Performance Review Body
designated by
the European Commission

EUROCONTROL

PRB Annual Monitoring Report 2013

Volume 1 - European overview and PRB recommendations

Fact validated edition

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Volume 1 - European overview and PRB recommendations

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1 Introduction

1.1 About this document

1.1.1 The PRB Annual Monitoring Report 2013 provides a summary of Air Navigation Services' performance achievements in four Key Performance Areas (KPAs) in 2013, as reported by the Member States falling under the Performance Scheme in the second year of RP1 (RP1 SES States). This report highlights specific issues raised by the States, identifies corrective actions planned by States and makes recommendations to the European Commission for further action to ensure that the Union-wide targets for RP1 are achieved.

1.1.2 The PRB Annual Monitoring Report is made up of four Volumes:

- Volume 1, the one you are currently reading, is divided into four main chapters (one for each KPA: safety, environment, capacity and cost-efficiency). Each of these chapters presents the performance at Union-wide level as well as some key highlights at Performance Plan level. Chapter 6 presents an overview of capital expenditure. Chapter 7 looks at the situation concerning alert thresholds, both at Union-wide level and local level. Chapter 8 gives an indication of what can be expected in the next monitoring round for 2014. This Volume also aims at reviewing the progress made on the recommendations contained in last year's report and at presenting new recommendations for 2013.
  - (i) For ease of reference, the 2012 recommendations have once again been included in the respective sections and are easily identifiable in bold. Every 2012 recommendation is then followed by a status review in normal font.
  - (ii) The 2013 recommendations are also presented in bold.
- Volume 2 presents the summary/overview pages of performance for each RP1 Performance Plan.
- Volume 3 presents a specific analysis of capital expenditure across the Union and by FABs.
- Volume 4 contains a detailed Safety Review, produced by the Performance Review Unit (PRU) / European Aviation Safety Agency (EASA) Safety team.

1.1.3 Much of the data used in this report by the Performance Review Body (PRB) of the Single European Sky (SES) comes from the PRB online monitoring dashboard, published on EUROCONTROL's website. It provides harmonised ANS performance data for all 29 States subject to the SES Performance Scheme in RP1. The dashboard can be accessed via the PRB website or by clicking on this link[1].

1.2 The SES Performance Scheme

1.2.1 ANS performance targets are set under the SES Performance Scheme at both Union-wide and national/FAB level. The Performance Scheme is organised by Reference Period (RPs); the first reference period (RP1) runs for three years from 2012 to 2014.

1.2.2 This report covers the performance of the Member States covered by the Performance Scheme in the second year of RP1 (2013). ANS Performance is measured over four KPAs: Safety, Environment, Capacity and Cost-Efficiency. Three of these KPAs have Union-wide targets for RP1:

- The Union-wide **Environment** target is a reduction of -0.75% point of the route extension in 2014 compared with 2009;
- The Union-wide **Capacity** target is set at 0.5 of a minute en-route ATFM delay per flight for 2014;

- The en-route Union-wide **Cost-efficiency** target, set for each year of the Reference Period, is the en-route determined unit rate expressed in €2009 per service unit: €57.88 in 2012, €55.87 in 2013 and €53.92 in 2014.

1.2.3 Unless otherwise indicated, the PRB Annual Monitoring Report for 2013 refers to ANS performance in the airspace shown in Figure 1, which is the geographical scope of the Union-wide targets for RP1.

1.2.4 It covers the airspace controlled by the RP1 SES States in the ICAO EUR and AFI regions at the start of the reference period. Therefore, it covers the airspace controlled by the 27 EU Member States, the airspace controlled by Norway and Switzerland (29 States in total) in the ICAO EUR region, as well as the Canaries FIR (Spain), Bodø FIR (Norway) and NOTA/SOTA (UK/IRL).

Figure 1: RP1 SES States

1.2.5 Performance monitoring is an iterative process using data collected and made available on the PRB online monitoring dashboard[1] and the data provided in the monitoring reports submitted by the RP1 SES States.

1.3 Key Events in 2013

1.3.1 For the first time in the SES Performance Scheme, RP1 SES States produced Monitoring Reports on their performance in the first year of RP1 (2012). A major conclusion of the PRB's analysis of these reports was that the economic regulation put in place for RP1 already showed its effects in the scheme's first year.

1.3.2 With a view to RP2, two Commission Implementing Regulations were published in the Official Journal of the European Union on 9th May 2013, namely N° 390/2013, laying down a performance scheme for air navigation services and network functions, and N° 391/2013, laying down a common charging scheme for air navigation services. These regulations repeal N° 691/2010 and N° 1794/2006 amended by N° 1191/2010, which are still partly applicable to the RP1 monitoring process until the start of the second Reference Period.

1.3.3 On the 1st July 2013, Croatia became the 28th Member State of the European Union. Considering Croatia joined the performance scheme in the course of RP1, no Performance Plan had been established for that period. Therefore, Croatia is not part of the SES Monitoring process for RP1.

1.3.4 For the preparation of RP2 (2015-2019) and after thorough analysis and consultation, the PRB proposed target values to the Commission for the KPIs of RP2. These targets were adopted early in 2014[2].

1.4 Performance in 2013

1.4.1 In the context of lower-than forecast traffic for the third year in a row - traffic levels were below those recorded in 2009 - and an economic recovery that is still slow, the following points summarise the performance for each of the four KPAs in their second year of monitoring under the SES Performance Scheme:

- **Safety**: in 2013, there were no fatal accidents with an ANS contribution. The number of serious incidents indicates a decreasing trend since 2010.

  In addition, improvements are visible in both safety management and in the application of the severity classification of occurrences.

- **Environment**: horizontal en-route flight efficiency improved slightly in 2013 to 5.11%, but this was not enough to meet the NM's envisaged profile (target) of 4.92%.

- **Capacity**: In 2013, en-route ATFM delays decreased by -15% compared with 2012, in the context of a -1.3% traffic decrease (expressed in numbers of IFR flights). The Union-wide value for 2013 was 0.54 minutes of en-route ATFM delay per flight, which satisfies the (intermediate) value of 0.60 minutes/flight. En-route ATFM delay was concentrated in Cyprus, France, Germany, Poland, Spain and the United Kingdom.

  Airports with an average arrival ATFM delay above two minutes include Zurich (ZRH), London Heathrow (LHR) and Geneva (GVA). The European overall average arrival ATFM delay decreased by -15%, in the context of the general −1.3% decline in traffic.

- **Cost-efficiency**: The results of the second year of RP1, under the "Determined Costs" method with specific risk-sharing arrangements aimed at incentivising ANSPs' economic performance, confirms that the Performance Scheme for cost-efficiency KPA is working as expected with ANSPs taking action to adjust their cost-bases according to traffic demand (Service Units - SUs) so as to retain or increase their profit margins. In a context of lower traffic (-5.6%), expressed in SUs) than the planned in the adopted National Performance Plans, the European ANS system has collectively adjusted its cost structure downwards (-5.4%) in order to match lower revenues and fulfil its defined targets. As a result, the actual en-route unit cost for 2013 (56.85 €$_{2009}$) almost equals the planned DUR (Determined Unit Rate) adopted in the RP1 National Performance Plans (56.69 €$_{2009}$).

  Even though in RP1 there are no specific targets set for TANS (terminal air navigation services) costs and unit rates, 2013 monitoring shows that actual TANS costs are -8.6% lower than forecast in the National Performance Plans. This shows that the 'light touch' tools of transparency and monitoring, together with the impact of en-route costs regulation, where the same ANSP provides both terminal and en-route services, are having a positive influence.

1.5 RP1 Key Performance Areas

1.5.1 Table 1 presents the Key Performance Areas (KPAs) and Performance Indicators (PIs) applicable for RP1 (2012-14) as set out in Regulation (EU) N° 691/2010. The three PIs with Union-wide targets in RP1 are referred to as the Key Performance Indicators (KPIs).

KPA	ANS PERFORMANCE INDICATOR	RP1
Safety	Effectiveness of Safety Management (EoSM)	Reporting
	Application of severity classification scheme (RAT methodology)	Reporting
	Application of Just Culture (JC)	Reporting
	Separation Minima Infringements (SMI)	Reporting
	Runway Incursions (RI)	Reporting
	ATM-specific occurrence (ATM-S)	Reporting
Environmental	Horizontal flight efficiency of last filed flight plan (KEP)	Union-wide target
	Effectiveness of booking procedures for FUA	Reporting
	Utilisation of Conditional Routes	Reporting
Capacity	En-route ATFM delay per flight	Union-wide target Nat/FAB targets
	Arrival ATFM delay	Reporting
	Additional time in taxi-out phase	Reporting
	Additional time in arriving sequencing and metering area (ASMA)	Reporting
Cost-efficiency	Determined Unit Rate (DUR) for en-route ANS	Union-wide target Nat/FAB targets
	Terminal costs	Reporting
	Terminal unit rate	Reporting

Table 1: KPAs and PIs in RP1

1.6 Traffic

1.6.1 Traffic in terms of average daily IFR flights continued to decrease by -1.3% in 2013, although at a slower rate than in 2012. With this further decline, 2013 traffic levels are -8% below those recorded in 2008 and have reached their lowest point since then (Figure 2).

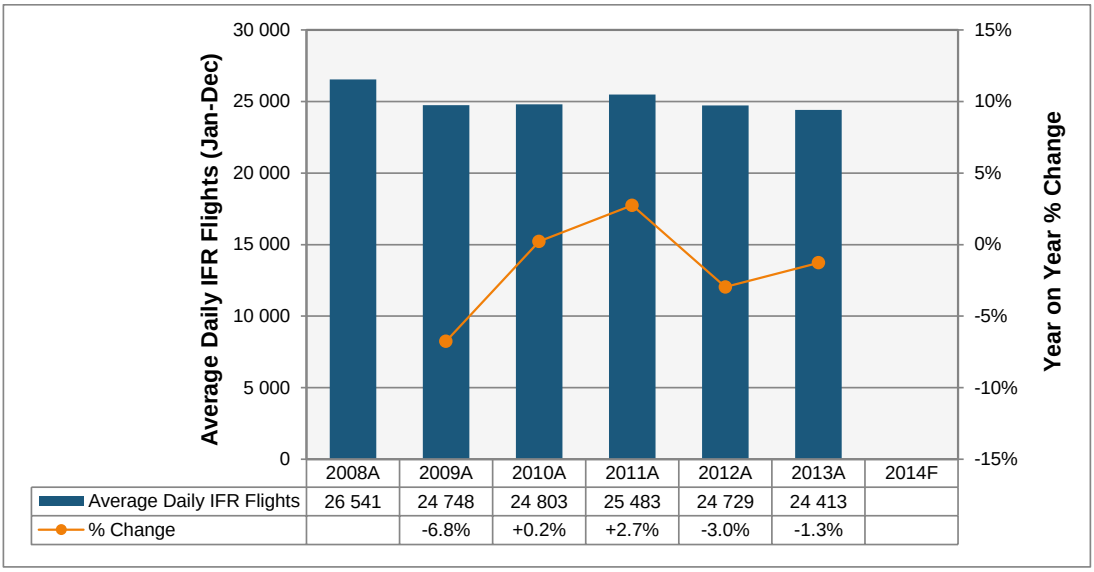


Figure 2: Traffic 2008-2013 (IFR flights)

1.6.2 It should be noted that these Union-wide averages mask considerable variations between Member States. For example, growth rates in 2013 ranged from +13.1% in Malta to -5.6% in Finland.

1.6.3 In terms of average daily en-route service units, the 2013 traffic trend is dissimilar. Indeed, while the number of IFR flights continued to decrease, Figure 3 below shows that Service Units (SUs) increased by 1.6% in 2013. This brings the 2013 SU traffic level to 105.2 million, which is 0.8% higher than that of 2008 (104.3 million). The difference between the divergent trend in SUs and average daily IFR Flights in 2013 can be explained by the increase in the average Maximum Take-Off Weight (MTOW), reinforced by an increase in the actual distances flown.

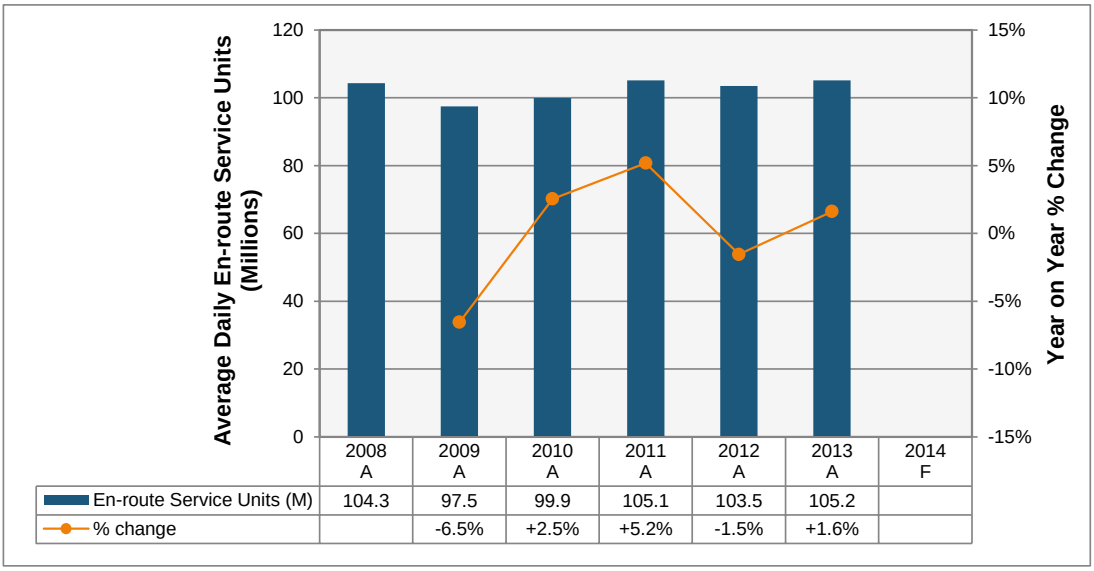


Figure 3: Traffic 2008-2013 (average daily en-route service units)

2 Safety

2.1 Introduction

2.1.1 Although there are no Union-wide safety targets, the States are required to report on a number of Safety Performance Indicators (SPIs) in RP1 (Table 2).

SAFETY
• Effectiveness of Safety Management (EoSM) of Member States and their air navigation service providers.
• Application of the severity classification based on the Risk Analysis Tool (RAT) methodology to the reporting of, as a minimum, - Separation Minima Infringements (SMI); - Runway Incursions (RI); and - ATM-specific occurrences (ATM-S) at all Air Traffic Service Units.
• Reporting by Member States and their air navigation providers on the level of presence and corresponding level of absence of Just Culture (JC).

Table 2: Safety Performance Indicators for RP1

2.1.2 The Safety Review presented below summarises Volume 4 of this report. It was produced by the PRU/EASA Safety team and contains consolidated observations made during a review of the National/FAB Monitoring Reports and measurements of SPIs for the second year of RP1 of the Performance Scheme.

2.2 ANS-related accidents and serious incidents

2.2.1 Figure 4 shows the number of accidents involving commercial air transport (CAT) aircraft above 2,250 kg maximum take-off mass (MTOM). These are categorised as fatal and non-fatal accidents, and whether the accident:

- has an “ANS contribution” (i.e. at least one ANS factor was in the causal chain of events leading to an occurrence, or at least one ANS factor potentially increased the level of risk, or played a role in the occurrence encountered by the aircraft);
- was “ANS-related” (i.e. the ANS system may not have contributed to a given occurrence, but it may have a role in preventing similar occurrences in the future).

2.2.2 While the number of ANS-related accidents remained low and stable over the ten-year period, a decrease in the number of accidents with an ANS contribution was observed. Between 2011 and 2013, there were no accidents with an ANS contribution.

2.2.3 The review of ANS-related accidents and incidents is based on:

- accident and serious incidents from the EASA database (2004 - 2013);
- incident data reported to EUROCONTROL via the Annual Summary Template (AST) reporting mechanism (2004 – 2012, 2013 preliminary).

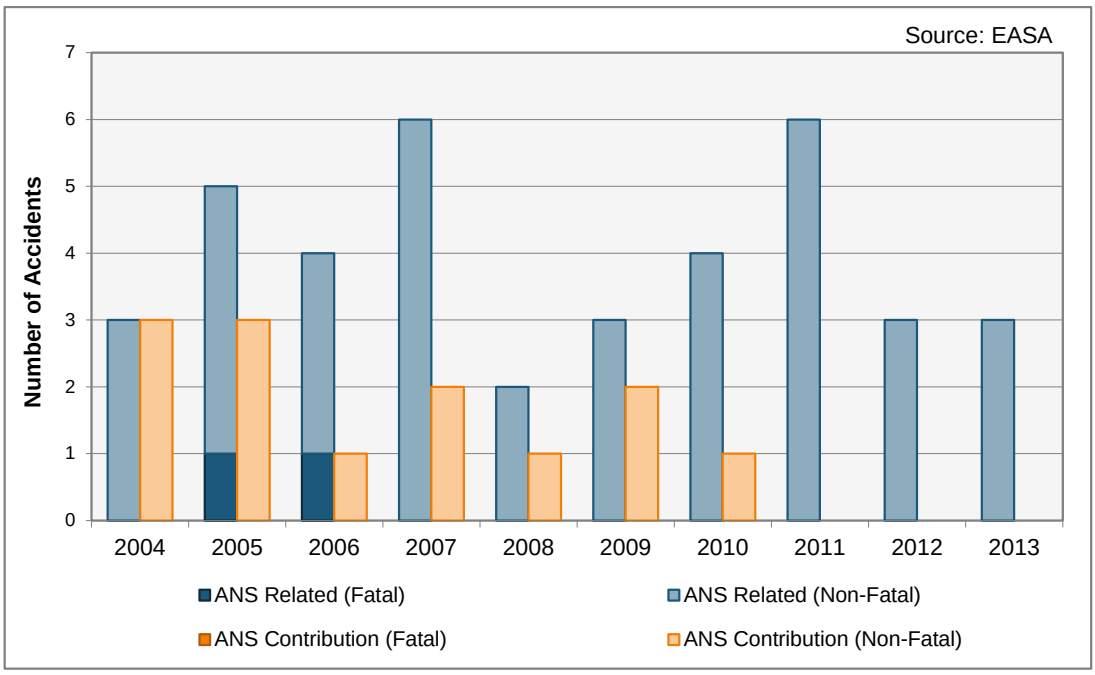


Figure 4: ANS Accidents

2.2.4 The number of serious incidents per year is shown in Figure 5. Commercial aircraft, with a MTOM above 2,250 kg, were involved in 354 serious incidents between 2004 and 2013 (these incidents involved circumstances indicating that an accident almost occurred). The number of both ANS-related and ANS-contribution serious incidents has been decreasing since 2010.

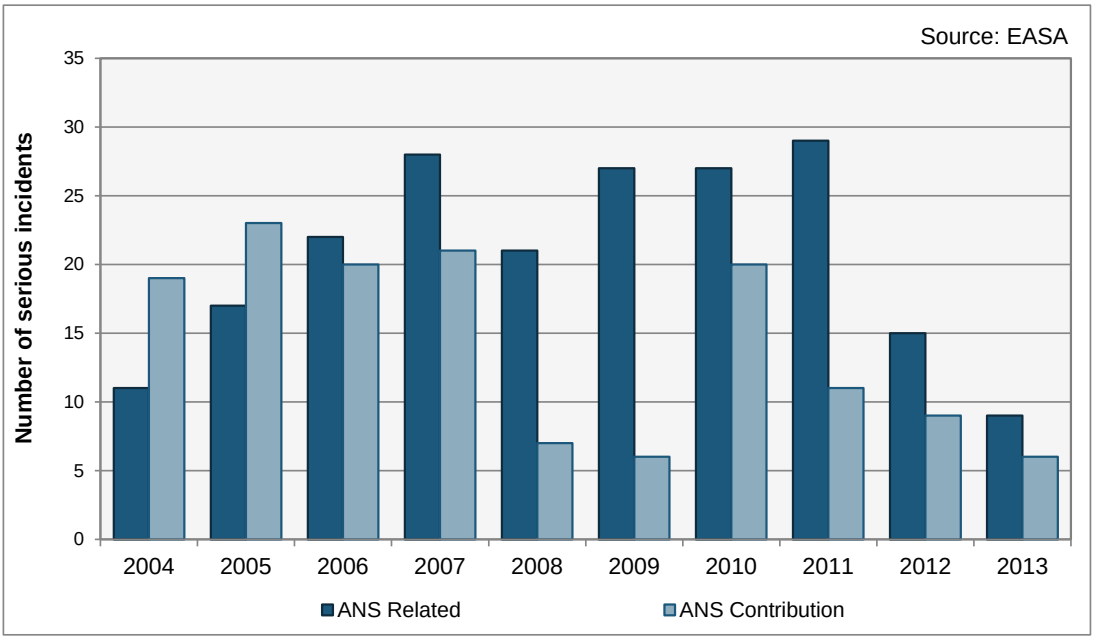


Figure 5: ANS Serious Incidents

2.3 Effectiveness of Safety Management

2.3.1 This section gives an overview of the responses to the questionnaires used for the measurement of the EoSM (self-assessment scores provided by the States and service providers). Results for 2013 are processed for all 29 States and 37 Air Navigation Service Providers (ANSPs) that filled in questionnaires used for the measurement of the EoSM in accordance with the Acceptable Means of Compliance (AMC) and Guidance Material (GM) for the Implementation and Measurement of Safety Performance Indicators (EASA Decision 2011/017/R).

2.3.2 EASA examined the States' responses using two methods "thorough verification" (TV) or "light verification" (LV)). More details about EASA's method of verification can be found in Volume 4 of this report.

2.3.3 In accordance with the AMC (Acceptable Means of Compliance), the ANSPs' responses should have been verified and/or commented on by the States' Competent Authorities (CAs) / National Supervisory Authorities (NSAs); however, there is no guarantee that this was done. As a mitigation measure, the questionnaire has now been modified to include a verification tick-box. Therefore, in the final year of RP1 it will be possible to check whether NSAs have indeed verified the ANSPs' results.

2.3.4 Figure 6 shows the scores from the computation of the States' replies (as perceived by themselves), ranging from a low of 35 to a high of 85, with only six States scoring below 50. This is a significant improvement compared with 2012, i.e. only 21% of the States scored below 50 in 2013 compared with 41**%** in 2012. The average effectiveness score achieved by the individual ANSPs in 2013 ranges from 41 to 90 with only two ANSPs (both airports) scoring below 50 (i.e. less than 7%). The minimum average effectiveness score increased, compared with the 2012 results when the score was 42 and 8% had below 50.

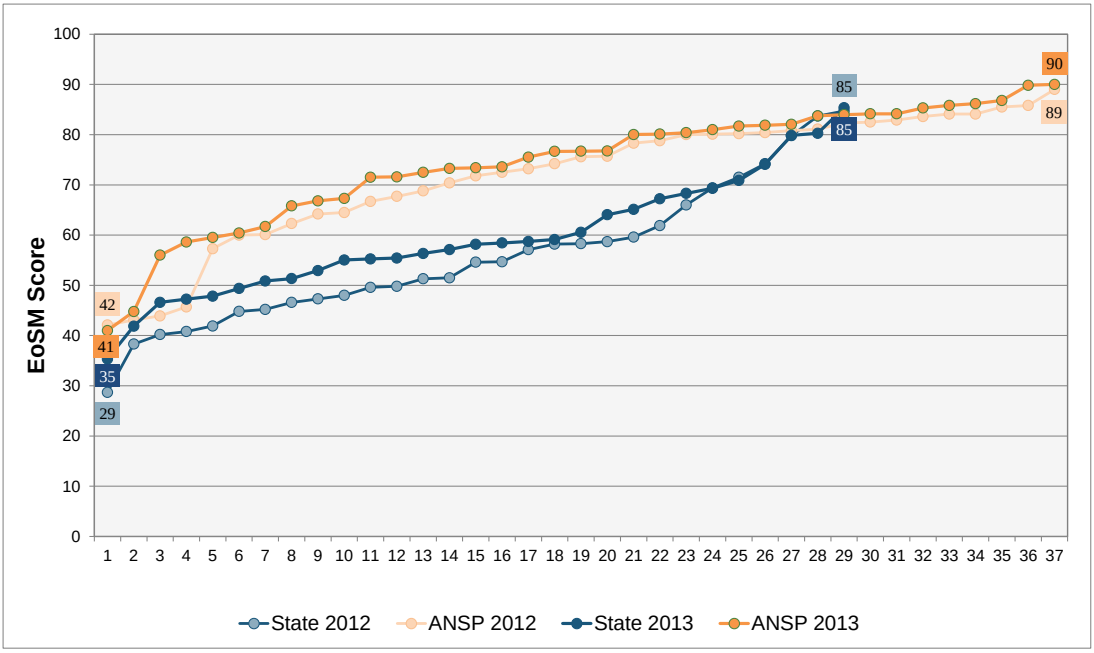


Figure 6: EoSM Score for 29 States and 37 ANSPs

2.3.5 The increase of the minimum effectiveness score for both States and ANSPs is a very good outcome and shows continuous improvement. There is a decrease in the maximum scores for both States and ANSPs for some MOs (Management Objectives). This trend could be explained by the more realistic view that States and

ANSPs are taking as to where they actually are in meeting the individual MOs; better awareness of the requirements and understanding that all lower levels must be met before moving on to higher levels.

2.3.6 Figure 7 and Figure 8 show the results achieved by individual States and their ANSPs, according to their own perception (before EASA's verification).

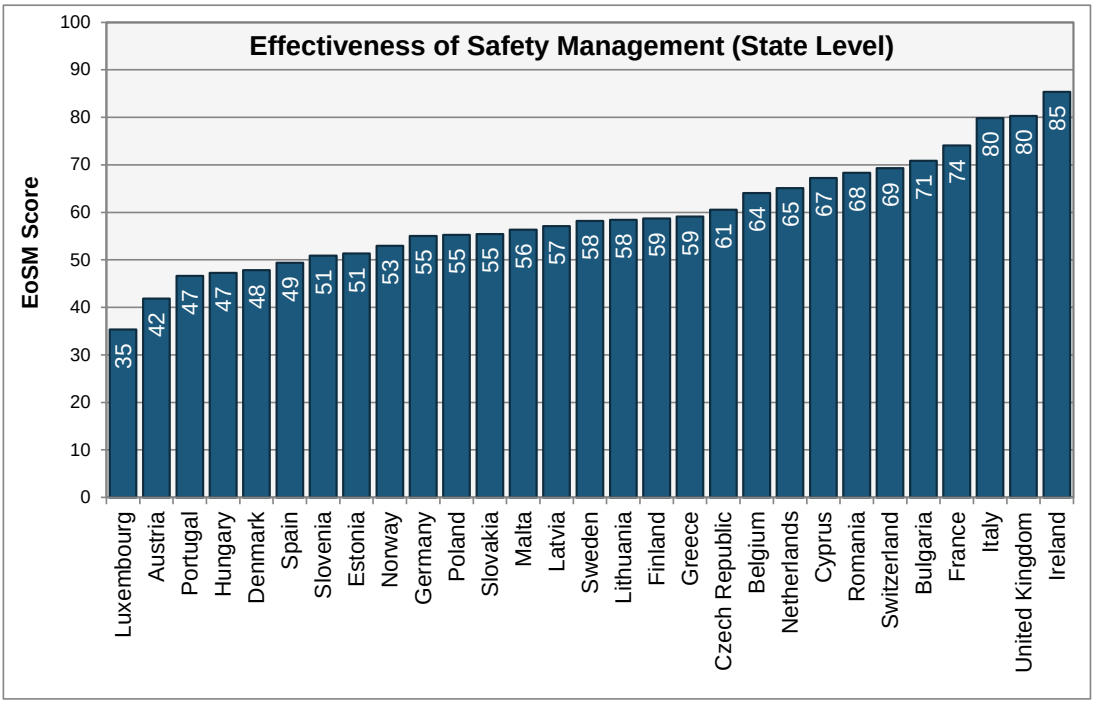


Figure 7: EoSM scores of individual States

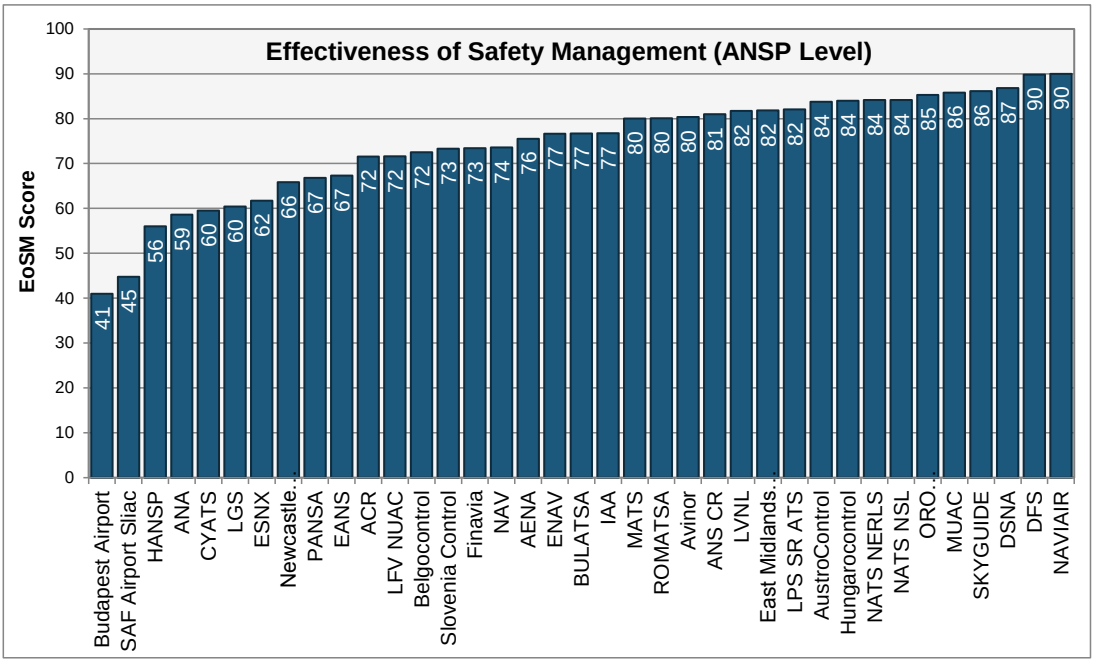


Figure 8: EoSM scores of individual ANSPs

2.3.7 When checking the inspected States, EASA noticed that a majority of States adjusted their scores to reflect the situation as was determined by its inspections. The overall conclusion is that, with the exception of four out of 16 States inspected, the replies correspond with the situation as observed. So, it can be concluded that 75% of the self-assessed replies are generally correct. It has been noted however, that safety culture scores do not necessarily indicate the correct level of maturity of a system (e.g. some States having a mature safety culture have no measurements in place). As a result, scores for those States artificially indicate a lack of maturity, as a Level A has been attributed in the absence of measurement. Similarly, States who have a less mature safety culture but where measurements are in place achieved higher scores for this MO.

