account of the latest historic data and traffic and cost projections when proposing its Union-wide targets. The ability during 2012 of States and their ANSPs to control and reduce costs, described in paragraph 8.4.5 below, in response to reduced traffic demonstrates the effectiveness of the incentives provided by the Charging Scheme regulation and that there is flexibility to adapt to prevailing circumstances in the industry.

8.3.6 At the same time the PRB is mindful that RP1 was considered as a transition RP and that in the subsequent RPs greater cost-efficiency improvements should be achieved as part of the High Level Goals of the SES. In the May 2013 consultation document, the PRB considered that in addition to expected rigorous cost reductions; in particular in the area of support costs, there is scope for a 'step change' improvement in the cost-efficiency performance of European ANS. For example:

- The US-Europe comparison shows that SES unit costs are still 39% higher; and
- The benchmarking showed that if all ANSPs improve to the average in their group there is a potential unit costs reduction of 3.6% whereas if all improve to the level of the ANSP which has the lowest unit costs in the comparator group an improvement of 11.3% would be achieved.

ECO 03 – Influence of co-operation initiatives

8.3.7 The PRB assesses that based on the tools/mechanisms provided by the legislation and also based on some evidence (e.g. current technological alliances) there are real opportunities for cost efficiency improvements through genuine and effective co-operation initiatives, which will be determined by FABs, States and ANSPs ambition and willingness to change. It also recognises that these changes will at times lead to up front restructuring costs meaning that net benefit take some time to materialise. This is reflected in the proposed profile for RP2 targets (see below).

ECO 04 – Support costs

8.3.8 The PRB recognises that it is for FABs, States and their ANSPs to determine their own cost efficiency improvements. The purpose of the analysis conducted is to demonstrate potential and provide suggestions of possible areas for improvement on a Union-wide basis, considering that support costs account for some 70% of ANSPs costs. It is not for the PRB to micro-manage the operations and the business.

ECO 05 – Capital expenditure

8.3.9 The PRB has taken into account the latest information provided by the SESAR Joint Undertaking, on the Pilot Common Project as well as the slowdown in traffic during the early part of RP1 when considering that across SES States €1 billion remains a very reasonable total value for capex per annum.

ECO 06 – Total costs basis

8.3.10 The PRB recognises the importance of the interaction between total costs and traffic forecasts when setting the Union-wide DUC target. However, while traffic is expected to increase, in RP2 there remains opportunity for genuine cost reductions (optimising cost structures, reducing inefficiencies) in order to achieve the SES goals and its expected performance improvements.

ECO 07 – Proposed range

8.3.11 The PRB has taken stakeholder views into consideration in proposing its targets for the en-route DUC, outlined in more detail below. The PRB recognises the need for such targets to be both realistic and ambitious.

8.3.12 The PRB recognises that the Union-wide starting point to set the target is a key issue and that several options can be considered. The PRB is mindful that the planned traffic in 2014 will not materialise at Union-wide level and that States/ANSPs are expected to collectively decrease their cost-bases compared to those arising from the NPPs, as demonstrated by States/ANSPs behaviour in 2012. The PRB is conscious that this element needs to be taken into account. Further details on the setting of the starting point for RP2 Union-wide cost-efficiency targets are provided in Section 8.5 below.

8.3.13 The PRB is mindful that local circumstances and specificities need to be accounted for as part of the assessment of the local/FAB contribution to the Union-wide target that will be carried out by the PRB in the Summer 2014.

ECO 08 – Terminal Air Navigation Services

8.3.14 The PRB will continue to collect data and monitor developments in TANS (and how it is developing compared to the en-route segment) ahead of compiling advice to the European Commission in 2015, as determined by legislation. At that time the decision on the implementation of Union-wide TANS DUC targets will be made.

8.3.15 Local targets will be set according to legislation from the start of RP2, on the basis of the determined costs method and associated risk sharing arrangements as provided for in the Charging Scheme Regulation.

8.4 New elements considered by the PRB

8.4.1 Since the proposed targets were published in May, the following new evidence has become available:

- September 2013 STATFOR traffic forecasts;
- Actual 2012 en-route costs;
- Planned en-route costs for the period 2015-19, submitted by SES States in June 2013;
- Input from Stakeholders Consultation; and
- Impact of the SESAR JU's proposal for a Pilot Common Project (PCP).

September 2013 STATFOR traffic forecasts

8.4.2 In 2012, the actual traffic measured in terms of SUs was -4.5% lower than planned by the States in their RP1 performance plans. According to the traffic risk sharing mechanism which is embedded in the charging regulation, this difference resulted in a net loss of revenues for the States/ANSPs amounting to some -€145M in 2012.

8.4.3 According to the September 2013 STATFOR forecasts, traffic volumes are expected to be substantially lower than planned by the States in their NPPs for 2013 (-5.8%) and 2014 (-6.2%) (see Figure 8-1). If these traffic forecasts materialise, States/ANSPs actual en-route costs in 2014 would have to be €173M lower than the determined costs in the adopted NPPs in order to compensate for the losses in en-route revenues.

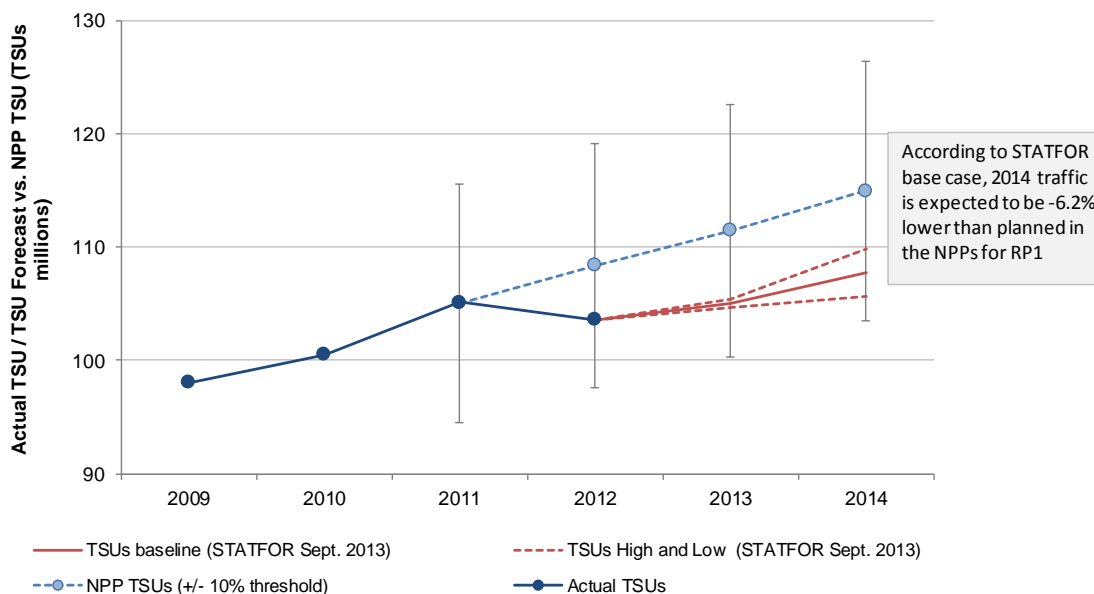


Figure 8-1: Actual and planned traffic compared to information provided in NPPs for RP1

