PRB | Performance review body of the single european sky

Performance Review Body
Advice on the Union-wide targets for RP4

Annex I – Comment response document

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1 INTRODUCTION

1 In accordance with Article 9 (2) of the Implementing Regulation (EU) 2019/317 (herein referred to as the Regulation), the Commission shall consult stakeholders and other relevant organisations on the indicative Union-wide target ranges.

2 The PRB advice on the Union-wide target ranges for RP4 was published on 29th September 2023. Stakeholders were subsequently consulted through an online survey (open from 4th October 2023 to 1st December 2023) as well as during an event in Brussels held on 8th November 2023. In addition, there were follow-up discussions with six ANSPs and associated NSAs within the consultation process.

3 This Annex provides responses to the comments received from stakeholders during the consultation process.

4 This Annex to the PRB advice on Union-wide targets for RP4 consists of the following sections:

- Section 2 highlights the results of the online survey;
- Section 3 outlines the questions and comments received during the stakeholder consultation event of 8th November 2023;
- Section 4 includes the position papers received.

2 SURVEY

2.1 Overview

5 Following the publication of the PRB advice on the Union-wide target ranges for RP4 report, the Commission launched an online survey to collect feedback from stakeholders.

6 The consultation of stakeholders is part of the process leading to the adoption of Union-wide targets. The responses to the survey have been taken into consideration by the PRB in advising on the RP4 targets.

7 The survey was open from the 4th October 2023 to the 1st December 2023 and the Commission received a total of 47 responses:

- 24 ANSPs, including one association;
- Five airlines, including two associations;
- 16 NSA and Member State representatives; and
- Two professional staff representative bodies.

8 Respondents were asked to indicate which stakeholder category they identified with from the list above. This categorisation was used by the PRB to organise the comments received during the consultation process. Stakeholders were provided with a set of questions for each KPA and provided with an opportunity to add additional comments. In some instances, the PRB received multiple responses from the same stakeholder. For transparency purposes, these have been indicated with a number (e.g. 1 or 2) following the organisation's name.

9 The following sections provide the details on the questions posed and the responses received for each of the KPAs.

2.2 Safety

10 This section presents all the questions provided on the safety KPA included in the survey. This is followed by tables including all comments received. Four questions were asked:

- Question 3.1: To what extent do you agree with the PRB objective on safety for RP4?
- Question 3.2: To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area safety?
- Question 3.3 A: To what extent do you agree with the proposed approach? (Alignment EoSM and CANSO Standard of Excellence in Safety Management)
- Question 3.3 B: To what extent do you agree with the proposed approach? (Reflect regulatory requirements with the minimum maturity level)

Question 3.1

11 Safety remains of paramount importance in RP4. The safety KPA enables to monitor and drive further improvements in safety performance, control the impact from widespread changes to ATM functional systems, and improve regulatory compliance. In Question 3.1, respondents were asked "*To what extent do you agree with the PRB objective on safety for RP4?*".

12 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

13 Figure 1 shows the distribution of replies. The majority of stakeholders (41) agreed with the PRB objective on safety for RP4 (33 fully agreed and eight agreed to some extent). Two respondents disagreed to some extent. When analysing the responses by stakeholder category, 21 ANSPs agreed with the PRB objective for RP4 (19 fully agreed and two agreed to some extent), while two ANSPs disagreed to some extent. All the other stakeholders agreed with the PRB objective (14 fully agreed and six agreed to some extent).

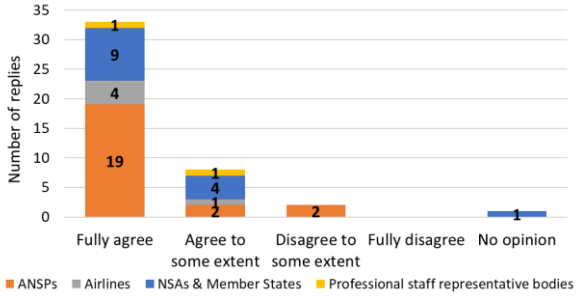

Figure 1 – Number of replies to question 3.1 "To what extent do you agree with the PRB objective on safety for RP4?" (source: PRB elaboration).

14 Individual comments received are listed in Table 1 (next page). 29 out of 47 respondents made a comment on the question, out of which:

- 16 ANSPs, including one association;
- Four airlines, including three associations;
- Seven NSA and Member State representatives; and
- Two professional staff representative bodies.

3.1 To what extent do you agree with the PRB objective on safety for RP4?	
Stakeholder	Comment
Airline (IATA)	Regulatory compliance should not just progress, but simply be achieved. We understand that this is truly the intention, although this should be achieved already through regulatory enforcement (penalties, suspension of certificates…), not through target setting. Improving safety levels is also supported, therefore the targets need to reflect the right level of ambition. For a European environment, strongly monitored and regulated, supposedly the safest in the world, the targets should be more ambitious than in RP3, and more similar to RP2's where most Management Objectives (MOs) already targeted D levels. We propose RP4 targets that aim to regain the level set by RP3 targets by mid RP4 (2027), and to target D levels for one or two additional MOs by 2029.
Airline (ERA)	Focus should be on SMS
Airline (Easyjet)	KPA needs to be clear – it is not about accidents per flight it is about implementation of SMS.
Airline (A4E)	KPA needs to be clear – it is not about accidents per flight it is about implementation of SMS.
ANSP (Polish Air Navigation Services Agency)	We agree that safety in ATM/ANS is paramount and therefore the industry should aim to maintain high safety level and improve it wherever necessary. Therefore in principle ambitious safety targets, similar to the ones applicable in RP3, can be supported, provided that they are set at realistic level and widely perceived by the industry as achievable so that the industry can commit to achieving them. RP4 targets should also correspond to latest developments and current practices. Due consideration should also be given to any additional costs stemming from increased safety targets (to be taken into account in the cost-efficiency KPA).
ANSP (ROMATSA)	Safety always remains paramount. ANSPs have a very good record in this regard, as acknowledged by the PRB Monitoring Report 2022. To keep this level of safety and the corresponding compliance within a more exigent framework, has its costs – and this will need to be considered in RP4 as an interdependency
ANSP (NAV Portugal E.P.E)	NAV Portugal fully agrees that safety should be at the core of all activities and services provided by ANSPs. Considering that the new version of the EASA WG (Sept 2023 - April 2024) will update the EoSM Safety Management Questionnaire for ANSPs to a more demanding and ambitious one, and that this questionnaire is not yet available, we can only assess the proposed target ranges once the revised EoSM questionnaire is available. Given the excellent safety record of ANSPs, it seems reasonable to maintain the targets set for RP3 also for the RP4 period, taking into account that these targets will be more ambitious than the previous ones. In this sense, it seems reasonable to start RP4 one level down to ensure a direct alignment between the level of ambition of the two questionnaires.
ANSP (ENAV)	EoSM is, at the moment, the best method to monitor Safety and foster improvements in this area. If we really want to achieve these objectives we must avoid the questionnaire expands too much.
ANSP (EANS)	Safety remains paramount in the aviation industry. ANSP has a very good record in this regard.
ANSP (DSNA)	We fully agree with this philosophy. However, in order to reach the target, important investments will be needed (both financial and human resources) and there is absolutely no means of making these investments priority to those needed to reach other RP4 targets (such as capacity for example). Since Safety KPA only addresses the SMS and NOT the actual safety level of day to day operations, the investments needed will probably never be considered as a priority.
ANSP (BULATSA)	Safety always remains paramount. Implementation of new technical and operational solutions shall be made only when safety is fully guaranteed.
ANSP (CANSO)	Safety always remains paramount. ANSPs have a very good record in this regard, as acknowledged by the PRB Monitoring Report 2022.
ANSP (ANS CR)	The safety KPA, as defined today and as it is expected for RP4, doesn't really drive further improvements – from our perspective. For those who take part, the driver for safety management improvement (not "safety performance improvement") is CANSO Standard of Excellence in Safety Management (SMS SoE). The performance scheme SKPIs – only EoSM today – are

	always behind the latest SoE version. ANSPs with mature safety management systems cannot wait for the next RP (and next EoSM). On the other hand, EoSM could help (drive improvements for) those with less mature safety management. Taking EoSM as a driver for improvement is also hard when both SKIPs and the related targets have always (for every RP so far) been set too late with regard to the start of the relevant RP.
ANSP (LFV)	Safety always remains paramount. ANSPs have a very good record in this regard, as acknowledged by the PRB Monitoring Report 2022.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: Safety remains paramount, primary task and top focus for ANSPs. The achievements of ANSPs are very solid in this KPA, but we would like to draw EC's attention that safety cannot be compromised and it requires constant effort (including financial - through investments into proper and modern technologies, human resources, etc.)
ANSP (AIRNAV)	Safety always remains paramount. ANSPs have a very good record in this regard, as acknowledged by the PRB Monitoring Report 2022.
ANSP (skeyes)	Safety always remains paramount. ANSPs have a very good record in this regard, as acknowledged by the PRB Monitoring Report 2022.
ANSP (Skyguide)	Safety Performance is already very high. Seeking further improvements to the level of safety, while ensuring compliance to more and more regulations might not be realistic in the currently challenging economic situation.
ANSP (Avinor)	Safety is paramount.
ANSP (NAVIAIR)	The Danish ANSP supports the incentive to maintain ambitious safety objectives.
Member State (Germany)	The response is subject to the concrete wording of the revised EoSM questionnaire (not yet available, see also main report on page 10).
Member State (Netherlands)	The principle to improve safety is supported. As there are no details on the new questions or what they will cover it is not possible to assess the usefulness of the new questionnaire. The treatment of states that have not met the RP3 level is not logic and in our understanding not justified. Safety is of paramount importance and all stakeholders/states should be treated equal.
Member State (Spain)	Spain is fully committed to achieve the maximum possible safety objectives. Both ENAIRE and the rest of Spanish organizations involved, will work during this RP4 to maintain the excellent levels of safety obtained during the current reference period.
NSA (France)	We agree that safety remains paramount for RP4. However, PRB proposal does not provides "ranges" but a final explicit target. It is very difficult to correctly assess the PRB proposal without the final new questionnaire made available to stakeholders. It should also be noted that the EoSM KPI is quite heavy and does not help to identify evolutions needed to the SMS for mature ANSPs.
NSA (Poland)	The KPA Safety cannot be negatively affected by any activity related to remaining KPAs.
NSA (Italy)	The evolution of the new questionnaire, bringing it closer to the Standard of Excellence proposed by CANSO, is considered to be appreciable, consistent with the reality and with the organizational and training perspectives of an ATS unit. EOSM is, at the moment, the best method to monitor Safety and foster improvements in this area. If we really want to achieve these objectives we must avoid the questionnaire expands too much.
NSA (Germany)	We agree with this general objective and therefore would have appreciated more transparent information and consideration in regards to interdependencies between all KPAs which are not explained, justified or presented in detail. Just briefly mentioned. Also interlinks to CP1 are not shown or analysed in the reports even though new technologies may bear the risk of not being sufficiently mature or proven and therefore might risk safety performances.
Professional staff representative body (IFATCA)	We need to be ambitious on the safety, and the targets might be sufficient.
Professional staff representative body (ATCEUC)	The argumentation provided in the PRB report is understood and supported nevertheless the revised EoSM questionnaire is not available. More ambitious target for safety is important, the proposal to better integrate fatigue risks is interesting and will be looked at carefully. Proper consultation needs to be organized to evaluate the consequences of new safety ambitions.

	What is going to be the level of additional resources for safety departments within ANSPs necessary to comply with new targets? What are the consequences on staff rostering? These questions will have to be answered after publication of the new questionnaire

Table 1 - Comments received on question 3.1.

PRB analysis

15 Overall, stakeholders agree with the objectives upon which PRB and EASA proposed the targets for RP4, i.e. that safety is paramount and that safety performance, where possible, should be improved during RP4. Stakeholders highlight that, although safety levels are at a high level, they agree that further improvements should be sought.

16 The comments to this survey question raise two main issues:

- Safety Management as KPA; and
- Intermediate RP4 targets and more demanding RP4 targets.

17 Some stakeholders emphasised the importance of clarifying that the KPA relates to the maturity of safety management systems and not to the rate of accidents per flight. On the other hand, other stakeholders stated that a KPI related to Runway Incursions (RIs) and Separation Minima Infringements (SMIs) could be discussed if rates are comparable from Member State to Member State through the use of automated tools.

18 One stakeholder argued that ensuring regulatory compliance as part of the RP4 EoSM questionnaire is inappropriate as compliance with regulatory requirements should be achieved irrespectively. They argue that targets could be set to be more demanding. The stakeholder suggested setting intermediate targets to ensure that RP3 targets are regained the third year of RP4 (2027) and that further improvements are mandated till the end of RP4 to reach maturity level D on additional management objectives.

19 There were some additional comments on the cost of safety and that the RP4 EoSM questionnaire was not available to support the assessment of the proposed targets. Both these aspects have been addressed under question 3.2.

PRB response

20 On the first concern raised regarding the clarity of the KPA relating to the maturity of safety management, the PRB notes that the performance and charging scheme defines that the safety KPA covers the maturity of safety management, not to the rate of accidents per flight. Rates of incidents are lagging indicators used for performance monitoring to identify trends (positive or negative).