2.3.8 EASA's audits only reaffirm the message that establishing strong safety oversight systems is a necessary first step in ensuring the successful transition to improved safety management. Safety strategies must be able to accommodate the varying maturity levels of a State's safety oversight system. States that have not yet implemented the eight critical elements of a safety oversight system effectively must first resolve these deficiencies and then develop a sound foundation upon which to build their State Safety Programmes (SSPs). Only those States with mature safety oversight systems will be able to realise the benefits associated with safety management principles, and so achieve further improvements in safety performance overall.

2.3.9 For a report on the EoSM results, please refer to Volume 4 of this report.

2.4 Application of RAT methodology

2.4.1 States have reported the proportion of Separation Minima Infringements (SMIs), Runway Incursions (RIs) and ATM-specific occurrences (ATM-S) for which the severity of the occurrence is assessed using the severity classification based on the RAT methodology. Figure 9 presents EU averages for each SMI, RI and ATM-S (data submitted and updated at the end of April 2014). The verification of the application of the RAT methodology was done following the Annual Summary Template's (AST) safety data reporting system, with the exception of one State that used a different channel to report the RAT methodology application.

2.4.2 Further details about the verification method can be found in Volume 4 of this report.

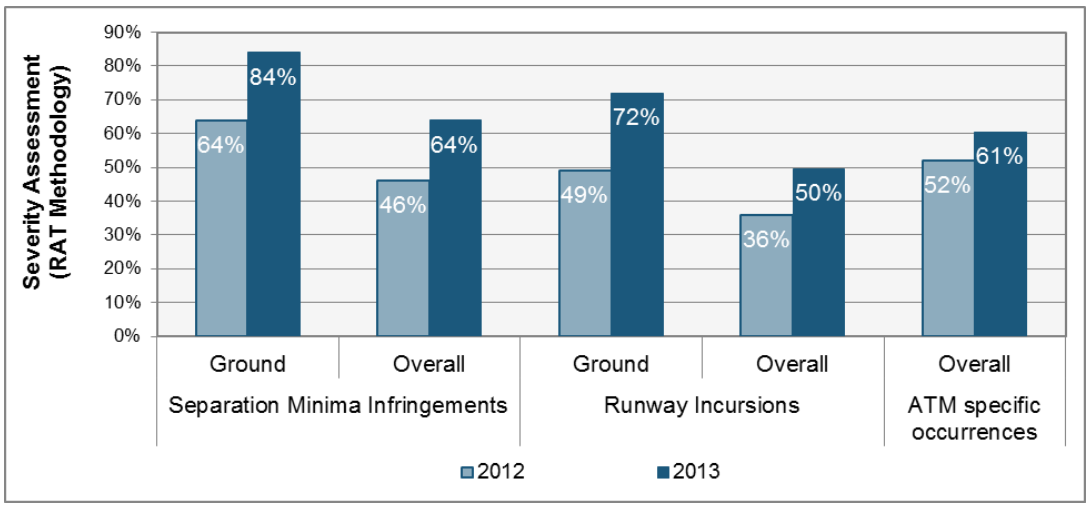


Figure 9: 2012 and 2013 EU averages for severity assessment using the RAT methodology

2.4.3 In calculating the Union-wide average, where no occurrences of a specific type were reported, these were not included in the calculation of the average. Note that percentages for 2012 have been updated since the PRB Annual Monitoring Report 2012 to take the final 2012 RAT methodology application data – received through the AST reporting mechanism at the end of September 2013 - into account.

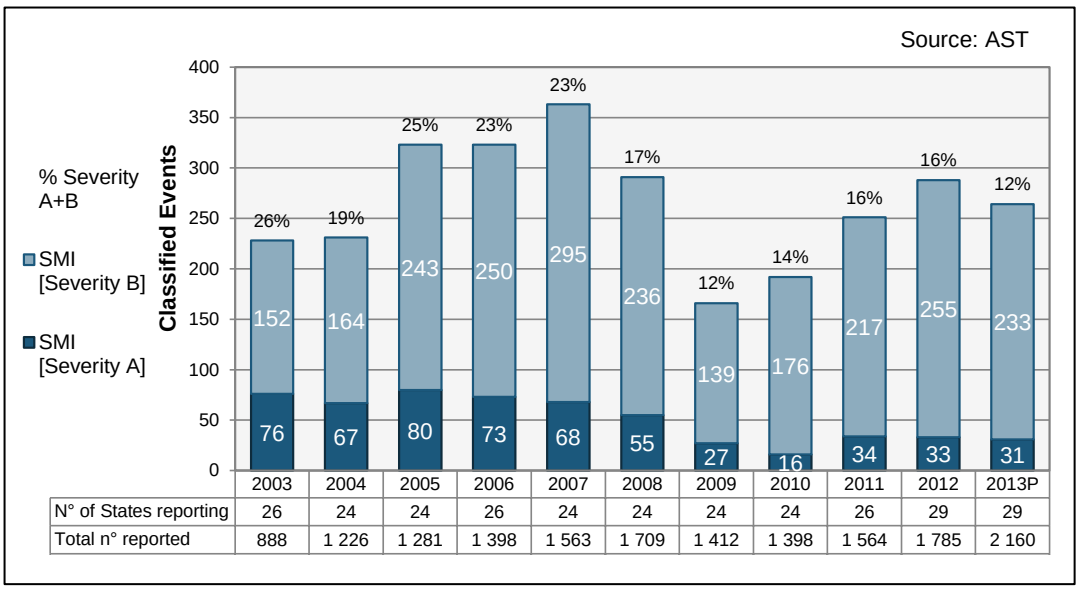
2.4.4 The Union-wide averages for applying the RAT severity methodology for each type of occurrence (SMIs, RIs and ATM-S) show a slight improvement in the second year of RP1. However, improvements are rather small on the State level. The RAT methodology for severity assessment of RIs and SMIs at State level is applied in less than half the cases. As was the case last year, many CAA/NSA entities still indicate that they either lack the information needed to complete the RAT Overall score or the knowledge/capability for such scoring and reporting, or in some cases, both elements.

2.4.5 Summary information about the three types of occurrences (SMIs, RIs and ATM-S), for which the severity of the occurrence should be assessed using the RAT severity classification, is provided in the following paragraphs.

2.4.6 Preliminary 2013 data (Figure 10) shows a small decrease of risk-bearing SMIs, in absolute numbers, compared with 2012 (approximately 9%):

- Serious incidents (severity class A) decreased in absolute numbers from 33 to 31.
- Major incidents (severity class B) decreased in absolute numbers from 255 to 233.

2.4.7 The total number of SMIs reported across all severity categories increased by 17% in 2013. Note that 6.5% of reported SMI incidents are still under investigation.



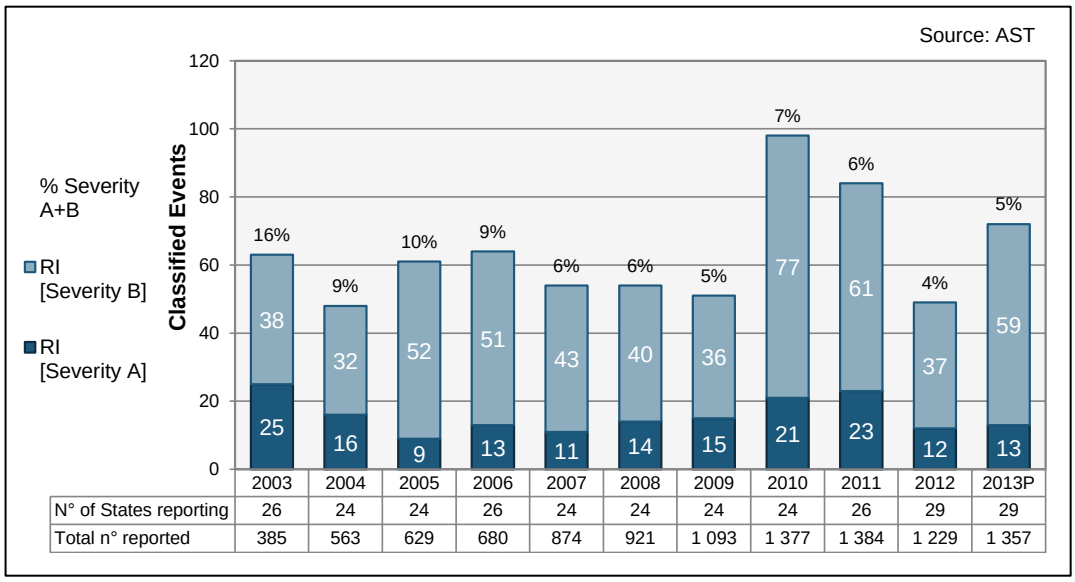
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013P
N° of States reporting	26	24	24	26	24	24	24	24	26	29	29
Total n° reported	888	1 226	1 281	1 398	1 563	1 709	1 412	1 398	1 564	1 785	2 160

Figure 10: Reported SMIs in Member States (2003-2013P)

2.4.8 Preliminary 2013 data (Figure 11) shows an increase of risk-bearing RIs compared with 2012 (approx. 32%):

- Serious incidents (severity class A) increased in absolute numbers from 12 to 13.
- Major incidents (severity class B) increased in absolute numbers from 37 to 59.

2.4.9 The total number of RIs reported across all severity categories increased by 9% in 2013. Approximately 8.5% of the RIs reported in 2013 are still under investigation.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013P
N° of States reporting	26	24	24	26	24	24	24	24	26	29	29
Total n° reported	385	563	629	680	874	921	1 093	1 377	1 384	1 229	1 357

Figure 11: Reported RIs in EU Member States (2003-2013P)

2.4.10 ATM-S include those situations where the ability to provide safe ATM services is affected by the event reported. ATM-S occurrences typically include failure of ATM/CNS technical systems which could potentially have an impact on the safety of air navigation.

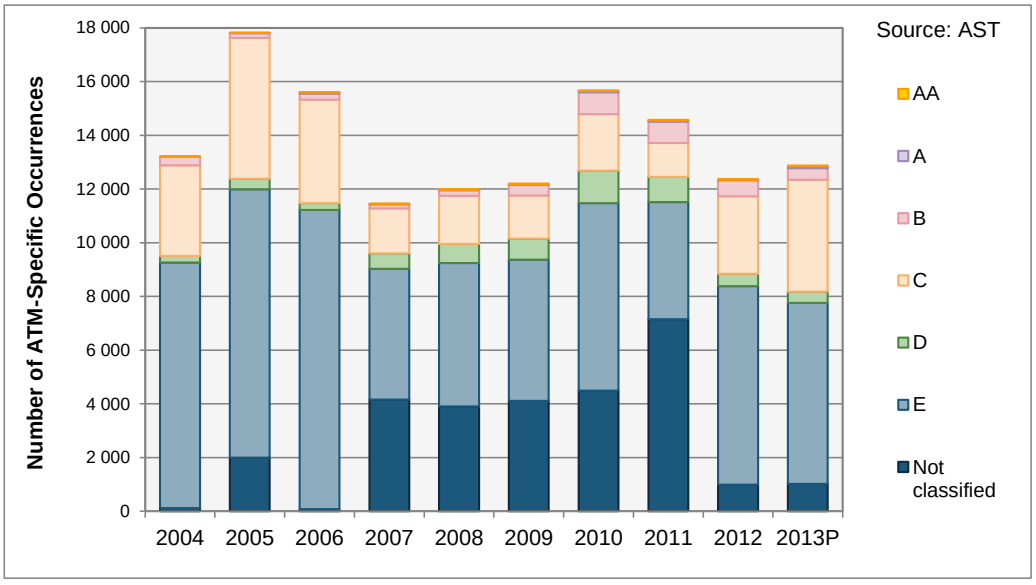


Figure 12: Reported ATM Specific Occurrences in EU Member States (2004-2013P)

2.4.11 Preliminary 2013 data (Figure 12) shows an overall decrease of risk-bearing ATM-S occurrences compared with 2012 (almost 20%). The number of occurrences that had a serious impact on the ANSPs' ability to supply ATM services has evolved in 2013 compared with the previous year as follows:

- Severity class AA (total inability to provide ATM Services) increased from 10 to 18;
- Severity class A (serious inability to provide ATM Services) increased from 34 to 83;

- Severity class B (partial inability to provide ATM Services) decreased from 588 to 428.

2.4.12 The total number of ATM-S occurrences reported across all severity categories increased by approximately 4% in 2013.

2.4.13 There was a small increase of approximately 2.5% in the number of ATM-S occurrences with no severity classification in 2013 compared with the previous year.

2.4.14 A growing trend in reporting has been observed (via AST mechanism) for all three types of occurrences monitored by the Performance Scheme. This might possibly suggest that the States' reporting moral has improved. However, as this observation is based on preliminary 2013 data, firm conclusions cannot yet be drawn but the observation will be closely monitored in the future.

2.4.15 As for the completeness of data received through the AST mechanism, it can be observed that the ATM Occurrences contribution data is left blank in 8% of the reported incidents. This is an improvement from the 25% left blank in 2012. In addition, data related to the aircraft involved is not available for roughly 50% operational occurrences (more information available in Volume 4 of this report). In consequence, this lack of completeness diminishes still further the safety analysis capability at European level.

2.5 Just Culture

2.5.1 Just Culture is assessed by the responses given to the self-assessment questionnaires on Just Culture for both States and ANSPs in the three areas: 'Policy and its implementation'; 'Legal & Judiciary'; and 'Occurrence reporting and investigation'. The questions for States and ANSPs vary. The aim of the review is to identify those institutional tendencies and approaches which indicate the presence (or absence) of a Just Culture.

2.5.2 This assessment is based on the responses given to the questionnaires on Just Culture as defined under Regulation (EU) N° 691/2010 and EASA AMC/GM.

2.5.3 A total of 29 States and 37 ANSPs completed the self-assessment questionnaires used in the measurement of the JC SPI in accordance with AMC/GM for the Implementation and Measurement of Safety Performance Indicators (EASA Decision 2011/017R). Volume 4 of this report explains the methodology for EASA's verification of the responses and gives a detailed cluster analysis of Just Culture implementation levels (see Volume 4, section 2.3). A short summary of the findings of this analysis is provided below.

2.5.4 For States, the strongest areas where most States responded with "Yes" are:

- Policy & its implementation:
  - (i) clear definition at State level of the role of different State authorities and ANSPs in handling safety reports and the flow of information;
  - (ii) safety investigation and/or analysis process is entirely independent from any judicial authority.
- Legal/Judiciary:
  - (i) freedom of Information (FOI) legislation, where in place, provides for exemptions applicable to safety information;
  - (ii) the provisions of Directive 2003/42/EC, in particular Art. 8 on protection of information, is fully and effectively implemented into national law;
  - (iii) there is an agreed process to deal with aviation incident matters between the aviation and judicial/police authorities.

- Occurrence reporting and investigation
  - (i) regular statistical feedback is provided to the public based on safety reports received;
  - (ii) subject matter experts are involved in taking decisions in cases where personnel licences/ratings could be affected.

2.5.5 The weakest area, in which fewer than 10 States responded "Yes", is the lack of regulatory requirements to include elements and/or courses on Just Culture in the training programmes for staff working in the competent authority and service providers.

2.5.6 On the ANSP level, the strongest areas where the majority of the ANSPs answered "Yes" are:

- Policy & its implementation
  - (i) there is an explicit JC Policy, in place, endorsed by management and staff representatives and made public;
  - (ii) the JC Policy describes what is considered as 'unacceptable behaviour';
  - (iii) the JC policy guarantees no disciplinary action will be taken for self-reported occurrences (except cases of 'unacceptable behaviour');
  - (iv) legal support is provided to the staff by the ANSP in case of prosecution related to safety occurrence;
  - (v) the CISM programme is established and well-known;
  - (vi) safety actions that are taken in respect to staff after an occurrence have no impact on the pay of the staff member concerned until the end of the investigation;
  - (vii) the ANSP's safety investigators are fully independent from any line, competency and ops management;
  - (viii) the safety investigators have full, unimpeded access to all relevant data for investigations;
  - (ix) access to safety data is clearly defined and kept confidential;
  - (x) the ANSP staff providing CISM are known and adequately trained.
- Legal/Judiciary
  - (i) the spirit of Directive 2003/42/EC (Art. 8 – protection of information) is fully transposed into the ANSP's internal procedures;
  - (ii) there is an agreed process in place between the ANSP and its NAA to deal with incident matters.
- Occurrence reporting and investigation
  - (i) the ANSP ensures the protection of the identity of staff involved in occurrences through staff regulations;
  - (ii) the staff subject to investigation based on occurrence reports has access to information related to the investigation;
  - (iii) there is a formal procedure in place to inform staff having reported an occurrence of the progress of the investigation;
  - (iv) regular feedback is provided to staff based on occurrence reports;
  - (v) the ANSP's public annual report provides statistical feedback on occurrence reports.

2.5.7 The weakest area for the ANSPs with less than 12 "Yes" responses is the lack of agreement between ANSPs and judicial/police authorities to ensure that the reported incident data and the individuals involved are protected.

2.6 Review of 2012 Recommendations on safety[3]

2.6.1 **States were urged to put more effort into achieving higher levels of safety management.** The EoSM scores provided by individual States show that their safety management has improved since last year, with approximately 80% of States scoring above 50, which is more than in 2012 (i.e. only 6 States are below EoSM score 50).

2.6.2 EASA's verification also revealed that most of the States that were not inspected adapted their scores to EASA's assessment (33% States still have inconsistent replies or lack adequate justification). In addition, the majority of inspected States adjusted their results after EASA's audits to reflect the situation found in the inspection (i.e. 75% of the self-assessed replies are generally correct).

2.6.3 **States were encouraged to continue trying to enhance their reporting and applying the RAT.** The EU averages for the application of RAT severity methodology (for SMIs, RIs and ATM-Specific occurrences) show improvement in comparison with the first year of reporting; however improvements are rather small for States as the RAT methodology for severity assessment of RIs and SMIs is applied in fewer than half of the cases.

2.7 Recommendations on safety

2.7.1 The PRB acknowledges the improvements made in safety management. The verified results of the EoSM questionnaires for States still show that their implementation of safety management principles is below that of ANSPs. Therefore, **the PRB advises the EC to request the States to invest additional effort in the final year of RP1 to achieve higher levels of safety management**.

2.7.2 There have been relatively small improvements in the application of RAT severity methodology. States requiring support in applying severity classification using the RAT methodology should contact EUROCONTROL DPS/SSR. **The PRB advises the EC to ask States to make further efforts to enhance their reporting and application of the RAT methodology by seeking, planning and providing training for this matter.**

2.7.3 When analysing safety data from the AST reporting mechanism, it is observed that the ATM Occurrences contribution data is left blank in 8% of the reported incidents and that data related to the aircraft involved is not available for roughly 50% of operational occurrences. This type of data is not sensitive and does not fall under the issue of Just Culture. Therefore, it is evident that built-in lack of interest from data providers appears as a more realistic reason for incomplete reporting. As a consequence, this lack of completeness of AST data diminishes the capability of safety analysis at European level. **The PRB advises the EC to request States to improve the completeness of safety data reported via the AST mechanism. The current lack of completeness diminishes the capability of safety analysis at European level.**

2.7.4 Some improvements were made in Member States' and their ANSPs' reporting on the level of presence and corresponding level of absence of a Just Culture (JC), when compared with the first year of RP1. **The PRB advises the EC to request States to make the investment necessary for the effective implementation of the JC policy. In particular, the PRB stresses the importance of systematically including JC elements in training curricula.**

2.7.5 Finally, the PRB notes with concern that a vast majority of ANSPs have reported that there is no agreement in place with the judicial/police authorities to ensure the protection of reported incident data and the individuals involved. **The PRB advises the EC to request the States to make every possible effort to encourage the conclusion of the necessary arrangements in order to have cooperation between the relevant actors involved in safety investigation.** Having such agreements will allow the States and the ANSPs to clarify their responsibilities and ensure the adequate protection of a reporter or a person mentioned in occurrence reports, thereby ensuring compliance with Regulation (EU) No 376/2014 and Regulation (EU) No 996/2010.

3 Environment

3.1 Introduction

3.1.1 The Performance Indicators for the Environment KPA in RP1 are listed in Table 3. While the 'average horizontal en-route flight efficiency of the last filed flight plan trajectory' is a KPI with a target, the Commission is required to monitor and report against the effective use of civil military airspace structures in RP1.

ENVIRONMENT
• The average horizontal en-route flight efficiency of the last filed flight plan trajectory
• The effective use of the civil/military airspace structures, e.g. CDRs (Conditional Routes).

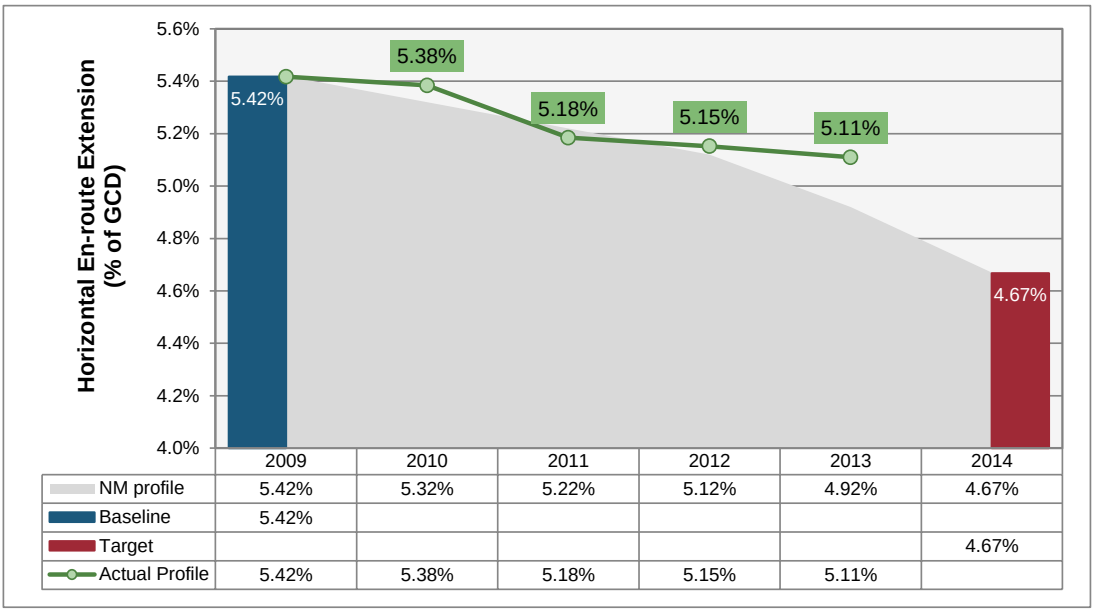
Table 3: Environment Indicators for RP1

3.2 Flight Efficiency

3.2.1 A flight efficiency target of 4.67% (measured as the flight extension as a proportion of the great circle distance) has been established for 2014; this represents a -0.75% point reduction compared to the 2009 baseline.

3.2.2 The Route Network Design function and the ATFM function carried out by the Network Manager (NM) directly support the achievement of this flight efficiency target.

3.2.3 Figure 13 shows the recorded horizontal flight efficiency figures for the 2009-2013 period. The average horizontal en-route flight efficiency of the last filed flight plan trajectory for 2013 is equal to 5.11%. This corresponds to a slight improvement over the 2012 value, but shows a widening gap between the values monitored and the indicative profile adopted by NM for the target of 4.67% in 2014.



	2009	2010	2011	2012	2013	2014
NM profile	5.42%	5.32%	5.22%	5.12%	4.92%	4.67%
Baseline	5.42%					
Target						4.67%
Actual Profile	5.42%	5.38%	5.18%	5.15%	5.11%	

Figure 13: Flight Efficiency yearly values

3.2.4 On the other hand, a comparison of the monthly values shows a marked improvement in the latter part of the year 2013, compared with 2012 (Figure 14).

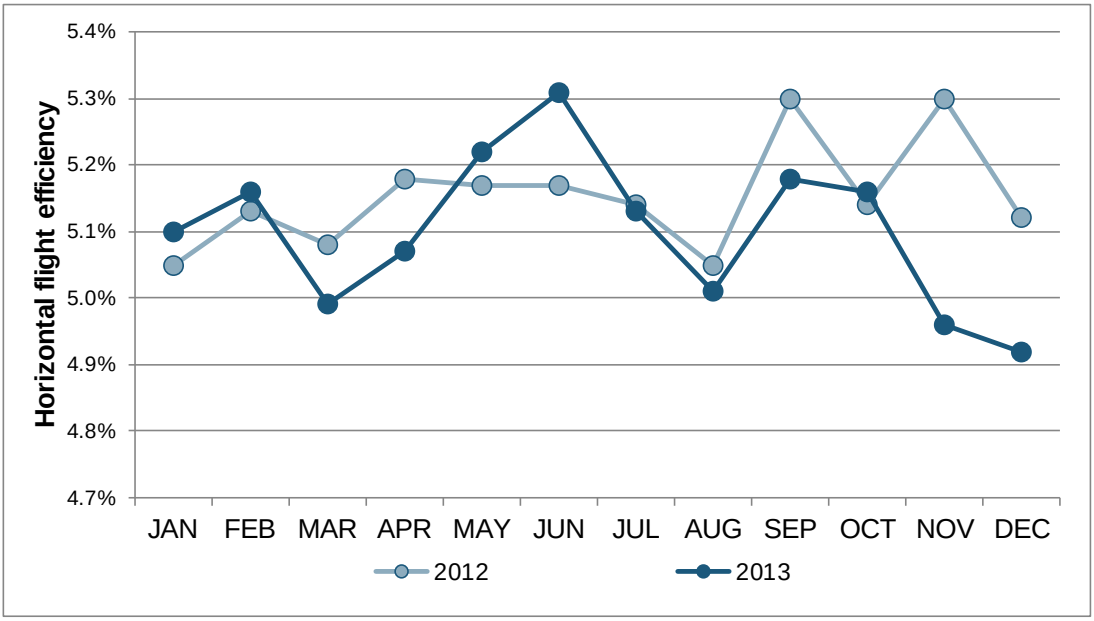


Figure 14: Comparison of 2012 and 2013 monthly Flight Efficiency

3.3 Effective Use of Civil Military Airspace Structures

UTILISATION OF CONDITIONAL ROUTES

3.3.1 Data on this indicator is only available on a network level. Figure 15 shows the ratio of aircraft which filed flight plans using conditional routes, compared with those aircraft which could have filed flight plans making use of conditional routes, but did not. Figure 15 (left) shows that 73% of aircraft that could have used CDR1s (which are available by default) filed flight plans that included conditional routes. Figure 15 (right) shows that 66% of aircraft that could use CDR2s (which, by default, are not available) filed flight plans that included conditional routes.