8.4.4 The traffic forecasts issued by STATFOR in September 2013 are more optimistic than those released in February 2013 and reflected in the Consultation Document. Indeed, while according to September forecasts the number of SUs is expected to slightly increase in 2013 (+1.4%), the February forecasts planned for a decrease of -0.8%. On the other hand, the traffic growth planned between 2014 and 2019 (+2.6% p.a.) in STATFOR September forecasts is slightly lower than that provided in February (+3.0% p.a.). Further detail is provided in § 2.4.3.

Actual 2012 en-route costs

8.4.5 Across the SES States, actual 2012 en-route costs (€6,053M) were slightly higher than in 2011 (+1.3%) but substantially lower (-€205.6M or -3.3%) than the determined costs reported in the adopted NPPs (€6,258M). In a context of lower traffic than expected (-4.5%), most of the SES States were in a position to revise their en-route cost-base downwards, overall by more than the loss of revenue, and therefore could avoid financial losses. Many of them could even maintain the profit margin determined ex-ante in their NPP through the cost of capital despite losses in en-route revenues. This is a noteworthy achievement which indicates that the financial incentives embedded within the charging scheme already provided some results for the first year of RP1.

8.4.6 The PRB carried out a preliminary analysis to identify the main drivers underlying the substantial difference between actual and determined costs observed in 2012 (€205.6M). Not surprisingly, this analysis suggests that most of the cost savings achieved in 2012 relate to lower other operating costs (-€107.0M or -7.1%) and depreciation costs (-€62.1M or -7.9%) as shown in Figure 8-2 below. These are costs categories which show a certain degree of downwards flexibility in the short to medium-term. The lower other operating costs mainly reflect lower maintenance and energy costs and lower costs arising from the renegotiation of contractual arrangements with suppliers. On the other hand, the lower depreciation costs in 2012 are mainly due to the postponement of capital expenditures (capex) to future years. Actual staff costs are -€37.5M (-1.0%) lower than planned, this difference is mainly due to a lower number of actual staff than planned (especially support staff in the corporate and administrative areas).

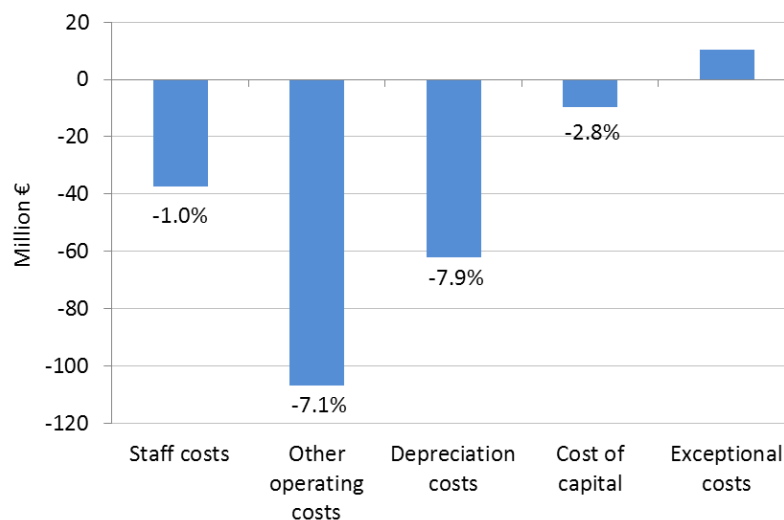


Figure 8-2: 2012 actual costs compared to determined costs in adopted NPPs

- 8.4.7 The PRB considered that the savings achieved on the staff costs and other operating costs (€144.4M or some 70% of the total savings) are mostly associated with structural measures which are expected to generate benefits during the remainder of RP1.
- 8.4.8 Given that in 2013 and 2014 actual traffic is expected to be significantly lower than planned in the adopted NPPs (-5.8% and -6.2% according to STATFOR base case forecasts), SES States will have a clear incentive to continue the efforts made in 2012 to revise their determined costs downwards until the end of RP1.

SES States planned en-route costs for 2015-2019 (June 2013 data submissions)

- 8.4.9 In June 2013, SES States provided planned en-route costs data for the period 2015-2019. Figure 8-3 below indicates that for all the SES States as a whole, 2015 en-route costs (€6,138M) are expected to be -€168M (or -2.7%) lower than the determined costs provided for the year 2014 in the adopted NPPs (€6,306M). This is a clear indication that in a context of lower traffic than expected, SES States plan to continue the cost reduction/containment measures implemented in 2012 in order to compensate for the losses in en-route revenues expected for 2013 and 2014.
- 8.4.10 Figure 7 shows that, at Union-wide level, 2015 en-route costs are planned to be +1.4% higher than 2012 actual costs (€6,053M). This difference is mainly due to the fact that for Germany 2015 en-route costs are +13.6% higher than 2012 actuals. Germany, which represents some 15% of the Union-wide en-route costs, indicated that the preliminary planned en-route costs profile provided in June 2013 would be revised downwards to reflect the cost-containment measures that will be implemented by the German ATSP (DFS) over the 2015-2019 period. The PRB computes that if Germany planned en-route costs in 2015 are in the same order of magnitude as actual 2012 costs, then at Union-wide level the en-route costs planned for 2015 would be close to 2012 actuals (€6,053M) and significantly lower than the determined costs provided in the adopted NPPs (€6,306M).