21 The PRB and EASA would not recommend setting targets on occurrence rates even where comparable rates could be established as there would be a risk that using occurrence rates as targets may affect the level of occurrence reporting and/or the classification hereof as safety related (i.e. would undermine the reporting culture in Member States and ANSPs). These types of indicators tend to reduce safety to accountancy without representing the external and difficult influences on safety performance. The PRB has monitored the use of automated safety recording tools and not much progress has been observed over RP2 and RP3 in the use of such tools. This may be related to the cost of their implementation and use. It could also be related to safety culture concerns and the fact that automatically recorded data cannot be used without contextual data from the pilot or controller.

22 On the proposal to implement intermediate RP4 targets, the PRB notes that the RP4 EoSM questionnaire will be more challenging, hence achieving the same level of maturity in RP4 as in RP3 will be more demanding. Between RP2 and RP3, the EoSM questionnaire also became more demanding. The levels achieved in one reference period should not directly be compared to another reference period as the EoSM questionnaire must evolve with each successive reference period.

23 In addition, regulatory compliance (i.e. the regulated safety minimum) should not be confused with safety performance as in the performance scheme. Safety performance measurement in this case is not just measuring the basic lagging indicators, it is setting higher levels of safety achievement or preparedness that will bolster the resilience of the organisation against the demands and pressures of increased levels of performance in the non-safety KPAs that are beyond the normal evolution of the system.

24 During RP2 the EoSM questionnaire was defined with five maturity levels (A to E) which was reduced to 4 (A to D) for RP3 and RP4. Hence, having a target for RP2 at level D did not represent the best achievable maturity level under the EoSM. For RP4, a level D will be the best achievable and setting targets at this level should be done with careful consideration. The PRB considers that the proposed targets for RP4 do represent an important improvement compared with RP3 targets.

25 As EoSM targets are, as per the Regulation, set at the end of RP4, ANSPs have the option to start at a lower level of maturity for RP4 than they can achieve (i.e. disregarding the maturity level achieved at the end of RP3).

26 All stakeholders agreed that safety is paramount and that safety performance should, where possible and reasonable, continue to improve. The PRB expects that the ANSPs and NSAs will ensure that the maturity of the safety management system will not degrade irrespective of the way the maturity is measured. The PRB also expects that the ANSPs will consider the actual/planned achievements at the end of RP3 against the RP4 EoSM and use this as starting level for RP4. This will still enable the organisation to incrementally progress to the end-of-RP4 targets and in balance with the other KPAs. The PRB will assess for each ANSP (and based on the ANSPs' self-assessment of their minimum maturity levels for RP3), where the ANSP should start RP4 and use this expected level when assessing the RP4 draft performance plans.

27 Where the revision of the EoSM is fully covered by regulatory requirements, which already should be complied with by the ANSP, the PRB is expecting that compliance is achieved at the beginning of RP4.

Question 3.2

28 To ensure safety levels are retained and where possible improved, targets need to be set to ensure continued improvements of safety performance. In Question 3.2, respondents were asked "*To what extent do you agree that the methodology and argumentation provided in the PRB report supports the proposed target in the key performance area of safety*?".

29 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

30 Figure 2 shows the distribution of replies. In total, 22 stakeholders agreed that the methodology and argumentation provided in the PRB report supports the proposed targets in the key performance area of safety (10 fully agreed and 12 agreed to some extent), while 19 respondents disagreed (14 disagreed to some extent and five fully disagreed). When analysing the responses by stakeholder category, the majority of ANSPs disagreed while all airlines and the majority of NSA and Member State representatives agreed. One professional staff representative body agreed that the methodology and argumentation provided supports the proposed target.

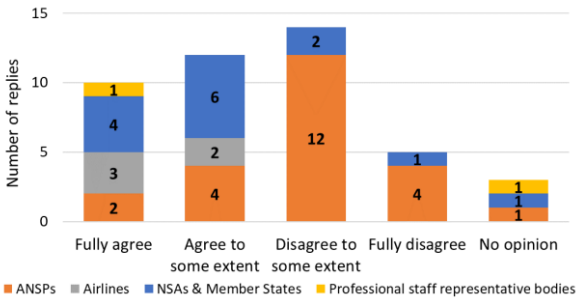

Figure 2 – Number of replies to Question 3.2 "To what extent do you agree that the methodology and argumentation provided in the PRB report supports the proposed target in the key performance area of safety?" (source: PRB elaboration).

31 Individual comments are listed in Table 2 (next page). 30 out of 47 respondents made a comment on the question, out of which:

- 20 ANSPs, including one association;
- Two airlines, including two associations; and
- Eight NSA and Member State representatives.

3.2 To what extent do you agree that the methodology and argumentation provided in the PRB report supports the proposed target in the key performance area of safety?	
Stakeholder	Comment
Airline (IATA)	IATA agrees that targets should not fall below previously achieved levels. Achieving level D in some additional MOs, should be possible, as it has been in RP2 and RP3 for many ANSPs. While IATA applauds that the questionnaire itself increases ambition, we believe that targeting only level C in most MOs, when in RP2 most targeted a D, is not fully consistent with the objective of setting progressively stretching but achievable targets. The PRB monitoring reports 2021 and 2022 indicate that recovery to previous EoSM levels was achievable in less than five years for many (16/36 ANSPs already achieved all the targets in 2022, 27 reached a minimum of C in all MOs. In Annex I, Table 2 shows that some ANSPs could be set back to B or even A levels, which raises concern. Are B levels reflective of the present safety level in Europe?
Airline (ERA)	Support RP4 targets that should aim to regain the level set by the target in RP3 targets mid reference period.
ANSP (FABEC)	The availability of the revised EoSM questionnaire is scheduled for "late 2023" (Report, item 33). Consequently, the detailed requirements for achieving the proposed maturity levels and the challenges associated with meeting the additional requirements of the new areas are so far still unknown. Without this information, it becomes impossible to comprehend the proposed targets (EoSM maturity levels). We therefore can only provide our assessment of the proposed targets upon availability of the finalized EoSM questionnaire. To keep the current high level of safety does require measures that come at a cost, which are likely to increase when considering e.g. more ambitious targets, compliance with (EU) regulation 2017/373 (e.g. Occurrence and change management), etc.
ANSP (Polish Air Navigation Services Agency)	While striving to achieve and maintain the agreed safety levels, targets set in this area have to be realistic and achievable. This element can be assessed using new EoSM questionnaire and guidance once they are made available (these are not available yet). Situation when more ambitious targets are set without knowing what the exact level is to be achieved (what elements need to be ensured to reach the target level) should not take place. Therefore final EoSM target setting for the safety KPA for RP4 should take place based on review of the new questionnaire and maturity levels defined therein. Nevertheless, it is important to verify the feasibility of using EASA threats listed in the European Aviation Safety Plan (EPAS) and related SPI levels, as well as national safety programs and plans and national SPIs in this case. Control of risks and trends in identified risk areas would indeed be the tangible safety indicator.
ANSP (ROMATSA)	We should bear in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: • Investigations – when traffic increases and becomes denser, there are likely to be more occurrences to be investigated. • The new EoSM questionnaire which contains more difficult questions – more effort needed (law of diminishing returns) • The need to have more people to meet the targets • Compliance with Regulation 2017/373 since it entered into force in 2020, with different costs between Member States. All this will need to be considered in RP4 as an interdependency and guidelines should be provided.
ANSP (NAV Portugal E.P.E)	The proposals lack sufficient justification or substance as to how operational stakeholders will be able to meet the targets. While the existence of interdependencies between the four key performance areas is recognised, it is not clear how the interdependencies between the proposed (ranges of) KPIs will be assessed and reflected. For example, it should be borne in mind that maintaining a high level of safety and compliance may have a direct impact on the cost side. This may be due to the new EoSM questionnaire, which has a higher level of ambition than the previous one, and/or the increased level of compliance with Regulation 2017/373, which may require more resources at the organisational level. All this will need to be considered as interdependencies for RP4.
ANSP (LVNL)	The (detailed) requirements for achieving the proposed maturity levels and the challenges associated with meeting the additional requirements of the new areas are still unknown. Without this information, it becomes impossible to comprehend the proposed targets (EoSM maturity levels). Conducting a consultation on the proposed targets without access to the questionnaire is not feasible.
ANSP (ENAV)	It should be borne in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: • Investigations – when traffic increases and

	becomes denser, there are likely to be more occurrences to be investigated. • as the complexity of air traffic management also increases overruns and the costs to effectively manage the entire SMS (e.g. Change Management) increase. • The new EoSM questionnaire which contains more difficult questions – more effort needed (law of diminishing returns) • The need to have more people (Safety Specialist/Actors) to meet the targets • The level of compliance with Regulation 2017/373, entered into force in 2020, is naturally growing with growing NSAs expectation and with different costs between Member States. All this will need to be considered in RP4 as an interdependency. Will PRB provide guidelines on this?
ANSP (ENAIRE)	Continued safety improvement is necessary, but the cost (resources) associated have to be proportionate /reasonable.
ANSP (EANS)	Continued improvements of safety performance has its costs.
ANSP (DSNA)	The only target (EoSM) covers the SMS maturity but fails to highlight the safety level of day to day operations. It also fails to reflect the risk exposure. The resources required to answer EoSM questionnaire are disproportionate and it could be more useful to spend some of these resources to measure the level of safety of operations.
ANSP (BULATSA)	Maintaining high safety levels and the corresponding required compliance is accompanied with its costs. In order to meet higher safety requirements and targets, there will be a need of additional highly qualified staff. All this will need to be considered in RP4 as an interdependency.
ANSP (CANSO)	It should be borne in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: - Investigations – when traffic increases and becomes denser, there are likely to be more occurrences to be investigated. - The new EoSM questionnaire which contains additional, more demanding questions – more effort needed - The need to have additional resources, including people, to meet the targets - Compliance with Regulation 2017/373 since it entered into force in 2020, with different costs between Member States. - The high pace of EASA regulation development, which creates a constant challenge to meet relevant compliance. The resources needed to analyze, administrate and implement such compliance will eventually be in contrast to the constant requirements of improved effectiveness. All this will need to be considered in RP4 as an interdependency with analysis of impact on cost-efficiency targets. Will PRB provide guidelines on this?
ANSP (ANS CR)	Neither PRB, nor EASA has ever measured “safety levels” and have never set any targets to these (which is considered good or correct). Any target regarding safety levels would lead to unwanted behaviour (e.g. changes in occurrence classification to meet the targets etc.), leading to less information about safety and damaging safety culture. Please note that both SoE and EoSM are not about “safety” – the focus is on “safety management”.
ANSP (LFV)	It should be borne in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: - Investigations – when traffic increases and becomes denser, there are likely to be more occurrences to be investigated. - The new EoSM questionnaire which contains additional, more demanding questions – more effort needed - The need to have additional resources, including people, to meet the targets - Compliance with Regulation 2017/373 since it entered into force in 2020, with different costs between Member States. - The high pace of EASA regulation development, which creates a constant challenge to meet relevant compliance. The resources needed to analyze, administrate and implement such compliance will eventually be in contrast to the constant requirements of improved effectiveness. All this will need to be considered in RP4 as an interdependency with analysis of impact on cost-efficiency targets. Will PRB provide guidelines on this?
ANSP (AVINOR)	Maintaining the high level of safety can be a source of increased cost and should be taken into account when considering interdependencies.
ANSP (AB Oro Navigacija)	Lithuanian ANSP’s view: as stated earlier, reaching high safety standards does not come for granted, therefore requires constant focus, investments and consideration of various factors like traffic increase, new requirements (set in EoSM questionnaire), the need of additional human-resources to ensure fulfilment of all the requirements, etc. It is important to be able to manage these interdependencies in clear and measurable way.
ANSP (AIRNAV)	AirNav Ireland will prioritise safety irrespective of the safety target setting process overseen by the PRB.