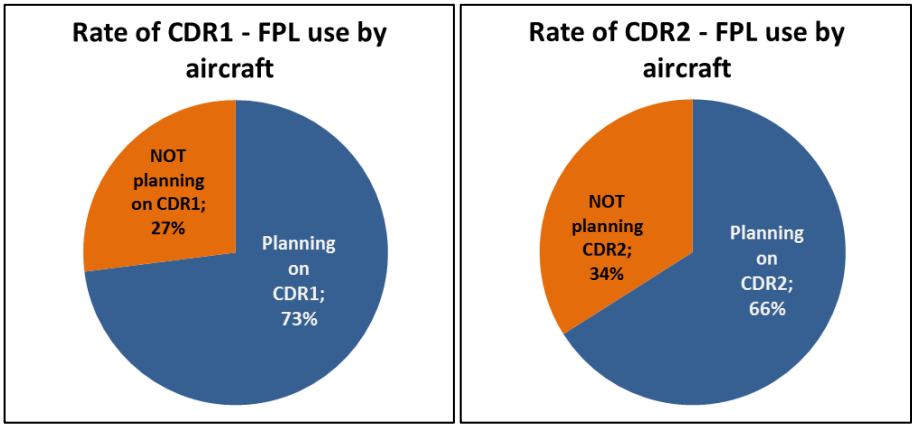


Figure 15: Utilisation of conditional routes

BOOKING AND RELEASE PROCEDURES

3.3.2 For RP1, States were asked to provide data on the number of hours that airspace structures were allocated for activities requiring segregation or restriction of other traffic. The data was separated into two categories: the number of hours that were released at least three hours prior to activation of the airspace structure and the number of hours during which the airspace structures were actually used for activities requiring segregation or restriction of other traffic.

3.3.3 Due to the specific nature of national training and operational requirements, it is not possible to present a homogenous indicator for the Union, although a summary of the national indicators is presented in Table 4.

3.3.4 Using the data provided by the Member States, it is possible to present the following attributes:

- the percentage of hours that allocated airspace was used for an activity requiring segregation/restriction from general air traffic [Usage];
- the percentage of hours that allocated airspace, surplus to requirements, was released with more than 3 hours' notification to the Network Manager [H-3 Release];
- the percentage of hours in which allocated airspace was neither used for an activity requiring segregation or restriction from general air traffic, nor released with at least 3 hours' notice to the Network Manager [Delta].

3.3.5 Each of the characteristics above was calculated by using the total number of hours that airspace was allocated, as being segregated or restricted on the day prior to operations (pre-tactical), as the baseline.

State	Usage	H-3 release	Delta
Austria	No info	No info	No info
Belgium	41%	25%	34%
Bulgaria	32%	No info	No info
Cyprus	100%	0%	0%
Czech Republic	35%	16%	49%
Denmark	42%	5%	53%
Estonia	No info	No info	No info
Finland	22%	0%	78%
France	54%	11%	35%
Germany	45%	7%	48%
Greece	No info	No info	No info
Hungary	21%	No info	No info
Ireland	70%	No info	No info
Italy	42%	0%	58%
Latvia	18%	0%	82%

State	Usage	H-3 release	Delta
Lithuania	(a)	(a)	(a)
Luxembourg	(a)	(a)	(a)
Malta	(a)	(a)	(a)
The Netherlands	89%	0%	11%
Norway	46%	No info	No info
Poland	44%	11%	45%
Portugal	(a)	(a)	(a)
Romania	49%	8%	43%
Slovakia	26%	No info	No info
Slovenia	41%	No info	No info
Spain	58%	0%	42%
Sweden	96%	3%	1%
Switzerland	74%	0%	26%
United Kingdom	33%	24%	43%

(a) These States reported that the allocation and activation of military areas had no adverse impact, either on available ATC capacity, or on route options for general air traffic.

Table 4: Environmental KPA: effective booking procedures

3.3.6 Member states were also asked to provide information on the tactical allocation and use of airspace, whenever the airspace management technique "Procedure 3" was applicable within the State. Out of the 29 Member States, only Germany provided information on the tactical allocation and use of airspace (Table 5).

State	Actual usage	
	Pre-tactical allocation	Tactical allocation
Germany	45%	52%

Table 5: Comparison of Pre-tactical and Tactical airspace allocation

3.4 Review of 2012's Recommendations on the environment[3]

3.4.1 To reduce the burden of reporting on Member States, while ensuring the effectiveness of the performance indicator, the PRB made two recommendations on the Environment in section 3.4 of the PRB Annual Monitoring Report 2012 Volume 1.

3.4.2 **The PRB invited the Member States to review the impact of allocating or activating individual restricted or segregated areas on either the available ATC capacity, or on the availability of route options within the relevant airspace**. – It should be noted that this year's national monitoring reports contained more information, for a significant number of States, than was provided in 2012. At the same time, several national monitoring reports state that the allocation and activation of civil/military airspace structures do not have an adverse impact, either on available ATC capacity or on route options for general air traffic. Although these developments could be in response to last year's recommendation, without a definitive statement from each Member State, it is impossible to determine how well the recommendation has been acted upon.

3.4.3 **The PRB invited the Commission to clarify that the reporting requirement for the "effective use of civil military airspace structures" performance indicator relates exclusively to all restricted or segregated areas, which the Member States have identified as having an impact on available ATC capacity, or on available route options within the relevant airspace**. – To date, no formal clarification, either in support of, or against, this recommendation has been forthcoming from the Commission.

3.5 Recommendations on the environment

3.5.1 Considering the monthly Flight Efficiency values and the widening gap between the values monitored and the indicative profile towards the target, **the PRB advises the EC to request the NM to continue and expand those activities which have led to the marked improvements in the latter part of 2013 so as to ensure that the Flight Efficiency target of 4.67% can be reached by end 2014.**

3.5.2 **The PRB advises the EC to request the Member States to review the impact of allocating or activating individual restricted or segregated areas on either the available ATC capacity, or on the availability of route options within the relevant airspace.** This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid. The PRB considers this to be a fundamental element of reviewing the application of FUA by the Member States, to improve both flight efficiency and capacity performance.

3.5.3 **The PRB advises the EC to clarify to Member States that the reporting requirement for the "effective use of civil military airspace structures" performance indicator relates exclusively to all restricted or segregated areas, which the Member States have identified as having an impact on available ATC capacity, or on available route options within the relevant airspace.** This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

4 Capacity

4.1 Introduction

4.1.1 Under the Capacity KPA, a Union-wide target has been set for en-route ATFM delays per flight. Furthermore, the performance regulation stipulates that the three PIs related to airport capacity, as outlined in Table 6, be reported on.

CAPACITY
• En-route ATFM delays per flight
• Arrival ATFM delay • Additional ASMA time • Additional Taxi Out time

Table 6: Capacity Indicators for RP1

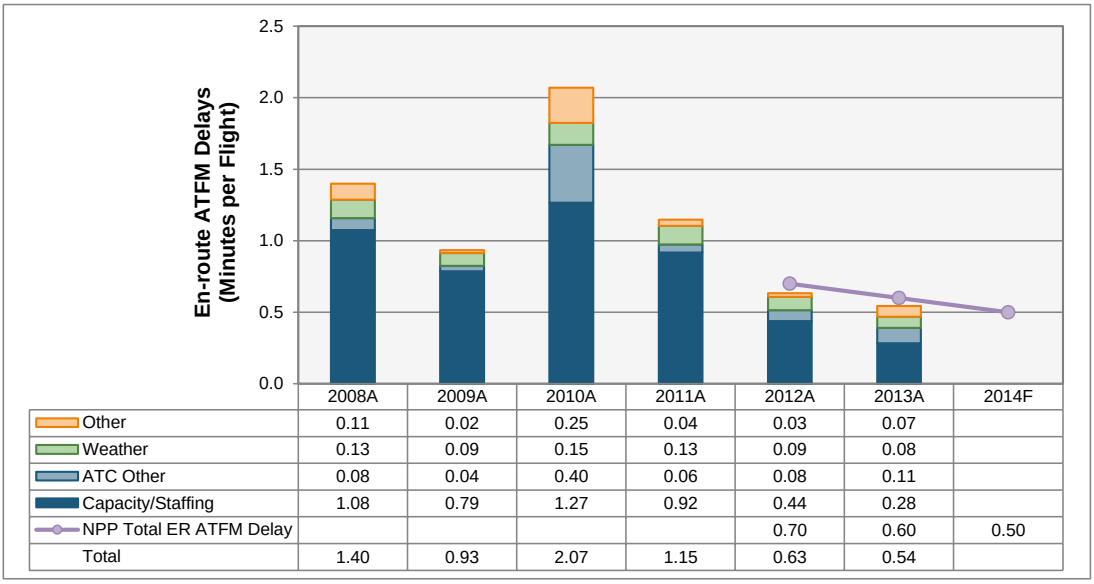
4.2 En-route ATFM Delays

UNION-WIDE LEVEL

4.2.1 The Union-wide target for en-route ATFM delays in 2014 is 0.5 minutes per flight, with intermediate targets of 0.7 min/flight in 2012 and 0.6 min/flight in 2013. These targets are shown in Figure 16, which also presents a breakdown of en-route ATFM delays according to the causes, as classified by the Flow Management Position requesting the regulation, for the period 2008-2013.

4.2.2 The Union-wide target of 0.6 minutes was met, which is a substantial improvement on previous years. However, the improved capacity performance coincided with a decline in traffic from 2012, which itself witnessed a decrease in traffic compared with 2011.

4.2.3 The Union-wide capacity performance is the aggregation of both national and FAB capacity performance. Further details on the specific contribution of each Member State, or FAB can be found in Volume 2 of this report.



	2008A	2009A	2010A	2011A	2012A	2013A	2014F
Other	0.11	0.02	0.25	0.04	0.03	0.07	
Weather	0.13	0.09	0.15	0.13	0.09	0.08	
ATC Other	0.08	0.04	0.40	0.06	0.08	0.11	
Capacity/Staffing	1.08	0.79	1.27	0.92	0.44	0.28	
NPP Total ER ATFM Delay					0.70	0.60	0.50
Total	1.40	0.93	2.07	1.15	0.63	0.54	

Figure 16: En-route ATFM delays 2008-2013

LOCAL LEVEL

4.2.4 Table 7 shows the contribution of each FAB & Member State to the 2013 total en-route ATFM delay minutes per flight. The table shows the 2013 reference values provided by the Network Manager in 2011 and used to determine consistency with the Union-wide target (i.e. the Reference Value); the 2013 value adopted as a target in the respective national / FAB Performance Plans, and the actual value recorded in 2013.

FAB	State	Reference Value (to be consistent with Union-wide target)	Target (from PP)	Actual
Baltic FAB		0.29	No FAB target	0.46
	Lithuania	0.05	0.05	0.00
	Poland	0.31	1.50	0.51
BLUEMED FAB		0.28	No FAB target	0.31
	Cyprus	0.59	1.7	2.16
	Greece	0.32	1.0	0.06
	Italy	0.14	0.14	0.00
	Malta	0.03	0.03	0.00
Danube FAB		0.09	No FAB target	0.00
	Bulgaria	0.00	0.13	0.00
	Romania	0.00	0.00	0.00
DK-SWE FAB		0.05	0.15	0.02
	Denmark	0.06	No national target	0.00
	Sweden	0.03	No national target	0.03
FAB-CE		0.38	No FAB target	0.14
	Austria	0.24	0.98	0.21
	Czech Republic	0.16	0.16	0.04
	Hungary	0.07	0.07	0.00
	Slovak Republic	0.22	0.32	0.00
	Slovenia	0.26	0.03	0.00
FABEC		0.47	0.68	0.47
	Belgium/Luxembourg	0.27	No national target	0.08
	France	0.33	No national target	0.53
	Germany	0.32	No national target	0.24
	Netherlands	0.14	No national target	0.11
	Switzerland	0.18	No national target	0.14
NEFAB		0.09	No FAB target	0.03
	Estonia	0.16	0.16	0.02
	Finland	0.13	0.03	0.00
	Latvia	0.04	0.03	0.00
	Norway	0.04	0.04	0.04
SW-FAB		0.46	No FAB target	0.47
	Portugal	0.21	0.20	0.27
	Spain	0.42	0.75	0.41
UK-IRL FAB		0.30	No FAB target	0.12
	Ireland	0.13	0.12	0.00
	UK	0.28	0.26	0.13

Table 7: en-route ATFM delay per flight – State contribution

4.2.5 Table 7 shows that, where a national target was published, all States except Portugal and Cyprus achieved their national target. In the national monitoring report, the NSA for Cyprus attributed the poor performance to an inability to deploy controllers effectively and regional political issues. Similarly, in the national

monitoring report, the NSA for Portugal stated that training requirements combined with unexpected traffic in November and December of 2013, were the main reasons for poor capacity performance.

4.2.6 Both published FAB targets were met, i.e. FABEC and Denmark-Sweden FAB.

4.2.7 Unsurprisingly, as the larger of the two ANSPs in the FAB, Poland's national performance had significant impact on the Baltic FAB's performance.

4.2.8 However, even though they are not the largest ANSPs in their respective FABs, Cyprus and Portugal's national performance resulted in their respective FABs' aggregated performance being just below the effort required to meet the Union-wide target for 2013.

4.2.9 Although the national performance of France was inconsistent with the effort required to meet the Union-wide target in 2013, superior performance by the other FABEC members meant that the FAB's aggregated performance was consistent.

4.2.10 Further details of national and or FAB performance can be found in Volume 2 of this report.

CAPACITY PLANNING

4.2.11 The PRB notes that the planned capacity increases in a significant number of Member States (including those that have not yet achieved the required capacity performance to be consistent with the Union-wide capacity target for 2014) were postponed or cancelled, with several ANSPs reporting planned capacity reductions in the Network Operations Plan 2014-2019 March edition (The DFS (at Bremen ACC) and AENA (at all ACCs in Spain) planned reductions in capacity during RP2).

4.2.12 The PRB is concerned at this development: while this may not affect capacity performance as traffic levels decline, any upturn in traffic levels will lead to unacceptable levels of delay.

4.2.13 The ANSP capacity plans for 2014 [contained within Network Operations Plan 2014-2019 (June 2014)], combined with the latest delay figures (Jan-August 2014) from the Network Manager [which shows delay levels to date approx. 50% greater than the expected level for meeting the 2014 target], indicate that there is a serious risk that the Union-wide performance target for capacity will not be met in 2014.

4.2.14 The PRB notes that Regulation (EU) N° 691/2010 Article 17, paragraph 3 states: "The Member States shall report to the Commission on the monitoring by their national or functional airspace block supervisory authorities of the Performance Plans and targets at least on an annual basis and **when performance targets risk not being achieved**. The Commission shall report to the Single Sky Committee on the achievement of performance targets at least on an annual basis."

4.2.15 In view of this risk, the PRB considers it appropriate to ask the NSAs of the Member States to review current performance, including planned capacity and to implement remedial measures, if appropriate, for meeting the requisite level of capacity performance for 2014 and beyond.

4.3 ANS Capacity at Airports

UNION-WIDE LEVEL

4.3.1 No targets have been set for ANS capacity at airports in RP1.

4.3.2 77 airports are subject to the performance regulation (Regulation (EU) N° 691/2010) during RP1, as shown in Figure 17. The full list of RP1 airports can be found in Volume 2 of this report. Operational ANS performance in terms of arrival ATFM delay and additional taxi-out time is monitored for all of these airports, while RP1 airports accommodating more than 100,000 movements per annum are subject to monitoring of additional ASMA time, i.e. 39 airports.

4.3.3 Performance Monitoring is carried out by using the data flow defined in Annex IV of Regulation (EU) N° 691/2010. The PRU has been tasked with the organisation and day-to-day management of the respective airport data flows.

Figure 17: RP1 Airports

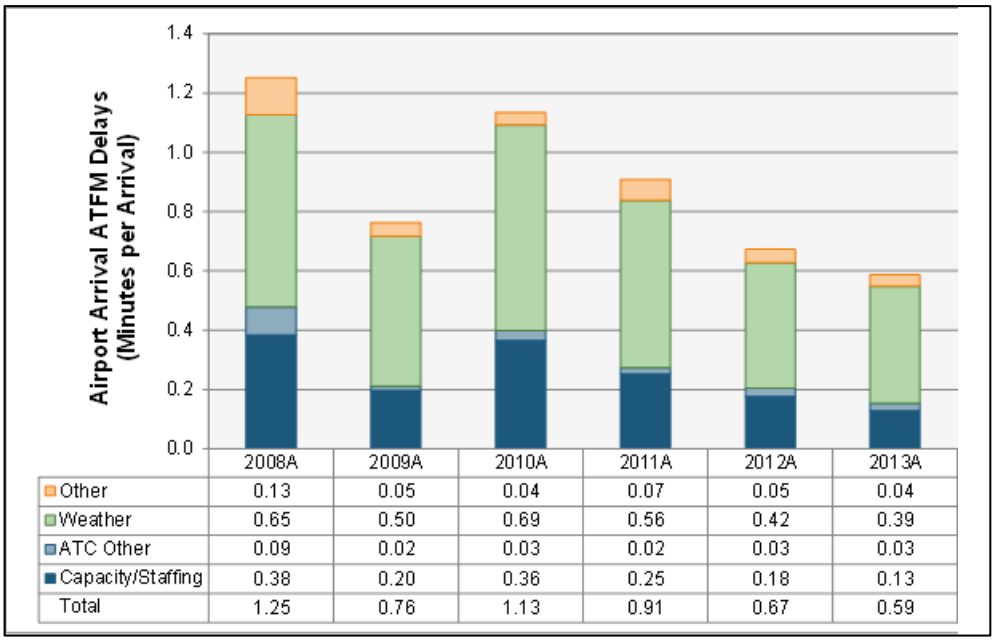
4.3.4 The technical processes and organisational measures to ensure regular airport performance monitoring have been established and are being maintained. Few cases of substantial non-compliance with the reporting requirements remain (e.g. establishment of data flow, completeness of data provision, accuracy/consistency of data). In such cases, remedial action has been planned in close collaboration with the respective authorities and/or airports. These action plans have resulted in improvements to the reporting situation in 2013 (e.g. integration of German and Italian airports).

4.3.5 When data required for the calculation of additional ASMA and taxi-out times has not been provided by airports, these indicators are not published by the PRB. In 2013, additional ASMA time could be calculated for 36 airports out of 39 satisfying the threshold of 100 000 movements for the calculation of additional ASMA time (information was missing for Oslo/Gardermoen, Warsaw and Nice) and additional taxi-out time was computed for 58 airports out of the 77 airports subject to RP1 (when there was either a quality issue or data for the other 19 airports was missing[4]). As part of the quality assurance framework mentioned above, the PRU is coordinating remedial action plans with the reporting entities and the identified

instances of non-compliance with the reporting requirements (i.e. "missing" data).

4.3.6 The Union-wide averages of performance indicators are included in this chapter in order to provide a high-level trend. It needs to be acknowledged that the averages may hide significant variances between airports due to the local specifics at airports. The respective performance at airport level is detailed in Volume 2 as well as on the PRB online monitoring dashboard[1].

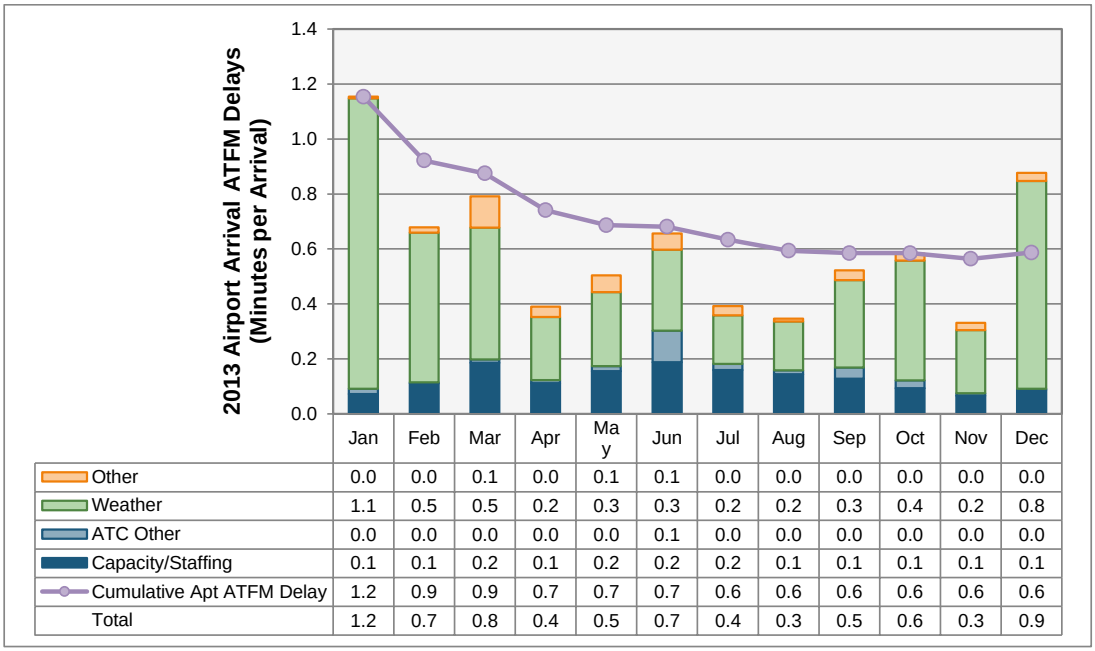
4.3.7 The European average for arrival ATFM delay decreased from 0.7 min./arr. inbound in 2012 to 0.6 min./arr. in 2013 (representing a decrease of -13%). As depicted in Figure 18, weather conditions remain the major cause of delay and account for 67% of the delay in 2013.



	2008A	2009A	2010A	2011A	2012A	2013A
Other	0.13	0.05	0.04	0.07	0.05	0.04
Weather	0.65	0.50	0.69	0.56	0.42	0.39
ATC Other	0.09	0.02	0.03	0.02	0.03	0.03
Capacity/Staffing	0.38	0.20	0.36	0.25	0.18	0.13
Total	1.25	0.76	1.13	0.91	0.67	0.59

Figure 18: Airport arrival ATFM delays monitoring 2008-2012

4.3.8 In 2013, the highest airport arrival ATFM delay occurred in January (1.2 min./arr.) and December (0.9 min./arr.) due to adverse winter weather conditions (see Figure 19). It should be noted that capacity/staffing shortages cause considerable delay in the summer, when traffic demand reaches its maximum.



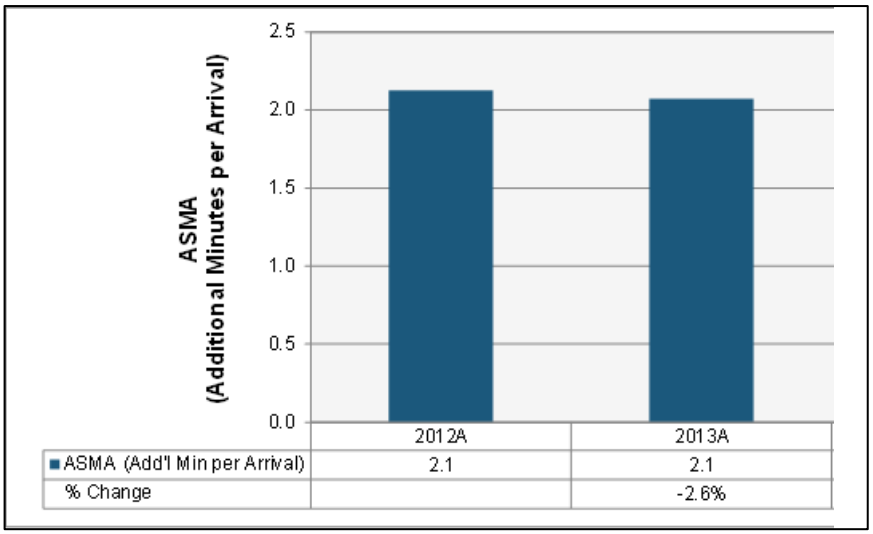
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Other	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Weather	1.1	0.5	0.5	0.2	0.3	0.3	0.2	0.2	0.3	0.4	0.2	0.8
ATC Other	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Capacity/Staffing	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Cumulative Apt ATFM Delay	1.2	0.9	0.9	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
Total	1.2	0.7	0.8	0.4	0.5	0.7	0.4	0.3	0.5	0.6	0.3	0.9

Figure 19: Airport arrival ATFM delay 2013 – Breakdown per month

4.3.9 The situation at airports may vary significantly due to local circumstances. In 2013, the average arrival ATFM delay varied from 0.7 min./arr. at Paris/Charles-de-Gaulle to 2.6 min./arr. at London Heathrow.

4.3.10 Both the traffic volume and the level of coordination at each airport are key factors to be considered before drawing conclusions on performance. For instance, with an average arrival ATFM delay of 0.7 min./arr. in 2013, Paris/Charles-de-Gaulle had a similar impact on the network than Vienna which recorded 1.2 min./arr. ATFM delay on average, because the traffic volume at Charles-de-Gaulle was 1.9 times greater than Vienna's over the same period. In absolute terms, the total airport arrival ATFM delay generated at Paris/Charles-de-Gaulle resulted in 158,869 minutes' extra time in 2013, i.e. 110 days, 7 hours and 49 minutes, compared with 153,171 minutes at Vienna Airport, representing 3 days 22 hours and 58 minutes less.

4.3.11 Additional ASMA time remained almost unchanged across all reporting airports in 2013 compared with 2012, with 2.1 min./arr. (see Figure 20).



	2012A	2013A
ASMA (Add'l Min per Arrival)	2.1	2.1
% Change		-2.6%

Figure 20: Additional ASMA time 2012-2013

4.3.12 The monthly fluctuation of additional ASMA time in 2013 is depicted in Figure 21, compared with 2012. December remains the month during which the highest additional ASMA time was recorded in 2013 in analogy with 2012. This is probably due to unpredicted adverse weather conditions or snow removal operations.

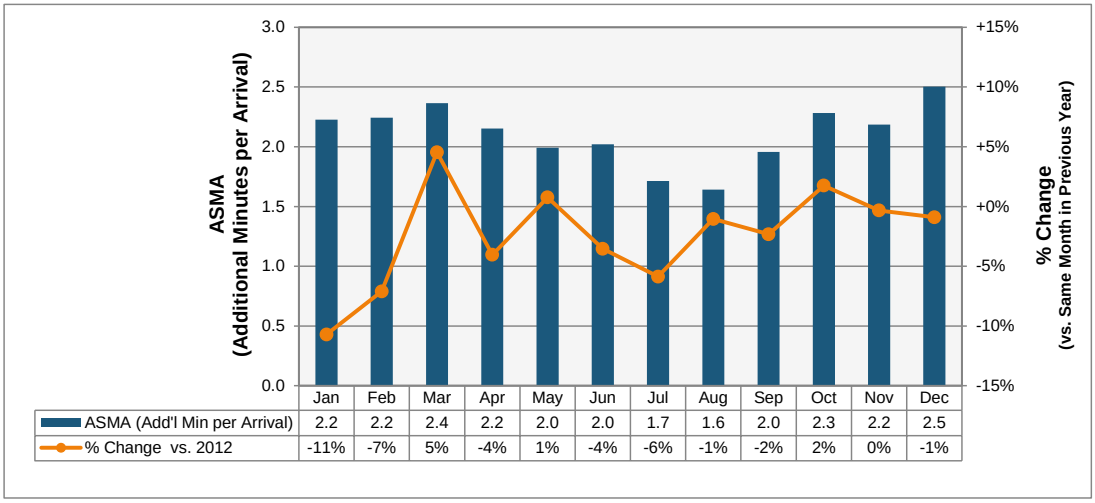


Figure 21: Monthly fluctuation of Additional ASMA time during 2013

4.3.13 Reflecting local circumstances, the additional ASMA time varied from 0.8 min./arr. at Helsinki-Vantaa airport to 9.2 min./arr. at London Heathrow on average during 2013.

4.3.14 Additional taxi-out time slightly decreased in 2013 compared to 2012, with a European average of 3.3 min./dep., as shown in Figure 22.

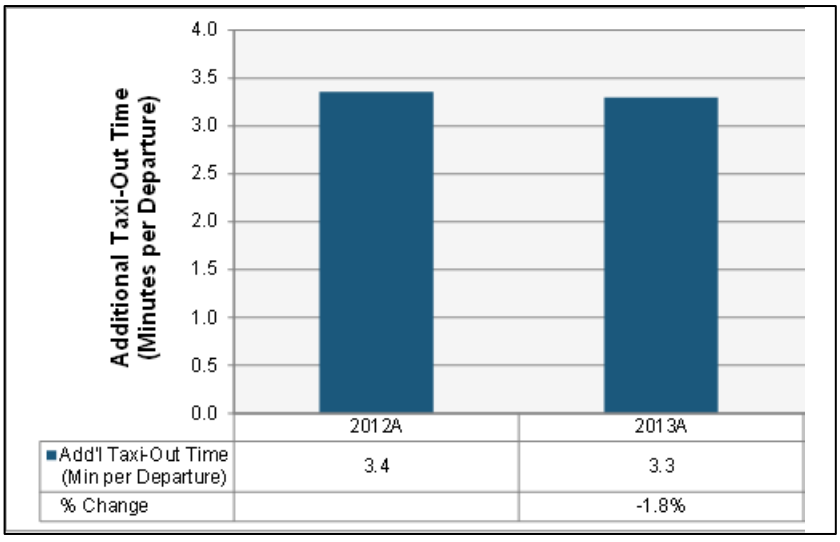


Figure 22: Additional taxi-out time 2012-2013

4.3.15 The seasonal influence is clearly discernible. Indeed, additional taxi-out times in the winter exceed the times measured during the summer (see Figure 23). The increase can be linked primarily with remote de-icing and snow removal operations.