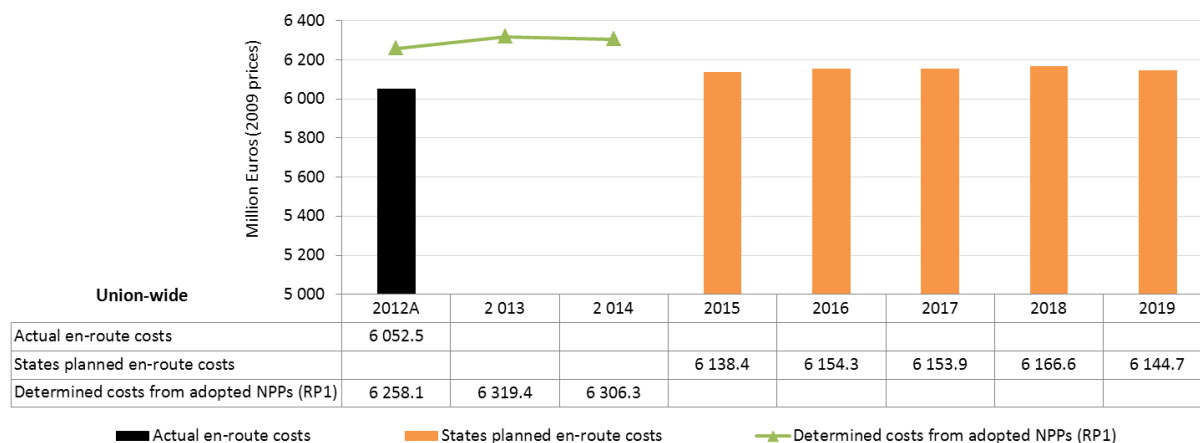


Figure 8-3: Actual 2012 en-route costs, RP1 determined costs and States plans for 2015-2019

- 8.4.11 Figure 8-3 also indicates that States plan for flat en-route cost-bases over the 2015-2019 period (+0.03% p.a.). This significantly contrasts with the range of determined costs reduction that was considered by the PRB in the May 2013 Consultation Document (-1.0% p.a. to -3.0% p.a.). This suggests that States have not yet taken into account the need for a step change in cost-efficiency performance over RP2.
- 8.4.12 The questionnaire which was part of the Stakeholder Consultation process in May-July 2013 comprised a specific question relating to the level of ambition for the RP2 Union-wide targets, and in particular on the range of en-route costs reductions proposed by the PRB.
- 8.4.13 Airspace users mainly considered that the range proposed by the PRB was not ambitious enough. On the other hand, most States/ANSPs consider that the ranges of en-route costs reduction considered by the PRB over RP2 are too ambitious. This is consistent with the planned en-route costs data provided in June 2013 which shows a flat profile over the 2015-2019 period (see Figure 8-3 above). The PRB notes that the feedback received from the Stakeholders Consultation did not include clear and detailed information on the level of restructuring costs that would be required to support an ambitious en-route costs reduction profile over RP2.
- 8.4.14 On the other hand, three ANSPs (EANS, LGS and NATS) considered that the range of determined costs reduction proposed by the PRB over RP2 (-1.0% p.a. to -3.0% p.a.) is acceptable even if very challenging. It is noteworthy that NATS already planned for en-route costs reductions over the 2015-2019 period (-1.3% p.a.). Similarly, the UK National authorities indicated that the PRB proposal was acceptable and fully supported.

Impact of the Pilot Common Project

- 8.4.15 In July 2013, the PRB has been informed about the SESAR JU's proposal to the EC on the content of a Pilot Common Project (PCP) [Ref. xiii].
- 8.4.16 The PRB understands that for RP2, the main benefits arising from the implementation of this project are mainly relating to operational improvements in en-route flight-efficiency (environment KPI) and terminal operations. This high level analysis indicates that overall the benefits of in terms of cost-efficiency improvements are negligible for RP2.
- 8.4.17 The PRB also understands the magnitude of the capex associated with the PCP is around €150M per year over the 2014-2030 period. The PRB considers that the investments needed for this PCP can be absorbed within the current capex envelope (circa €1B per year), and that the PCP should not be an excuse for increasing the capex planned over RP2.

8.5 PRB recommendations for RP2 Union Wide Cost-Efficiency Targets

8.5.1 The new information described in Section 8.4 above has been taken into account by the PRB when preparing its final proposal on Union-wide cost-efficiency targets for RP2.

8.5.2 The PRB considers that the choice of starting point and the level of ambition are closely related and should form a consistent proposal to maintain continuity of strong incentives and level of effort from RP1 to RP2, to allow for greater efforts in the second part of RP2 and to allow airspace users to benefit early in RP2 from cost reductions achieved in RP1.

Starting point (expressed in terms of en-route costs)

8.5.3 In the May 2013 Consultation Document, the PRB proposed using a starting point based on the DCs underlying the Union-wide target adopted by the EC (€6,179M). The PRB also signalled that the starting point should reflect the results of the traffic risk sharing mechanism duly taking into account the 2012 outturn.

8.5.4 The following three options have been considered by the PRB to set the starting point in 2014 for RP2 Union-wide cost-efficiency targets (see Figure 8-4 below):

- **Option 1:** the starting point is based on *the 2014 determined costs underlying the Union-wide target adopted by the EC (€6,179M)*.
- **Option 2:** the starting point is *the States'/ANSPs' aggregated determined costs for 2014 in the adopted Performance Plans, reduced by the expected losses in en-route revenues for 2014*. As detailed in §8.4.3 above, based on STATFOR base case forecasts and according to the traffic risk sharing arrangements, the lower traffic than planned in 2014 would result in potential losses in en-route revenues of €173M for the SES States/ANSPs. If this situation materialises, States'/ANSPs' actual en-route costs in 2014 would have to be €173M lower than the determined costs in the adopted NPPs to compensate for the losses in revenues. Therefore, according to Option 2, the starting point for RP2 would be *€6,133M* (i.e. €6,306M - €173M).
- **Option 3:** the starting point is *the States'/ANSPs' aggregated determined costs for 2014 reduced by the actual savings observed in 2012* (i.e. €206M). According to Option 3, the starting point for RP2 would be *€6,101M* (i.e. €6,306M - €206M).

8.5.5 In the light of the new elements available, it was decided not to retain Option 1 (€6,179M). Option 1 is the highest starting point amongst the three options. Based on the 2012 outturn, it is highly likely that in 2014 States/ANSPs will be in a position to significantly revise downwards the cost-bases compared to the NPPs and to offset the decrease in revenues resulting from the traffic risk-sharing arrangements. Thus, the actual 2014 en-route costs are likely to be lower than those considered under Option 1. In this context, using a starting point of €6,179M would, all else being equal, translate into a higher total determined cost base to be charged to airspace users in the first years of RP2 than in Options 2 and 3. The PRB does not consider this would be justified.

8.5.6 Similarly, it was also decided not to retain Option 3 (€6,101M) which would explicitly assume that the totality of the observed savings in 2012 (€206M) could also be achieved in 2014. The 2012 States monitoring analysis indicates that around 1/3 of the savings could be related to the postponement of costs and about 2/3 relating to structural measures which are expected to be sustained throughout RP1. In addition, Option 3, by considering higher cost reductions (€206M) than those which could be needed to offset the expected losses in revenues in 2014 (€173M), could reduce the opportunity for States/ANSPs to have lower costs than planned already in the first years of RP2 and hence to be in good shape to start RP2.