ANSP (skeyes)	It should be borne in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: • Investigations – when traffic increases and becomes denser, there are likely to be more occurrences to be investigated. • The new EoSM questionnaire which contains more difficult questions – more effort needed (law of diminishing returns) • The need to have more people to meet the targets • Compliance with Regulation 2017/373 since it entered into force in 2020, with different costs between Member States. All this will need to be considered in RP4 as an interdependency. Furthermore, the availability of the revised EoSM questionnaire is only scheduled for ""late 2023"" (Report, item 33). Consequently, the detailed requirements for achieving the proposed maturity levels and the challenges associated with meeting the additional requirements of the new areas remain unknown.
ANSP (DFS)	In principle, we agree with the methodology and argumentation described by PRB. However, it should be respected, that the revision of the RP4 EoSM questionnaire (see question 3.3) is currently (as of mid-Oct 23) only just being prepared. A reasonable assessment of the suitability of the proposed target values (1x “D”, 4x “C”) can only be made once the actual requirements for the maturity levels have been determined in the revised RP4 questionnaire.
ANSP (Skyguide)	The availability of the revised EoSM questionnaire is scheduled for "late 2023" (Report, item 33). Consequently, the detailed requirements for achieving the proposed maturity levels and the challenges associated with meeting the additional requirements of the new areas are so far still unknown. Without this information, it is impossible to comprehend the proposed targets (EoSM maturity levels). We can therefore only provide our assessment of the proposed targets upon availability of the finalised EoSM questionnaire.
ANSP (NAVIAIR)	The Danish ANSP awaits the determination of requirements for reporting on achievement of the objectives. This is in order to be able to estimate the potential for improvement of flight safety, and additional resource needs to meet the reporting requirements.
Member State (Netherlands)	The evidence presented does not support this particular conclusion. The crucial part to maintaining safety is to always incorporate it in analysis of changes to the system. The interaction with the other three key performance areas, particularly the changes stemming from them, is what will ensure maintained and improved safety.
Member State (Spain)	Spain agrees that safety improvement is necessary, but it must be associated to specific economic resources.
NSA (Cyprus)	Air traffic is forecast to increase and therefore the "pressure" to achieve the delay targets will also increase. This could potentially have safety implications. It is necessary to establish a meaningful association between the different areas: Example "number of safety occurrences associated with traffic overloads (i.e. when declared capacity was exceeded or "% of costs allocated to the increase of ATC sectors"). In addition, it should be noted that safety shall not be compromised through implementation of insufficiently proven and insufficiently mature technologies and operational solutions. Therefore, it would be beneficial to receive additional explanations from PRB whether f all factored in CP1 benefits have been analysed considering the impact on safety.
NSA (France)	As said above, the first methodological flaw is the absence of the revised EoSM questionnaire which does not help to assess the proposed methodology. This is also an issue because new topics such as fatigue risk management were not covered in RP3 questionnaire. The basic assumption to adapt the final 2024 targets reached by all ANSPs by one level in 2025 is not supported and considered too simplistic and make the comparison between RP3 and RP4 to be viewed cautiously; in addition, it does not capture differences in SMS maturity levels at local levels for different ANSPs which will be ranked at the same level. Defining targets helps pushing ANSPs to be in a mindset which drives safety improvement. Nevertheless, currently, targets are only associated to EoSM but not to KPIs like RIs & SMIs. There could be a brainstorming about defining targets for those KPIs, but first, they should be comparable from one State to another (i.e. use automatic tools to detect SMIs for example)
NSA (Poland)	The progress should be in line with the previous RPs achievements. It is a matter of importance to use during RP4 methods of assessment and indicators comparable to the previous periods.

NSA (ENAC)	It should be borne in mind that maintaining high safety levels and the corresponding required compliance has its costs. This can be due to: Investigations – when traffic increases and becomes denser, there are likely to be more occurrences to be investigated; as the complexity of air traffic management also increases overruns and the costs to effectively manage the entire SMS increase; The new EoSM questionnaire which contains more difficult questions – more effort needed (law of diminishing returns); The need to have more people (Safety Specialist/Actors) to meet the targets; The level of compliance with Regulation 2017/373. All this need to be considered in RP4 as an interdependency. We hope PRB will provide guideline on this. We also believe that the costs that achieving a higher level of safety required should be evaluated. These costs should be, at least in part, not counted in the total actual costs. This approach would encourage investment in safety.
NSA (Switzerland)	As a general comment, FOCA welcomes the future application of a revised EoSM as the current questionnaire has shown its limitations. However, at this point in time, it is difficult to assess the effects of the revised questionnaire, which will be made available only by the end of 2023. Therefore, it is not possible to comment on its content and on the safety objectives in detail itself. It will be key to learn as soon as feasible about the detailed requirements for achieving the proposed safety Management Objectives, their maturity levels and the challenges associated with meeting them.
NSA (Germany)	It is not clear why there are targets and no ranges provided. In the main report it is stated that the revised EOSM questionnaire will be available late 2023. Therefore, for the time being it is not possible to get an opinion on the requirements for the maturity levels without knowing the new questionnaire and its AMC/GM. It should be mentioned in advance that proceeding of EASA in preparing and creating the questionnaire is not satisfactory, as instead of opening for the matter for discussion with all relevant stakeholders and member states, EASA picked participants for the working group. Only in a very late state, the questionnaire was distributed for comments, when general orientation and setup had already been decided. In the main report in No 35 PRB makes an interpretation with no proper argumentation. Maybe the targets were not too unambitious but rather ANSPs focused on a very good performance. In the main report in No 44 PRB is stating that an ANSP is assumed to start RP4 one level lower than when ending RP3. The impact of this general assumption is unclear. Even worse, the way we understand it, ANSPs not achieving the targets for RP3 for Management Objectives other than safety risk management would start RP4 with the same maturity level. This blurs the picture of ANSPs performances. The approach is not properly justified and cannot be supported. Moreover, it is considered over simplistic. It punishes a good performance towards the end of RP3 in regards to targets of RP4 while gratifying poor performance in RP3. Apart from this, our experts would be happy to discuss, how SAF can be promoted without major duplication of efforts between the implementing regulations (EU) 2017/373 and (EU) 2019/317.

Table 2 - Comments received on question 3.2.

PRB analysis

32 There was mixed feedback from stakeholders: Some agreeing to the approach, while others disagreeing.

33 Comments were raised on the following topics:

- EoSM questionnaire not being available to support assessment of the RP4 proposed targets;
- Translation of maturity levels between RP3 and RP4;
- Degrading maturity levels;
- Interdependencies (mainly cost).

34 Most stakeholders argued that since the RP4 EoSM questionnaire was not available, was not possible to assess the proposed targets and consequences in particular on their realism and achievement. These stakeholders also noted that improvement of safety and ensuring regulatory requirements comes with a cost, which needs to be taken into consideration for the target setting. Stakeholders further argued that how the interdependency with targets proposed for other KPAs have been considered is unclear, particularly the impact on cost-efficiency.

35 Additionally, comments were raised that the method used by the PRB to translate maturity levels between the RP3 and RP4 EoSM questionnaires was too simplistic. Some argued that this could potentially blur the picture of ANSPs' performances and could be seen as punishing a good performance towards the end of RP3 while gratifying poor performance in RP3. This is related to the comments that the translation could be seen as reducing the requirements. Stakeholders suggested setting intermediate targets to ensure ANSPs regain RP3 levels during RP4 and reach more demanding levels end of RP4.

36 Some stakeholders noted that the maturity achieved during RP3 should not be allowed to degrade because a revised EoSM questionnaire is being introduced.

37 Finally, several stakeholders argued that the PRB did not clearly explain how the interdependency between the KPAs have been used to define targets for safety.

PRB response

38 The PRB provided its response on the degrading maturity levels in a previous reply. It is not expected that ANSPs and NSAs will degrade the maturity of the safety management as this would be detrimental to the objective that all stakeholders agree to (i.e. safety is paramount and should continue to improve).

39 While recognising that the RP4 EoSM questionnaire was not available yet for stakeholders' consultation, the ANSPs should, in general, be familiar with the CANSO SoE as this was developed by ANSPs under the CANSO framework. ANSPs should also be familiar with European standards in the different areas of the EoSM questionnaire and should have a good basis on which to give a qualified view on the proposed targets (with the necessary reservation against the final wording of requirements and the supporting guidance). Finally, ANSPs and NSAs were part of the EASA S(K)PI drafting group drafting the RP4 EoSM questionnaire and have been able to influence the scope of the requirements and the guidance material.

40 A draft RP4 EoSM questionnaire was provided, as planned, to the Commission in December 2023. This version covered all the five management objectives and the related guidelines. The EASA S(K)PI drafting group (involving ANSPs, NSAs, and social partner organisations) provided a revised draft EoSM questionnaire for the EASA managed stakeholder consultation. This gave the stakeholders the option to consider the revised draft RP4 EoSM questionnaire against the proposed targets and to raise any concerns. As part of the disposition of the stakeholder comments, EASA considered the comments and amended the revised draft RP4 EoSM questionnaire, if comments were agreed. In this regard, the PRB and EASA have used the outcome of the EASA stakeholder consultation and the final RP4 EoSM questionnaire for the target setting for RP4 and reconsidered the proposed targets where needed. The final RP4 EoSM questionnaire and associated guidance became available in early March 2024 before the final targets for RP4 are to be agreed.

41 The PRB accepts that the translation was simple, but it was done to provide a view of the minimum maturity level ANSPs would start at when applying the RP4 EoSM questionnaire. The translation gave a view of how much more demanding the questionnaire was assessed to be.

42 Comparing performance across reference periods should be done with caution as the EoSM evolves with each successive reference period, reflecting the dynamic nature of the system. Each reference period should be viewed separately. The PRB does not support the view that a translation of the maturity levels would punish good performance or allow poor performance. All ANSPs are measured against the same SMS requirements (both in RP3 and in RP4) and have to reach the targeted maturity levels as measured using the respective EoSMs. The SMS requirements are the five EoSM management objectives appearing in the related reference period implementing regulation. These objectives remain stable across reference periods, while the requirements supporting each objective evolve. This practice is mirrored by industry stakeholders.

43 As targets for a reference period are set for the last year of the period, ANSPs could theoretically propose a lower level of maturity than what they actually achieved during RP3 (e.g an ANSP could theoretically propose starting at level A for RP4 even though they achieved level D in RP3 for the same management objective). This could equally be done for management objectives where the EoSM requirements have not changed between RP3 and RP4. The option to set a degraded performance exists irrespective of revising the EoSM and irrespective of any translation done as targets are not defined annually.

44 ANSPs that do not reach RP3 targets at the end of RP3 will have an even more demanding challenge during RP4 as they will have to implement those improvements not implemented during RP3 in addition to the additional improvements required during RP4. This should be an encouragement to the ANSPs to do their utmost to reach the targets rather than roll-over effort to the next reference period. ANSPs performing well in RP3 and exceeding the RP3 targets may see their maturity level reduced when starting RP4 due to more demanding EoSM requirements, but these ANSPs will have less effort to improve their maturity levels. Therefore, the scheme will benefit good performers during RP3. Any degradation may be viewed as a perception and not the actual situation. It is incumbent on both ANSPs and NSAs to manage this perception. As noted under question 3.1, the PRB expects that the maturity of the ANSPs safety management system is robust enough to not degrade performance between RP3 and RP4. The PRB is expecting the ANSPs, the NSAs, and the Member States to ensure that the performance plans correctly reflect the actual level the ANSPs can achieve when using the RP4 EoSM questionnaire based on their final RP3 performance.

45 The PRB recognises that ensuring a continued high level of safety has a cost for the ANSPs, which could increase for RP4. The PRB considers that the cost to sustain the current level of safety and performance is already included in the ANSP cost base. Moreover, the PRB considers that the additional effort required to ensure a safe introduction of changes to the ANSPs ATM functional systems, introduction of airspace changes, etc., will be included in the ANSP cost base, and assessed as part of the cost-efficiency KPA.

46 The PRB recognises that, where the RP4 EoSM questionnaire is more demanding than the current one, some additional cost may be foreseen. However, such costs are negligible compared to the magnitude of the cost base.

47 Finally, interdependencies have been considered from the view of how potential developments in the other three KPAs could affect safety and how the safety KPA could be used to protect against an impact on safety margins. This has been achieved through the revision of the EoSM adopting a more modern approach to safety management, reflecting current regulatory requirements, and setting targets at a level of maturity ensuring improvements implementation.

Question 3.3 A

48 The PRB and EASA propose the EoSM questionnaire to be aligned with the CANSO Standard of Excellence (SoE) in Safety Management (CANSO SoE, revision February 2023) to reflect more modern safety management approaches and avoid duplication of effort. In Question 3.3, respondents were asked "*To what extent do you agree with the proposed approach?*".

49 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

50 Figure 3 shows the distribution of the replies. The majority of stakeholders (33) agreed with the proposed approach (27 fully agreed and six agreed to some extent), while two respondents disagreed to some extent. When analysing the responses by stakeholder category, 20 ANSPs agreed with the proposed approach, while one disagreed. 11 NSA and Member State representatives agreed, while one airline agreed to some extent, and one disagreed to some extent. One professional staff representative body fully agreed with the proposed approach.

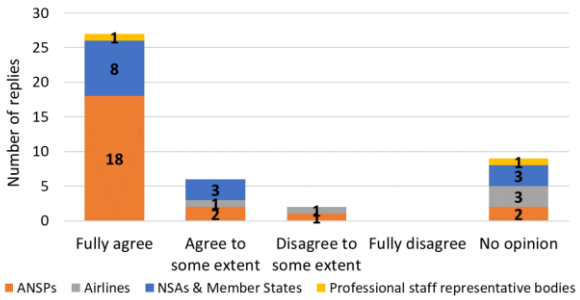

Figure 3 – Number of replies to Question 3.3 A "To what extent do you agree with the proposed approach? (CANSO SoE alignment)" (source: PRB elaboration).

51 Individual comments are found in Table 3 (next page). 17 out of 47 respondents made a comment on the question, out of which:

- Nine ANSPs, including one association;
- One airline association; and
- Seven NSA and Member State representatives.