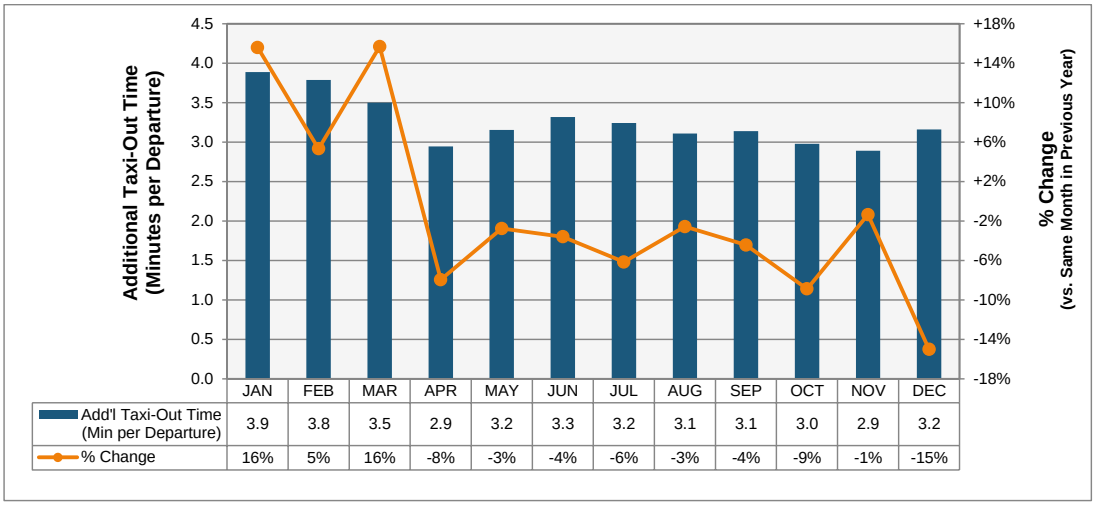


Figure 23: Monthly fluctuation of Additional taxi-out time during 2013

4.3.16 Similarly to arrival ATFM delay and additional ASMA time, there were significant local variations in additional taxi-out times, ranging from 1.2 min./dep. at Athens airport to 8.3 min./dep. at London Heathrow. It is recognised at several airports that A-CDM can significantly reduce taxi-out time.

4.3.17 When comparing the observed performance for the outbound and inbound processes, it can be noted that additional taxi-out time surpasses the sum of arrival ATFM delay and additional ASMA time.

LOCAL LEVEL

4.3.18 Table 8 presents the SES performance indicators for airports clustered by traffic volume categories.

		IFR Movements per day		
		> 400	**300-400**	**200-300**
Arrival ATFM Delay	Above 2 min./arr.	**London Heathrow** (EGLL, 2.6 min/arr.)		**Zurich** (LSZH, 2.6 min./arr.)
	Between 1 and 2 min./arr.	**Amsterdam** (EHAM, 1.3 min./arr.)		**Vienna** (LOWW, 1.2 min./arr.) **Oslo/Gardemoen** (ENGM, 1.1 min./arr.)
Additional ASMA Time	Above 2 min./arr.	**London Heathrow** (EGLL, 9.2 min./arr.) **Frankfurt** (EDDF, 2.9 min./arr.)	**Munich** (EDDM, 2.2 min./arr.)	**Zurich** (LSZH, 3.3 min./arr.) **London/Gatwick** (EGKK, 2.7 min./arr.) **Vienna** (LOWW, 2.2 min./arr.)
	Between 1 and 2 min./arr.	**Amsterdam** (EHAM, 1.4 min./arr.)	**Roma/Fiumicino** (LIRF, 1.6 min./arr.)	**Dusseldorf** (EDDL, 1.5 min./arr.) **Barcelona** (LEBL, 1.3 min./arr.) **Brussels** (EBBR, 1.2 min./arr.) **Copenhagen** (EKCH, 1.1 min./arr.) **Paris/Orly** (LFPO, 1.1 min./arr.)
Additional Taxi-Out Time	Above 4 min./dep.	**London Heathrow** (EGLL, 8.3 min./dep.) **Paris/Charles-de-Gaulle** (LFPG, 4.5 min./dep.) **Frankfurt** (EDDF, 4.1 min./dep.)	**Roma/Fiumicino** (LIRF, 6.6 min./dep.)	**London/Gatwick** (EGKK, 4.8 min./dep.) **Barcelona** (LEBL, 4.4 min./dep.)
	Between 3 and 4 min./dep.	**Amsterdam** (EHAM, 3.0 min./dep.)	**Madrid** (LEMD, 3.9 min./dep.) **Munich** (EDDM, 3.7 min./dep.)	**Zurich** (LSZH, 3.6 min./dep.) **Vienna** (LOWW 3.1 min./dep.)

Table 8: Mapping of SES Performance Indicators across Traffic Volumes for 2013

4.3.19 As shown in Table 8, London Heathrow remains the most critical airport in Europe from a performance perspective, for both inbound and outbound traffic flows. Despite a smaller traffic volume, a similar low level of performance for inbound operations was recorded at Zurich Airport. It should be noted that airport arrival ATFM delay decreased at Frankfurt airport from 1.7 min./arr. in 2012 to 0.9 min./arr. in 2013.

4.3.20 Averages for the three performance indicators required by the Regulation (EU) N° 691/2010 are shown in Figure 24. These averages are weighted and based on airport traffic volume. The Performance Plan level generally matches the State

level, except for Belgium, France, Germany, Luxembourg and the Netherlands on one side, and Denmark and Sweden on the other; they report at their FAB level (FABEC and DK-SE FAB respectively).

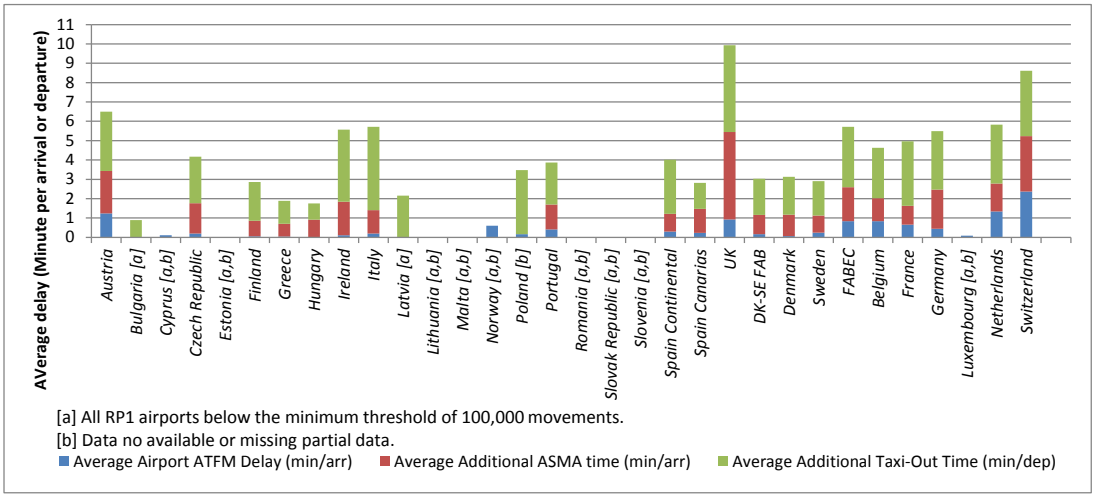


Figure 24: Airport capacity performance, State level, 2013

4.3.21 The data used to generate Figure 24 is provided below in Table 9, together with the change compared to 2012.

State	Average Arrival ATFM Delay (min./arr.)			Average Additional ASMA time (min./arr.)			Average Additional Taxi-Out Time (min./dep.)		
	2012	2013	2013 vs 2012	2012	2013	2013 vs 2012	2012	2013	2013 vs 2012
Austria	1,1	1,2	→	2,3	2,2	→	2,4	3,1	↓
Bulgaria	0,0	0,0	→	[a]	[a]		1,5	0,9	↑
Cyprus	0,2	0,1	→	[a]	[a]		[b]	[b]	
Czech Republic	0,0	0,2	→	1,0	1,6	↓	2,0	2,4	→
Estonia	0,0	0,0	→	[a]	[a]		[b]	[b]	
Finland	0,5	0,1	→	1,1	0,8	→	2,7	2,0	↑
Greece	0,0	0,0	→	0,7	0,7	→	1,3	1,2	→
Hungary	0,0	0,0	→	0,7	0,9	→	1,3	0,8	↑
Ireland	0,1	0,1	→	1,6	1,7	→	3,3	3,7	→
Italy	0,1	0,2	→	1,3	1,2	→	5,5	4,3	↑
Latvia	0,0	0,0	→	[a]	[a]		1,9	2,2	→
Lithuania	0,0	0,0	→	[a]	[a]		[b]	[b]	
Malta	0,0	0,0	→	[a]	[a]		[b]	[b]	
Norway	0,7	0,6	→	[a,b]	[a,b]		[b]	[b]	
Poland	0,0	0,2	→	[b]	[b]		2,5	3,3	↓
Portugal	0,8	0,4	→	1,3	1,3	→	2,0	2,2	→
Romania	0,0	0,0	→	[a]	[a]		[b]	[b]	
Slovak Republic	0,0	0,0	→	[a]	[a]		[b]	[b]	

State	Average Arrival ATFM Delay (min./arr.)			Average Additional ASMA time (min./arr.)			Average Additional Taxi-Out Time (min./dep.)		
	2012	2013	2013 vs 2012	2012	2013	2013 vs 2012	2012	2013	2013 vs 2012
Slovenia	0,0	0,0	→	[a]	[a]		[b]	[b]	
Spain Continental	0.4	0.2	→	1.1	1.0	→	3.6	3.2	→
Spain Canarias	0,3	0,2	→	1,2	1,2	→	1,5	1,4	→
UK	1,0	0,9	→	4,6	4,5	→	4,7	4,5	→
DK-SE FAB	0,2	0,2	→	1,0	1,0	→	2,0	1,9	→
Denmark	0,1	0,1	→	1,1	1,1	→	2,1	2,0	→
Sweden	0,3	0,2	→	0,9	0,9	→	2,0	1,8	→
FABEC	1,0	0,8	→	2,0	1,8	→	3,1	3,1	→
Belgium	0,6	0,8	→	1,1	1,2	→	1,6	2,6	↓
France	0,7	0,7	→	1,1	1,0	→	3,3	3,3	→
Germany	0,9	0,4	↑	2,5	2,0	→	3,1	3,0	→
Luxembourg	0,1	0,1	→	[a]	[a]		[b]	[b]	
Netherlands	1,4	1,3	→	1,5	1,4	→	3,0	3,0	→
Switzerland	2,0	2,4	→	2,8	2,9	→	3,3	3,4	→

[a]	All RP1 airports below the minimum threshold of 100,000 movements
[b]	Data not available or missing partial data.

- *These statistics are based on the* PRB online monitoring dashboard[1] *released on 30/04/2014. Please refer to this dashboard for updated figures, if required.*
- ↑ *represents a performance improvement by more than 30 seconds in average per movement (arrival or departure accordingly) whilst* ↓ *depicts degraded performance by more than 30 seconds in average per movement.* → *denotes performance levels between these bounds.*

Table 9: Airport capacity indicators – Performance Plan Level

4.3.22 As summarised in Table 9, the aggregation and comparison of local ANS performance indicators at airports result in a loss of clarity and detail when presented at a Performance Plan level. Further appreciation of the underlying number of airports and their local characteristics (e.g. traffic volume, c.f. Table 8) should be considered when aggregated State/FAB results are compared with each other.

4.3.23 While the aggregation at Performance Plan level subsumes and balances local inefficiencies of the arrival flow into relatively small or moderate levels (c.f. arrival ATFM delays ranging mostly well below one minute), the prominence of additional taxi-out times is still clearly observable at that level. The threshold of 100,000 movements p.a. for the monitoring of the additional ASMA time indicator makes the appraisal difficult at the Performance Plan level, as the aggregated results hide nuances on the airport level. Details on airport performance are provided in Volume 2 of this report.

4.4 Review of 2012 Recommendations on en-route capacity[3]

4.4.1 The PRB made three recommendations on en-route Capacity in section 4.3 of the PRB Annual Monitoring Report 2012 Volume 1.

4.4.2 **The PRB invited Member States, particularly those States experiencing capacity issues, to review their application of the FUA concept in accordance with the governing principles of FUA as contained in Article 3 of EC Regulation No. 2150/2005, with the aim of meeting the needs of all airspace users.** – Member States did not provide any information in their national monitoring reports indicating whether this had been carried out or not.

4.4.3 **The PRB invited Member States, particularly those States experiencing capacity issues, to identify how the flexible use of airspace can be applied to increase capacity, as detailed in section 5 of the Template for Performance Plans, Annex V, Regulation (EU) N° 691/2010.** – No information could be found in the national monitoring reports to verify whether Member States identified how the flexible use of airspace can be applied to increase capacity.

4.4.4 **The PRB invited the Network Manager to work with those Member States experiencing capacity issues to implement remedial capacity enhancements as soon as possible, with the aim of meeting the Union-wide target for capacity in RP1.** – The latest capacity plans, contained within the NOP 2104-2019 (March 2014), do not provide evidence that the Network Manager worked effectively with those ANSPs experiencing capacity issues to implement remedial capacity enhancements as soon as possible, with the aim of meeting the Union-wide target for capacity in RP1.

4.5 Recommendations on en-route capacity

4.5.1 In view of the latest ANSP capacity plans as published in the recent Network Operations Plan 2014-2019 (June 2014), combined with the latest en-route capacity performance, the PRB considers that there is a serious risk that annual values in some performance plans, and the union wide en-route capacity target as a whole, will be missed for 2014. Article 17 (1,3) of Regulation 691/2010 stipulates that when such a risk exists, the Member States should report on their remedial actions to achieve the requisite level of capacity performance in 2014. **The PRB advises the EC to request the Member States to immediately review the en-route capacity performance for 2014, including planned capacity levels, implementing remedial actions where necessary, to ensure that their respective ANSPs meet the required level of capacity performance to achieve the Union-wide target of 0.5 minutes ATFM delay per flight for 2014.**

4.5.2 Article 17 of Regulation 691/2010 requires Member States to report to the Commission on monitoring and remedial actions to achieve the performance targets. **The PRB advises the EC to remind Member States of their obligation to report on the specific remedial actions being taken with their ANSPs to ensure that the 2014 annual values in their performance plans and the union-wide en-route capacity target of 0.5 minutes per flight will be achieved.**

4.5.3 **The PRB advises the EC to request Member States, particularly those States experiencing capacity issues, to review their application of the FUA concept in accordance with the governing principles of FUA as contained in Article 3 of EC Regulation No. 2150/2005, with the aim of meeting the needs of all airspace users.** This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid. The PRB considers that such a process should include a review of the impact of segregated and restricted areas on ATC capacity and available route options for general air traffic, as recommended in section 3.5.

4.5.4 **The PRB advises the EC to invite Member States to notify the Commission when the review of the application of FUA results in increased capacity for general air traffic, in accordance with section 5 of Annex V, Regulation (EU) N° 691/2010.** This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

4.5.5 **The PRB advises the EC to invite the Network Manager to work with those Member States experiencing capacity issues to implement remedial capacity enhancements as soon as possible, with the aim of meeting the Union-wide target for capacity in RP1.** This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

4.6 Review of 2012 Recommendations on airport capacity[3]

4.6.1 **The PRB invited Member States, particularly those States where data deficiencies have been identified, to strengthen the effort by EUROCONTROL's PRU and collaboration by the airport reporting entity to establish and assure quality across the airport data flow or follow up on the timely implementation of associated remedial action plans, in support of Article 20 in the Performance Regulation**. The airport data flow has been implemented since 2011 in order to monitor and assess ANS performance at airports in RP1, as per Regulation (EU) N° 691/2010. There are still a few cases of substantial non-compliance with the data provision requirements; these cases are explicitly reported in Volume 2. Data completeness and consistency, in particular, are key issues in these cases.

4.7 Recommendation on airport capacity

4.7.1 **The PRB advises the EC to request those States where data deficiencies prevent the calculation of the additional ASMA and/or taxi-out time indicators to urgently implement the remedial action plan established by the EUROCONTROL's Performance Review Unit.** Certain data (CPRs, RWY, stand and out-off-on-in time stamps) are essential for the calculation of additional ASMA and/or taxi-out times. Without them, the calculation is not possible. However, there are still a few cases of substantial non-compliance with the data provision requirements of the performance Regulation.

5 Cost-efficiency

5.1 Presentation of the en-route cost-efficiency KPI and targets

5.1.1 Under the cost efficiency KPA, Union-wide targets have been set for the average determined unit rate for en-route ANS in 2012, 2013 and 2014 (Table 10). The aggregation of the individual national cost-efficiency targets for RP1 provides for a slightly lower figure for 2012 and higher figures for 2013 and 2014 (Table 11).

COST EFFICIENCY UNION-WIDE TARGETS	2012	2013	2014
• Real en-route unit costs per Service Units – (in EUR_{2009})	57.88	55.87	53.92

Table 10: En-route cost-efficiency targets for RP1 as per EC Decision on Union-wide targets

COST EFFICIENCY DATA FROM NATIONAL PERFORMANCE PLANS	2012P	2013P	2014P
• Real en-route unit costs per Service Units – (in EUR_{2009})	57.75	56.69	54.84

Table 11: En-route cost-efficiency targets for RP1 as per aggregation of national targets

5.2 Actual 2013 unit cost vs. DUR in adopted Performance Plans

5.2.1 It is important to note that in order to ensure consistency with the determined costs data provided in the adopted National Performance Plans and to allow for Union-wide consolidation, actual costs are expressed in real terms ($€_{2009}$ prices).

5.2.2 The Union-wide actual real $€_{2009}$ en-route unit cost per service unit (SU) in 2013 is €56.85, +0.3% higher than was forecast in the adopted National Performance Plans (see Figure 25 below). This reflects lower than expected traffic volumes in 2013 by -5.6%, while the actual costs (5,978 $M€_{2009}$) are lower by -5.4% than the determined costs (DCs) adopted in the National Performance Plans (6,319 $M€_{2009}$).

Actual 2013 unit cost vs. DUR in adopted Performance Plans						
SES States - Data from RP1 national performance plans	**2009A**	**2010A**	**2011F**	**2012P**	**2013P**	**2014P**
Real en-route costs (determined costs 2012-2014) - (in EUR2009)	6 247 946 111	6 067 472 645	6 164 114 436	6 258 122 341	6 318 609 442	6 304 761 101
Total en-route Service Units	98 066 532	100 498 232	104 906 871	108 359 738	111 461 030	114 964 695
Real en-route unit costs per Service Units - (in EUR2009)	**63.71**	**60.37**	**58.76**	**57.75**	**56.69**	**54.84**
SES States - Actual data from June 2014 Reporting Tables	**2009A**	**2010A**	**2011A**	**2012A**	**2013A**	**2014A**
Real en-route costs - (in EUR2009)	6 247 946 111	6 069 483 962	5 971 771 317	6 047 596 876	5 978 776 266	
Total en-route Service Units	98 066 532	100 486 950	105 044 077	103 501 763	105 171 670	
Real en-route unit costs per Service Units - (in EUR2009)	**63.71**	**60.40**	**56.85**	**58.43**	**56.85**	
Difference between Actuals and Planned in absolute value and in percentage (Actuals vs. NPP)				**2012**	**2013**	**2014**
Real en-route costs - (in EUR2009)	in value			-210 525 464	-339 833 176	
	in %			-3.4%	-5.4%	
Total en-route Service Units	in value			-4 857 975	-6 289 360	
	in %			-4.5%	-5.6%	
Real en-route unit costs per Service Units - (in EUR2009)	in value			**0.68**	**0.16**	
	in %			**1.2%**	**0.3%**	

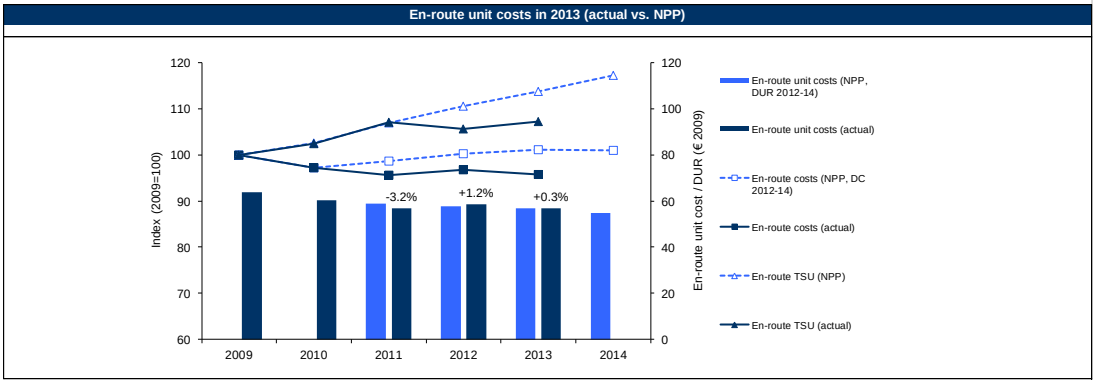


Figure 25: En-route unit costs in 2012 and 2013 (actual vs. National Performance Plans)

5.2.3 The results of the second year of RP1, under the "DCs" method with specific risk-sharing arrangements aimed at incentivising ANSPs' economic performance, confirms that the Performance Scheme for cost-efficiency KPA is working as expected with ANSPs taking action to adjust their cost-bases according to traffic demand (SUs) so as to retain their profit margins. In a context of lower traffic, the European ANS system has collectively adjusted its cost structure downwards in order to match lower revenues. As a result, the actual en-route unit cost for 2013 almost equals the planned DUR (Determined Unit Rate) adopted in the RP1 National Performance Plans.

5.2.4 In 2013, 22 States/Charging zones (CZs) experienced lower than expected traffic volumes and seven States experienced more traffic than planned (Latvia, Lithuania, Cyprus, Bulgaria, Slovakia, and especially Norway (+14%) and Malta (+25%). Except for Lithuania, all the States that experienced higher traffic than planned have lower unit costs in 2013 than the DUR as set out in their adopted National Performance Plans. A further eight States (Spain Continental, Estonia, Belgium/Luxembourg, Czech Republic, Denmark, Hungary, Ireland and Poland) successfully reduced their unit costs, despite lower than planned traffic volumes (see Figure 26 below), with the largest reduction seen in Bulgaria (€4.35 lower than in its adopted National Performance Plan), followed by Denmark (€4.13 lower than in its adopted National Performance Plan). In other words, these eight States managed to reduce their costs by a greater proportion than the declining traffic.

5.2.5 The largest increase in unit cost is in Spain Canarias (€4.89 higher than in the adopted National Performance Plan), followed by Finland (€4.75 higher than in the adopted National Performance Plan). The cost reduction achieved by -6% in both Spain Canarias and Finland, was not enough to compensate for the reduction in en-route service units by -13% and -15% respectively.

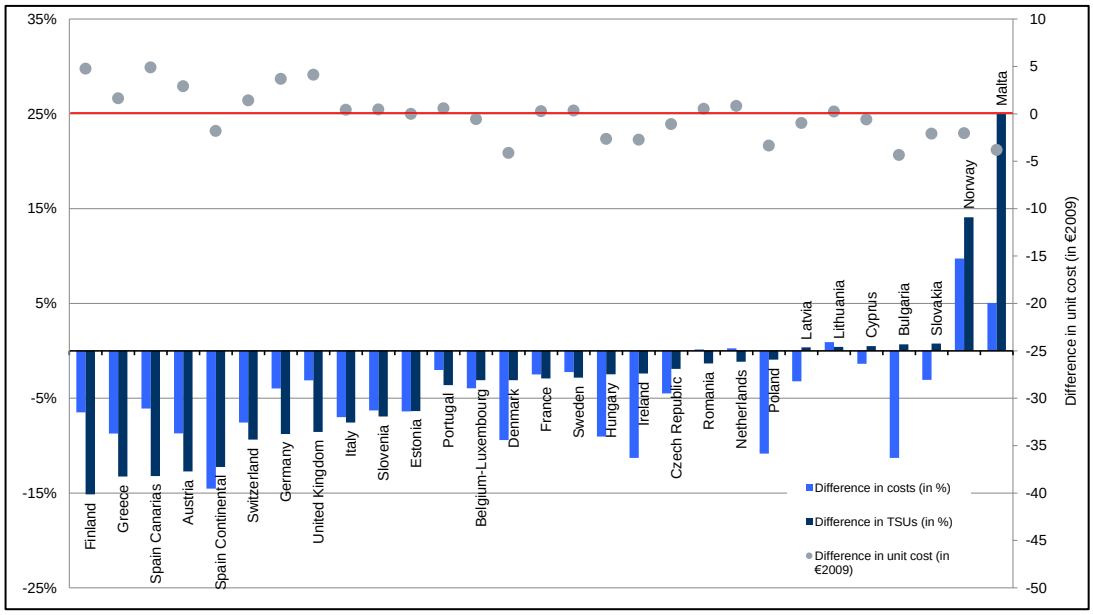


Figure 26: 2013 actual unit costs and service units vs. National Performance Plan by charging zone

5.3 Traffic (en-route SUs) actual vs. 2013 plan

5.3.1 In 2013, Union-wide SUs were -5.6% lower than planned in the adopted National Performance Plans, i.e. within the ±10% alert threshold. At State level: Finland, Greece, Spain (Canarias & Continental) and Austria exceeded the -10% threshold (see Chapter 6), while two States (Norway and Malta) experienced a traffic increase above the +10% threshold.

5.3.2 Actual 2013 en-route SUs have reached a comparable level with 2011 and increased by +1.6% compared with 2012.

5.3.3 If the latest (May 2014) STATFOR baseline scenario traffic forecasts materialise in 2014, traffic should increase by +2.6% compared with the actual 2013 en-route SUs and remain within the ±10% threshold at Union-wide level for all three scenarios - High/Base/Low (see Figure 27). At State level in 2014, however, it appears likely that some States will exceed the threshold for a second consecutive year.

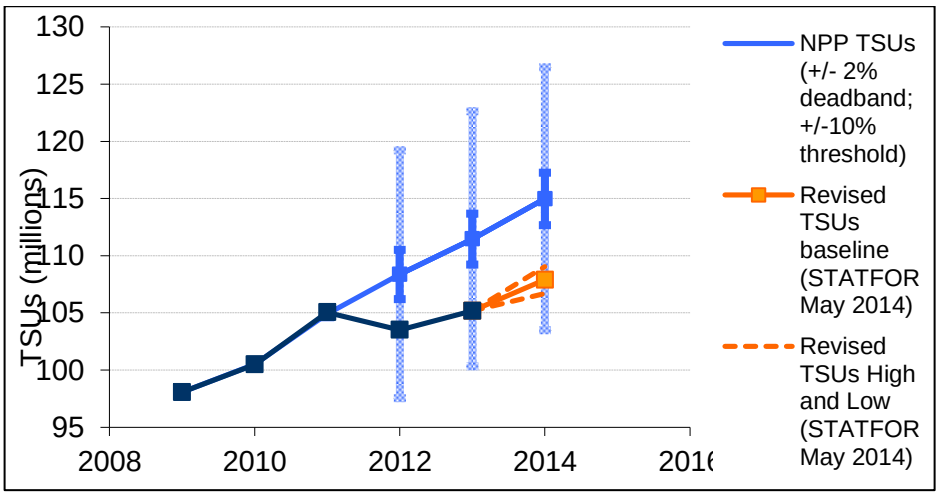


Figure 27: 2013 actual TSUs and STATFOR May 2014 forecasts compared to National Performance Plans

5.3.4 2013 was the second year of RP1 under the "DCs" method with specific risk-sharing arrangements aimed at incentivising ANSPs' economic performance.

5.3.5 The traffic risk-sharing arrangements provided in the SES Charging Regulation expect that ANSPs' additional (or lost) revenue (in respect of DCs) due to the difference in traffic between the actual total SUs and the planned total SUs will be shared with airspace users (see illustration in Figure 28) as follows:

- For a difference in total SUs falling within the dead band of ± 2%, the additional (or lost) revenue in respect of ANSP DCs is fully retained by the ANSP concerned. Note that Spain has invoked the application of Article 2 of EU Regulation 1191/2010 amending the Charging Regulation 1794/2006 and has applied the exemption of the dead band for AENA traffic risk-sharing. The application of this exemption and the Spanish interpretation of this article have not been approved and are under review by the European Commission at the time of drafting this report.
- For a difference in total SUs falling outside the threshold of ± 10%, the additional (or lost) revenue in respect of ANSP DCs is fully reimbursed (or charged) to the airspace users;
- For a difference in total SUs falling between the dead band of ± 2% and the threshold of ±10%, the additional (or lost) revenue in respect of ANSP DCs is shared between the ANSPs (30%) and the airspace users (70%).

5.3.6 The DCs of the other entities such as States/NSAs/EUROCONTROL and METSPs (which comprise around 10% of the total DCs at Union-wide level) are not subject to traffic risk-sharing and are fully reimbursed (or charged) to the airspace users, irrespective of traffic evolution.