8.5.7 The PRB therefore proposes Option 2 for setting the starting point for RP2 Union-wide targets based on the following points:

- The starting point value is €6,133M in 2014 which is slightly lower than the DCs arising from the EC decision (€6,179M). In other words, Option 2 would allow exceeding the EC's original level of ambition for 2014. This can be justified on the basis of (a) the fact that actual 2012 costs (€6,053M) are significantly lower than planned in the NPPs (€6,258M) and (b) the difference in traffic levels and growth between the latest STATFOR forecasts for 2014 and the assumptions considered in 2010-2011 when setting Union-wide targets for RP1;
- Considering the incentive scheme embedded within the charging regulation and based on SES States planned en-route costs submissions for 2015-2019, it is likely that States/ANSPs will continue the cost reduction/containment efforts made in 2012 in order to compensate for the losses in en-route revenues expected for 2013 and 2014;
- Option 2 puts an additional incentive on States/ANSPs to keep their cost-bases lower for 2014 but also for the first year of RP2. This would allow airspace users to benefit from these "savings" through, all else equal, lower chargeable URs as of 2015 and subsequent years;
- A reduction of €173M compared to the determined costs reported for 2014 in the adopted NPPs (€6,306M) appears realistic and achievable considering the savings made in 2012 (€206M, of which €144M are mostly associated with structural measures). In addition, States projections for 2015-2019 indicates that 2015 en-route costs are expected to be -€168M lower than the determined costs provided for the year 2014 in the adopted NPPs.

8.5.8 Figure 6 below shows the three different options considered by the PRB for the starting point. Overall, the PRB considers that Option 2 provides a fair balance. On the one hand it allows airspace users to benefit from lower chargeable unit rates compared to Option 1. On the other hand, it gives a clear incentive to States/ANSPs to continue the efforts made in 2012 in order to generate substantial gains compared to the DCs provided for 2014 in the adopted NPPs, and to be in a stronger position to start RP2.

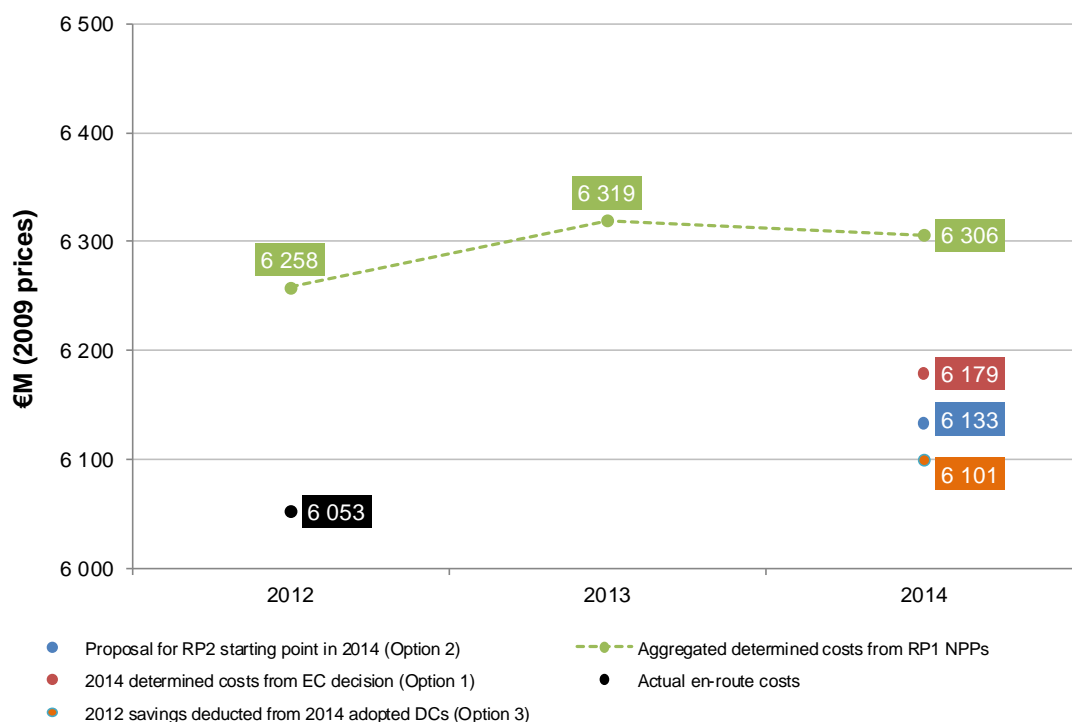


Figure 8-4: Starting point for Union-wide cost-efficiency targets over RP2

Level of ambition expected for RP2 in terms of en-route costs reductions

- 8.5.9 In the Consultation Document released in May 2013, the PRB considered three scenarios with en-route determined costs reductions ranging from -1.0% p.a. to -3.0% p.a. between 2014 and 2019 (with an intermediate scenario of -2.0% p.a.).
- 8.5.10 The PRB has decided to discard the scenario focusing on the -3.0% annual reduction of en-route costs over the five years of RP2. The PRB considers that this very ambitious scenario may be associated with high delivery risks. Indeed, implementing such en-route costs reductions would require significant action to be carried out across all the different cost components of the various ANS services for all SES States. This may lead to substantial restructuring costs which might not be outbalanced by proper benefits.
- 8.5.11 As part of the Stakeholders Consultation process, airspace users indicated that it was important to ensure the provision of an adequate level of capacity in a context of traffic growth over RP2 (+2.6% p.a. between 2014 and 2019 according to STATFOR base case scenario, Sept. 2013). It is therefore important to strike a good balance between challenging and ambitious cost reductions while also ensuring an adequate level of quality of service performance.
- 8.5.12 Considering the new elements described in Section 8.4 above, the PRB proposes for RP2 en-route costs reductions of -1.5% p.a. for 2015-2016 and -2.5% p.a. for 2017-2019 as illustrated in Table 18 below. This non-linear profile is an explicit recognition that the effort required at the beginning of RP2 is less demanding to gradually allow for required changes and adjustments, but that a greater level of effort is expected in the second part of RP2 when all the different SES mechanisms and instruments should bring benefits.
- 8.5.13 These annual reductions are equivalent to an average decrease of -2.1% p.a. over 2014-2019, and would imply removing some €618M from en-route cost-bases. This is in the same order of magnitude as the intermediate scenario identified in the May 2013 Consultation Document (-2.0% p.a. over 2014-2019).