3.3 To what extent do you agree with the proposed approach? (CANSO SoE alignment)	
Stakeholder	Comment
Airline (IATA)	Recurrently it seems that the EoSM questionnaire changes based on CANSO modifications of SoE. The measuring tool and targets are, therefore, to a great extent bottom-up and ANSP-driven. It would make more sense to derive CANSO tools from EASA's modification on the regulatory tools (e.g the questionnaire) rather than the other way round. Also, from one reference period to another we should avoid additional requirements making ANSPs fall back one level from no matter what level they have. It might be sensible that this only happens with the highest levels (D, E), to avoid giving the impression that Europe falls back in safety to level B and it is permanently challenging to reach a C. As per Annex I paragraph 29 EASA will take care to "avoid unrealistically onerous requirements" and adapt them to the maturity levels. This supports the airlines' view that it should be possible to target for level D in more than one MO by 2029
ANSP (Polish Air Navigation Services Agency)	Actions aimed at streamlining processes used under the Performance Scheme with those developed and validated by the industry are welcome as they also support avoiding duplication of effort at the ANSPs' side. RP4 targets should also correspond to latest developments and current practices
ANSP (Port Lotniczy Bydgoszcz S.A.)	We would like to draw your attention to the importance of providing air navigation service providers affected by the safety performance targets with specific information regarding planned changes to the structure of the EoSM survey, which is the basis for assessing the levels of safety provided. Without this, it is impossible to properly refer to the proposed level of objectives for the fourth reference period, because it is not known what level of security they will actually define
ANSP (LVNL)	Aligning with CANSO SoE helps to avoid duplication of effort. The stated largely consistent with SoE remains an unknown entity since there is no concept PRB EoSM.
ANSP (ENAV)	We should prevent the questionnaire expands too much. Aligned with SoE, doesn't mean we have to transform the SoE scale (from A to E) into the EoSM one (from A to D) and thereby importing unsustainable goals and/or taking advantage to expand the questionnaire to non-direct related safety areas such as quality or quality audits.
ANSP (DSNA)	Fully agree to align both questionnaires. However, the target for performance plan will be difficult to reach if level E SoE questions are set to reach level D in EoSM. EoSM questionnaire should be supported by the same tool as SoE's (Power Apps)
ANSP (ANS CR)	Unfortunately, based on available information (via CANSO), EoSM will not be fully aligned with CANSO SoE. When it is only "largely consistent", it requires additional effort to identify the differences and find and justify all the different answers. Moreover, the related processes are very different – which necessarily creates additional effort. CANSO SoE answers are validated and moderated by EUROCONTROL and CANSO, and the results are influenced by this moderation. In EoSM, the "moderators" are CAs with different knowledge and limited access to good /best practices as shared within EUROCONTROL and CANSO moderators/members
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: It brings coherence and allows avoidance of duplications and use of different sources.
ANSP (Skyguide)	As the content of the new EoSM hasn't been released yet, it is not possible to judge how consistent it will be with the SoE.
ANSP (NAVIAIR)	Naviair awaits the determination of requirements for reporting on achievement of the objectives. This is in order to be able to estimate the potential for improvement of flight safety, and additional resource needs to meet the reporting requirements
Member State (Germany)	The response is subject to the concrete wording of the revised EoSM questionnaire (not yet available, see also main report on page 10).
Member State (Netherlands)	Alignment with CANSO standards is supported. If this will be the case cannot be concluded from the report as no details on the PRB EoSM is given.
NSA (France)	Having a unified questionnaire for EoSM and CANSO Standard of Excellence in Safety Management would avoid duplication of efforts and inconsistencies in the assessment of SMS maturity levels.
NSA (Poland)	Changes concerning many aspects of the air navigation service providers functioning such as the human factor, cybersecurity and changes in legislation (for example implementing Regulation 2017/373) fully justify plans of verification and update the EoSM questionnaire.

	Additionally such update should also take into account the interdependencies between all areas of the performance system. The updated/verified questionnaire will increase the ability for achieving a Safety targets in RP4
NSA (Italy)	We should prevent the questionnaire expands too much. Aligned with SoE, doesn't mean we have to transform the SoE scale (from A to E) into the EOSM one (from A to D) and thereby importing unsustainable goals and/or taking advantage to expand the questionnaire to non-direct related safety areas such as quality or quality audits
NSA (Switzerland)	FOCA supports the future alignment with the CANSO SoE. We positively take note of the alignment of the scoring mechanism with the EASA Management Assessment Tool, which allows the comparison of the results reported via the EoSM questionnaire. This is an important element as currently national interpretations of the EoSM lead to discrepancies in the scoring among ANSPs.
NSA (Germany)	Due to the missing questionnaire there is no possibility to get an opinion. In the main report it is stated that the revised EoSM questionnaire will be available late 2023. Therefore, for the time being it is not possible to get an opinion on the requirements for the maturity levels without knowing the new questionnaire and its AMC/GM. How will PRB solve this lack of information and period of time missing for the proper evaluation of the safety target (range)?

Table 3 - Comments received on question 3.3 A.

PRB analysis

52 All stakeholders are in general supportive of aligning the RP4 EoSM questionnaire with the latest CANSO SoE, however, a few stakeholders also reiterated that it is difficult to assess given that RP4 EoSM questionnaire was not available. A few reservations have been raised covering:

- Too extensive EoSM questionnaire;
- RP3 and RP4 maturity levels;
- Diversion away from the CANSO SoE and disparity of NSA capabilities; and
- EoSM questionnaire not available to support assessment of RP4 targets.

53 Stakeholders argued that the RP4 EoSM questionnaire, when combining the CANSO SoE with the RP3 EoSM questionnaire, may become too extensive (over and above what reasonably should be required).

54 Comments were raised about the fact that the EoSM questionnaire operates with four maturity levels (scale from A to D) while the CANSO SoE operates with five maturity levels (scale from A to E) and the potential that CANSO level E requirements in the EoSM questionnaire will be allocated to maturity level D and give overly demanding requirements.

55 Some stakeholders also commented that the RP4 EoSM questionnaire will differ too much from the CANSO SoE and that the benefit of aligning the two being able to re-use replies developed for the CANSO SoE will be reduced or disappear. This was complemented by additional comments stating that, while the replies to the CANSO SoE is assessed by Eurocontrol and CANSO (moderates), the EoSM questionnaire is assessed by NSAs with different knowledge and different awareness of good/best practices. Hence, an increasing disparity between the CANSO SoE and the RP4 EoSM questionnaire may affect the level of verification of the EoSM.

56 Finally, a few stakeholders addressed the unavailability of the RP4 EoSM questionnaire.

PRB response

57 On the extensive and revised EoSM questionnaire, the PRB notes that, in general, the CANSO SoE addresses at least the same aspects as the RP3 EoSM questionnaire. From this perspective the RP4 EoSM questionnaire would not become more extensive than the CANSO SoE. The CANSO SoE does not necessarily fully address European standards and requirements may have been added (or in most cases revised) to reflect these standards which could lead to more requirements associated with a level. On the other hand, some CANSO SoE requirements were found not to be needed for the RP4 EoSM questionnaire hence removed. Overall, the PRB considers that the RP4 EoSM questionnaire is not more extensive than the CANSO SoE.

58 It is correct that the RP4 EoSM questionnaire operates with four maturity levels (A to D) while the CANSO SoE operates with five levels. As a general principle, when developing the revised EoSM questionnaire, requirements for a particular maturity level in CANSO SoE are retained at the same level. Requirements in the CANSO SoE at level E were in general not retained in the EoSM questionnaire since a best practices level would not be consistent with the methodology of the performance scheme.

59 Regarding the diversion from the CANSO SoE, the PRB notes that the use of the CANSO SoE is voluntary. Thus, for a particular ANSP, there may be or not verified replies to the CANSO SoE. Moreover, some ANSPs are not necessarily familiar with the CANSO SoE and hence would not benefit from an alignment and would not have a moderated assessment of the SoE achievements.

60 The CANSO SoE is not necessarily reflecting European standards and is not reflecting the improvements the PRB and EASA wish to ensure during RP4. Thus, there is a difference between the CANSO SoE and the EoSM questionnaire to support such intentions. Nevertheless, the same or similar justification and evidence will be required for both the CANSO SoE and the EoSM questionnaire. Therefore, it is expected that the verification process may be more rigorous than that performed by CANSO/Eurocontrol. During oversight visits at the ANSPs, NSAs will gain direct knowledge that can be used for the verification of the ANSPs EoSM replies. On the NSA capabilities disparity, the PRB acknowledges that NSAs may have different level of knowledge and capabilities and different awareness of good/best practices. The RP4 EoSM questionnaire includes guidance for almost each requirement, which not only will support the ANSPs when performing their self-assessment but also assist the NSAs when verifying the ANSP assessment.

61 The PRB and EASA response on the availability of the RP4 EoSM questionnaire has been provided in Question 3.2.

Question 3.3 B

62 The PRB and EASA proposed that the EoSM questionnaire is aligned with the CANSO SoE (revision February 2023) and enhanced to better reflect regulatory requirements with the minimum maturity level corresponding to ANSPs being compliant with the requirements. In Question 3.3, respondents were asked "*To what extent do you agree with the proposed approach*?".

63 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

64 Figure 4 shows the distribution of the replies. The majority of stakeholders (30) agreed with the proposed approach (11 fully agreed and 19 agreed to some extent), while four respondents disagreed to some extent. When analysing the responses by stakeholder category, the majority of ANSPs agreed (17), while four ANSPs disagreed to some extent. The airlines, NSAs, and Member State representatives, and the professional staff representative bodies who expressed an opinion, agreed with the proposed approach.

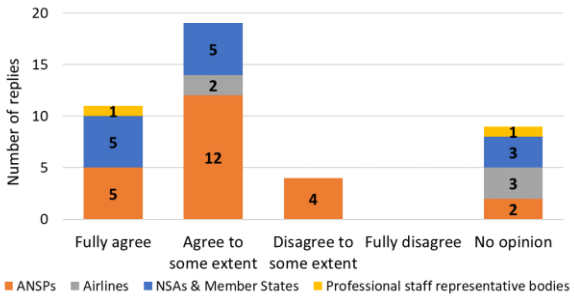

Figure 4 – Number of replies to Question 3.3 B "To what extent do you agree with the proposed approach? (Regulatory requirements)" (source: PRB elaboration).

65 Individual comments are listed in Table 4 (next page). 26 out of 47 respondents made a comment on the question, out of which:

- 17 ANSPs, including one association;
- Three airlines, including two associations; and
- Six NSA and Member State representatives.

3.3 To what extent do you agree with the proposed approach? (Regulatory requirements)	
Stakeholder	Comment
Airline (IATA)	IATA agrees that compliance with the regulatory requirements is the very least minimum to achieve. Noncompliance should have consequences. Enhancement of the questionnaire is supported. However, changes should be commensurate across reference periods to avoid the impression that targets are permanently kept at average levels of ambition. Avoidance of duplication of processes is supported but EASA driving CANSO would be preferable that the other way around
Airline (Easyjet)	The KPAs and related KPIs need to be aligned with the current best practices and consequently reflect changes in SMS systems due to e.g. digitalisation. If the PRB and EASA conclude that the CANSO Standard of Excellence in Safety Management is current best practice, it should be followed.
Airline (A4E)	The KPAs and related KPIs need to be aligned with the current best practices and consequently reflect changes in SMS systems due to e.g. digitalisation. If the PRB and EASA conclude that the CANSO Standard of Excellence in Safety Management is current best practice, it should be followed.
ANSP (Polish Air Navigation Services Agency)	As indicated above, aligning the EoSM with the latest CANSO SoE is supported. However, the targets have to be achievable – and this element can be assessed only when new EoSM questionnaire and guidance are made available (these are not available yet). Situation when more ambitious targets are set without knowing what the exact level is to be achieved (what elements need to be ensured to reach the target level) should not take place. Therefore final EoSM target setting for the safety KPA for RP4 should take place based on review of the new questionnaire and maturity levels defined therein. Due consideration should also be given to any additional costs stemming from increased safety targets (to be taken into account in the costefficiency KPA).
ANSP (ROMATSA)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire gives a lower score then the target should be reconsidered.
ANSP (Port Lotniczy Bydgoszcz S.A.)	The CANSO Standard of Excellence in SMS isn't known by everyone. More time is needed to possibly update the institution's SMS to the new requirements.
ANSP (NAV Portugal E.P.E)	We welcome the alignment with the CANSO Standard of Excellence, but we cannot make a final judgement on the enhanced EoSM against the regulatory requirements until it is finalised (April 2024). However, sufficient time must be given to ANSPs to ensure the transition to full compliance with specific requirements, wherever that may be.
ANSP (LVNL)	Aligning with CANSO SoE helps to avoid duplication of effort. The stated enhancement remains an unknown entity to comprehend since there is no concept PRB EoSM.
ANSP (ENAV)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire sets unsustainable or unrealistic goals and gives a lower score then the target should be reconsidered.
ANSP (ENAIRE)	SoE is more challenging, and the achievement of the targets will suppose more effort/cost for ANSPs.
ANSP (DSNA)	We agree to this approach. EU regulation should be the common base for SMS maturity
ANSP (BULATSA)	Before giving a final opinion we need to see the final version of the questionnaire. We appreciate the efforts for alignment with the CANSO Standard of Excellence.
ANSP (CANSO)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire gives a lower score then the target should be reconsidered.
ANSP (ANS CR)	Any deviations from CANSO SoE would pose an additional burden on ANSPs who would have to fill in 2 different questionnaires. Again, as an ANSP, we see the moderated CANSO SoE as the main driver for improving SMS. Always late and older (and different) EoSM is mostly perceived just as a mandatory exercise with no added value for ANSPs' safety management – provided the given ANSP takes part in CANSO SoE