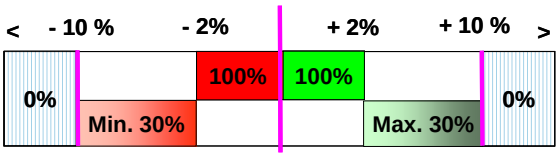


Figure 28: Traffic risk-sharing mechanism for the ANSPs

5.3.7 As a result of the traffic risk-sharing mechanism, the net loss of revenues due to the difference in traffic in 2013 is 388.3 M€$_{2009}$. Overall, States/ANSPs are bearing 37% (see Figure 29) of the loss (144.2 M€$_{2009}$) and they may recover from the airspace users 63% (244.1 M€$_{2009}$, of which 180.2 M€$_{2009}$ relating to costs subject to traffic risk-sharing and 63.9 M€$_{2009}$ relating to costs not subject to traffic risk-sharing).

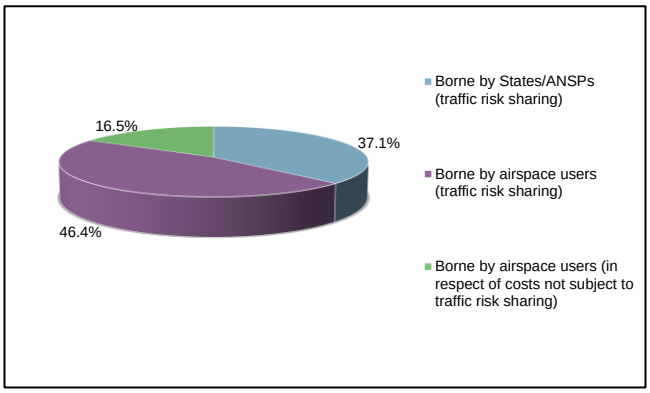


Figure 29: Outcome of 2013 traffic risk-sharing arrangements

5.4 Actual 2013 en-route costs vs. costs in adopted Performance Plans

5.4.1 At Union-wide level, total actual en-route costs in 2013 were -339.7 M€$_{2009}$ lower than expected in the adopted National Performance Plans (see Figure 25). Figure 26 above shows that in response to the lower than expected traffic levels, 24 of the 29 States/CZs were able to reduce their actual costs compared to the DCs adopted in their National Performance Plans. The largest cost reduction compared to the adopted National Performance Plan is in Spain Continental (-14.5%).

5.4.2 Figure 30 shows the distribution of this difference (-339.8 M€$_{2009}$) between actual costs and the adopted National Performance Plans in 2013, categorised by entity at Union-wide state level and by nature at Union-wide ATSP level.

5.4.3 When categorised by entity on a Union-wide state level, variations suggest that all the entities have contributed to reducing costs. The bulk of the reduction (-297.9 M€$_{2009}$) is attributable to ATSPs (-282.8 M€$_{2009}$ to the main en-route ATSPs and -15.1 M€$_{2009}$ for the other ATSPs). The "main en-route ATSP" is the ATSP subject to traffic risk-sharing arrangements as set out in the Charging Regulation (note that the DCs and actual costs for the main ATSP cover the total costs for the air navigation services provided by this entity, including Communication, Navigation, Surveillance and Aeronautical MET services, if applicable). A further -17.6 M€$_{2009}$ of savings were achieved by MET service providers and -24.4 M€$_{2009}$ for the States/NSAs (including EUROCONTROL Agency costs).

5.4.4 When costs are categorised by nature on a Union-wide ATSP level, variations suggest that around 72% (-204.0 M€$_{2009}$) of the cost savings achieved in 2013 relate to structural measures in the 'staff costs' (-138.7 M€$_{2009}$) and 'other operating costs' (-65.3 M€$_{2009}$) categories. This could reflect a combined effect of the adopted cost control measures introduced in 2012 - and additional actions implemented in 2013 in response to the traffic decline - that may also affect the level of en-route costs in 2014 and further into RP2.

5.4.5 Depreciation costs are also significantly lower than planned in the National Performance Plans (-11.7% or some -90.3 M€$_{2009}$). Similarly to year 2012, NSA monitoring reports for 2013 explain that this is mainly due to the postponement of capital expenditures (CAPEX) to future years. This reflects, in some cases, an adjustment to the lower than expected traffic volumes for 2012 and 2013, but also temporary delays which are due to technical issues (see Volume 3 - Report on Capital Expenditure 2013). At this stage, it is not clear whether some investment plans presented in the RP1 National Performance Plans might have been overestimated including the associated depreciation costs (see Volume 3 - Report on Capital Expenditure 2013). . In the context of DCs, the unit rates charged to airspace users include the National Performance Plan determined depreciation costs and cost of capital and, if the corresponding equipment/investments are not implemented and the capital expenditure not incurred, these do not translate into expected (operational and economic) benefits for airspace users. It is therefore important that NSAs ensure that airspace users do not pay again in RP2 for CAPEX projects already charged for in RP1.

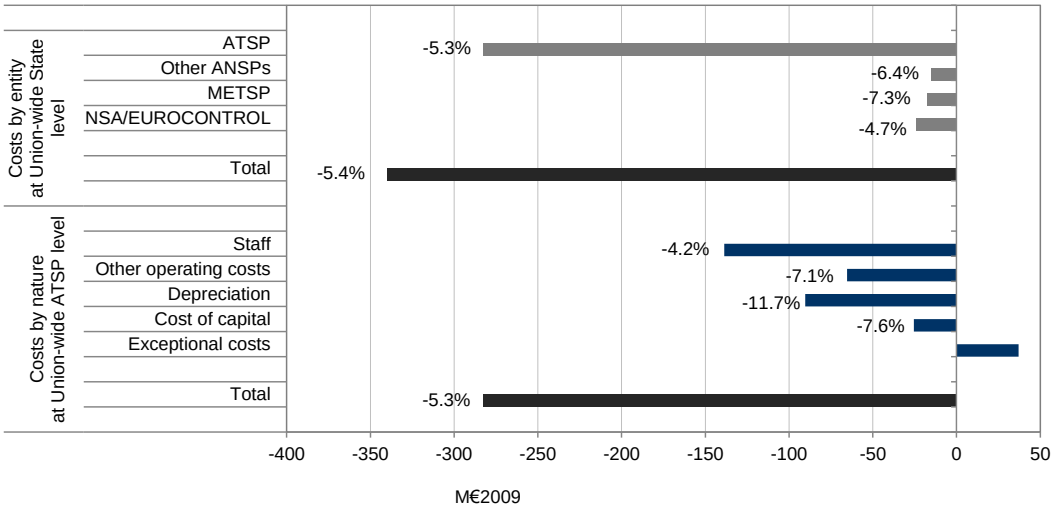


Figure 30: Breakdown of 2013 actual en-route costs compared to National Performance Plans (by entity at Union-wide State level and by nature at Union-wide ATSP level)

5.4.6 The cost-sharing mechanism built in the SES Regulations lays down that the difference between the DCs set in the adopted National Performance Plans and the actual costs for the year shall be retained by the States/ANSPs. Hence, the difference between the DCs and the actual costs for 2013 (339.8 M€$_{2009}$) shall be retained by the States/ANSPs as a gain (see Figure 31 below).

5.4.7 SES regulations foresee that States/ANSPs may exempt from the cost-sharing mechanism those costs which they have taken reasonable and identifiable steps to manage but which are outside their control. These costs will be eligible for carry-over to the following reference period(s), if allowed by the European Commission after verification on the basis of the NSA reports identifying and justifying these exemptions. The European Commission has then six months to assess the NSA's findings and decide if the Member State(s) concerned shall be allowed to apply the exemption in part or in whole according to its findings (as per Charging Regulation 391/2013 article 14.2(f)). Definitive results, including the outcome of 2014, will be presented in 2015 after annual NSA reports on costs exempt are submitted on 1 June 2015. Only then, will the complete series for RP1 be presented, as set out in Art. 14.2(d) and (e).

5.4.8 22 States have reported "costs exempt from cost-sharing" for a total net amount of 14.8 M€$_{2009}$ in 2013 to be recovered from users in the next RPs (see Table 12 below). This table indicates that ATSPs will be able to recover some 21.8 M€$_{2009}$ from airspace users, offset by 6.9 M€$_{2009}$ to be reimbursed. (Note: all figures are subject to these costs being deemed eligible for exemption by the EC. Figures also exclude Austria's very high claim for exemption of 88.4 M€$_{2009}$ pensions costs, which Austria has not included in its reported actual 2013 costs.)

Costs exempted from cost sharing ('000 €2009) (by factor/item)	2012 Estimate	2013 Estimate	2014 Estimate
Pension	56 598	24 475	-
Interest rates on loans	-4 506	-7 264	-
National taxation law	314	2 625	-
New cost item required by law	-3 413	834	-
International agreements	-5 351	-5 862	-
Costs exempted from cost sharing ('000 €2009) (by entity)	**2012 Estimate**	**2013 Estimate**	**2014 Estimate**
ATSP	50 289	21 759	-
Other ANSP	521	-629	-
METSP	-145	-184	-
NSA/EUROCONTROL	-7 023	-6 138	-
Total costs exempted from cost sharing to be recovered from (+)/reimbursed to (-) users if eligible after EC verification	**43 643**	**14 808**	**-**

Table 12: Costs exempt from cost-sharing reported by States for 2012 and 2013

5.4.9 Most of the reported "costs exempt from cost-sharing" relate to pension costs affecting the ATSP entity. In several cases, the reported pension "costs" reflect accounting provisions for a recognised funding shortfall of the pension scheme (in particular for defined benefits schemes).

5.4.10 There are difficulties with assessing the difference between accounting accruals and cash payments. So, the Single Sky Committee decided to set up a Working Group on economic questions in order to develop guidance for the treatment of costs exempt from cost-sharing and the management of ANS costs relating to pensions. The first Working Group meeting takes place in September 2014 and recommendations should be presented to the SSC in early 2015.

5.5 ATSP net gain for the 2013 en-route activity

5.5.1 The (main) en-route ATSP is the most significant contributor to a State's en-route costs (typically around 90% of the total cost base) and is the only (or main) entity subject to the costs and traffic risk-sharing mechanisms applied by the Charging Regulation. Indeed, 2012 marked the end of the full cost recovery mechanism and from then on SES ATSPs are subject to such risk-sharing arrangements which have a direct impact on their profitability (surplus and ex-post return on equity - RoE) and financial strength. In this context, an analysis has been developed to review the financial outcomes of ATSPs' results for the en-route activity performed in 2013.

5.5.2 A number of steps are needed to calculate the net ATSP gain or loss on en-route activity. The first step is to carefully consider the impact of the cost-sharing and traffic risk-sharing arrangements and additional gains/penalties resulting from financial incentives linked to capacity and/or environment where applicable. This enables the calculation of a net gain/loss for the ATSP to be made for the en-route activity in 2013. It is important to emphasise that the economic/financial analysis focuses on the ATSP results for 2013. The analysis does not consider the cash flow position and liquidity balance at the end of the year as those are impacted by the charging mechanism whereby the eligible under-recoveries (for traffic, etc.) are to be recovered in year N+2 or later.

5.5.3 Secondly, the estimation of the ex-post surplus as regards ATSPs' results in 2013 (in Section 5.6 below), requires the identification of the element of surplus which was embedded in the calculation of the determined cost of capital in the National Performance Plan. Following the recommendation in the 2012 Monitoring Report, States have provided more detailed information about the calculation of the cost of capital in the Annual Monitoring Reports and in the Performance Plans for RP2; these have contributed to improving the PRB's monitoring analysis. However, due to the continued unavailability of data for a few ATSPs, the profitability analysis

developed by the PRB is based on assumptions (in particular for the share of equity and debt used to calculate the weighted average cost of capital).

5.5.4 The analysis of the ATSPs' results for the en-route business in 2013 shows that, at Union-wide level, the (main) ATSPs of the SES States have generated a net gain for the activity of +155.2 M€$_{2009}$ (see bottom of Figure 31 below), provided that the exemptions from cost-sharing are allowed by the European Commission (see §5.4.7 to above). Without taking account of the exemptions reported by the States for cost-sharing, the net gain of the main ATSPs would be reduced to +131.9 M€$_{2009}$.

5.5.5 The net gain referred to in the above paragraph results from the combination of three distinct elements:

- a gain resulting from the cost-sharing mechanism of +292.9 M€$_{2009}$, corresponding to the difference between actual 2013 costs and the determined costs from the adopted National Performance Plans for the (main) ATSPs of +269.6 M€$_{2009}$, and reported costs exempt from cost-sharing of +23.3 M€$_{2009}$ (see §5.4.7 above);
- a net loss resulting from the traffic risk-sharing mechanism of -144.0 M€$_{2009}$ for the (main) ATSPs;
- a net gain resulting from the financial incentive mechanism for the capacity KPI, which are applied to two ATSPs in RP1 (ENAV Italy and NATS UK) for +6.3 M€$_{2009}$ (a bonus of 7.3 M€$_{2009}$ for ENAV and a penalty of –1.0 M€$_{2009}$ for NATS).

Net gain/loss on 2013 en-route activity for the (main) ATSPs

Cost sharing ('000€2009)	2013A
Determined costs for the ATSP (NPP)	5 319 957
Actual costs for the ATSP	5 050 399
Difference in costs: gain (+)/Loss (-) retained/borne by the ATSP	269 558
Amounts excluded from cost sharing to be recovered from (+) reimbursed to (-) users	23 347
Gain (+)/Loss (-) to be retained by the ATSP in respect of cost sharing	**292 905**

Traffic risk sharing ('000€2009)	2013A
Difference in total service units (actual vs NPP)	-5.64%
Determined costs after deduction of costs for exempted VFR flights	5 255 174
ATSP gain (traffic between 0 and +2% higher than NPP)	3 151
ATSP gain (traffic between +2% and +10% higher than NPP)	2 429
ATSP loss (traffic between 0 and -2% below NPP)	-83 774
ATSP loss (traffic between -2% and -10% below NPP)	-65 823
Gain (+)/Loss (-) to be retained by the ATSP in respect of traffic risk sharing	**-144 017**

Incentives ('000€2009)	2013A
ATSP bonus (+) / penalty (-)	6 337
Gain (+)/Loss (-) to be retained by the ATSP in respect of incentives	**6 337**

Net ATSP gain(+)/loss(-) on en-route activity	**155 225**

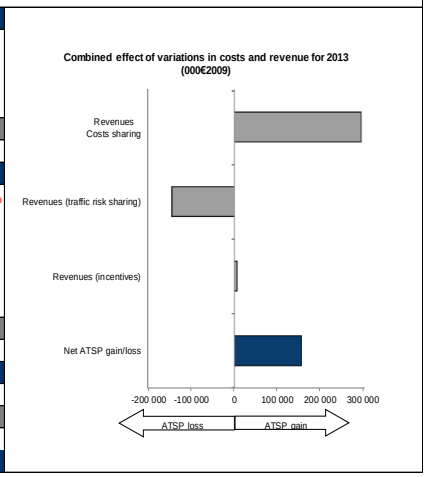


Figure 31: Net gain/loss on 2013 en-route activity for the (main) ATSPs

5.6 ATSPs actual 2013 economic surplus vs. Performance Plans

5.6.1 Ex-ante, the return on equity's (RoE) proportion of the 2013 determined en-route cost of capital is considered to represent ATSPs' planned economic surplus. Based on the information reported by the States, this embedded surplus has been estimated at 227.4 M€$_{2009}$ for the 28 (main) ATSPs and the key assumptions are described in Figure 32 (column 2013P) below: namely, at Union-wide level an ex-ante planned asset base of 6,544 M€$_{2009}$, of which on average 54% is financed through equity at a (pre-tax) RoE rate of 6.5%.

5.6.2 Ex-post, the actual surplus for 2013 (see column 2013A in Figure 32 below) is calculated by adding two elements:

- the part of the surplus embedded in the cost of capital (based on the ex-ante RoE and the reported actual cost of capital, actual asset base, as well as the (estimated) share financed through equity capital), i.e. +247.9 M€$_{2009}$;
- the net gain/loss generated in respect of the en-route activity in 2013 as the result of the risk-sharing arrangements detailed in Section 5.5 above, i.e. +155.2 M€$_{2009}$.

5.6.3 Altogether, this results in a Union-wide level of profitability of some +403.1 M€$_{2009}$ for the en-route activity in 2013. On this basis, the estimated surplus for the (main) ATSPs at Union-wide level increased from a planned (weighted average) +4.3% of the en-route activity revenue/costs in the National Performance Plans to +7.7% (or +7.3% without the exemptions from cost-sharing - see §5.4.7 above). At Union-wide level, this corresponds to a (weighted average) ex-ante RoE of 6.5% as compared to an ex-post actual RoE of 10.6% (or 9.9% without the exemptions from cost-sharing).

ATSP estimated surplus ('000€2009)	2012P	2012A	2013P	2013A	2014P	2014A
Total asset base	6 486 042	6 154 400	6 543 618	6 273 188	6 549 751	
Estimated proportion of financing through equity (in %)	54%	62%	54%	61%	53%	
Estimated proportion of financing through equity (in value)	3 476 124	3 818 044	3 507 774	3 819 942	3 497 671	
Estimated proportion of financing through debt (in %)	46%	38%	46%	39%	47%	
Estimated proportion of financing through debt (in value)	3 009 917	2 336 356	3 035 843	2 453 246	3 052 080	
Cost of capital pre-tax (in value)	330 433	333 526	334 047	321 760	326 225	
Average interest on debt (in %)	3.6%	3.7%	3.5%	3.0%	3.4%	
Interest on debt (in value)	106 871	86 801	106 718	73 886	103 788	
Ex-ante RoE pre-tax rate (in %)	6.4%	6.5%	6.5%	6.5%	6.4%	
Estimated surplus embedded in the cost of capital for en-route (in value)	223 652	246 738	227 421	247 894	222 518	
Net ATSP gain(+)/loss(-) on en-route activity	-	92 257	-	155 225	-	-
Estimated surplus (+/-) for the en-route activity	**223 652**	**338 995**	**227 421**	**403 119**	**222 518**	
Revenue/costs for the en-route activity	**5 254 052**	**5 186 503**	**5 319 957**	**5 205 625**	**5 305 652**	
Estimated surplus (+/-) in percent of en-route revenue/costs	**4.3%**	**6.5%**	**4.3%**	**7.7%**	**4.2%**	
Estimated ex-post RoE pre-taxe rate (in %)	**6.4%**	**8.9%**	**6.5%**	**10.6%**	**6.4%**	

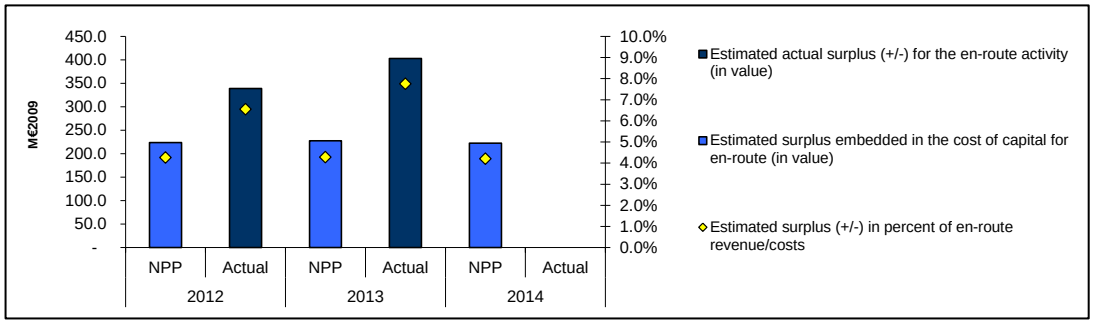


Figure 32: Estimated surplus for the 2012 and 2013 en-route activity for the (main) ATSPs at Union-wide level

5.6.4 This is an important result since it suggests that, for a second consecutive year, at Union-wide level for 2013, ATSPs succeeded in retaining their (ex-ante) surplus and even increasing it substantially, in a context of significantly lower traffic levels than planned.

5.6.5 Inevitably, at individual ATSP level, the situation differs across the States, as shown

in Figure 33 below, depending on the level of surplus embedded as part of the determined costs and the level of net loss (or gain) resulting from the cost and traffic risk-sharing arrangements.

5.6.6 Figure 33 shows that 22 out of the 28 (main) ATSPs have succeeded in increasing their surplus of the en-route revenue/costs in 2013 in percentage terms compared against the National Performance Plans.

5.6.7 Figure 33 also shows that two ATSPs have incurred losses and show an actual estimated negative surplus, Avinor (continental) and LVNL:

- for Avinor, the surplus embedded in the cost of capital and the gain incurred from the traffic risk-sharing mechanism was not sufficient to cover the losses generated by actual costs that were higher than planned. Due to more traffic than expected (+14.1%), actual costs were +9.7% higher than planned in the National Performance Plan in real terms. These higher costs are primarily due to higher ATSP staff costs in response to the higher than planned traffic levels, and other operating costs that were also higher. The en-route activity for 2013 then generated a net loss of -5.3 M€$_{2009}$ for Avinor, which resulted in an actual negative surplus of -2.7% of the en-route revenue for 2013 (down from a planned +3.5% in the National Performance Plan). Avinor's loss incurred in 2013 could negatively impact on its financial strength, especially if the situation does not improve in the years to come. The net loss in 2013 partially cancels out the overall positive estimated surplus for the en-route activity incurred in 2012 of +8.2 M€$_{2009}$ or +9.0% estimated surplus of en-route revenues in 2012.
- for LVNL, as this ATSP has no equity, hence no return on equity and no ex-ante surplus embedded in the cost of capital, any loss incurred from the traffic risk-sharing mechanism is fully retained by the ATSP. In 2013, LVNL had both higher actual costs than planned and lower traffic than planned and so for the en-route activity it generated a net loss of -6.0 M€$_{2009}$, which resulted in an actual negative surplus of -5.8% of the en-route revenue for 2013 (down from a planned 0% in the National Performance Plan). If the costs exempt from cost-sharing reported for LVNL are not found eligible after review by the EC (see in §5.4.7 above), then the actual negative surplus will be even higher: -7.7%. In the case of LVNL, this is the second consecutive year in which it has incurred a loss with a consequent negative impact on its financial strength. It is suggested that the Dutch Government considers the impact of the legal and capital structure of LVNL on its financial strength, in particular since its Performance Plan for RP1 allowed for an extra 22 M€$_{2009}$ in order to build up a financial reserve.

5.6.8 A detailed analysis at State/Charging zone level and for each (main) ATSP is provided in the companion Volume 2.

5.6.9 Without prejudice to the EC verification expected to be available later in 2014, it is also important to stress that for the purposes of this analysis the estimated actual surpluses shown in Figure 33 take account of the costs exempt from cost-sharing reported for the ATSPs, except for Austro Control (see §5.4.7). As explained in §5.4.6 to 5.4.7 above, these costs will become eligible for carry-over to the following reference period(s), only if allowed following EC verification. Should these costs not be eligible, the profitability of some ATSPs would be different to that presented in Figure 33. This is particularly true for NAV Portugal and LFV, which could end up with lower surpluses (+2.6%, and +0.6%, respectively) without taking account of the costs exempt from cost-sharing.

5.6.10 For completeness, both the 2012 and 2013 estimated surplus for the main ATSPs are shown in Table 19 in Annex II.

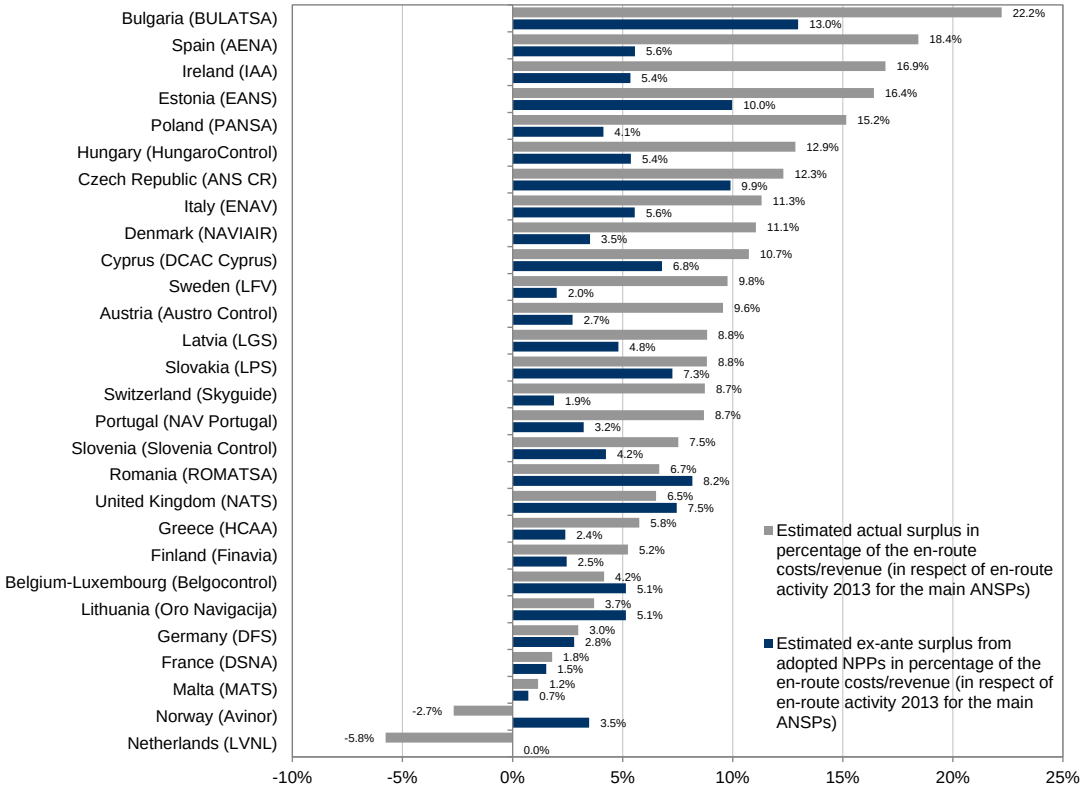


Figure 33: Estimated surplus for the 2013 en-route activity for the main ATSPs

5.7 Union-wide 2013 actual unit costs for users vs 2013 DUR ("True en-route costs for users")

5.7.1 A new feature for this 2013 monitoring analysis calculates the actual en-route unit cost for airspace users (AUC-U) for 2013 (sometimes also referred to as the "true cost for users"). It attempts to quantify the costs that airspace users genuinely incur in respect of activities carried out in 2013 and comprises: the determined costs (DCs); the deduction of costs for services to exempted VFR flights in 2013 and the deduction of other revenues in 2013 that were billed to the users through the chargeable unit rate. It will also reflect the adjustments relating to 2013 activities which will be charged or reimbursed to users in future years.

5.7.2 Firstly, the total DCs that were planned in RP1 to be recovered from users for 2013, given the provisions in the Charging Regulation, amount to 6,279 M€$_{2009,}$ this sum corresponds to:

- approved 2013 DCs: 6,319 M€$_{2009}$;
- the deduction of the costs for services for exempted VFR flights in 2013: -9.2 M€$_{2009}$;
- the deduction of other revenues in 2013 that have already been billed to users through the chargeable unit rate: -29.9 M€$_{2009}$.

5.7.3 Secondly, given that traffic was lower than initially planned, airspace users have been billed an amount of 6,279 M€$_{2009}$, multiplied by the ratio of actual total SUs and planned total SUs, i.e. 5,925 M€$_{2009.}$

5.7.4 Finally, in order to obtain the cost that airspace users genuinely incur in respect of the activities carried out in 2013 ("the true cost for users"), the additional adjustments relating to the activities of 2013, but which will be charged or

reimbursed to users in the future, need to be considered:

- inflation adjustment: +34.2 M€$_{2009}$;
- adjustments resulting from the implementation of traffic risk-sharing (ATSP): +182.0 M€$_{2009}$;
- adjustments resulting from the difference in traffic (for costs not subject to traffic risk-sharing): +63.9 M€$_{2009}$;
- bonuses and penalties arising from incentives: +6.3 M€$_{2009}$;
- the (net amount of) costs exempt from cost-sharing (if deemed eligible by EC): +16.9 M€$_{2009}$.

5.7.5 These costs and adjustments are divided by the actual total service units in 2013.

5.7.6 Therefore, it is estimated that the total costs that airspace users genuinely incur in respect of the activities performed in 2013 amount to 6,229 M€$_{2009}$; this is lower than those planned to be charged (6,279 M€$_{2009}$) because of the lower traffic. In terms of unit cost, the actual unit cost (AUC-U) for 2013 is +4.5% higher than the 2013 DUR, mainly caused by the fall in traffic.

5.7.7 These amounts are all expressed in the 2009 exchange rates used to establish the Union-wide DUR targets. It is important to note that the local cost-efficiency targets are established in the local currency, considering that circa 70% of the en-route DCs are denominated in euros. The chargeable unit rates are set in the local currency and exchange rates fluctuations (appreciation and/or depreciation) are borne by airspace users.