Starting Point based on Option 2	2014	2015	2016	2017	2018	2019	%2019/2014 CAGR
Determined costs (€M)	6 133	6 041	5 950	5 802	5 657	5 515	-2.1%
Annual rate of determined costs reductions		-1.5%	-1.5%	-2.5%	-2.5%	-2.5%	
Changes compared to starting point (M€2009)		-92.0	-182.6	-331.4	-476.4	-617.8	

Table 18: PRB proposal for en-route costs reductions over RP2

- 8.5.14 The PRB proposal for the rate of en-route costs reduction over RP2 is based on the following points:
- The PRB proposal for RP2 (-2.1% p.a.) is a step change compared to RP1 in terms of level of ambition (which for recall was a slight increase in determined costs over 2012-2014). On the other, lower restructuring costs should be required than in the more ambitious scenario (i.e., -3.0% p.a. over the five years of RP2), while still generating substantial gains for airspace users as shown in Figure 8-5 below).
 - It should be noted that achieving a -2.1% p.a. reduction over RP2, would lead to determined costs amounting to €5,515M in 2019 which would be:
 - -12% lower than in 2009 (i.e. a -1.2% annual decrease on average over a 10 years period which includes RP1 and RP2); and,
 - -9% lower than in 2012 (i.e. a -1.3% annual decrease on average over a 7 years period).

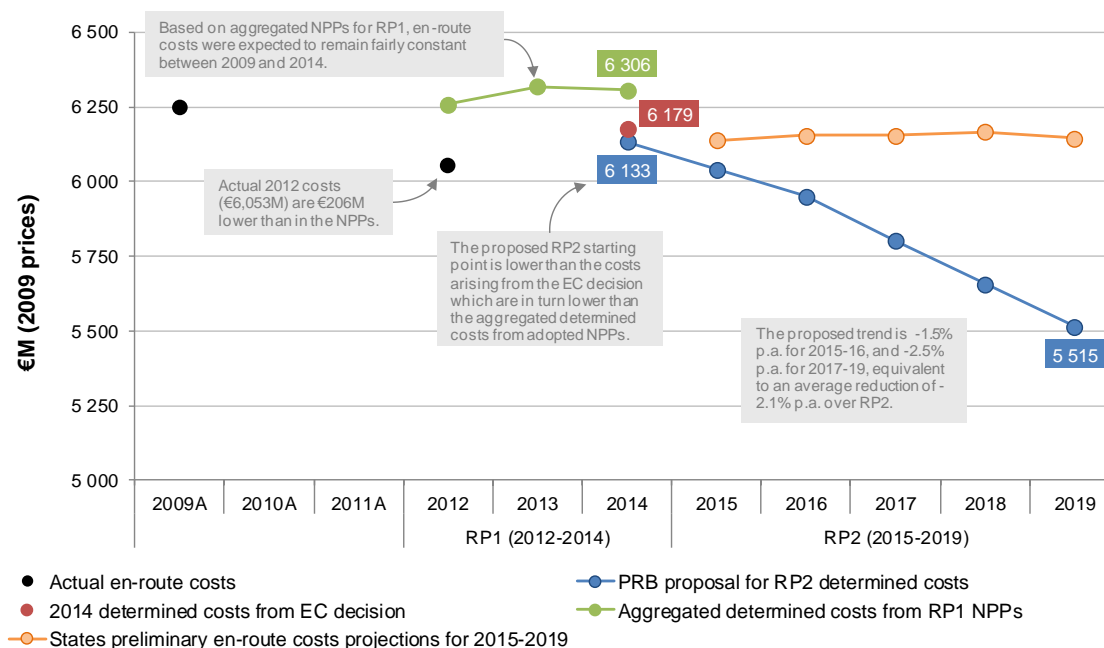


Figure 8-5: States projections and PRB proposal for en-route costs reductions over RP2

- A -2.1% annual reduction in en-route costs from the starting point in 2014 would allow converging towards the SES High Level Goals (HLGs) around 2030 (assuming an average +2.6% p.a. traffic increase). This is more ambitious than the original assumption underlying the HLGs which was based on the fact that the decreases in unit costs would be achieved through increases in traffic while the cost bases would remain constant. The PRB considers that this higher level of ambition is in line with the expectations associated with RP2 (step change compared to RP1) and that it would contribute to substantially increase the competitiveness of the European aviation system.
- The modulation of the rate of en-route costs reduction over the period (-1.5% p.a. for 2015-2016 and -2.5% p.a. for 2017-2019) should allow States/ANSPs to gradually adjust the en-route cost-bases downwards and give time to plan for more substantial cost reductions in the last 3 years of the RP. In particular, the lower rates of costs reduction in 2015 and 2016 (-1.5% p.a.) could allow them to make investments that would be potentially required over RP2.
- According to the traffic risk sharing arrangements, airspace users will bear a significant part of the losses in en-route revenues arising from the substantially lower traffic than planned in 2013 and 2014 (losses which would generate under-recoveries for States/ANSPs to be recovered through higher user charges in RP2). A -1.5% annual reduction of en-route costs in 2015 and 2016 would allow reducing the impact of these under-recoveries on the URs charged to airspace users in the first years of RP2.
- The PRB considers that an average reduction in en-route costs of -2.1% p.a. over RP2 is ambitious but achievable. It makes a start on reducing the cost-efficiency gap (see above) and is a balanced approach taking account of what could be realistically expected considering the mechanisms and instruments available to States/ANSPs within the SES package (e.g. restructuring costs, common projects, etc.). In addition, in the June 2013 submissions, five States (including two of the largest) planned for a reduction in en-route costs greater than -1.0% p.a. between 2015 and 2019 (Bulgaria (-2.4% p.a.), Spain Cont. (-1.4% p.a.), the UK (-1.3% p.a.), Slovenia (-1.3% p.a.) and Denmark (-1.3% p.a.)). Furthermore, as identified in §8.4.14 above, during the Stakeholders Consultation process three ANSPs (including NATS) considered that the range of determined costs reduction proposed by the PRB over RP2 is acceptable even if very challenging.

Similarly, the UK National authorities indicated that the PRB proposal was acceptable and fully supported.

PRB proposal for Union-wide cost-efficiency targets over RP2

8.5.15 The PRB proposes a value of €6,133M in terms of en-route costs for the starting point in 2014 and an average rate of -2.1% annual reduction in en-route costs over the 2014-2019 period.

8.5.16 Combining this proposal with the September 2013 STATFOR traffic base case forecasts for 2014-2019 produces a trend in DUCs over RP2 which is detailed in Table 19 below.

	2014	2015	2016	2017	2018	2019	%2019/2014 CAGR
Determined costs (€M, 2009 prices)	6 133	6 041	5 950	5 802	5 657	5 515	-2.1%
SUs (M) - STATFOR base case (Sept. 2013)	107.8	110.7	113.8	116.4	119.4	122.4	2.6%
DUC (€2009)	56.90	54.57	52.31	49.85	47.39	45.08	-4.6%
Annual % changes in en-route DUC		-4.1%	-4.1%	-4.7%	-4.9%	-4.9%	

Table 19: Proposed trend in DUCs over RP2 (€2009)

8.5.17 The en-route cost-efficiency targets for RP2 would be based on an average -4.6% annual reduction of en-route DUCs between 2014 and 2019, implying a Union-wide DUC of €45.08 in 2019. As illustrated in Figure 8-6, this is some:

- -29% lower than the 2009 en-route unit costs; and
- -23% lower than the 2012 actual en-route unit costs.