ANSP (LFV)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire gives a lower score then the target should be reconsidered.
ANSP (AVINOR)	We welcome the alignment but are awaiting the enhanced but not finalized EoSM.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: alignment with the CANSO's Standard of Excellence is welcomed, however, we see the need to study the changes and new requirements of EoSM to be able to discuss targets in relevant way.
ANSP (AIRNAV)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire gives a lower score then the target should be reconsidered.
ANSP (skeyes)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire gives a lower score then the target should be reconsidered.
ANSP (Skyguide)	Aligning the EoSM to the SoE is the right approach as it avoids duplication of work. Depending on the amount of "enhancements" brought afterwards to the EoSM, it might actually take both methods (EoSM/SoE) apart again.
Member State (Netherlands)	Alignment with CANSO standards is supported. If this will be the case cannot be concluded from the report as no details on the PRB EoSM is given.
NSA (France)	We can support the statement if the common understanding is that both questionnaires would be fully aligned, meaning CANSO SoE would be enhanced to integrate compliance with the regulatory requirements so there could be only one questionnaire as already mentioned.
NSA (Poland)	Changes concerning legislation (for example implementing Regulation 2017/373) justify plans of verification and update the EoSM questionnaire. Furthermore, we should consider implementation of the tool to immediate react to the changes in the regulations influencing the KPA Safety in RP4.
NSA (Italy)	We welcome alignment with the CANSO Standard of Excellence, but we can only give final judgement on the enhanced EoSM when it is finalised (April 2024). If the questionnaire sets unsustainable or unrealistic goals and gives a different score then the target should be reconsidered.
NSA (Estonia)	Every alignment of the positions or opinions of different organisations makes it easier to follow
NSA (Switzerland)	FOCA considers it problematic that - as a general rule for the safety target setting in RP4 - an ANSP is assumed to start RP4 one level lower than when ending RP3. This may lead to a situation where one ANSP may barely reach a certain level at the end of RP3 in 2024, whereas another is fulfilling it perfectly - but both will be ranked in the same manner at the beginning of RP4. In another situation, ANSPs not achieving the targets for RP3 for Management Objectives other than safety risk management would start RP4 with the same maturity level. This in practice means that an ANSP reaching level B in Safety Culture at the end of RP3 and thus not achieving the ultimate RP3 target would start at level B in RP4. Another ANSP that has succeeded in reaching the RP3 target by level C would in turn start at level B. This may not incentivize (some) ANSPs to do their utmost for the remainder of RP3

Table 4 - Comments received on question 3.3 B.

PRB analysis

66 All stakeholders are in general supportive of aligning the RP4 EoSM questionnaire with CANSO SoE, to include additional aspects (e.g. human factors, cybersecurity), and to ensure that the RP4 EoSM questionnaire reflects regulatory requirements. However, stakeholders also reiterated that it was difficult to assess, as the RP4 EoSM questionnaire was not available. The replies to this comment can be found in the previous questions.

67 One stakeholder further raised the concern that ANSPs mostly would use the CANSO SoE, as the EoSM questionnaire is always late and always different to the CANSO SoE. It was also argued that EoSM requirement over a reference period is gradually less and less reflecting up-to-date approaches to Safety Management.

PRB response

68 The Regulation does not anticipate or allow for the revision of the EoSM questionnaire to reflect latest development during the reference period. It is important that major indicators, particularly the KPI(s), remain stable to enable coherence.

2.3 Environment

69 This section presents all the questions on the environment KPA included in the survey. This is followed by tables with all comments received. Six questions were asked:

- Question 4.1 A: To what extent do you agree with the PRB objective on environment for RP4?
- Question 4.1 B: To what extent do you agree with this advice? (Environmental incentive scheme)
- Question 4.2: To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of environment?
- Question 4.3: To what extent do you agree with the proposed approach? (ERNIP benefits)
- Question 4.4: To what extent do you agree with the proposed approach? (ENV-CAP interdependency study)
- Question 4.5: To what extent do you agree with the proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)

Question 4.1 A

70 For RP4, the PRB considers the environment KPA as the top priority (safety aside) and advises for ambitious yet achievable target ranges. Reducing CO_2 emissions is a top priority for the European Union and society as a whole. ANSPs need to greatly improve in terms of environment. To this purpose, ANSPs must offer the best level of capacity aiming at reducing excess flight trajectories and enabling emission reductions to reach a higher level of environmental efficiency by the end of 2029. In Question 4.1 A, respondents were asked "*To what extent do you agree with the PRB objective on environment for RP4*?".

71 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

72 Figure 5 shows the distribution of the replies. The majority of stakeholders (30) disagreed with the PRB objective on environment for RP4 (23 disagreed to some extent and seven fully disagreed), while 14 respondents agreed (four fully agreed and 10 agreed to some extent). The majority of ANSPs, NSA and Member State representatives disagreed with the PRB objective on environment for RP4, while the majority of airlines agreed (three agreed to some extent, while two disagreed to some extent). One professional staff representative body fully agreed, while one fully disagreed.

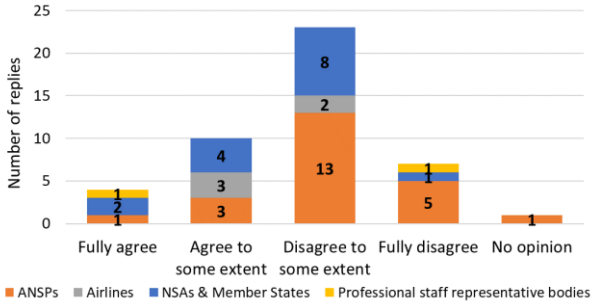

Figure 5 – Number of replies to Question 4.1 A "To what extent do you agree with the PRB objective on environment for RP4?" (source: PRB elaboration).

73 Individual comments are found in Table 5 (next page). 43 out of 47 respondents made a comment on the question, out of which:

- 22 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

4.1 A To what extent do you agree with the PRB objective on environment for RP4?	
Stakeholder	Comment
Airline (Lufthansa Group)	It should be noted that Environment is directly linked to Capacity. Hence prioritization of Environment before Capacity before Cost Efficiency is not adequate. In our opinion these three Key performance areas are equally important. We see that in some cases there is already excess capacity with nearly zero delay and free route airspace implemented, which should then trigger the question if the cost efficiency is also fully met? On the other hand, we see ANSPs that will also during whole RP4 or good parts of it not be able to meet their capacity and environment targets. Those ANSPs should not be allowed to compromise on cost efficiency. For them cost efficiency should be priority number one.
Airline (IATA)	Airlines support that ATM contribution to environment is a priority in RP4, to show the commitment from the aviation sector to the environment. However, the way targets are defined makes room for inefficiency being driven by delay levels, which is a bit contradictory with the proposed approach. Delay is not the only influence factor, although a relationship between lack of capacity and KEA is acknowledged. PRB 2021 monitoring report shows that even exceeding the capacity target (0.32 vs 0.35 min /ft), the KEA target was not met (2,59% vs 2,35%). An optimal KEA level below which we cannot improve has never been officialized, which might be necessary to understand the final goal from a top-down approach. We support the discussion on new indicators which could help to show the stakeholders' commitment to the environment, but in this context of Regulation 2019/317 they should address ANSPs contributions only.
Airline (ERA)	Recognise and support focus and close monitoring on ENV KPA which is a key priority for our airlines. But this priority must be delivered in conjunction with the delivery of the appropriate capacity or the cost effectiveness KPI. They are intertwined.
Airline (Easyjet)	The EC, with the green deal, has made environment one of its top priorities. The Aviation industry is supporting this priority with the D2050 initiative. Consequently, we support the closer monitoring of environmental targets. Where we disagree is to make environment the sole top priority. The challenge for this KPA is that an environmental KPI without the necessary capacity in the correct place is useless. Consequently, there is an unbreakable link between the amount and location where capacity is provided and the achievement of environmental KPI. Furthermore, cost-efficiency cannot be neglected or de-prioritised as well, as this is key to reach the necessary capacity targets. For the industry, and according to the regulatory framework, environmental and economical sustainability are equally important as the latter is required to support the first.
Airline (A4E)	The EC, with the green deal, has made environment one of its top priorities. The Aviation industry is supporting this priority with the D2050 initiative. Consequently, we support the closer monitoring of environmental targets. Where we disagree is to make environment the sole top priority. The challenge for this KPA is that an environmental KPI without the necessary capacity in the correct place is useless. Consequently, there is an unbreakable link between the amount and location where capacity is provided and the achievement of environmental KPI. Furthermore, cost-efficiency cannot be neglected or de-prioritised as well, as this is key to reach the necessary capacity targets. For the industry, and according to the regulatory framework, environmental and economical sustainability are equally important as the latter is required to support the first.
ANSP (FABEC)	PRB designates "KPA Environment" as a top priority, unfortunately without any notable rebalancing of targets against other KPAs. The sole environmental KPI, the KEA indicator, is not adequately within the control of ANSPs. Consequently, targets should not be set at the national or FAB level. Referring to the strategic priority outlined above, we ask you to consider that more capacity likely results in more CO2 emissions. We therefore suggest clarifying with PRB and the EU Commission their aim to improve the efficiency per flight while enabling more flights altogether (as acknowledged in vision 2050). The recognition of interdependencies, especially between ENV and CAP, is appreciated. A big concern however is the lack of recognition in these target range proposals.

ANSP (Latvijas gaisa satiksme)	Being a border state to Russian Federation, diverted flights over Baltic neutral waters and military activity greatly affects the KPA. This is outside the control of a MS. Therefore incentives and vice versa cannot be attributed to one MS only.
ANSP (FABEC)	While PRB designates "Environment" as a top priority without any notable re-balancing against other KPAs, the KEA indicator – as commonly acknowledged - is not adequately within the control of ANSPs. Consequently, targets should not be set at the national or FAB level for the same reason. Assuming that delay could be reduced to the proposed level is unrealistic considering the increasing traffic demand. The increasing traffic increases traffic complexity and thereby reduces HFE KEA performance, even in the hypothetical absence of delay. Funding of capacity increasing measures is certainly required to drive capacity performance improvement
ANSP (Polish Air Navigation Services Agency)	While acknowledging and supporting importance of initiatives improving environmental performance, due consideration must be given to accountability of the players for such expected improvement. It is widely recognised that the environmental KPI under the Performance Scheme, KEA, is largely impacted by elements external to ANSPs and moreover it is not always reflecting the most eco-friendly trajectories. Even in no-delay environment and with FRA implementation, there are multiple external elements that make low KEA value hardly achievable. This has to be duly considered in target setting, which should be based on feasible level of KEA and not aspirational, political goals. Looking at past results, current situation and considering possible improvements, the proposed targets will not be achievable and ANSPs should not be faced with unrealistic targets.
ANSP (ROMATSA)	We urge the Commission to elaborate a better suited indicator for this KPA due to the shortcomings of KEA. KEA is influenced by factors beyond the control of ANSPs: neighbouring airspace unavailability due to conflict, upstream or downstream ATM network inefficiencies, airspace users' performance-driven decisions. The HFE methodology does not differentiate between inefficiencies related to ANSPs and those due to factors not under ANSPs' control. According to analysis of data from PRU portal for daily KEA evolution, we note, after 24.02.2022, increased crossing distance. Traffic flows that were already circumnavigating the conflict area following the events in 2014 have been pushed further to Romania's S-W part with new ones added. This confirms that the geopolitical situation represents an essential trigger for airlines, as safety is paramount. In RP4, achieving KEA will become more challenging due to large scale of military activity, the war in Ukraine and increased weather disruptions.
ANSP (NAV Portugal E.P.E)	NAV Portugal is committed to and supportive of the EU's ambitions regarding the Environment and Climate Action Plan. In this sense, it is not surprising that the PRB gives priority to improving ENV in RP4. However, the actual KEA indicator has a strong correlation with variables outside the control of ANSPs, such as flight planning, meteorological conditions affecting flight trajectories, airspace disruptions caused by various situations (military activities, industrial actions, technical issues) which may undermine the defined objectives for this KPA. For RP4, the achievement of KEA at EU level will be even more challenging, mainly due to geopolitical crises with closure of large parts of the airspace and/or subsequent large-scale military exercises limiting the airspace available for civil traffic, with a strong impact on the target given the forecast traffic growth along RP4.
ANSP (LVNL)	We support the priority that PRB gives to improving ENV, and we acknowledge that environmental performance is partially influenced by the availability of sufficient capacity. However, there are many other factors that influence the KEA indicator, such as airspace reserved for military, airspace users' route choices depending on costs and fuel burns, and significant weather events. Therefore achieving sufficient capacity may not lead to a higher level of environmental efficiency by the end of 2029.
ANSP (ENAV)	Focus on ENV supported. Urge EC for a better indicator due to the shortcomings of KEA: -only considers horizontal distance flown vs geometric, theoretical shortest route, often not environmentally optimal; -Airlines flight planning based on their needs/conditions for their flight economy; -not taking account of airspace configuration, ATC Capacity, met conditions, VFE or diversion of flights from original routes. In RP4, achieving KEA even more challenging: - military exercises more common; -Ukraine war and traffic deviations impacting States and ENV and CAP; - Increased weather phenomena. Link between ENV/CAP (PRB documents para 54), PRB statement questionable and performance targets not realistic, achievement of KEA not a consequence of adequate capacity rather demand value below the expectations when targets