5.7.8 So, while States/ANSPs collectively have reduced their 2013 costs in line with lower revenues and managed to increase their economic surplus and financial strength, airspace users end up incurring a higher unit cost than the 2013 DUR. It is vital that the performance improvements (lower States/ANSPs cost-bases) already observed in 2012 and 2013 are duly considered when setting the DCs for RP2, so that a share of these performance improvements are used to set lower user charges in RP2.

5.8 Presentation of the terminal ANS (TANS) cost-efficiency PI

5.8.1 Under the cost-efficiency KPA, TANS costs and unit rates for RP1 are to be monitored. The aggregation of the TANS costs from the National Performance Plans is shown in Table 13 below. Due to the non-uniform application of the formula for calculating the terminal unit rates before the Charging Regulation requirements for 2015, it is not possible to provide an aggregation or consolidation of a Union-wide unit cost for TANS services.

SES States - Data from RP1 national performance plans	2012P	2013P	2014P
Real terminal ANS costs - (in EUR2009)	1 476 675 685	1 469 589 294	1 475 519 179

Table 13: TANS cost-efficiency performance indicator for RP1

5.9 Actual 2013 TANS costs vs. forecast in adopted Performance Plans

SES States - Data from RP1 national performance plans		2012P	2013P	2014P
Real terminal ANS costs - (in EUR2009)		1 476 675 685	1 469 589 294	1 475 519 179
SES - Actual data from June 2013 Reporting Tables		**2012A**	**2013A**	**2014A**
Real terminal ANS costs - (in EUR2009)		1 395 162 571	1 342 961 968	
Difference between Actuals and Planned in absolute value and in percentage (Actuals vs. NPP)		**2012**	**2013**	**2014**
Real terminal ANS costs - (in EUR2009)	in value	-81 513 114	-126 627 325	
	in%	-5.5%	-8.6%	

Table 14: 2013 TANS actual costs vs. National Performance Plan

5.9.1 Union-wide TANS costs in 2013 were -8.6% lower than forecast in the adopted National Performance Plans (1,343 M€$_{2009}$ compared with 1,469 M€$_{2009}$).

5.9.2 This was driven by large savings achieved in Spain (actual costs were -24.6 M€$_{2009}$ lower than forecast in the National Performance Plan), Italy (-23.5 M€$_{2009}$), the UK (-19.2 M€$_{2009}$), France (-16.3 M€$_{2009}$) and Germany (-14.8 M€$_{2009}$). A further 17 States achieved smaller savings. Only Norway's terminal ANS costs were significantly higher than expected (+7.1 M€$_{2009}$), followed by Romania (+1.9 M€$_{2009}$), see details in Figure 34 below.

5.9.3 Even though no specific targets were set for TANS costs and unit rates in RP1, 2013 monitoring shows that actual TANS costs are -8.6% lower than forecast in the National Performance Plans. In other words, cost reductions (in percentage terms) are actually higher for TANS than en-route. This shows that the 'light touch' tools of transparency and monitoring, together with the impact of en-route costs regulation, where the same ANSP provides both terminal and en-route services, are having a positive influence on TANS. Moreover, there is pressure from TANS airspace users at a local level, so ANSPs are reluctant to raise costs.

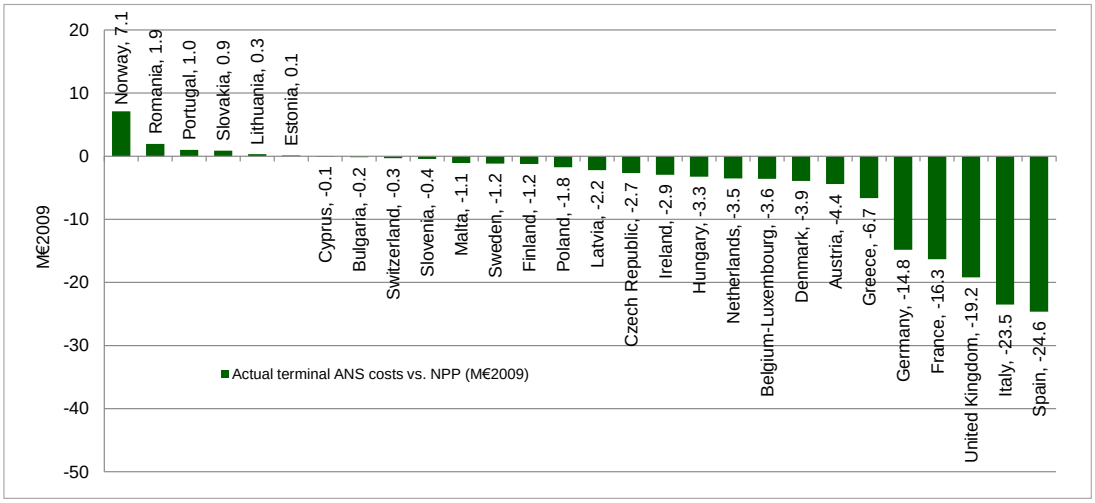


Figure 34: 2013 TANS actual costs vs. National Performance Plan at State level

5.10 Actual 2013 gate-to-gate ANS costs vs. forecast in adopted Performance Plans

SES States - Data from RP1 national performance plans		2012P	2013P	2014P
Real en-route costs (determined costs 2012-2014) - (in EUR2009)		6 258 122 341	6 318 609 442	6 304 761 101
Real terminal ANS costs - (in EUR2009)		1 476 675 685	1 469 589 294	1 475 519 179
Real gate-to-gate ANS costs - (in EUR2009)		**7 734 798 026**	**7 788 198 736**	**7 780 280 280**
Share of en-route costs in gate-to-gate ANS costs		**80.9%**	**81.1%**	**81.0%**
SES States - Actual data from June 2013 Reporting Tables		**2012A**	**2013A**	**2014A**
Real en-route costs - (in EUR2009)		6 047 596 876	5 978 776 266	
Real terminal ANS costs - (in EUR2009)		1 395 162 571	1 342 961 968	
Real gate-to-gate ANS costs - (in EUR2009)		**7 442 759 447**	**7 321 738 235**	
Share of en-route costs in gate-to-gate ANS costs		**81.3%**	**81.7%**	
Difference between Actuals and Planned in absolute value and in percentage (Actuals vs. NPP)		**2012**	**2013**	**2014**
Real gate-to-gate ANS costs - (in EUR2009)	in value	**-292 038 579**	**-466 460 501**	
	in%	**-3.8%**	**-6.0%**	

Table 15: 2013 gate-to-gate ANS actual costs vs. National Performance Plan

5.10.1 Total Union-wide gate-to-gate ANS costs in 2013 were -6.0% lower than the costs presented in the adopted National Performance Plans (7,321 M€$_{2009}$ compared with 7,788 M€$_{2009}$). Actual 2013 en-route costs accounted for 81.7% of gate-to-gate ANS costs, a similar proportion to that forecast in the National Performance Plans (81.1%).

5.10.2 In other words, at Union-wide level, for 2013 there was no evidence of an increasing share of TANS costs, given that these costs are not subject to the "DCs" method (except for France).

5.11 Summary

5.11.1 2013 was the second year of RP1 in which SES en-route ATSPs were subjected to risk-sharing arrangements which have a direct impact on their profitability (surplus and ex-post return on equity - RoE) and financial strength.

5.11.2 The results of this second year confirm that the Performance Scheme for the cost-efficiency KPA is working as expected given the incentives. In 2013, en-route traffic (Service Units) overall was -5.6% lower than planned. In response, States/ANSPs reduced their en-route costs by -5.4% or -339.8 M€$_{2009}$, which resulted in a Union-wide DUC of €56.85, only +0.3% higher than the planned (€56.69). Lower staff costs and operating costs plus lower depreciation costs were the biggest contributors to the lower costs. In a context of lower traffic, the European ANS system has collectively adjusted its cost structure downwards in order to match lower revenues.

5.11.3 As a result, most ANSPs maintained and even improved their economic surplus, thereby increasing their financial strength. The increased profitability, resulting in a Union-wide surplus of 403.1 M€$_{2009}$ in 2013, puts ANSPs in a strong position to make further improvements in RP2.

5.11.4 Even though no specific targets were set for TANS costs and unit rates in RP1, monitoring shows that actual Union-wide TANS costs are -8.6% lower than forecast in the National Performance Plans. In other words, cost reductions (in percentage terms) are actually higher for TANS than en-route. This shows that the 'light touch' tools of transparency and monitoring, together with the impact of en-route costs regulation, where the same ANSP provides both terminal and en-route services, are having a positive influence on TANS.

5.11.5 The savings observed in the 2012 Monitoring Report were sustained in 2013. These results confirm that the underlying assumptions for the RP2 targets were relevant and broadly in line with actual 2013 performance.

5.12 Review of 2012 Recommendations on cost-efficiency[3]

5.12.1 **The provision of more detailed information on the computation of the cost of capital in Annual Monitoring Reports and in the Performance Plans for RP2 would contribute to improve the monitoring analysis carried out by the PRB in the future. –** Following the recommendation in last year's 2012 Monitoring Report States have provided more detailed information on the calculation of the cost of capital in the Annual Monitoring Reports and in the Performance Plans for RP2 that have contributed to improving the monitoring analysis carried out by the PRB

5.13 Recommendations on cost-efficiency

5.13.1 Annex IV of Regulation 390/2103, which sets the criteria for assessing Performance Plans, emphasises that performance in the previous reference period needs to be taken into account in assessing Performance Plans for the next reference period. The cost-efficiency performance improvements achieved in the first two years of RP1 in the form of lower cost-bases needs to be carried forward in RP2. Determined Costs for RP2 should reflect these lower costs so that lower user charges may be set in RP2. **The PRB advises the EC to request the States to reconsider downwards the levels of Determined Costs in the early years of RP2 in the light of the actual performance achieved in 2013, for both the en-route and terminal charging zones.**

6 Capital expenditure

6.1 Introduction

6.1.1 The PRB's assessment of investment has been done with limited information collected from Member States through various sources of information. Therefore it cannot be considered to be exhaustive as regards the consistency and adequacy of the data provided. In addition, it does not validate the ANSPs' individual investments, as this is a State/NSA responsibility. The actual 2013 CAPEX reported in June 2014 was assessed against CAPEX planned for 2013 in the adopted RP1 Performance Plans and updated as necessary through the 2012 monitoring exercise. The CAPEX projects were also assessed against their relevance and coherence with the European ATM Master Plan. Where information was incomplete or was missing, other sources were used (e.g. the charging scheme, the ATM Master Plan reporting process). The information was aggregated at EU and FAB levels.

6.1.2 This Chapter provides an EU overview; the detailed review at FAB and State levels are in Volume 3 of this 2013 Monitoring Report.

6.2 Aim of the exercise

6.2.1 One of the main needs of the Commission is to ascertain whether the "essential operational changes" of the European ATM Master Plan and also the Interoperability Regulations are being deployed in a timely manner, so as to comply with existing SESAR deployment requirement and constitute a robust basis towards the deployment of common projects, starting with the Pilot Common Project (PCP). For the analysis of the reported 2013 CAPEX, It is important to bear in mind that, at the moment of adopting the National or FAB performance plans for RP1, the update of the European ATM Master Plan was not yet adopted and work on the pilot common project (PCP) was not yet started. For this reason, this report can only endeavour to trace the progress made at FAB and State level with the implementation of the relevant ESSIP objectives (which constitute the level 3 of the Master Plan) that are prerequisites or precursors to the PCP and to identify, where possible, whether investments made in 2013 are supportive of the PCP as published on 28 June 2014[5].

6.2.2 The aim of this 2013 CAPEX report, the second one of its kind, is therefore to reinforce the connection between the performance and technological pillars of the SES, make FABs, States and ANSPs aware of their obligations, seek their cooperation and prepare for a strengthening of reporting requirements in RP2. Useful findings are highlighted everywhere where possible.

6.3 Main Findings

6.3.1 On the economic side, the main findings are:

- For 2013: Overall, the total amount spent in 2013 for CAPEX at EU level (SES States) was of 727M€$_{2009}$, of which 476M€$_{2009}$ (66%) was for the main projects. In comparison with the planned CAPEX (1 010M€$_{2009,}$ slightly adjusted downward vs. the original Performance Plan reporting), the ANSPs have spent 283M€$_{2009}$ (28%) less than planned, of which 173M€$_{2009}$ for the main projects;
- For 2014: it is expected that CAPEX will be 152.9M€$_{2009}$ lower than initially planned in the RP1 Performance Plans;
- For RP1: the updated planned CAPEX at EU level, taking 2013 results and the 2014 planning update into account, amounts to 2.3B€$_{2009}$, i.e. 25% less than

planned for RP1;

- The percentage ratio of total CAPEX into gate-to-gate costs for EU ANSPs in RP1 is expected to decline by 20.6% (i.e. 11.9% actual vs. 15% planned).The trend is similar for the period 2010-2014.

The findings at FAB and State levels are detailed in Volume 3 of this report.

6.3.2 Concerning the relevance and coherence of reported CAPEX with the European ATM Master Plan requirements, the main findings are:

- Even if showing improvement as compared to the 2012 CAPEX reporting exercise, the update of the links of the 2013 CAPEX projects to the ATM Master Plan's elements as well as the level of information provided in the 2013 report remains, for a majority of States, not satisfactory and not consistent with other sources of information available (mainly the ATM Master Plan reporting process). Additional work was needed and comparison of different sources of information were necessary to carry out a basic "mapping" of the CAPEX reported against the ATM Master Plan's elements;
- There is still a very fragmented approach to investment. ATM systems remain at national level and renewal / upgrade plans are not coordinated;
- The state of progress of implementation of the Interoperability Regulations is a matter of concern;
- On the other hand, the status of the prerequisites to the deployment of the Pilot Common Project appears satisfactory, with the exception of AF2 (Airport Integration and Throughput Functionalities) and potentially AF6 (Initial Trajectory Information Sharing).

6.3.3 This is further detailed at EU level in the following Sections 6.6 (Consistency with ATM Master Plan), 6.7 (Planning of systems' deployment and upgrades), 6.8 (Interoperability objectives) and 6.9 (PCP Prerequisites).

6.3.4 The findings at FAB and State levels are detailed in Volume 3 of this report.

6.4 2013 Actual CAPEX – Ratios (%)

6.4.1 Considering the information disclosed by the States through their 2013 Monitoring Reports and charges reporting scheme, the total amount spent on CAPEX by the ANSPs at EU level (SES States) was 727M€$_{2009}$, of which 476M€$_{2009}$ was for the main projects.

6.4.2 In comparison with the planned CAPEX (slightly adjusted downward vs. the original Performance Plan reporting), EU ANSPs have not spent 283M€$_{2009}$ (28%), of which 173M€$_{2009}$ for the main projects. The main explanations provided by the States for this reduction in the actual 2013 CAPEX were, as follows:

- delays due to public procurement and
  - (i) "tender procedures for the common project" or to projects finished in advance with low budgets (Oro Lithuania);
  - (ii) contractual issues (BULATSA, NAV Portugal);
  - (iii) revision of budgets (for ROMATSA) and prioritisation of short-term investments (AENA);
- delays due to structural changes or strategies with regard to:
  - (i) COOPANS (Denmark and Sweden);
  - (ii) operational and technical issues (PANSA);

(iii) timing and strategies for several main projects (DSNA, HungaroControl and ANS CR);

(iv) revised deployment strategy for the New Common Workstation (NATS).

FAB (Gate-to-gate) (ANSP level)	2013 CAPEX (M€2009, real terms)									
	TOTAL				MAIN				Ration Main vs Total CAPEX (%)	
	Plan	Actual	A-P	A/P	Plan	Actual	A-P	A/P	Plan	Actual
BALTIC	39	6	-33	-84%	32	6	-25	-80%	81%	98%
BLUE MED	131	145	14	10%	90	106	16	18%	68%	73%
DANUBE	51	13	-38	-75%	48	7	-41	-85%	93%	54%
DK-SE FAB	20	15	-5	-23%	11	10	-1	-8%	55%	66%
FABCE	81	57	-23	-29%	58	37	-21	-36%	72%	65%
FABEC	406	305	-101	-25%	235	186	-49	-21%	58%	61%
NEFAB	31	21	-9	-31%	24	17	-7	-28%	78%	81%
SW	99	53	-46	-46%	30	11	-19	-63%	30%	21%
UK- IRELAND	152	110	-42	-28%	122	95	-27	-22%	80%	86%
TOTAL	**1010**	**727**	**-283**	**-28%**	**649**	**476**	**-173**	**-27%**	**64%**	**66%**

Table 16: EU 2013 CAPEX (Actual vs. Planned) – breakdown per FAB

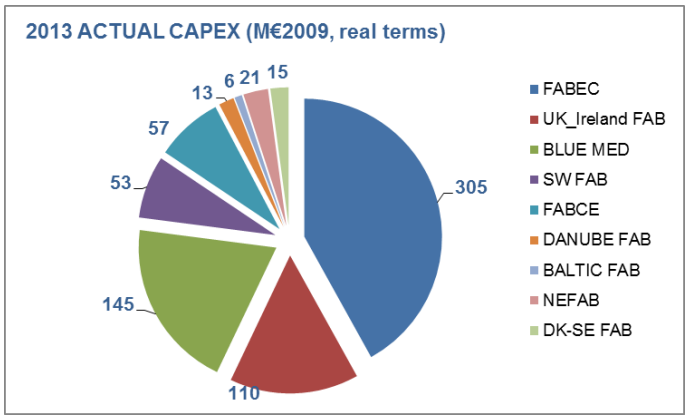


Figure 35: 2013 ACTUAL CAPEX (M€2009, real terms)

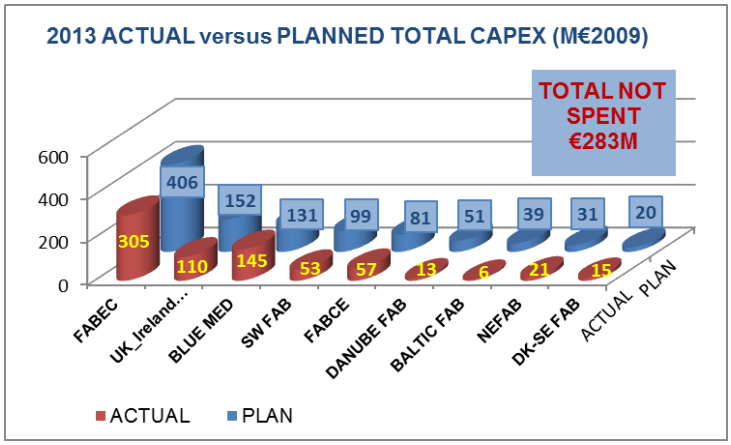


Figure 36: 2013 Actual vs. Plan CAPEX per FAB (M€2009, real terms)

6.4.3 From the total CAPEX amount spent in 2013 for the main projects (476M€$_{2009}$):

- 313M€$_{2009}$ (66%) was for 2013 originally planned projects;
- 150M€$_{2009}$ (32%) was for projects carried-over from 2012;
- 13M€$_{2009}$ (2%) was for new projects (not included in the RP1 PP initial planning).

6.5 2014 Planning and RP1 Planning update at European level

6.5.1 Most States have updated their 2014 planning. As a result, it is anticipated that 153M€$_{2009}$ will be spent below the initial 2014 plan, although the level of CAPEX is expected to be 18% higher than the actual amount spent in 2013 (858.5M€$_{2009}$ updated plan CAPEX for 2014 vs. 726.8M€$_{2009}$ actual spent in 2013).

6.5.2 From the information provided, some of the States have postponed unspent amounts from RP1 to RP2, while others have reduced their budgets or cancelled several projects, leading us to infer that the amounts will not be carried forward to subsequent years.

6.5.3 However, the situation per FAB is not homogeneous, as several FABs have planned to spend more (BLUE MED, DANUBE and NEFAB) while others intend to reduce the initial planned budget for 2014.

6.5.4 From the updated plan for 2014 CAPEX:

- Approximately 49% are expected to be attributed to the original planned main projects for this year;
- 37% are planned for "other" projects (generally not detailed);
- 10% are planned for projects carried over from the previous two years (2012 and 2013).

6.5.5 The RP1 updated planned CAPEX at EU level, taking account of 2013 results and the 2014 planning update, amounts to 2.3 B€$_{2009}$, i.e. 25% lower than originally planned through the Performance Plans for RP1.

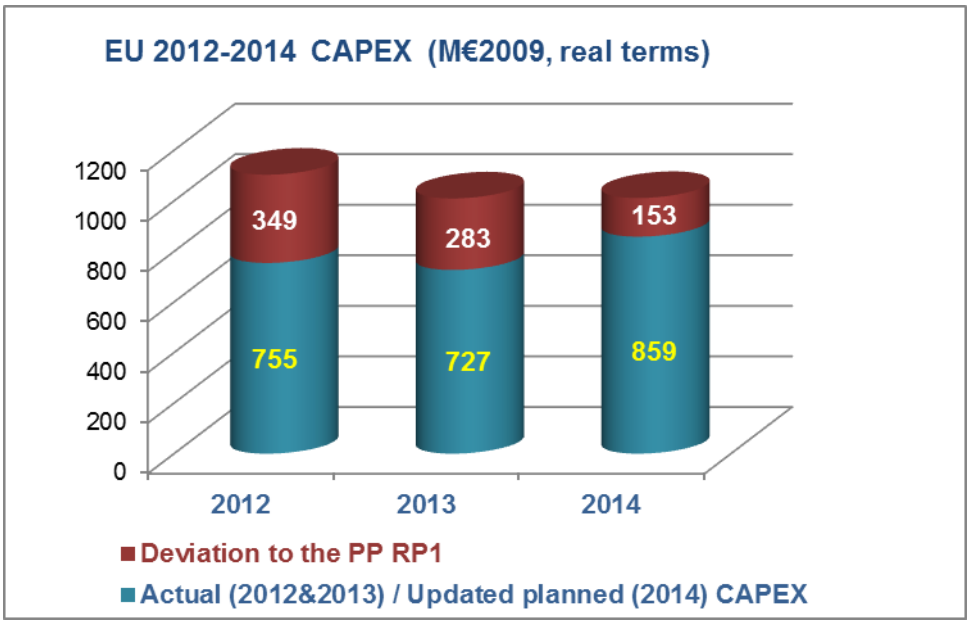


Figure 37: EU 2012 -2014 CAPEX update

6.5.6 However, after a detailed assessment per FAB, it can be concluded that for all the FABs, the investment budgets have been revised downwards, mainly for BALTIC

FAB (-71%) due to important shrinking in budgets overall (see table below).

6.5.7 The percentage of each FAB's investment into the total EU CAPEX (Actual vs. Planned) for RP1 is detailed in the table below.

FAB	RP1				%FAB in TOTAL	
	Plan	Update (2013 AR)	Dev (A-P)	Dev (A-P)	Plan	Actual
BALTIC	107	31	-76	-71%	3%	1%
BLUE MED	384	330	-55	-14%	12%	14%
DANUBE	134	96	-39	-29%	4%	4%
DENMARK-SWEDEN	60	50	-10	-17%	2%	2%
FABCE	295	226	-68	-23%	9%	10%
FABEC	1139	937	-202	-18%	36%	40%
NEFAB	107	83	-24	-22%	3%	4%
SW	434	211	-222	-51%	14%	9%
UK- IRELAND	465	377	-88	-19%	15%	16%
TOTAL	**3125**	**2340**	**-785**	**-25%**	**100%**	**100%**

Table 17: EU RP1 Update (Update vs. Planned)(M€2009, real terms)

6.5.8 Furthermore, the percentage ratio of total CAPEX into gate-to-gate costs for EU ANSPs in RP1 is expected to decline by 20.6% (i.e. 11.9% actual vs. 15.0% planned). This is explained by a significant lower CAPEX (-25% actual vs. planned) and also a decline in actual gate-to-gate ANS costs (-5.7%). The trend is similar for the period 2010-2014.

6.6 Consistency with the European ATM Master Plan

6.6.1 Taking into consideration the overall information available for each State (adopted RP1 Performance Plans, 2013 CAPEX report, the ATM Master Plan reporting process[6]) it can be noted that States in general provide information on the investments which is relevant to the ATM Master Plan. However, the consistency and transparency of the information provided is often missing.

6.6.2 The update of the links of the CAPEX projects to the ATM Master Plan's elements, as well as the level of information provided in the 2013 report, was not satisfactory. In many cases, there were no links provided or the links were wrong (projects were not linked to the Level 2 or Level 3 of the ATM Master Plan).

6.6.3 The details of the projects described in the 2013 report (description, date of entry into operation) were frequently not consistent with what was reported in other sources of information about the State (mainly the ATM Master Plan reporting process). Lack of harmonisation between the reporting units of the States/FABs was observed.

6.6.4 Some projects reported by the States in other reporting mechanisms, and which are important for the ATM Master Plan, were not included in the lists of investment projects for the 2013 report.

6.6.5 Additionally, the lack of harmonisation and a common approach towards the investment plans is visible.

6.6.6 Based on the findings of the ATM Master Plan reporting process for 2013 (ESSIP

Report 2013), those aspects related to the implementation of the interoperability objectives, the implementation of the PCP prerequisites and the planning of systems' deployment upgrades are also of great value in understanding the States' investment plans. The next three sections will highlight the main findings in those areas.

6.7 The planning of systems' deployment and upgrades

6.7.1 One of the main findings of the review of the ATM Master Plan reporting process (covering all ECAC States) is the lack of coordinated system deployment (including system upgrades) among adjacent and FAB ANSPs.

6.7.2 The figure below presents the schedule of major ATM system upgrades reported by the States in the ECAC region. A major upgrade is defined as any modification that changes the operational characteristics of the system (as defined in SES Framework Regulation 549/2004, Article 2(40)).

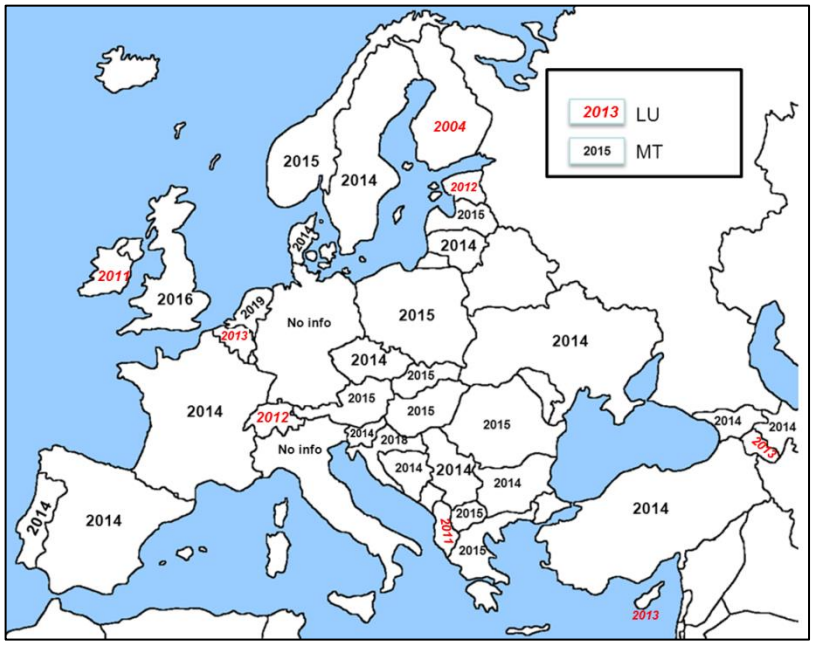


Figure 38: Schedule of major ATM system upgrades

6.7.3 The main conclusion is that the opportunities for seamless evolution of ATM systems are not a priority for most of the ANSPs. Approach to technology deployment seems more individual, mostly driven by the local needs. 15 ECAC ANSPs, about one third of the ECAC ANSPs, have scheduled major upgrades to their ATM system for 2014. The same trend is expected in 2015, when 10 ECAC ANSPs will do the same. This indicates an intensive evolution of the ATM system capabilities across ECAC region. Therefore, the need for seamless evolution of ATM systems becomes even more important in order to avoid the risk of having a patchwork of different ATM system capabilities in the region.

6.7.4 It should be noted that nine (9) ECAC States reported the dates of their last major upgrade (in red letters). These are mainly States that upgraded their system in 2013 or before. Two (2) States have not provided information about their scheduled future or past ATM system upgrades. These are Italy and Germany.

6.8 Interoperability objectives

6.8.1 This section is based on the findings of the ATM Master Plan implementation reporting for 2013 (ESSIP Report 2013). The interoperability objectives represented at level 3 of the European ATM Master Plan include:

- Air-ground Data Link (AGDL)
- Aeronautical Data Quality (ADQ)
- Coordination and Transfer (COTR)
- Flight Message Transfer Protocol (FMTP)
- Surveillance Performance and Interoperability (SPI).

6.8.2 These objectives have implementation deadlines supported by relevant implementing Regulations. The final operational capability date (FOC) of these objectives is in the 2013 (AGDL) - 2019 (SPI) period.