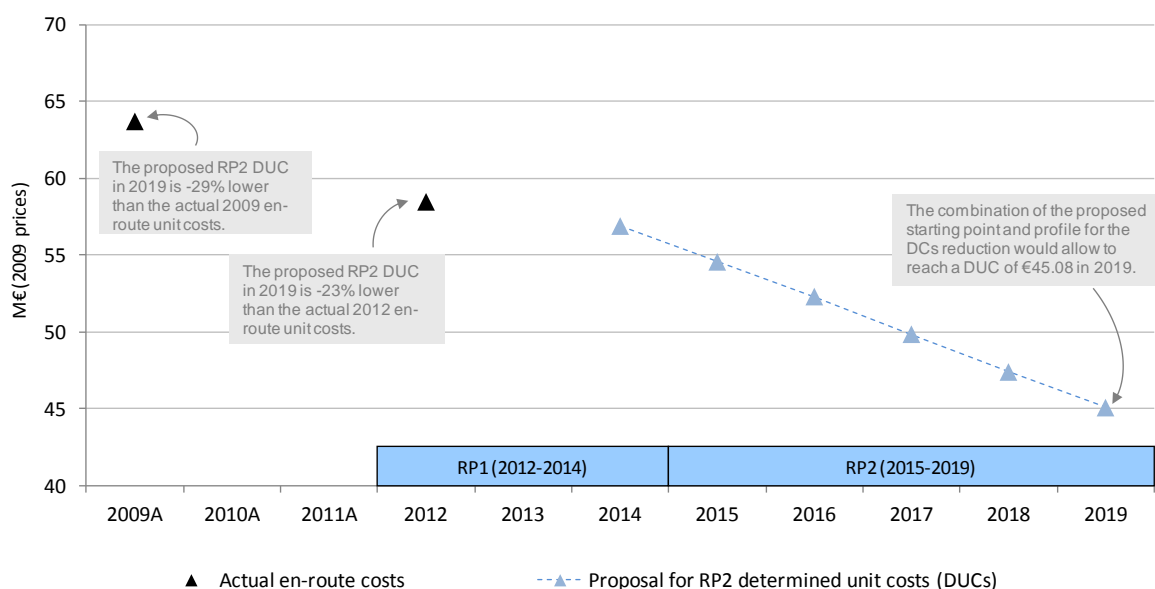


Figure 8-6: Proposed DUCs over RP2 compared to actual 2009 and 2012 unit costs (€2009)

8.5.18 This proposal is clearly a step change compared to RP1 and it will require substantial collective efforts from all the SES States to improve cost-efficiency performance.

8.5.19 Rigorous cost control is expected for RP2 and the new technology, already invested and planned, should bring improvements in productivity. Similarly, further efficiency gains are expected from the FABs and other co-operation initiatives through a better integration and cooperation.

8.5.20 The PRB proposal foresees an acceleration of the DUC reduction towards the end of RP2. This should be seen in the light of the mechanisms and instruments that are part of the SES package (e.g. restructuring costs, common projects, etc.). This profiling of the required costs reduction should allow the States/ANSPs to plan for more ambitious cost-efficiency objectives. Finally, there is also an opportunity for States to introduce some elements of

competition in the provision of ANS (e.g. market conditions for TANS and for ancillary services) in order to achieve further cost-efficiency gains.

8.5.21 The PRB is mindful that it is important to keep a long term vision of the cost-efficiency improvements that are required for the European ANS system. Reducing the en-route DUCs by an average of -4.6% p.a. is a significant contribution to converge towards the SES High Level Goals (HLGs) by 2030. The PRB considers that this proposal is realistic and achievable given current economic and operational context. In view of setting the level of ambition for RP3, it will be important to consolidate the pace of improvement achieved over RP2 but also to duly account for the operational requirements and economic context that will prevail in five years from now.

PRB proposal for Union-wide cost-efficiency targets for RP2 considering addition of Croatia and minor technical adjustments

8.5.22 When setting the Union-wide cost-efficiency targets for RP2 some adjustments need to be ensured.

8.5.23 First, according to Annex II of the new Common Charging Scheme regulation (391/2013), SES States shall report in their NPP for RP2 DCs expressed in real terms and in 2012 prices. Therefore, for consistency purposes, the DCs provided in Table 19 above have to be converted into Euros 2012. This adjustment has been reflected in Table 20 below.

8.5.24 Second, the information provided in Table 19 above also needs to be slightly amended to reflect:

- (a) The accession of Croatia to the European Union on the 1st July 2013; and
- (b) Minor adjustments relating to the reporting of the costs of exempted VFR flights following the amendment of the charging and performance Regulations.

8.5.25 Croatia which was not part of the Union-wide target setting process for RP1 will prepare a National/FAB Performance Plan for RP2. For consistency purposes, Croatia planned 2014 en-route costs (some €73M in 2012 prices) and SUs forecasts for the 2014-2019 should be taken into account for setting Union-wide cost-efficiency targets for RP2. These adjustments have been reflected accordingly in Table 20 below.

8.5.26 The provisions of the Common Charging Scheme (1796/2006) and Performance Scheme (691/2010) regulations applicable for RP1 established the calculation of the cost-efficiency KPI (DUR) taking into account total en-route DCs before deduction of the costs for services to exempted VFR flights. This methodology has been amended in the new Common Charging Scheme and Performance Scheme regulations (390/2013 and 391/2013, respectively) published in May 2013 in the OJ of the European Union. These new regulations foresee that the cost-efficiency KPI (DUC) is computed taking into account the total DCs after deduction of the costs for services to exempted VFR flights. For consistency purposes, in Table 20 below, the costs for services to exempted VFR flights planned in the NPPs for 2014 (some €9M in 2012 prices) are deducted from the starting point.