	were set (i.e. before COVID with traffic demand level 40% lower than 2019). Even more important taking into consideration the EC/PRB proposal for applying financial incentives.
ANSP (ENAIRE)	ANSPs are aware of the importance of reducing CO2 emissions, so they are working on projects focused on improving flight efficiency, both horizontal and vertical. However, KEA does not reflect properly the performance of ANSP, as it depends on many factors, most of them outside the ANSP management, whose influence on KEA is rather difficult to quantify objectively (airspace configuration, meteorological conditions, diversion of flights from original routes, different trajectories preferred by airlines (wind/time instead distance), military exercises, FRA, traffic deviations derived from geopolitical conflicts and/or congested areas, NM Measures, among others). Actual relationship KEA vs emissions, which is the main goal, is unknown. In term of emissions the most efficient route may not be the shortest one. Due to the obvious limitations of the KEA indicator, as indicated above, we strongly recommend moving towards indicators based on actual aircraft consumption savings.
ANSP (EANS)	ANSP does not meet the ENV targets until the Ukrainian war lasts. The Ukraine war is causing substantial traffic deviations and deteriorating performance in environment. Achieving average KEA targets is mission impossible. The actual relationship between KEA and emissions, which is the main goal, is not clearly established and must be clarified.
ANSP (DSNA)	DSNA agrees that environmental performance should be a top priority but highlights that the KEA is not optimal to measure an ANSP's environmental performance. Therefore, the PRB should work on adapting it or finding a more suitable KPI that only describes factors that are in the hand of the ANSP, or at least take this problem into account while setting the targets
ANSP (BULATSA)	Environment is very important but safety is paramount. KPIs for Environment must be improved, as those existing today are inaccurate and misleading (e.g. some 80% KEA is related to network effects which are fully out of ANSP control). Very often airlines do not fly using shortest route but optimise on cost index. Furthermore, there is a general problem with the data quality - poor data quality contributes to incorrect values and incorrect targets. We have notified the NM/PRB on numerous occasions on this issue, however no solutions on data improvement has been provided, yet.
ANSP (CANSO)	We support the priority given to ENV, but we question what 'top priority' means if SAF is to remain paramount. We urge the EC to elaborate a better suited indicator due to KEA's shortcomings: - It only considers horizontal distance compared to the shortest route, which is not necessarily environmentally optimal - Airlines file flight plans based on specific daily conditions - KEA is impacted by external factors and takes no account of airspace configuration, MET conditions, VFE or diversion of flights - Its relationship with emissions is not established In RP4, achieving KEA will be even more challenging: - Large scale military exercises will be more common - Ukraine war is causing substantial traffic deviations, deteriorating ENV and CAP performance. We invite PRB to consider all regional cases where reduced traffic does not bring HFE improvements due to geopolitical reasons - Increased weather events will lead more often to suboptimal trajectories and airport disruptions
ANSP (Austrocontrol)	The KEA target are unrealistic and unachievable.
ANSP (ANS CR)	The horizontal efficiency of en-route traffic is the outcome of a process in which aircraft operators, airspace users, national supervisory authorities, ANSPs and others are involved. ANSPs are not "process owners", i. e. in control of the whole process, therefore KEA used as an indicator does not measure their performance, but the performance of a wider system, i.e. European aviation. In that respect, KEA calculations for respective FIRs/ANSPs/countries do not make much sense as they give results related not only to service provision and airspace structures in the respective FIRs along the flights' trajectories, but to a great extent to aircraft operators' strategy/route planning. Moreover, the EC study (The interdependency between the environment and capacity KPIs of the performance and charging scheme of the Single European Sky) shows that the KEA performance in small FIRs is fundamentally influenced by the situation in surrounding FIRs.
ANSP (LFV)	We support the priority given to ENV, but we question what 'top priority' means if SAF is to remain paramount. We urge the EC to elaborate a better suited indicator due to KEA's shortcomings: - It only considers horizontal distance compared to the shortest route, which is not necessarily environmentally optimal - Airlines file flight plans based on specific daily conditions - KEA is impacted by external factors and takes no account of airspace configuration, MET

	conditions, VFE or diversion of flights - Its relationship with emissions is not established In RP4, achieving KEA will be even more challenging: - Large scale military exercises will be more common - Ukraine war is causing substantial traffic deviations, deteriorating ENV and CAP performance. We invite PRB to consider all regional cases where reduced traffic does not bring HFE improvements due to geopolitical reasons - Increased weather events will lead more often to suboptimal trajectories and airport disruptions
ANSP (AVINOR)	We support the priority of the environment. The KEA is however not a suitable indicator as it has several shortcomings.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: the idea itself to prioritize Environment is understandable and welcomed. We also agree on the need to be ambitious and do the utmost to support reduction of environmental footprint, but every requirement must be assigned to an executer in the relevant way: i.e. setting KPIs that are under the executer's (in this case – ANSP's) control, KPI definition based on clear and transparent data, application of more customized (rather than one-size-fits-all) approach considering (among all others factors) geo-political factors, evaluating operational improvements already in place and real potential to reach new objectives. In some regions capacity provision does not guarantee optimal trajectories because of geographical and geopolitical situation. There is the need to require PRB to establish proper KPIs, explain better these KPI's definition and methodology so the ANSP could see clear dependence of historical data, factors considered and suggested new values
ANSP (AIRNAV)	We support the priority given to ENV, but we question what 'top priority' means if Safety is to remain of paramount importance. We urge the Commission to elaborate a better suited indicator for this KPA due to the shortcomings of KEA: • It only considers the horizontal distance flown compared to the shortest route, which is often not environmentally optimal • Airlines file flight plans based on specific flight conditions of the day • KEA is impacted by external factors and takes no account of airspace configuration, MET conditions, VFE or diversion of flights from original routes In RP4, achieving KEA will be even more challenging: • More adverse weather events will lead more often to suboptimal trajectories and airport disruptions • NM is of the view that ANSPs should not always provide direct routes, which can adversely impact on the KEA performance scores. This example alone points to the need for the PRB to fully examine network effects in terms of capacity (and environment by extension) compared to local KEA scores. • AirNav Ireland requests that traffic forecasts and developments during RP3 such as those above are fully and transparently addressed ahead of publishing national reference values for KEA targets.
ANSP (DFS)	We support the priority given to ENV, but we question what "top priority" means if SAF is to remain paramount. ANSPs have the duty to optimise the impact of their actions on the environment. The fact that flight efficiency is improved in terms of optimising trajectories does not necessarily mean that CO2 emissions are reduced. Objectives and targets should be set in line with the aviation decarbonisation roadmap. The flight efficiency ATM delivers, is already close to maximum (HFE ~97% at European level, ~99% at various national levels); further improvements therefore can only be achieved with over-proportional efforts at high cost. DFS welcomes the recognition of interdependencies – especially between ENV and CAP – a big concern however is the fact, that it has not been taken into account in the development of those target range proposals.
ANSP (skeyes)	We support the priority that PRB gives to improving ENV in line with the EU decarbonization goals, but this has been done without any notable re-balancing of targets against other KPAs. The sole environmental KPI, the KEA indicator, is not adequately within the control of ANSPs. Consequently, targets should not be set at the national or FAB level for the same reason. We urge the Commission to elaborate a better suited indicator for this KPA due to the shortcomings of KEA: • It only considers the horizontal distance flown compared to the shortest route, which is often not environmentally optimal • Airlines file flight plans based on specific flight conditions of the day

	• KEA takes no account of airspace configuration, meteorological conditions, VFE or diversion of flights from original routes In RP4, achieving KEA will become even more challenging due to: • Large scale military exercises will be more common, limiting airspace available for civilian traffic
ANSP (Skyguide)	Performance is close to maximum (e.g. HFE-KEA performance within CH FIR is above 99% efficiency). Taking into account the interdependencies between KPAs and the sharing of responsibilities between stakeholders for this performance target, the target to "significantly improve" is not realistic considering the plans of the industry (ICAO LTAG, D2050, Pathway 2050, ...).
ANSP (NAVIAIR)	It is the Danish ANSP's top priority to contribute to the reduction of CO2 emissions from flying and we embrace the continued ambitious objectives on the environment KPA. In 2023 the Danish ANSP experienced lacking capacity which resulted in a lower performance in the KPA than expected. Hence, sufficient capacity is essential to be able to deliver on the KPA, and it is therefore paramount that the Danish ANSP builds up sufficient capacity in RP4. The Danish ANSP expects to be able to achieve ambitious performance on the KPA with increased capacity. With increased resources, the Danish ANSP anticipates initiating a project during the RP4 period dedicated to identifying additional KPI's in areas where the Danish ANSP has the potential to improve environmental performance, thereby contributing to the EU's green agenda. Eventually, the Danish ANSP will discuss KPI suggestions with Trafikstyrelsen - the national civil aviation authority.
Member State (Germany)	The objective to reduce any negative environmental impact deserves strongest support. Nevertheless, within the SES Performance Scheme the well-known limitations of the current indicators in the environmental KPA in terms of validity needs to be addressed in the target setting process. And therefore it is inadvisable to derive the performance of the current KPI monocausally from ANSPs' level of capacity. With the evidence provided in the report doubts and questions remain with regard to the sustainability and feasibility of the proposed target ranges at local level.
Member State (Netherlands)	Agree with importance to prioritise Environment. The link between capacity and KEA is clear. However, KEA is recognised as sub-optimal environmental indicator also in relation to CO2 emission. Specifically when it is used alone. If this is prioritised, including the link to more capacity, this can be detrimental to other Environmental indicators that we may want to use. For example, improvements in vertical flight efficiency may limit increase in capacity. Additionally, KEA is not only dependent on capacity delivered by ANSP but, for example, also on military and airspace user's needs.
Member State (Spain)	Spain would like to highlight that achieving the KEA objective does not imply a direct reduction in CO2 emissions or, may even, increase them because, in terms of emissions, the most efficient route may not be the shortest one. In addition, KEA does not properly reflect the environment KPA and the improvements implemented by the ANSPs because the indicator depends on many factors and actors. Considering this, the objective on environment linked to KEA is not realistic and achievable. However, Spain agrees with PRB in prioritizing the environment KPA and promoting the national ANSPs' projects related to flight efficiency. In this regard, Spain proposes to work on other indicators and objectives related to aircraft consumptions savings and translate these savings into emissions (CO2, NOX…).
NSA (Croatia 1)	Interdependencies between environment and capacity are recognized but this object reflects that the only way of dealing with excess flight trajectories and emissions is to offer best level of capacity. As already elaborated during previous consultation periods for RP3, KEA indicator does not represent the 'best fitted indicator' for measuring ANSP's contribution to the environmental performance as it is achievement is not at full control of ANSP. The Airspace Users plan their optimal trajectories based on specific conditions of the day and the indicator itself does not take into account vertical flight efficiency, airspace configurations and constrained areas on the shortest routes or diversion of flight from original routes. It is not visible from the target setting methodology that possible greater military activity and large scale exercises might have greater effect on the achievement of KEA as on the network level we might have more and more airspace restrictions.
NSA (Cyprus)	The proposed targets may be too ambitious. The EC/PRB should acknowledge that ANSPs have limited control on the flight paths flown by aircraft. Airspace optimisation is generally done