6.8.3 The trend of integrated implementation of these objectives is shown in the figure below:

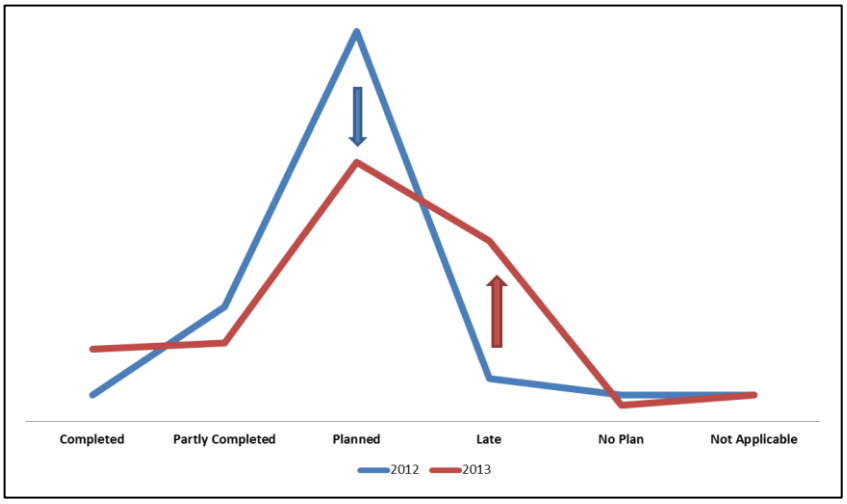


Figure 39: Implementation status of interoperability objectives in 2013 compared with 2012

6.8.4 The comparison of the implementation status in 2012 with the results of 2013 shows a shifting of the implementation status to “late” as the FOC date becomes closer (see arrows). This is an early warning that corrective measures need to be defined for these regulated items. Otherwise, the cumulated delays in implementation will grow and non-compliance issues will arise once the FOC dates get closer.

AIR-GROUND DATA-LINK (AGDL)

6.8.5 Delays in AGDL implementation were first encountered in the 2011 reporting exercise. Since then, the situation has further deteriorated, leading to major non-compliances with Data-Link IR.

6.8.6 In 2013, only six States and MUAC have reported full completion of AGDL objective (BE, CH, DE, UK, NL and LU)[7]. 11 States reported delays in 2013 with estimated completion dates in the period 2015-2018.

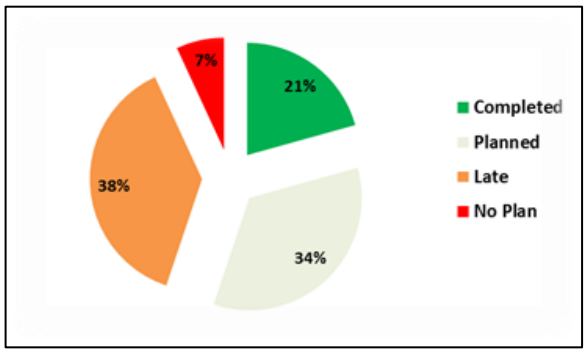


Figure 40: Air Ground Data-Link Implementation

AERONAUTICAL DATA QUALITY (ADQ)

6.8.7 45% of the States had already announced delays in implementation in 2013.

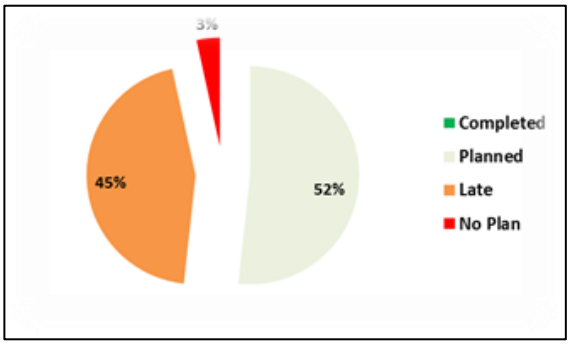


Figure 41: Aeronautical Data Quality Implementation

COORDINATION AND TRANSFER (COTR)

6.8.8 In 2012, 15% of States had declared delays in implementation. In 2013, 52% of States declared delays. This is an increase of almost 40%.

6.8.9 The deadline for the implementation of most of the processes specified in the IR (EU) No 12/2012 was not met, as well as the first deadline for Data Link-related processes (02/2013).

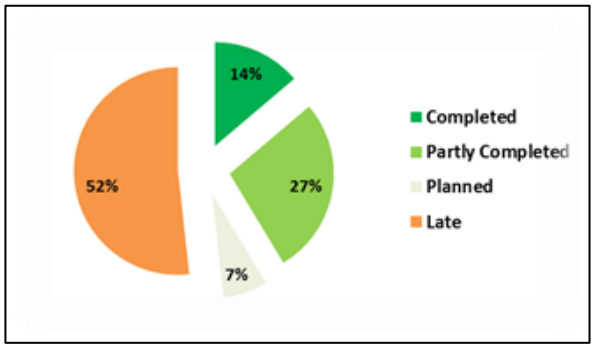


Figure 42: Coordination and Transfer Implementation

6.8.10 There is a real risk that even the second deadline specified in the Regulation (for the implementation of processes related to Data Link) will also be missed by a significant number of ANSPs. In 2013, the objective was reported as -Completed- by four States and MUAC (not included in the graph), and 15 reported -Late-. Nine

States moved into the list of -Late- implementers in only one year (150% increase compared with 2012). There are no specific reasons given for the delay in implementation of those processes not related to Data Link.

6.8.11 As for the processes related to Data Link, they are late because the implementation of Data Link is delayed.

FLIGHT MESSAGE TRANSFER PROTOCOL (FMTP)

6.8.12 With the implementation deadline approaching, five States have already reported the FMTP objective as "late", and this might have a knock-on effect on neighbouring States. States should ensure that the tests and implementation of the IPv6 links with their neighbours are achieved in time.

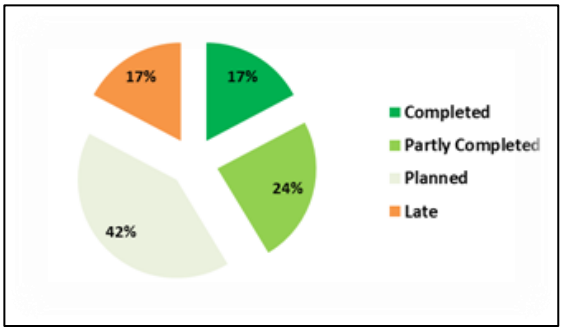


Figure 43: Common Flight Message Transfer Protocol Implementation

6.8.13 Five States and MUAC (not included in the graph) reported the objective as completed, some added that their systems are ready and are waiting for their neighbours to upgrade theirs in order to complete the objective.

6.8.14 An additional seven States reported this objective as partly completed, while 12 States reported the objective as planned within the schedule.

6.8.15 However, whereas in 2012 only two States reported the objective as "late", this year three more have postponed their implementation plans to 2015, which might have an impact on the migration of links with their neighbouring States. The ANSPs have provided no explanation for the.

SURVEILLANCE, PERFORMANCE AND INTEROPERABILITY (SPI)

6.8.16 The implementation of the objective proceeds as planned and no substantial delays are expected. The vast majority of States plan to achieve compliance in time and around one third of the States have reported that the ANSPs have implemented the SLoAs applicable to them.

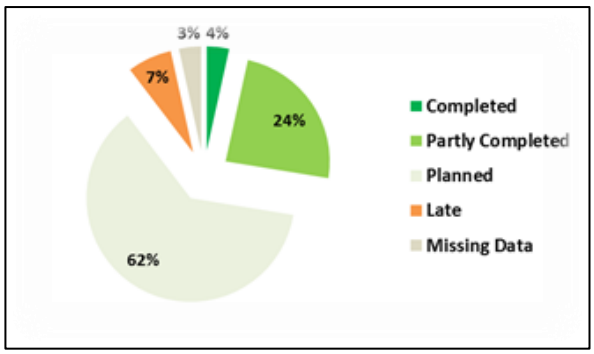


Figure 44: Surveillance Performance Interoperability Implementation

6.8.17 The two ANSPs which are still late have reported only very minor non-compliances and small delays.

6.9 PCP Prerequisites

6.9.1 This Section is an assessment of the progress of the PCP pre-requisites, relying on earlier analysis work done by the Interim Deployment Steering Group.

6.9.2 The methodology presents the end 2013 progress status of those ESSIP objectives that are deemed as being pre-requisites for each ATM Functionality (AF) under the PCP. The graph below depicts the per-objective progress status and an assessment is provided to expand on the findings.

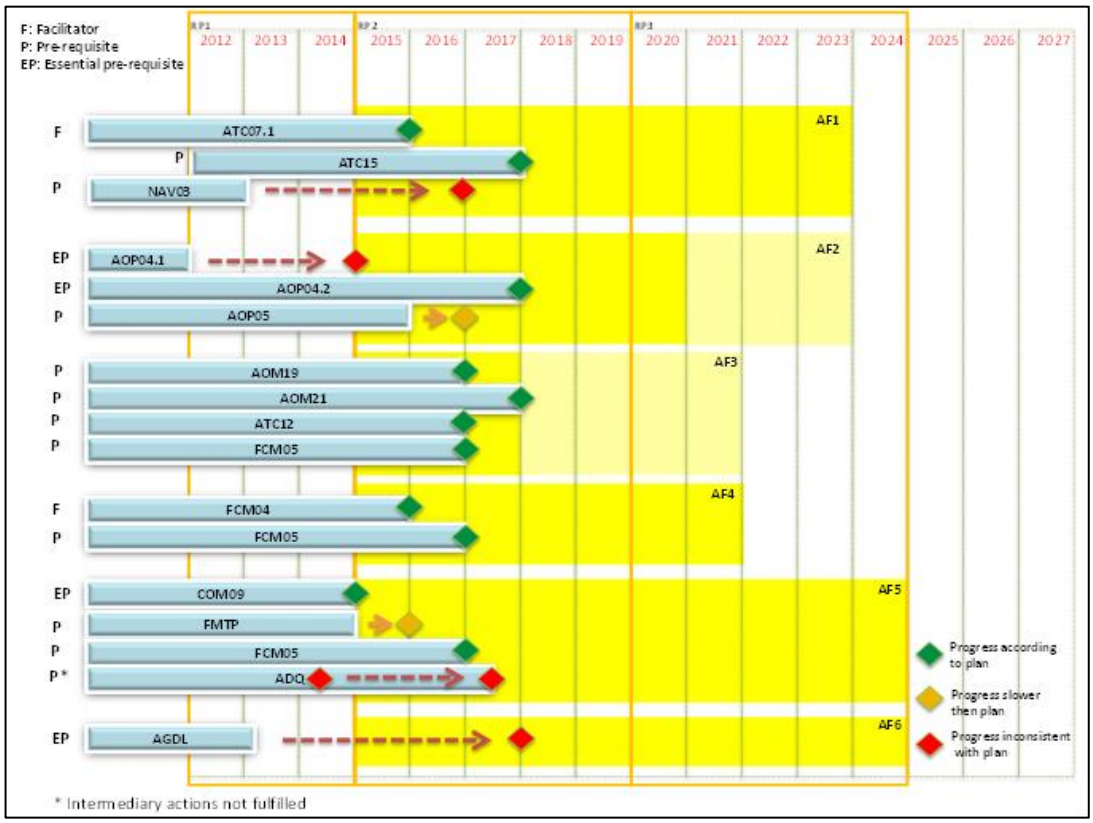


Figure 45: Progress status of ESSIP Objectives, pre-requisites to the PCP AF

AF1: Extended AMAN and PBN in high density TMAs

6.9.3 The implementation status for operations in European en-route environments taking advantage of Basic AMAN operations shows good progress. Where customer demands and operational needs exist and a business opportunity is demonstrated, AMAN capabilities have generally been implemented. That situation should provide a robust foundation for AF1.

6.9.4 As for the implementation of P-RNAV, there is still lack of progress, but the ATM Master Plan reporting process indicates a reasonable margin in time between stakeholders planned implementation of NAV03 and the target dates set out in the PCP (1 January 2024). From a pure AF1 deployment point of view, this dependency on the NAV03 implementation progress is considered manageable.

AF2: Airport Integration and Throughput

6.9.5 The implementation status of CDM and A-SMGCS indicates that the timely implementation of the AF2 functionalities may be exposed to a higher risk than identified in the PCP; arising out of the indication that stakeholders may not be able to provide the enabling system evolution on time. Delays in implementation A-SMGCS Level 1 could impact implementation of Level 2 functionality. The main

problem is the equipage of ground vehicles with transponders (Ref. ESSIP report 2013 for detailed A-SMGCS progress assessment).

AF3: Flexible Airspace Management and Free Route

6.9.6 The Master Plan reporting indicates that the AOM19 and AOM 21capabilities should be implemented by the Full Operational Capability date, to the full benefit of airspace users. Likewise, ANSPs indicate that required support tools per ATC12 will become available by end 2016. As a consequence, the mandatory implementation of the first element of AF3 (direct routing provided in the ECAC area by 1 January 2018) should not be at risk due to these three prerequisites.

AF4: Network Collaborative Management

6.9.7 Implementation of Short Term ATFCM Measures per phase 1 concepts in the applicable area is well under way. Likewise the ATM Master Plan reporting process indicates that the proliferation of concepts and methods related to the interactive rolling NOP in the SES, and even ECAC, area is quite satisfactory.

6.9.8 The PCP stipulates that operational stakeholders and the Network Manager shall operate Network Collaborative Management by 1 January 2022. The prerequisites identified above should not hinder the realisation of the deployment of AF4 in line with ATM Master Plan reporting process the stipulated time schedule.

AF5: iSWIM

6.9.9 ESSIP objective COM09 covers the data connectivity requirements between ANSPs, the Network Manager and the EAD. The implementation progress for the COM09 technical enabler for SWIM is satisfactory. The support of IPv6 by 2014 would seem established, even if IPv6 based services are not necessarily fully in operation due to time differences in the implementation of ATM system adaptations to fully support and utilise the backbone infrastructure.

6.9.10 The PCP stipulates that operational stakeholders and the Network Manager shall provide and operate the iSWIM as of 1 January 2025. In this context it is furthermore assumed that European centres with “very high” and “high” capacity needs shall be connected to the Pan-European Network Services (PENS) by that time. At this stage the infrastructure prerequisite measured through the implementation of COM09 is not a limiting factor for the realisation of the iSWIM capabilities. Implementation issues related to FMTP and ADQ could potentially appear as a limiting factor if not addressed timely.

AF6: Initial Trajectory Information Sharing

6.9.11 The analysis work done by the Interim Deployment Steering Group identified the data link capability (Commission Regulation (EC) No 29/2009 on data link services refers) as an essential prerequisite for this ATM functionality and the PCP supports that view.

6.9.12 The implementation speed of the ITY-AGDL objective is slower than planned and recommendations were raised in the ESSIP Report on the year 2012 to pinpoint the risks associated with delayed and inconsistent implementation of this objective. In the context of timely implementation of the PCP AF6 by 1 January 2025, that risk would appear manageable, as the initial ATC air-ground data link capability is only one item in the larger collections of system level elements that need to be in place in order to realise the trajectory information sharing.

6.10 Review of 2012 Recommendations on capital expenditure

6.10.1 The following Recommendations were valid for all FABs and generally apply to all ANSPs:

6.10.2 **The entities should strive to comply with the requirements of Article 18.4 of the Performance Regulation and in particular the deadlines which require Member States to report by 1 June each year on the monitoring of their performance plans.** Whilst in general some progress can be acknowledged, some Member States still delivered their reports very late, up to 29 July 2014.

6.10.3 **The efforts towards transparency should continue, through in particular improving further the traceability of the main projects through the different reporting streams (Monitoring Report vs. ATM Master Plan reporting and National Performance Plans).** This recommendation remains relevant.

6.10.4 **The entities involved in the production of the local performance plans, monitoring reports, charges reporting and LSSIP documents should coordinate and harmonise the projects list and the information they provide. They should establish clearly the links between the projects and the ESSIP Objectives and therefore the Master Plan.** This recommendation remains relevant.

6.10.5 **A common list of projects should be used both for the performance plans and LSSIP reporting, properly linked to ESSIP objectives or at least OI Steps, whenever possible. Links to IDP work packages need to be included whenever no ESSIP objective exists covering that activity.** This recommendation remains relevant.

6.11 Recommendations on capital expenditure

6.11.1 A considerable part of the capital expenditure (CAPEX) planned for 2012 and 2013 in the RP1 Performance Plans has been cancelled and/or postponed. In the context of Determined Costs, the unit rates charged to airspace users include determined depreciation costs and the cost of capital. At this stage, it is not clear whether some investment plans presented in the RP1 National Performance Plans might have been overestimated including the associated depreciation costs (see Volume 3 - Report on Capital Expenditure 2013). The PRB considers that if the corresponding planned capital projects are not implemented, these will not result in the expected operational and economic benefits to airspace users. **The PRB advises the EC to request the Member States to provide transparency on those investments non-realised in 2012 or 2013 and carried over into the last year of RP1 (2014) or to RP2 years (2015-2019) and show that there is no risk of double charging of airspace users.**

6.11.2 **The PRB advises the EC to request Member States to adequately relate CAPEX to the IDP and the pilot common project. for the next reporting exercise (on the year 2014).** The PCP has been adopted on 27 June 2014 through Regulation (EU) No 716/2014. It is a crucial element of SESAR deployment and appropriate investments should start now if full performance benefits are to be delivered on time. Whilst it was impossible to expect such reporting in the previous years, such reporting should start being detailed in 2015 on the 2014 year and pave the way to RP2 reporting. Furthermore the PCP prerequisites have been identified in the PRB report on 2013 performance. NSA reporting reporting should follow at the same level in 2014.

7 Alert thresholds

7.1 Union-wide level

7.1.1 Article 18 of the performance Regulation (Regulation (EU) N° 691/2010) defines specific mechanisms to handle exceptional situations occurring in Reference Periods. These "alert mechanisms" can be triggered in Reference Periods at both Union-wide level and local level when new, unforeseeable circumstances occur that are both insurmountable and outside the control of the Member States, or when alert threshold(s) are reached at EU level.

7.1.2 If these cases occur, the following steps will be taken at Union-wide level: the Commission will review the situation in consultation with the Member States through the SSC and provide proposals for appropriate actions within three months, which may include the revision of the Union-wide performance targets and, in consequence, a revision of the national or FAB performance targets.

7.1.3 Two alert thresholds were defined in Commission Decision 2011/121/EU establishing Union-wide targets for RP1:

- a deviation over a calendar year by at least 10% of actual traffic expressed in en-route service units compared to a planned figure defined in the Commission Decision (111,605,000 in 2013) ("traffic alert threshold", applicable to all key performance indicators);
- a deviation over a calendar year by at least 10% of actual costs compared to determined costs with reference determined costs forecasted at Union-wide level in the Commission Decision (€6,234M for 2013 in 2009 prices) ("cost alert threshold", applicable to the cost-efficiency indicator).

7.1.4 The PRB has assessed the 2013 traffic data and has concluded that the traffic alert threshold of ±10% has not been reached at Union-wide level. Actual en-route Service Units in 2013 were 105,171,670 i.e. -5.8% lower than the planned 2013 value in Article 3(1) of the Commission Decision (Figure 46).

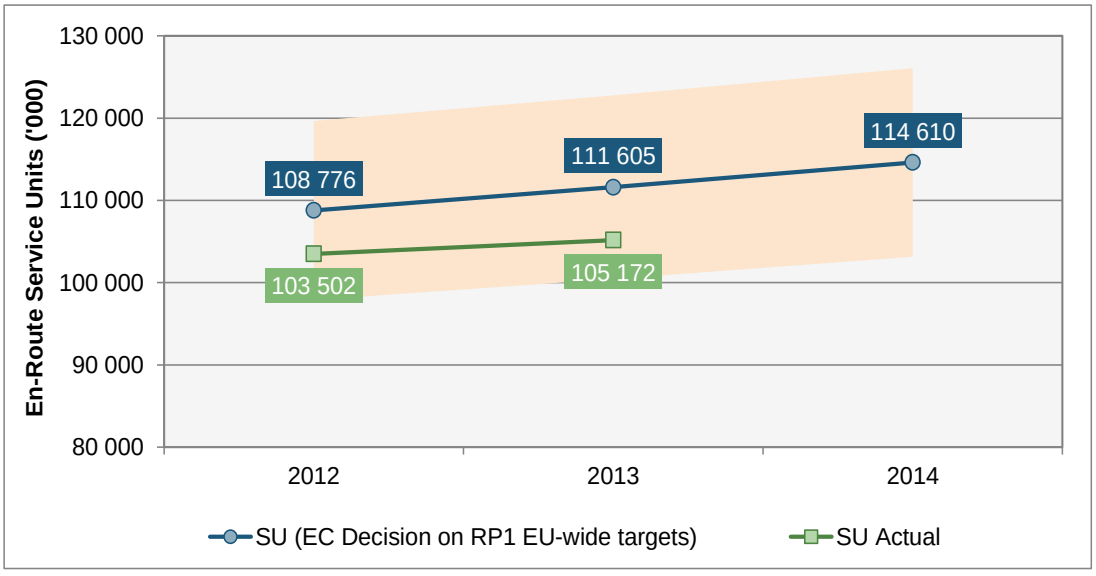


Figure 46: En-route service units at Union-wide level

7.1.5 The PRB has assessed the 2013 preliminary cost data reported by each Member State and has concluded that the cost alert threshold of ±10% has not been reached at Union-wide level. Actual en-route costs in 2013 were €5,979M in 2009 prices, i.e. -4.1% lower than the 2013 value in Article 3(1) of the Commission Decision (Figure 47).

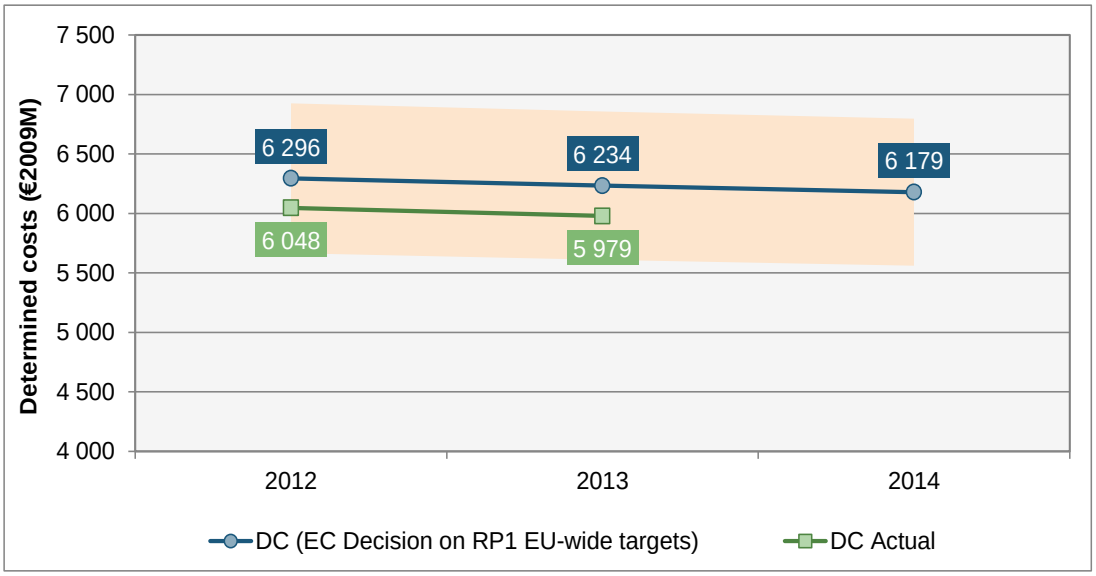


Figure 47: En-route determined costs at Union-wide level

7.1.6 Therefore, **neither** of the alert thresholds at Union-wide level was reached in 2013.

7.2 Local level

7.2.1 According to Article 18(3), States may decide to apply different alert thresholds than the Union-wide at local level. In this case, they shall describe and justify them in their Performance Plan.

7.2.2 So far, no States have reported specific alert thresholds therefore the same thresholds (±10%) apply at national (or FAB) level, as compared with the traffic and cost forecasts contained in each Performance Plan.

7.2.3 Figure 48 presents the proportional difference between actual and planned Service Units for each State in 2013.

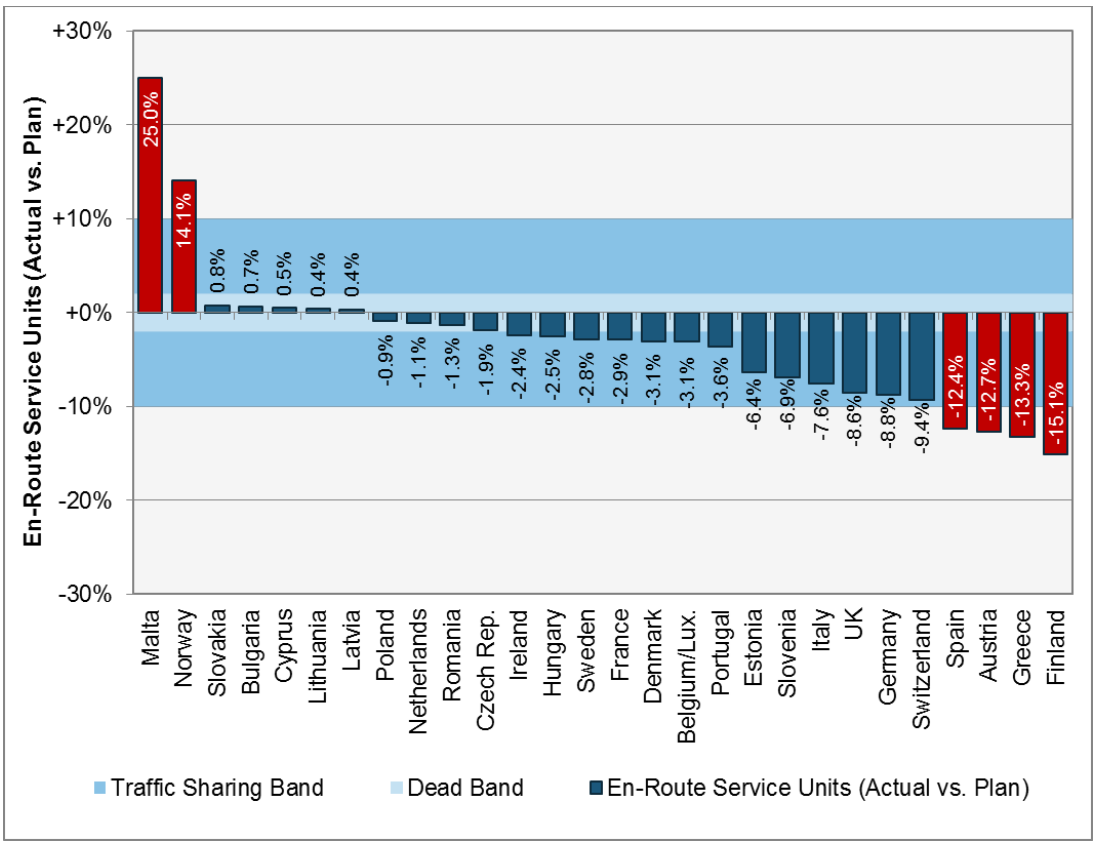


Figure 48: En-route Service Units by State (Actual vs. Plan)

7.2.4 Figure 48 shows that Malta (+25.0%), Norway (+14.1%), Finland (-15.1), Greece (-13.3), Austria (-12.7) and Spain (-12.4 reached the traffic alert threshold in 2013.

7.2.5 In line with Article 18(2) of the Performance Regulation and taking the considerations outlined above into account, the relevant NSAs have been invited to review the traffic situation by liaising with the Commission. None of them has informed the Commission whether they intend to propose a revised Performance Plan.

7.2.6 Figure 49 presents the proportional difference between actual and planned Determined Costs for each State in 2013 (expressed in €2009).