	2014	2015	2016	2017	2018	2019	%2019/2014 CAGR
Determined costs (€M, 2009 prices excl. Croatia & VFR adjustment)	6 133	6 041	5 950	5 802	5 657	5 515	-2.1%
Determined costs (€M, 2012 prices excl. Croatia & VFR adjustment)	6 759						
Croatia en-route costs (€M, 2012 prices)	73						
Minus adjustment for exempted VFR costs (€M, 2012 prices)	9						
Determined costs (€M, 2012 prices incl. Croatia and VFR adjustment)	6 823	6 721	6 620	6 455	6 293	6 136	-2.1%
SUs (M) - STATFOR base case (Sept. 2013) including Croatia	109.6	112.6	115.7	118.4	121.4	124.5	2.6%
DUC (€2012)	62.25	59.70	57.22	54.53	51.84	49.30	-4.6%
Annual % changes in en-route DUC		-4.1%	-4.2%	-4.7%	-4.9%	-4.9%	

Table 20: Proposed trend in en-route DUCs over RP2, including Croatia and adjustments (€2012)

8.5.27 Table 20 indicates that after the inclusion of Croatia, the conversion to Euros 2012 and the adjustments relating to the costs of exempted VFR flights, the starting point in 2014 amounts to €6,823M. Based on en-route costs reductions of -1.5% p.a. for 2015-2016 and -2.5% p.a. for 2017-2019, the DCs would amount to €6,136M in 2019.

8.5.28 Taking into account the September 2013 STATFOR traffic base case forecasts for 2014-2019, the en-route cost-efficiency targets for RP2 would be based on an average -4.6% annual reduction of en-route DUCs between 2014 and 2019, implying a Union-wide DUC of €49.30 in 2019, expressed in **€2012**.

8.5.29 For the sake of completeness, Table 21 below shows the proposed trend in en-route DUC over RP2 (including Croatia and VFR costs adjustments) expressed in **€2009** rather than in €2012 as in Table 20.

	2014	2015	2016	2017	2018	2019	%2019/2014 CAGR
Determined costs (€M, 2009 prices excl. Croatia & VFR adjustment)	6 133	6 041	5 950	5 802	5 657	5 515	-2.1%
Croatia en-route costs (€M, 2009 prices)	70						
Minus adjustment for exempted VFR costs (€M, 2009 prices)	8						
Determined costs (€M, 2009 prices incl. Croatia and VFR adjustment)	6 196	6 103	6 011	5 861	5 714	5 571	-2.1%
SUs (M) - STATFOR base case (Sept. 2013) including Croatia	109.6	112.6	115.7	118.4	121.4	124.5	2.6%
DUC (€2009)	56.53	54.21	51.95	49.51	47.07	44.76	-4.6%
Annual % changes in en-route DUC		-4.1%	-4.2%	-4.7%	-4.9%	-4.9%	

Table 21: Proposed trend in en-route DUCs over RP2 (€2009)

PRB proposal for a “notional” Union-wide terminal ANS cost-efficiency target for RP2

8.5.30 Terminal ANS costs represent approximately 20% of total gate-to-gate ANS costs and cover the cost of ANS services provided to traffic taking-off and landing at airports in the EU 27 States plus Norway and Switzerland. At present, an estimated 5% of all gate-to-gate ANS costs (approximately 25% of terminal ANS costs) fall outside the scope of the terminal ANS cost-efficiency target setting. These are exempted either because they are incurred at airports that do not reach the 70 000 IFR air transport movements threshold or because the respective States consider they meet an assessment of “market conditions” in line with the charging Regulation requirements. When dealing with terminal ANS, the PRB is mindful of the “proportionality” and “subsidiarity” principles.

8.5.31 While States have to set local Terminal ANS DUC for RP2 (2015-2019), no Union-wide terminal ANS cost-efficiency target has to be set in 2013. However, the revised performance Regulation foresees that a Union-wide terminal ANS DUC target could be set from 2017 onwards, subject to a Commission Decision to be taken in 2015, based on RP1 monitoring. In this context, the PRB suggests to propose a “notional” Union-wide target for Terminal ANS in order to provide a signal to stakeholders in view of preparing the performance plans for RP2.

8.5.32 The PRB acknowledges that there are a number of technical issues which make it difficult to set meaningful Union-wide terminal cost-efficiency targets. In particular, the PRB notes the following issues:

- The significant differences across Member States in the size of terminal charging zones (both in terms of number of airports and in the level and type of traffic handled).
- There is no consistent methodology applied across the States to determine Terminal Navigation Service Units (TNSUs). Due to the differences in the formula used by the States, and scope in the data they have reported, it is not possible to calculate Union-wide trends in TNSUs and Union-wide trends in terminal ANS unit costs or unit rates for RP1 (2012-2014). In addition, States have stated that the costs and traffic (TNSU) data recorded before 2012 shall be treated with caution as these were not comparable, as not regulated.

- Despite the existence of principles and guidance material for the establishment of the en-route cost base, there are substantial differences in the allocation of costs into en-route and terminal ANS across SES States. Caution is therefore needed when comparing the level of terminal ANS costs across States since in some cases, lower or higher costs may purely reflect cost-allocation differences.
- The operational scope of the ANS provided at and around airports, as well as the use and ownership of terminal related assets also differs across States. Caution is therefore needed when comparing the level of terminal ANS costs across States since in some cases, lower costs may reflect the fact that some terminal ANS assets are not owned by the ANSP but by the airport authority or simply that the scope of operational services provided is different.

8.5.33 All these elements require caution and greater understanding and future analysis in order to set meaningful Union-wide terminal cost-efficiency targets.

8.5.34 The PRB notes from the information provided in the national performance plans that the Terminal ANS costs are expected to remain fairly constant at Union-wide level over RP1. In addition, Table 22 below shows that based on latest forecast data provided in June 2013 by States, terminal ANS costs are also planned to remain fairly constant over RP2.

	2015	2016	2017	2018	2019
Terminal DC (€2012)	1 535 500 425	1 540 899 103	1 542 250 244	1 549 170 622	1 549 164 983
Annual % change		0.4%	0.1%	0.4%	0.0%

Table 22: Planned Union-wide Terminal ANS costs over RP2 (States June 2013 submissions)

8.5.35 On the basis of current understanding and notwithstanding the limitations identified in §8.5.32, the PRB considers that the lower bound of the “notional” Union-wide cost-efficiency target for terminal ANS could be a flat line profile over the period 2015-2019. This would be in line with the preliminary overall Union-wide terminal ANS determined costs submitted by Member States in June 2013. On the other hand, it is expected that performance improvements in en-route ANS positively affect terminal ANS performance, considering the joint costs shared between the two services. For this reason, the upper bound of the “notional” Union-wide terminal cost-efficiency target could be to reduce terminal ANS costs at the same pace as for en-route ANS.

9 Additional elements

This section provides the content of regulatory obligations mandating for the provision of ANSP comparators grouping (Article 10(5)) and for setting traffic alert thresholds for activating the alert mechanisms possibly leading to the revision of the Union-wide targets (Article 10(4)).

9.1 ANSP grouping

9.1.1 The ANSP comparator groups used for the cost efficiency benchmarking analysis are presented in Table 23. Comparator groups were determined using a two-step approach combining the use of statistical tools (cluster analysis) with expert judgement. For a full description of the process, methodology and results see “Benchmarking Report prepared in the context of the PRB advice to the Commission in setting Union-wide performance targets for RP2”, June 2013.