	with the NM involvement, hence ANSPs cannot do much more than what they are already doing and should not be penalised for not meeting the KPI targets.
NSA (France)	It is agreed that there is a clear expectation on environment and that this topic is high in the social and political agenda. It is also recognized that traffic levels, saturated airspaces, network and/or local capacity bottlenecks have to be addressed in order to optimize flight trajectories and reduce the environmental footprint of air traffic control. Nevertheless, the overall PRB proposal does not offer a clear balance against all remaining three KPAs and the current KPI (KEA) has well known limitations and does not allow to measure additional environmental benefits that will be provided by ATC and is highly influenced by other stakeholders (the military, weather, airspace user economic choice). In addition, it doesn't measure most of future benefits that could result in fuel burnt and CO2 emission reduction due to better procedures, vertical efficiency, CCO/CDO implementation etc.
NSA (Poland)	Anthropogenic environmental changes are increasingly affecting the standard of living around the world. All actions taken to limit the destructive impact of human's activity on the environment must be supported by states and by international institutions. Aviation has a significant share in the total pool of pollutants that have a destructive impact on the Earth's atmosphere. To reduce the level of pollutant emissions from the aviation industry, the performance system must immediately join the efforts to protect the environment.
NSA (Italy)	We support the priority that PRB gives to improving ENV, but we question what 'top priority' means if Safety is to remain of paramount importance. We urge the Commission to elaborate a better suited indicator for this KPA due to the shortcomings of KEA: It only considers the horizontal distance flown compared to the geometric distance, the theoretical shortest route, which is often not environmentally optimal; Airlines file flight plans based on specific flight conditions of the day considering their needs and conditions that favour the flight economy as a whole; KEA takes no account of airspace configuration, and availability, ATC Capacity, meteorological conditions, Vertical Flight Efficiency or diversion of flights from original routes. In RP4, achieving KEA will become even more challenging. It isn't so clear that the achievement of the KEA is not a consequence of adequate guaranteed capacity. We consider the performance target values set not adequate as not realistic.
NSA (Estonia)	Safety, environmental and cost efficiency KPAs are codependent of each other and objectives should consider this. Main objective is to find balance between those three areas. While setting KPI`s we should make sure that improvement of the specific area can be done by the state or ANSP. While measuring horizontal flight efficiency the sanctioned air traffic can`t be taken into account (Estonian example of the traffic flying from Russian main land to Königsberg (Kaliningrad)
NSA (Switzerland)	While FOCA agrees with the objective that ANSPs should offer the best level of capacity and simultaneously should aim at offering best possible flight trajectories, we cannot concur with the simplified notion that by providing sufficient capacity ambitious environmental targets can and will be met. The interdependency between ATFM delay and environment as stated in the PRB advice is too simplified. Other factors such as traffic complexity, traffic demand, weather, airspace users' preferences (route charges), size of airspace etc. have a substantial effect on the environment KPA. A thorough understanding of interdependencies between KPAs is key for a meaningful and realistic target setting. Furthermore, KEA is not fully within the control of ANSPs, therefore the accountability (in terms of ENV ambition) cannot solely be attributed to them.
NSA (Croatia 2)	In the performance target setting process PRB can present Environment KPA as a focus area for a target setting, but Safety is always top priority. As already elaborated during previous consultation periods for RP3, KEA indicator does not represent the 'best fitted indicator' for measuring ANSP's contribution to the environmental performance as it is achievement is not at full control of ANSP. The Airspace Users plan their optimal trajectories based on specific conditions of the day and the indicator itself does not take into account vertical flight efficiency, airspace configurations and constrained areas on the shortest routes or diversion of flight from original routes. It is not visible from the target setting methodology that possible greater military activity and large scale exercises might have greater effect on the achievement of KEA as on the network level we might have more and more airspace restrictions.
NSA (Austria)	The targets are considered unachievable, which contradicts the SMART principle for target setting. It is acknowledged in the PRB Report that KEA levels have not been achieved and will

	not be achieved during RP3. Hence starting the RP4 calculation from this target level, results in targets that are overly ambitious and have little to no chance of being achieved in RP4 either. An unachievable target is not suited as motivation to strive for best performance. Furthermore, the KEA target is set under the assumption of optimum capacity being delivered. which in the light of steeply rising traffic levels, is unrealistic in itself.
NSA (Germany)	We agree that environmental improvements in general are of paramount importance for society as such. We understand not only the political but factual importance and need for statements and as well as actions. We also understand that the KPI will not change for RP4. While we agree with the objective of reducing excess flight trajectories and enabling emission reductions to reach a higher level of environmental efficiency, we are convinced that without considering at least the vertical component but also weather and possibly other factors, the equation calculating fuel burn from HFE is too feeble to build on it and draw conclusions from it in the way the reports do. We also doubt that the major influencing factor is the level of capacity on ANSPs side. We understand that it is an obvious presumption to have ANSPs and MS reduce their excess share above of what's supposed to be necessary. But just naming the link to an insufficient capacity performance is too quick a step. To conclude from Covid-years that a target is reachable, is one way to interpret the existing data. We would tend to think that an overcapacity as during the pandemic should on one hand have led to an even better HFE-performance, if the correlation really was the way the reports assume. On the other hand, such an increase in capacity would be rather unreasonably expensive if not in some cases even unattainable, regardless the investments made. Also, within the study we miss further explanations on interdependencies with and notable re-balancing against other KPAs, even though Environment is considered to be of highest priority. Furthermore, we think that airline behaviour to excess flight routes should be taken into consideration and would ask to make available any material that has been collected or consulted on this matter.
NSA (Latvia 1)	Environmental targets are inadequate in some airspaces, considering existing direct impact of EU sanctions against RF and Belarus. ANSPs do not have 100% control of environmental targets. In addition to impact of EU sanctions, airlines must also share the burden and responsibility of achieving the environmental targets, to avoid unilateral discrimination.
Professional staff representative body (IFATCA)	I fully agree with the PRB, that environment KPA should be top priority. However, I disagree in the method the KPI is measured, through KEA. This KPI doesn't take into consideration meteorological conditions, capacity issues etc., thus KEA is not sufficient as KPI.
Professional staff representative body (ATCEUC)	"KPA Env" is considered as a top priority". Having Europe as the most environmentally-friendly sky to fly in the world is a shared ambition. Following that, the question that should be asked: is the 317/2019 an appropriate tool to measure ATM/ANS sector efforts to contribute to this ambition? The answer is no. The reasons are diverse, numerous, well known by all RP3 stakeholders and will be later recalled. The initiative to develop a study (the interdependency between the env and cap KPIs) looking at interdependencies between ENV and CAP was interesting. It is stated "it represents a first step in assessing the complex subject" and that the PRB "recognizes the need for further research to deepen understanding of the interdependency". This careful approach was welcomed in the study but not identified when reading the report on target ranges. It is not appropriate to build an ops plan for flight efficiency based on 317/2019 and mainly based on conclusions of this first study on inter.

Table 5 – Comments received on Question 4.1.

PRB analysis

74 In response to the survey question 4.1 A, most of the stakeholders (30 out of 47) expressed disagreement with the PRB objective on the environment for RP4, while 14 were in agreement. The predominant disagreement came from ANSPs and NSA and Member State representatives, whereas the majority of airlines agreed to some extent.

75 When it comes to the comments received, the main themes addressed by the respondents regard:

- The prioritisation of the environment KPA (safety aside);
- The suitability of the environment KPI, KEA; and
- The ambition of the environment targets.

76 On the topic of setting environment as the top priority for RP4, stakeholders questioned the meaning of "priority" as the report states that safety remains paramount. Stakeholders also highlighted the interdependency between the four KPAs, noting that prioritising one over the others leads to unbalanced targets – achieving the environmental targets depends on both capacity and cost-efficiency. These stakeholders requested all three KPAs to be of equal priority.

77 While there is consensus on the importance of the environment KPA, various stakeholders commented on the suitability of the environmental KPI, KEA, as it does not accurately reflect the ANSPs' environmental performance nor the CO_2 emitted. Due to the influence of external factors not under the control of the ANSPs, such as, airspace configuration, weather conditions, and airspace users' preferences, there is a call to change the KPI.

78 For the reasons outlined above, most stakeholders perceived the environment target ranges proposed to be overly ambitious and challenging to achieve. They emphasised the geopolitical situation, and subsequent increase in military activities, and increased weather disruptions.

PRB response

79 The PRB has prioritized environment for RP4 (safety aside), which aligns with EU's green agenda and the overarching goal of reducing CO_2 emissions, which is a top priority for both the European Union and society as a whole. The PRB believes that air traffic management must focus on environmental performance and must offer the appropriate level of capacity to reduce excess flight trajectories. Ambitious, yet achievable KEA targets will enable them to do so. This is the logic for focusing on environment in RP4. However, it is important to note that the prioritisation of environment does not reduce the importance or focus of the other KPAs. The PRB recognises the interdependence of these KPAs and acknowledges that a balanced approach is essential. Placing environment as the primary focus also amplifies the need to improve capacity performance, which emphasises the PRB's aim to address environmental challenges while also addressing other relevant issues across the KPAs.

80 Whilst the PRB recognises the shortcomings of KEA, the PRB is bound to use it for the target setting process for RP4 as the sole environment KPI in the performance and charging Regulation. Therefore, the PRB suggests actively engaging in the Commission's work on future PIs and identifying potential future KPIs.

81 Addressing the points about the perceived ambition, the PRB acknowledges the concerns raised by the stakeholders. However, the PRB has taken into account the geopolitical situation in the development of these targets. The potential challenges posed by weather disruptions have been factored into the development of the target ranges report to ensure an ambitious, yet realistic and achievable KEA targets should capacity targets also be achieved. However, it is important to note that while military activities could have a potential impact on the sector, they have not fully been considered in the development of the target ranges report as:

- Airspace structure, which is a sovereign responsibility is done in full cooperation between civil and military authorities after close coordination with the NM. It is noted that the military training areas are located where there is less impact on the general air traffic (GAT) flows, both at local and EU levels.
- Airspace management implementation has the objective to reduce the impact on the GAT flows and use or activate segregated training areas only when necessary. ANSPs should know in advance the plan and can adapt for the day of the operations (i.e. by opening the correct sectors and using the appropriate number of ATCOs (rostering)).
- It has not been demonstrated in previous PRB reports that military activities have an impact on capacity. While it is true that military activities provide more challenges, they do not significantly impact environmental efficiency as they are alleviated to the maximum extent possible by efficient Airspace Management.

Question 4.1 B

82 To support the delivery of the environmental performance, the PRB strongly advises the Member States to make use of the possibility provided by the Regulation to set financial incentive schemes for environmental targets. In Question 4.1 B, respondents were asked "*To what extent do you agree with this advice?*".

83 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

84 Figure 6 shows the distribution of the replies. The majority of stakeholders (39) disagreed with this advice (28 fully disagreed and 11 disagreed to some extent), while five respondents agreed to some extent. When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed with the advice, as well as the majority of airlines. One professional staff representative body agreed to some extent, while one fully disagreed.

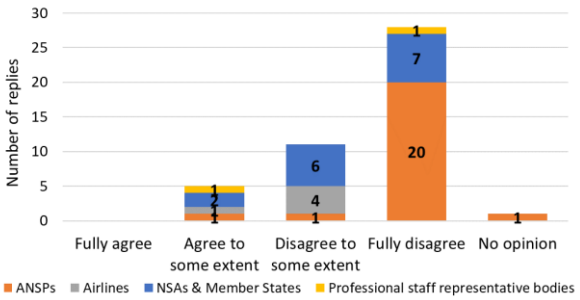

Figure 6 – Number of replies to Question 4.1 B "To what extent do you agree with this advice? (Environmental incentive scheme)" (source: PRB elaboration).

85 Individual comments are listed in Table 6 (next page). 43 out of 47 respondents made a comment on the question, out of which:

- 22 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

4.1 B To what extent do you agree with this advice? (Environmental incentive scheme)	
Stakeholder	Comment
Airline (Lufthansa Group)	Incentive schemes should be put in place on ANSPs only, as airlines are already bound to CO2 emission reductions by EU-ETS and Corsia schemes, as well as the FF55 measures.CO2 emissions are a global topic. A ton of emitted CO2 has a global impact and not a local one. Therefore, using only national incentive schemes may not trigger at least the European optimum. There could be conflicting incentive schemes between neighbouring countries. The European commission and the PRB should check the national incentive schemes on ANSPs on cross-border effectiveness and compatibility. PRB should clearly state that any local measure would be not an effective measure. See current dispute on Belgian TNC. There is no effective CO2 reduction if e.g. national ANSPs unilaterally implement incentives within their FIRs only to airlines operating less CO2 emitting aircraft.
Airline (IATA)	Incentive schemes on ANSPs are already possible but no State has ever defined them. Actions seem limited to restrict operations and additionally tax airlines in some airports. Airlines are already subject to CORSIA and ETS compensating also the inefficiencies caused by ATM. Regulators are invited to consider also ANSPs as parties to compensate their contribution to the excess of emissions, as a minimum when not reaching their targets. Incentives schemes should not allow for possible bonus, for targets on "inefficiency", set with allowances in KEA deriving from expected relatively poor performances in capacity. We could fall in a contradiction if such a path is followed. Airlines should not be rewarding ANSPs for doing the right thing to do. Airlines are concerned about current initiatives from States acting just on cutting down operations but with no impact on ANSPs (neither in cost reductions nor fostering ANSPs contributions to emissions).
Airline (ERA)	KEP/KEA remain incorrect assumptions for flight efficiency and in some cases drive the wrong behaviours. If closer monitoring is foreseen, then new KPIs that better reflect environmental performance should be brough forward as per the ATN/ANS transparency working group outcomes and those potential inputs arising from the current Steer consultation.
Airline (Easyjet)	Any KPI needs to measure ANSP contribution only – not airline contribution. As a result KEP/KEA are not suitable for this purpose as they are tagged to a physically non-correct assumption i.e. great circle = most efficient route. Hence, incentivisation by states of any of the two KPIs would actually be degrading the environmental performance of aviation. We support the call for ANSPs to "offer the best level of capacity aiming at emission reductions …" as this clearly shows the unbreakable link between environmental and capacity performance. The ATM/ANS Environmental Transparency Working Group Pillar 1 – Final Report lists a set of possible KPIs (already in use in some states) and strategic recommendations. It is also highlighted that the optimum trajectory concept and the identification thereof is of utmost importance to ensure environmental efficiency. We would suggest to PRB and States to use better suited KPIs in RP4 for environmental performance and most importantly accept and address the link between environment and capacity by mutually supportive KPIs.
Airline (A4E)	Any KPI needs to measure ANSP contribution only – not airline contribution. As a result KEP/KEA are not suitable for this purpose as they are tagged to a physically non-correct assumption i.e. great circle = most efficient route. Hence, incentivisation by states of any of the two KPIs would actually be degrading the environmental performance of aviation. We support the call for ANSPs to "offer the best level of capacity aiming at emission reductions …" as this clearly shows the unbreakable link between environmental and capacity performance. The ATM/ANS Environmental Transparency Working Group Pillar 1 – Final Report lists a set of possible KPIs (already in use in some states) and strategic recommendations. It is also highlighted that the optimum trajectory concept and the identification thereof is of utmost importance to ensure environmental efficiency. We would suggest to PRB and States to use better suited KPIs in RP4 for environmental performance and most importantly accept and address the link between environment and capacity by mutually supportive KPIs.
ANSP (FABEC)	The PRB recommends the Member States to define an environmental incentive scheme and additional environmental targets based on the most appropriate KPI. Unfortunately, there is currently no performance indicator at network and local levels that considers the interdependencies between KPAs and the division of responsibilities between stakeholders. Research on an appropriate performance measurement therefore still needs to be continued. It also needs