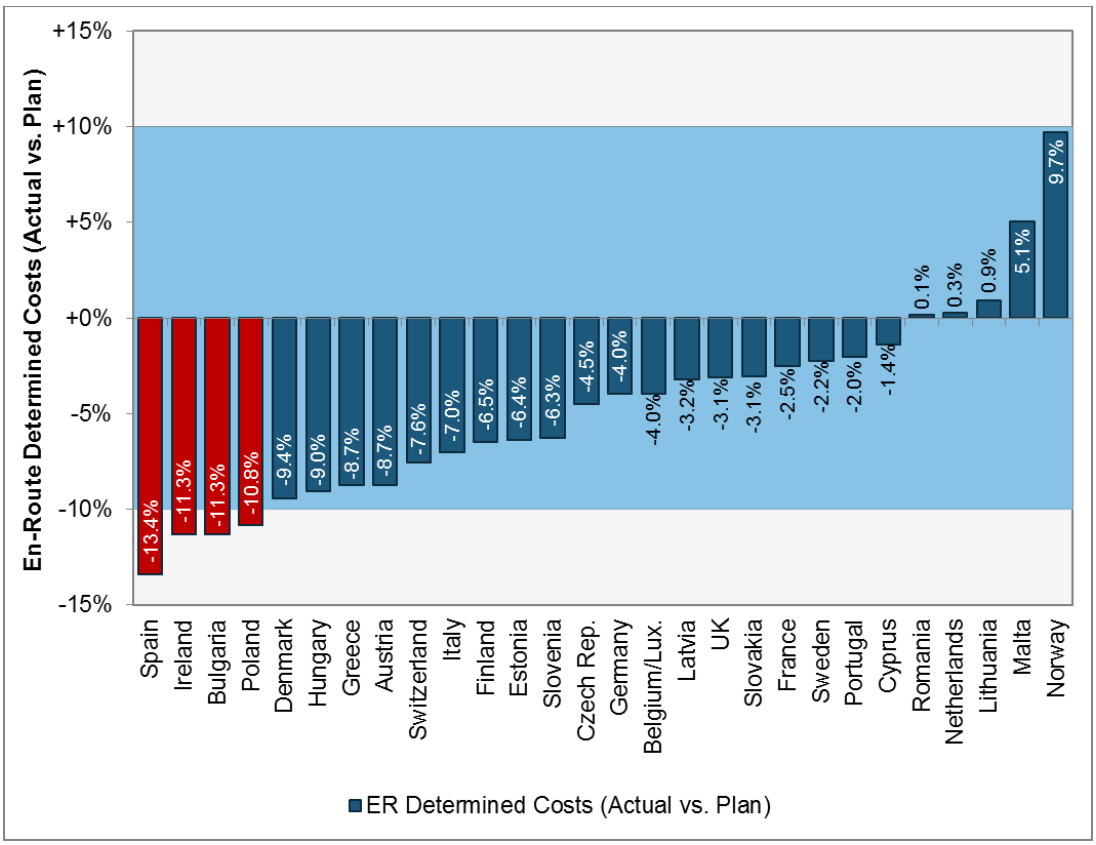


Figure 49: En-route determined costs by State (Actual vs. Plan)

7.2.7 Spain, Ireland, Bulgaria and Poland exceeded the -10% threshold in 2013.

7.2.8 For cost-efficiency, the PRB notes that the ±10% traffic alert threshold corresponds to the outer bands of the traffic risk-sharing mechanism defined in Article 11a of the charging Regulation (Commission Regulation (EC) N° 1794/2006). Therefore, if traffic is below -10% (or respectively above +10%), all losses exceeding -10% (or respectively all gains exceeding +10%) may be recovered from (or shall be returned to) airspace users through an adjustment of the chargeable unit rate in n+2 (i.e. 2014).

8 Outlook 2014 (January – August)

8.1.1 Based on the available information for 2014, this section provides a brief summary of the performance achieved during the first eight months of 2014, which will be the last year of RP1.

8.1.2 Safety and cost-efficiency are not considered, as no data is available for 2014 at the time of writing the report.

ENVIRONMENT

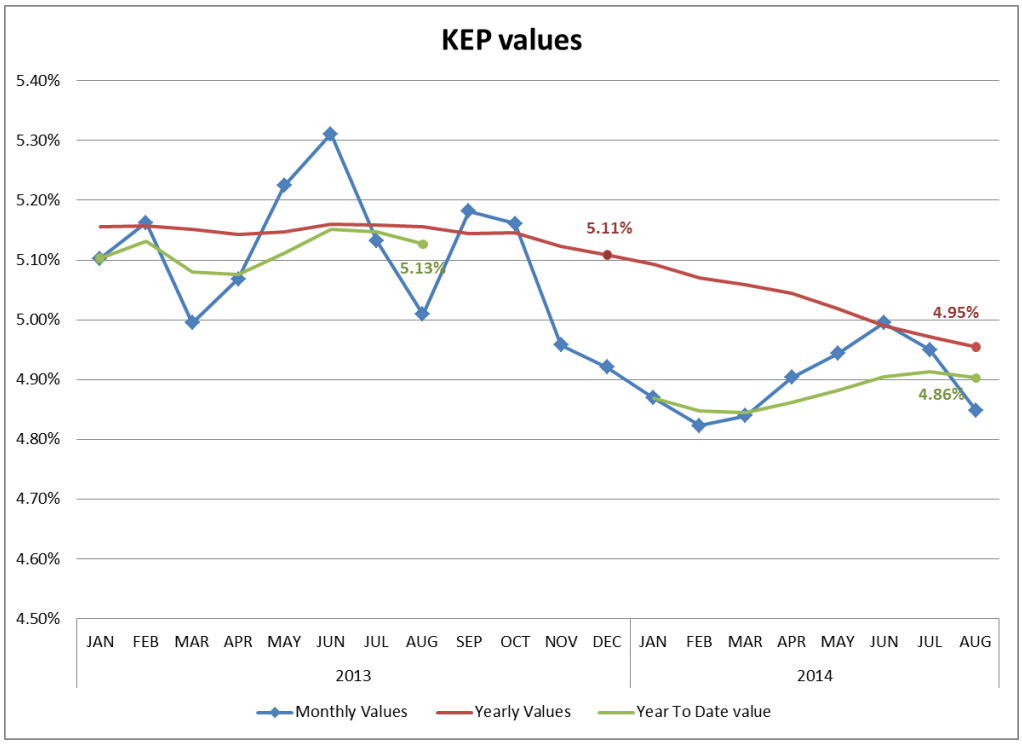


Figure 50: Evolution of the flight-efficiency indicator in 2013 and 2014

8.1.3 The figure above shows the evolution of the flight efficiency indicator in 2013 and 2014. There is a marked improvement in the first eight months of 2014, going from 5.13% in 2013 to 4.86% in 2014.

8.1.4 The 12 months moving average, though, shows that the current value is equal to 4.95%, well above the target of 4.67%. Assuming a similar improvement in performance (for each month, a 0.27 percentage points improvement with respect to the same value of the year before) for the remaining months of 2014, the indicator for the full year would be 4.90% (this result is calculated based on an increase of kilometres flown similar to that experienced in the first eight months -- around 8% -- but is valid for an increase up to 35%).

8.1.5 It therefore seems very unlikely that the target for the Reference Period (4.67%) will be met.

CAPACITY

8.1.6 Based on the year-to-date traffic volumes (January-August) there has been an increase in traffic of 2.0% from 2013 levels. However, as can be seen from Figure 51, the average daily flights are still below the traffic levels of 2012 and are well below the traffic levels of 2008.

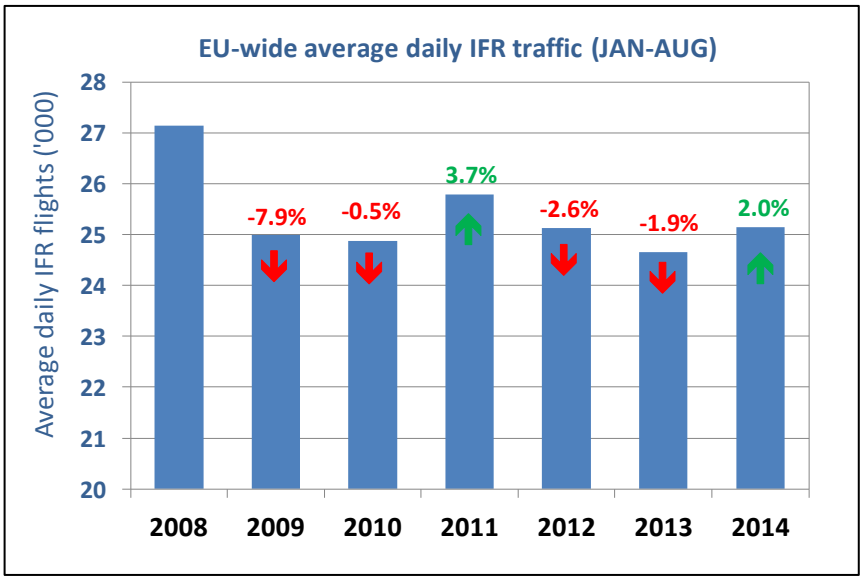


Figure 51: Average daily IFR flights

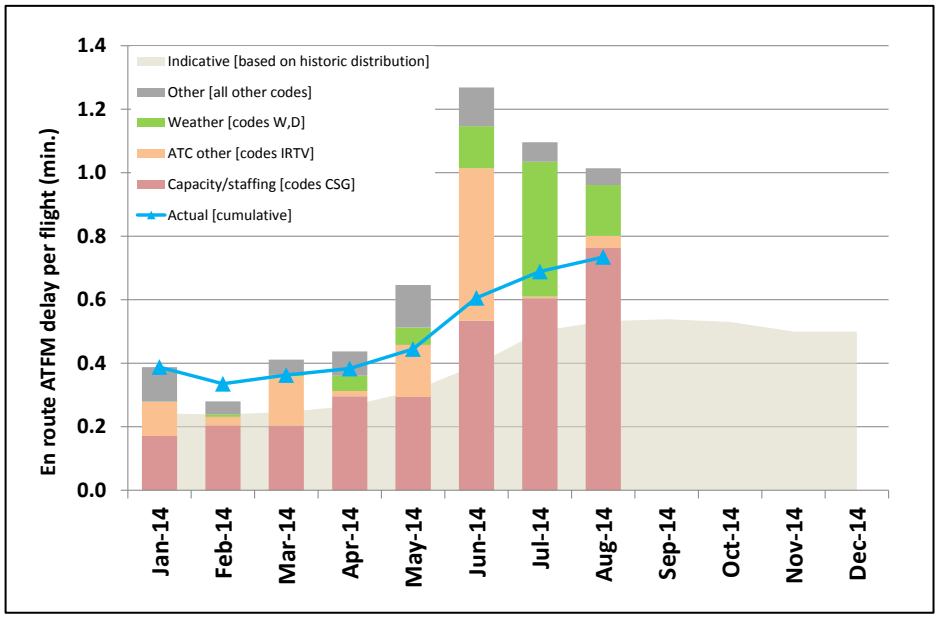


Figure 52: En-route ATFM delays

8.1.7 As shown in Figure 52, monthly delays are presented in individual columns. The beige shaded area represents the expected development of the cumulative delay per flight over the 12-month period, if it were to meet the union-wide target of 0.5 minutes ATFM en-route delay per flight. This is based on historic trends for both traffic development and associated delays.

8.1.8 The blue series represents the actual cumulative delay to date (January-August). By the end of August, it had reached 0.73 minutes per flight. When compared to the expected value of 0.53 minutes per flight, it is obvious that en-route capacity is not in line with the Union-wide target for 2014.

8.1.9 It is notable that the Network Operations Plan, 2013-2015 published in February 2013 cautioned that *"…provided that ANSP capacity plans are not downgraded, en-route ATFM delay will be … just at the target set for the year 2014*."

8.1.10 Unfortunately, as is evidenced elsewhere in this report, and detailed in Volume II, several of the ANSPs did indeed downgrade their existing capacity plans.

9 PRB Recommendations to the European Commission

RECOMMENDATION 1 – SAFETY MANAGEMENT SYSTEMS
The PRB advises the EC to request the States to invest additional effort in the final year of RP1 to achieve higher levels of safety management.
Rationale: The PRB acknowledges the improvements made in safety management. The verified results of the EoSM questionnaires for States still show that their implementation of safety management principles is below that of ANSPs.

RECOMMENDATION 2 – RAT SEVERITY METHODOLOGY
The PRB advises the EC to ask States to make further efforts to enhance their reporting and application of the RAT methodology by seeking, planning and providing training for this matter.
Rationale: There have been relatively small improvements in the application of RAT severity methodology. States requiring support in applying severity classification using the RAT methodology should contact EUROCONTROL DPS/SSR.

RECOMMENDATION 3 – AST MECHANISM
The PRB advises the EC to request States to improve the completeness of safety data reported via the AST mechanism. The current lack of completeness diminishes the capability of safety analysis at European level.
Rationale: When analysing safety data from the AST reporting mechanism, it is observed that the ATM Occurrences contribution data is left blank in 8% of the reported incidents and that data related to the aircraft involved is not available for roughly 50% of operational occurrences. This type of data is not sensitive and does not fall under the issue of Just Culture. Therefore, it is evident that built-in lack of interest from data providers appears as a more realistic reason for incomplete reporting. As a consequence, this lack of completeness of AST data diminishes the capability of safety analysis at European level.

RECOMMENDATION 4 – JUST CULTURE
The PRB advises the EC to request States to make the investment necessary for the effective implementation of the JC policy. In particular, the PRB stresses the importance of systematically including JC elements in training curricula.
Rationale: Some improvements were made in Member States' and their ANSPs' reporting on the level of presence and corresponding level of absence of a Just Culture (JC), when compared with the first year of RP1.

RECOMMENDATION 5 – PROTECTION OF REPORTERS

The PRB advises the EC to request the States to make every possible effort to encourage the conclusion of the necessary arrangements in order to have cooperation between the relevant actors involved in safety investigation.

Rationale:

The PRB notes with concern that a vast majority of ANSPs have reported that there is no agreement in place with the judicial/police authorities to ensure the protection of reported incident data and the individuals involved.

Having such agreements will allow the States and the ANSPs to clarify their responsibilities and ensure the adequate protection of a reporter or a person mentioned in occurrence reports, thereby ensuring compliance with Regulation (EU) No 376/2014 and Regulation (EU) No 996/2010.

RECOMMENDATION 6 – FLIGHT EFFICIENCY

The PRB advises the EC to request the NM to continue and expand those activities which have led to the marked improvements in the latter part of 2013 so as to ensure that the Flight Efficiency target of 4.67% can be reached by end 2014.

Rationale:

This recommendation takes into consideration the monthly Flight Efficiency values and the widening gap between the values monitored and the indicative profile towards the target

RECOMMENDATION 7 – SCOPE OF THE SECOND ENVIRONMENT PERFORMANCE INDICATOR

The PRB advises the EC to request the Member States to review the impact of allocating or activating individual restricted or segregated areas on either the available ATC capacity, or on the availability of route options within the relevant airspace.

Rationale:

This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid. The PRB considers this to be a fundamental element of reviewing the application of FUA by the Member States, to improve both flight efficiency and capacity performance.

RECOMMENDATION 8 – REPORTING ON ENVIRONMENT INDICATOR

The PRB advises the EC to clarify to Member States that the reporting requirement for the "effective use of civil military airspace structures" performance indicator relates exclusively to all restricted or segregated areas, which the Member States have identified as having an impact on available ATC capacity, or on available route options within the relevant airspace.

Rationale:

This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

RECOMMENDATION 9 – RISK TO EN-ROUTE CAPACITY PERFORMANCE

The PRB advises the EC to request the Member States to immediately review the en-route capacity performance for 2014, including planned capacity levels, implementing remedial actions where necessary, to ensure that their respective ANSPs meet the required level of capacity performance to achieve the Union-wide target of 0.5 minutes ATFM delay per flight for 2014.

Rationale:

In view of the latest ANSP capacity plans as published in the recent Network Operations Plan 2014-2019 (June 2014), combined with the latest en-route capacity performance, the PRB considers that there is a serious risk that annual values in some performance plans, and the union wide en-route capacity target as a whole, will be missed for 2014. Article 17 (1,3) of Regulation 691/2010 stipulates that when such a risk exists, the Member States should report on their remedial actions to achieve the requisite level of capacity performance in 2014.

RECOMMENDATION 10 – CAPACITY PERFORMANCE AND REMEDIAL ACTIONS

The PRB advises the EC to remind Member States of their obligation to report on the specific remedial actions being taken with their ANSPs to ensure that the 2014 annual values in their performance plans and the union-wide en-route capacity target of 0.5 minutes per flight will be achieved.

Rationale:

Article 17 of Regulation 691/2010 requires Member States to report to the Commission on monitoring and remedial actions to achieve the performance targets.

RECOMMENDATION 11 – CAPACITY BENEFITS FROM FLEXIBLE USE OF AIRSPACE

The PRB advises the EC to request Member States, particularly those States experiencing capacity issues, to review their application of the FUA concept in accordance with the governing principles of FUA as contained in Article 3 of EC Regulation No. 2150/2005, with the aim of meeting the needs of all airspace users.

Rationale:

This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid. The PRB considers that such a process should include a review of the impact of segregated and restricted areas on ATC capacity and available route options for general air traffic, as recommended in section 3.5.

RECOMMENDATION 12 – UPDATE TO MILITARY DIMENSION OF THE PERFORMANCE PLAN

The PRB advises the EC to invite Member States to notify the Commission when the review of the application of FUA results in increased capacity for general air traffic, in accordance with section 5 of Annex V, Regulation (EU) N° 691/2010.

Rationale:

This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

RECOMMENDATION 13 – NETWORK MANAGER

The PRB advises the EC to invite the Network Manager to work with those Member States experiencing capacity issues to implement remedial capacity enhancements as soon as possible, with the aim of meeting the Union-wide target for capacity in RP1.

Rationale:

This recommendation was made last year, in the PRB Annual Monitoring Report 2012, and it remains valid.

RECOMMENDATION 14 – AIRPORT CAPACITY

The PRB advises the EC to request those States where data deficiencies prevent the calculation of the additional ASMA and/or taxi-out time indicators to urgently implement the remedial action plan established by the EUROCONTROL's Performance Review Unit.

Rationale:

Certain data (CPRs, RWY, stand and out-off-on-in time stamps) are essential for the calculation of additional ASMA and/or taxi-out times. Without them, the calculation is not possible. However, there are still a few cases of substantial non-compliance with the data provision requirements of the performance Regulation.

RECOMMENDATION 15 – COST-EFFICIENCY

The PRB advises the EC to request the States to reconsider downwards the levels of Determined Costs in the early years of RP2 in the light of the actual performance achieved in 2013, for both the en-route and terminal charging zones.

Rationale:

Annex IV of Regulation 390/2103, which sets the criteria for assessing Performance Plans, emphasises that performance in the previous reference period needs to be taken into account in assessing Performance Plans for the next reference period. The cost-efficiency performance improvements achieved in the first two years of RP1 in the form of lower cost-bases needs to be carried forward in RP2. Determined Costs for RP2 should reflect these lower costs so that lower user charges may be set in RP2.

RECOMMENDATION 16 – CAPITAL EXPENDITURE

The PRB advises the EC to request the Member States to provide transparency on those investments non-realised in 2012 or 2013 and carried over into the last year of RP1 (2014) or to RP2 years (2015-2019) and show that there is no risk of double charging of airspace users.

Rationale:

A considerable part of the capital expenditure (CAPEX) planned for 2012 and 2013 in the RP1 Performance Plans has been cancelled and/or postponed. In the context of Determined Costs, the unit rates charged to airspace users include determined depreciation costs and the cost of capital. At this stage, it is not clear whether some investment plans presented in the RP1 National Performance Plans might have been overestimated including the associated depreciation costs (see Volume 3 - Report on Capital Expenditure 2013). The PRB considers that if the corresponding planned capital projects are not implemented, these will not result in the expected operational and economic benefits to airspace users.

RECOMMENDATION 17 – CAPITAL EXPENDITURE

The PRB advises the EC to request Member States to adequately relate CAPEX to the IDP and the pilot common project. for the next reporting exercise (on the year 2014).

Rationale:

The PCP has been adopted on 27 June 2014 through Regulation (EU) No 716/2014. It is a crucial element of SESAR deployment and appropriate investments should start now if full performance benefits are to be delivered on time. Whilst it was impossible to expect such reporting in the previous years, such reporting should start being detailed in 2015 on the 2014 year and pave the way to RP2 reporting. Furthermore the PCP prerequisites have been identified in the PRB report on 2013 performance. NSA reporting reporting should follow at the same level in 2014.

Annex I Airport data quality issues in 2013

FAB	Country Name	AIRPORT NAME	AIRPORT	Data Quality Issue in 2013
FAB - Baltic	Lithuania	Vilnius Intl	EYVI	**Data not provided**
FAB - Baltic	Poland	Warsaw/Okecie	EPWA	**CPR data issue**
FAB - BLUE MED	Cyprus	Larnaca	LCLK	**Only 40% of the departure runway provided**
FAB - BLUE MED	Greece	Athens	LGAV	
FAB - BLUE MED	Italy	Catania Fontanarossa	LICC	**Data provided since septembre 2013 only**
FAB - BLUE MED	Italy	Milan/Malpensa	LIMC	
FAB - BLUE MED	Italy	Bergamo/Orio Alserio	LIME	**Only 65% of departure runway provided**
FAB - BLUE MED	Italy	Milan/Linate	LIML	
FAB - BLUE MED	Italy	Bologna	LIPE	**No departure runway**
FAB - BLUE MED	Italy	Venice/Tessera	LIPZ	
FAB - BLUE MED	Italy	Rome/Fiumicino	LIRF	
FAB - BLUE MED	Italy	Napoli Capodichino	LIRN	
FAB - BLUE MED	Malta	Malta/Luqa	LMML	**No departure runway**
FAB - CE (SES RP1)	Austria	Vienna	LOWW	
FAB - CE (SES RP1)	Czech Republic	Prague/Ruzyne	LKPR	
FAB - CE (SES RP1)	Hungary	Budapest/Ferihegy	LHBP	
FAB - CE (SES RP1)	Slovakia	Bratislava Ivanka	LZIB	**No departure stand**
FAB - CE (SES RP1)	Slovenia	Ljubljana	LJLJ	**No departure runway**
FAB - DANUBE	Bulgaria	Sofia	LBSF	
FAB - DANUBE	Romania	Otopeni-Intl.	LROP	**AOBT issue**
FAB - FABEC	Belgium	Brussels	EBBR	
FAB - FABEC	France	Lyon/Sartolas	LFLL	
FAB - FABEC	France	Nice	LFMN	**No arrival/departure runway; no stand information**
FAB - FABEC	France	Paris/Charles-De-Gaulle	LFPG	
FAB - FABEC	France	Paris/Orly	LFPO	
FAB - FABEC	France	Basle/Mulhouse	LFSB	
FAB - FABEC	Germany	Schoenefeld-Berlin	EDDB	
FAB - FABEC	Germany	Frankfurt	EDDF	
FAB - FABEC	Germany	Hamburg	EDDH	
FAB - FABEC	Germany	Cologne/Bonn	EDDK	
FAB - FABEC	Germany	Dusseldorf	EDDL	
FAB - FABEC	Germany	Munich	EDDM	
FAB - FABEC	Germany	Nurenberg	EDDN	
FAB - FABEC	Germany	Leipzig/Halle	EDDP	
FAB - FABEC	Germany	Stuttgart	EDDS	**No departure runway**
FAB - FABEC	Germany	Hanover	EDDV	
FAB - FABEC	Luxembourg	Luxembourg	ELLX	**Only 50% of departure stand provided**
FAB - FABEC	Netherlands	Amsterdam	EHAM	
FAB - FABEC	Switzerland	Geneva	LSGG	
FAB - FABEC	Switzerland	Zurich	LSZH	

FAB	Country Name	AIRPORT NAME	AIRPORT	**Data Quality Issue in 2013**
FAB - NE	Estonia	Tallinn	EETN	**Data not provided**
FAB - NE	Finland	Helsinki-Vantaa	EFHK	
FAB - NE	Latvia	Riga Intl	EVRA	
FAB - NE	Norway	Bergen/Flesland	ENBR	**No departure runway**
FAB - NE	Norway	Oslo/Gardermoen	ENGM	**No arrival/departure runway**
FAB - NE	Norway	Trondheim/Vaernes	ENVA	**No departure runway**
FAB - NE	Norway	Stavanger/Sola	ENZV	**No departure runway**
FAB - SW	Portugal	Porto	LPPR	
FAB - SW	Portugal	Lisbon	LPPT	
FAB - SW	Spain Canarias	Las Palmas	GCLP	
FAB - SW	Spain Canarias	Tenerife Sur/Reina Sofia	GCTS	
FAB - SW	Spain Canarias	Tenerife Norte	GCXO	
FAB - SW	Spain Continental	Alicante	LEAL	
FAB - SW	Spain Continental	Bilbao	LEBB	
FAB - SW	Spain Continental	Barcelona	LEBL	
FAB - SW	Spain Continental	Ibiza	LEIB	
FAB - SW	Spain Continental	Madrid/Barajas	LEMD	
FAB - SW	Spain Continental	Malaga	LEMG	
FAB - SW	Spain Continental	Palma De Mallorca	LEPA	
FAB - SW	Spain Continental	Valencia	LEVC	
FAB - SW	Spain Continental	Sevilla	LEZL	
FAB - UK-Ireland	Ireland	Dublin	EIDW	
FAB - UK-Ireland	United Kingdom	Birmingham	EGBB	
FAB - UK-Ireland	United Kingdom	Manchester	EGCC	
FAB - UK-Ireland	United Kingdom	Bristol/Lulsgate	EGGD	
FAB - UK-Ireland	United Kingdom	London/Luton	EGGW	
FAB - UK-Ireland	United Kingdom	London/Gatwick	EGKK	
FAB - UK-Ireland	United Kingdom	London/City	EGLC	
FAB - UK-Ireland	United Kingdom	London/Heathrow	EGLL	
FAB - UK-Ireland	United Kingdom	Newcastle	EGNT	**Data quality issue (AOBT), and missing data (DRWY)**
FAB - UK-Ireland	United Kingdom	Aberdeen	EGPD	
FAB - UK-Ireland	United Kingdom	Glasgow	EGPF	
FAB - UK-Ireland	United Kingdom	Edinburgh	EGPH	
FAB - UK-Ireland	United Kingdom	London/Stansted	EGSS	
FAB DK-SE	Denmark	Copenhagen/Kastrup	EKCH	
FAB DK-SE	Sweden	Gotenborg/Landvetter	ESGG	**No departure runway**
FAB DK-SE	Sweden	Stockholm/Arlanda	ESSA	

Table 18: Airport data quality issues in 2013 per FAB

Annex II Estimated economic surplus for the en-route activity for the main ATSPs

Estimated surplus for the en-route activity for the main ATSPs at individual level	2012P	2012A	2013P	2013A	2014P	2014A
Austria (Austro Control)	2.2%	7.0%	2.7%	9.6%	2.8%	
Belgium-Luxembourg (Belgocontrol)	5.9%	10.6%	5.1%	4.2%	4.6%	
Bulgaria (BULATSA)	12.7%	18.7%	13.0%	22.2%	12.9%	
Cyprus (DCAC Cyprus)	6.8%	9.5%	6.8%	10.7%	6.8%	
Czech Republic (ANS CR)	10.1%	14.0%	9.9%	12.3%	9.9%	
Denmark (NAVIAIR)	3.7%	7.9%	3.5%	11.1%	3.5%	
Estonia (EANS)	11.6%	10.8%	10.0%	16.4%	8.7%	
Finland (Finavia)	2.3%	0.1%	2.5%	5.2%	2.5%	
France (DSNA)	1.5%	4.6%	1.5%	1.8%	1.6%	
Germany (DFS)	2.9%	-0.8%	2.8%	3.0%	2.9%	
Greece (HCAA)	2.4%	5.4%	2.4%	5.8%	2.4%	
Hungary (HungaroControl)	4.2%	7.4%	5.4%	12.9%	6.1%	
Ireland (IAA)	5.4%	14.9%	5.4%	16.9%	5.0%	
Italy (ENAV)	5.3%	9.5%	5.6%	11.3%	5.5%	
Latvia (LGS)	7.0%	7.4%	4.8%	8.8%	4.9%	
Lithuania (Oro Navigacija)	5.5%	7.2%	5.1%	3.7%	4.7%	
Malta (MATS)	1.8%	15.0%	0.7%	1.2%	3.3%	
Netherlands (LVNL)	0.0%	-2.2%	0.0%	-5.8%	0.0%	
Norway (Avinor)	3.2%	9.0%	3.5%	-2.7%	3.7%	
Poland (PANSA)	3.9%	10.0%	4.1%	15.2%	0.4%	
Portugal (NAV Portugal)	3.1%	7.9%	3.2%	8.7%	3.3%	
Romania (ROMATSA)	8.6%	-4.5%	8.2%	6.7%	7.7%	
Slovakia (LPS)	6.6%	5.7%	7.3%	8.8%	6.9%	
Slovenia (Slovenia Control)	4.3%	14.3%	4.2%	7.5%	3.8%	
Spain (AENA)	5.6%	9.9%	5.6%	18.4%	5.7%	
Sweden (LFV)	1.9%	6.0%	2.0%	9.8%	2.1%	
Switzerland (Skyguide)	2.0%	0.2%	1.9%	8.7%	1.8%	
United Kingdom (NATS)	7.7%	11.4%	7.5%	6.5%	7.4%	

Table 19: Estimated economic surplus for the en-route activity for the main ATSPs

References

[1] http://prudata.webfactional.com/Dashboard/eur_view_2013.html

[2] Commission Implementing Decision of 11 March 2014 setting the Union-wide performance targets for the air traffic management network and alert thresholds for the second reference period 2015-19 (Text with EEA relevance) (2014/132/EU)

[3] As presented in the PRB Annual Monitoring Report 2012

[4] These airports are Stuttgart, Tallinn, Newcastle, Luxembourg, Bergen/Flesland, Oslo/Gardermoen, Trondheim/Vaernes, Stavanger/Sola, Gotenborg/Landvetter, Vilnius Intl, Larnaca, Nice, Catania, Bergamo/Orio Alserio, Bologna, Ljubljana, Malta/Luqa, Otopeni-Intl., Bratislava Ivanka.

[5] Implementing Regulation (EU) No 716/2014 of 27 June 2014, OJEU 28.5.2014, L190 p. 19

[6] http://www.eurocontrol.int/sites/default/files/content/documents/official-documents/reports/2013-essipreport.pdf

[7] MUAC completion: BE, NL, LU counted as completed the objective.