RP2 ANSP Comparator Group	Members
Five Largest	AENA
	DFS
	DSNA
	ENAV
	NATS (Continental)
Central Europe	ANS CR
	HungaroControl
	LPS
	Slovenia Control
	Croatia Control
	PANSA
South Eastern Europe	HCAA
	BULATSA
	ROMATSA
South Med	DCAC Cyprus
	MATS
Western Europe	Austro Control
	NAVIAIR
	Skyguide
Atlantic	NAV Portugal (Continental)
	IAA
Baltic States	EANS
	LGS
	Oro Navigacija
Nordic States	Avinor (Continental)
	LFV
	Finavia
BelNed	Belgocontrol
	LVNL

Table 23: ANSP comparator groups

9.1.2 Nine groups of comparators have been identified, some comprising a relatively large number of ANSPs and others only comprising two organisations. Due to the unique nature of its airspace (upper airspace only, across four States), it was determined that Maastricht (MUAC) should be considered separately and therefore this ANSP was not included in the intra-ANSP

group benchmarking analysis. It should be noted that the names of these groups have been chosen for mnemonic purposes only.

9.2 Alert Threshold

- 9.2.1 Article 10(4) of the revised performance Regulation contains provisions for the establishment of alert thresholds, within which targets and the risk sharing mechanism apply, and beyond which performance targets may be revised in accordance with the process set out in the Regulations.
- 9.2.2 PRB understands that threshold definition is linked with the reliability of the traffic forecast, as pointed out by one stakeholder (AESA) during the consultation.
- 9.2.3 PRB considers that the alert threshold currently set at $\pm 10\%$ by the EC for RP1 should be also confirmed for RP2 and invites NSAs to make sure that performance plans are robust enough to accommodate a range of traffic outcomes within the alert threshold.
- 9.2.4 The PRB will monitor the actual performance at Union-wide and State level compared to the alert thresholds set for RP2.

9.3 Next steps

The EC process

- 9.3.1 As explained in details in Section 2.7 above, the process of Union wide target setting is from the date of submission of this Report in the hands of the Commission which will present its proposal to the Single Sky Committee. PRB will nevertheless assist the Commission until the end of the setting process as requested.

FAB Performance Plans and proposed guidance to NSAs.

- 9.3.2 As for RP1, PRB will actively support NSAs through the performance working group of the NSA Coordination Platform.

- 9.3.3 At its next meeting on 24 October 2013, the PRB will present for discussion a proposed draft template for FAB Performance plans as well as a short document summarizing the proposed PRB methodology for the assessment of performance plans in July 2014.

- 9.3.4 Figure 9-1 illustrates the process and the timing for the production of the FAB Performance Plans.

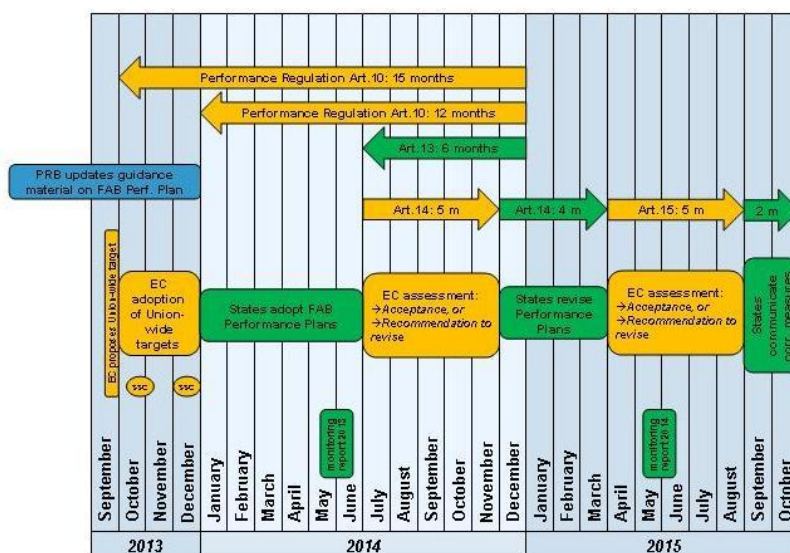


Figure 9-1: Process and timing for production of FAB PPs

References

- i Regulation (EU) No 390/2013 of 3 May 2013 laying down a performance scheme for air navigation services and network functions:
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:128:0001:0030:EN:PDF>
- ii Regulation (EU) No 391/2013 of 3 May 2013 laying down a common charging scheme for air navigation services:
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:128:0031:0058:EN:PDF>
- iii PRB consultation report “Union-wide Targets for the 2nd Reference Period of the Single European Sky Performance Scheme” published on 17 May 2013: <http://ec.europa.eu/transport/media/consultations/doc/2013-07-03-sesrp2/report.pdf>
- iv Commission Decision of 29.7.2010 on the designation of the Performance Review Body of the Single European Sky:
<http://www.eurocontrol.int/sites/default/files/content/documents/single-sky/pru/about-us/designation-prb.pdf>
- v Eurocontrol Seven-year IFR flight movements and Service Units Forecast, STATFOR, Edition September 2013:
<http://www.eurocontrol.int/articles/statistics-and-forecasts>
- vi PRB consultation report “EU-wide Targets for RP2: Indicative Performance Ranges for Consultation” published on February 2012: <http://www.eurocontrol.int/sites/default/files/content/documents/single-sky/pru/performance-targets/2013-02-25-rp2-eu-targets-report-1.pdf>
- vii PRB website on the preparation of RP2:
<http://www.eurocontrol.int/articles/ses-performance-scheme-reference-period-2-2015-2019>
- viii PRB open workshop on 6 February 2013:
<http://scic.ec.europa.eu/streaming/index.php?es=2&sessionno=685ac8cadc1be5ac98da9556bc1c8d9e>
- ix Public stakeholder consultation on Union-wide targets for the second reference period:
http://ec.europa.eu/transport/media/consultations/2013-07-03-sesrp2_en.htm
- x RP1 report, the final draft annual monitoring report for 2012 (Volume 1 overview report):
http://publish.eurocontrol.int/sites/default/files/content/documents/single-sky/pru/news-related/2013-19-13_prb_monitoring_report_2012_volume_1_european_overview_and_prb_recommendations.pdf
- xi PRC report on Fragmentation, EUROCONTROL, 2006, <http://www.eurocontrol.int/documents/impact-fragmentation-european-atmcns>
- xii Performance Review Report (PRR 2012), EUROCONTROL, 2013,
<http://www.eurocontrol.int/documents/performance-review-report-prr-2012>
- xiii Proposal on the content of a pilot common project, SESAR Joint Undertaking, 6 May 2013, Edition 1.0