	to be clarified what behavioural change the environmental incentive scheme shall reward, or lack thereof should be penalized.
ANSP (Polish Air Navigation Services Agency)	Any incentives can be set only with regard to targets/indicators that are under control of the incentivised entity (incentives must be clearly linked to accountability for any targets). It is widely recognized that KEA is in majority impacted by elements outside ANSPs' control (including geopolitical situation, airspace users' decisions etc.) – therefore no incentives should be set for KEA. As regards possible additional KPIs set at local level, it is also questionable what indicators could be set that would be fully dependent on ANSPs' actions only – therefore also in this respect setting financial incentives is not supported. Apart from the issue of accountability, any incentives could only be defined for targets that are considered realistic and achievable.
ANSP (ROMATSA)	As long as the KPI for environment does not accurately measure ANSPs performance in this area we cannot accept any incentive scheme. Commission Implementing Regulation 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' A number of analysis have proven that KEA is largely influenced by factors outside the control of ANSPs and as such these cannot be punished. Romanian airspace is part of the SEE FRA, one of the largest free route airspace blocks in Europe comprising Bg, Hu, Sk,Cz, Md as well as cross-border operations with Baltic FRA. We have H24/7 FRA operations since 7.11.2019 as well as ATS routes above FL105 eliminated since July 2021. As such we could not meet the KEA indicator, not even during the pandemic when traffic was at its lowest level.
ANSP (NAV Portugal E.P.E)	Commission Implementing Regulation 2019/317, recital 18, states that any incentive scheme should reward or penalise actual performance in relation to the performance targets adopted. However, the KEA does not properly reflect the actual performance of ANSPs, but is heavily influenced by airline operations, their route choices and other external factors (weather, military activities) as expressed above. Therefore, until the European Commission introduces a new, appropriate KPI, no meaningful financial incentive scheme can be introduced at network level since ANSP performance will be misjudged on the basis of the current framework. It is therefore unacceptable for ANSPs to be fined for an indicator they cannot master – this would be a punitive system for ANSPs instead of an encouraging one.
ANSP (LVNL)	Commission Implementing Regulation 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' Yet KEA does not properly reflect actual ANSP performance but rather is strongly influenced by airline operations, their trajectory choices, and other external factors (weather, military activities). There is no suitable indicator to measure local ANSP performance either. Until the European Commission introduces a new, appropriate KPI, no meaningful financial incentive scheme can be introduced at network level, and ENV performance will be misjudged based on the current framework. The same applies to possible Pis at local level. Therefore it is not acceptable for ANSPs to be fined for an indicators which they cannot master – this would be a punitive system for ANSPs.
ANSP (ENAV)	Reg.2019/317 recital 18: incentive schemes 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' KEA not properly reflecting actual performance and strongly influenced by Aus operations/trajectory choices, external factors (weather, military activities). ENAV already provided in RP3 monitoring national regulator, EC, PRB and NM evidence of mistakes/misbehaviours impacting on actual performance. The combination of the unrealistic objectives, with influence of various stakeholders for their actions and choices and to exogenous factors -weather- and the lack of control over the measurement process by the ANSP, to whom all the performance would be attributed, all this would ultimately translate into an unfair penalization for the ANSP. Until the EC introduces a new, appropriate KPI, no meaningful financial incentive scheme can be introduced. Not acceptable ANSPs penalized for KPI not under control – punitive system for ANSPs.
ANSP (ENAIRE)	In order to be able to set financial incentive schemes for environmental targets it is necessary to have a solid KPI and realistic targets. Commission Implementing Regulation 2019/317, Recital 18 reflects that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets'. As described before, currently, KEA does not accurately reflect actual ANSP performance, so an incentive scheme

	for the KEA that lacks association with the contributions of various stakeholders is, in essence, a punitive system for ANSPs.
ANSP (EANS)	ANSP cannot be responsible for targets that are not under their control and it is not acceptable for ANSP to be fined for an indicator which is strongly influenced by airspace users' operations, weather and external factors like military activities.
ANSP (DSNA)	The counterpart of this approach is that the targets need to be consistent with what can or can't be achieved by the ANSP. Commission Implementing Regulation 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' Yet KEA does not properly reflect actual ANSP performance but rather is strongly influenced by airline operations, their trajectory choices, and other external factors (weather, military activities). There is no suitable indicator to measure local ANSP performance either. Until the European Commission introduces a new, appropriate KPI, no meaningful financial incentive scheme can be introduced at network level, and ENV performance will be misjudged based on the current framework. The same applies to possible PIs at local level. Therefore it is not acceptable for ANSPs to be fined for indicators which they cannot master – this would be a punitive system.
ANSP (BULATSA)	Given the shortcomings listed above, until an appropriate KPI is introduced, there should be no financial incentive scheme at network level. ANSPs shall not be held responsible for an indicator which they cannot fully control and be penalised for that.
ANSP (CANSO)	IR 2019/317 Recital 18 calls for incentive schemes to be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' KEA does not properly reflect actual ANSP performance but is strongly influenced by airline operations, their trajectory choices, and other external factors beyond ANSPs' control (weather, military activities, geopolitical). Nor is there a suitably mature indicator to measure local ANSP performance. Until the EC introduces a new, appropriate and mature KPI, no meaningful financial incentive scheme should be introduced, and ENV performance will be misjudged. The same applies for PIs at local level. Any incentive scheme must be clearly linked to accountability for realistic/achievable targets – any other approach would be punitive for ANSPs. Due to huge gaps between actual HFE values at European and state level, any potential incentive scheme must consider regional circumstances and define relevant state-level values.
ANSP (Austrocontrol)	A financial incentive scheme based on KEA, which is an inappropriate KPI to measure ANSPs performance, is not adequate.
ANSP (ANS CR)	Setting financial incentives for ANSPs would not be effective as the trajectory of the flights cannot be attributed solely to ATC service (ANSPs) because ANSPs are not "process owners", i.e. in control of the whole process – please see the answer to 4.1 (first question) above. In view of the above, we are fundamentally opposed to the implementation of the incentive scheme. This should only come into consideration when an indicator measuring the real performance of individual ANSPs is set as a KPI.
ANSP (LFV)	In 2019/317 Recital 18 calls for incentive schemes to be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' KEA does not properly reflect actual ANSP performance but is strongly influenced by airline operations, their trajectory choices, and other external factors beyond ANSPs' control (weather, military activities, geopolitical). Nor is there a suitably mature indicator to measure local ANSP performance. Until the EC introduces a new, appropriate and mature KPI, no meaningful financial incentive scheme should be introduced, and ENV performance will be misjudged. The same applies for PIs at local level. Any incentive scheme must be clearly linked to accountability for realistic/achievable targets – any other approach would be punitive for ANSPs. Due to huge gaps between actual HFE values at European and state level, any potential incentive scheme must consider regional circumstances and define relevant state-level values.
ANSP (AVINOR)	KEA does not reflect ANSP performance and it is therefore not acceptable to be fined when not achieving the target set for this indicator
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: Again, the idea itself to apply incentive scheme to the KPI that becomes prioritized is logically correct. In theory we would support it, but it depends very much on the incentive scheme itself and its abilities to consider not only operational enablers but also geopolitical factors. We also doubt that it is possible to establish incentives schemes at the state level without seeing some incentive scheme at network level. The current KPI –

	HFE could be considered relevant at network level, but it is far from relevant at the State level and does not consider ANSPs effort towards environmental improvements. In Lithuania's (as well as presumably all other Baltic region States) case we find it difficult to discuss benefits of the any incentive scheme bearing in mind huge gaps between actual HFE KPI's values at our State's level (caused by nothing more but geographical and geopolitical factors) and the proposed Europe-wide one. To proceed with potential incentive scheme definition, we would expect clear stance and acknowledgment that regional circumstances will be considered and relevant state-level values are defined. Otherwise we will be strongly against any incentive scheme as this would mean a definite and unavoidable punishment just for being what and where we are.
ANSP (AIRNAV)	Commission Implementing Regulation 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' Yet KEA does not properly reflect actual ANSP performance but rather is strongly influenced by airline operations, their trajectory choices, and other external factors beyond ANSPs' control (weather etc.). Until the European Commission introduces a new, appropriate KPI, no meaningful financial incentive scheme can be introduced, and ENV performance will be misjudged based on the current framework. Therefore it is not acceptable for AirNav Ireland to be penalised for a metric we have very limited control over or which cannot be improved any further (as noted by the Network Manager). Any incentive must be clearly linked to accountability for targets which also must be considered realistic/achievable.
ANSP (DFS)	ATM can only – given the present regulatory framework – offer optimised flight profiles. The decision for their usage however is in the hands of the airspace users, thus limiting the influence of the ANSP on the target achievement. Adverse weather conditions and military activities do also have a strong influence on the effectiveness of flight profiles which also cannot be influenced by ANSPs. As a consequence, ANSPs would be held responsible for environmental inefficiencies they cannot control. Financial incentives therefore should not be applied as long as there is no indicator, on which the ANSP has full ability to manage target achievement.
ANSP (skeyes)	Commission Implementing Regulation 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' Yet KEA does not properly reflect actual ANSP performance but rather is strongly influenced by airline operations, their trajectory choices, and other external factors (weather, military activities). Until the European Commission introduces an appropriate KPI fully reflective of ANSPs ENV performance contributions, no meaningful financial incentive scheme (no bonus nor malus) should be introduced.
ANSP (Skyguide)	Firstly, the intention of the European Commission to have financial incentives to "greatly improve" environmental performance whereas Swiss performance is close to maximum (e.g. HFE-KEA performance within CH FIR is above 99% efficiency) is not adequate. Moreover, unfortunately, there is no performance indicator at network and local levels that takes into account the interdependencies between KPAs and the division of responsibilities between stakeholders. Research on performance measurement should be carried out first.
ANSP (Latvijas gaisa satiksme)	Being a border state to Russian Federation, diverted flights over Baltic neutral waters and military activity greatly affects the KPA. This is outside the control of a MS. Therefore incentives and vice versa cannot be attributed to one MS only.
ANSP (NAVIAIR)	The Danish ANSP is not against introducing financial incentives for environmental targets in the long run to measure the actual performance of the ANSP. However, such incentives are considered premature with regard to the current KPA where the Danish ANSP, and most other ANSPs, only have limited possibility to affect target performance due to e.g. airlines' right to free choice of route, upcoming training spaces for new military planes, and changes to traffic patterns due to the war in Ukraine; Naviair is only able to affect about 15 % of the target performance due to the aforementioned circumstances. These factors all affect the possibility of achieving historical performance.
Member State (Germany)	Given the well-known validity issues of the current indicators in the environmental KPA the implementation of a financial incentive scheme is problematic due to associated misdirected incentives. Further research on potential new indicators/performance measurement could contribute to the solution of these issues and are therefore much appreciated

Member State (Netherlands)	Since KEA is a sub-optimal indicator incentivising it is not appropriate. Incentives could be set on other environmental indicators but the maturity and appropriateness of the indicator is of importance. Incentives on immature indicators run a high risk of leading to inappropriate bonus or malus effects.
Member State (Spain)	According to the previous answer, Spain does not support a financial incentive scheme that includes the achievement of KEA objectives. Spain is committed to promoting the environmental improvements developed by the national stakeholders. However, before considering the implementation of a financial incentive scheme for environmental targets, Spain considers necessary to have solid KPIs and realistic targets linked to them.
NSA (Cyprus)	Achievement of the target is not fully controlled by individual ANSPs. The NM is usually involved in airspace restructuring efforts in order to take into consideration the needs or constraints of neighbouring ANSPs.
NSA (France)	The importance of environment is recognized for RP4 and applying an incentive scheme on some additional environmental KPIs (at FAB or local level) could be a way to put an emphasis on RP4 priority setting. However, as KEA is not fit for such a purpose, as the limits of this KPI are now acknowledged, it remains difficult at this stage to agree on a performance indicator that would be fully under the control of the ANSPs, which is a basic prerequisite to define and apply an incentive scheme to ANSPs on an environment KPI. Setting an incentive scheme on an environment KPI implies to have a clear view on its interdependencies with other KPAs and shall take into consideration the share of responsibilities between various stakeholders avoiding penalizing the ANSPs where they are not responsible for the underachievement. Additional work is to be carried out regarding new candidate KPIs at network and local levels to be ready for setting a financial incentive scheme on environment
NSA (Poland)	Taking into account the fact that ANSPs do not have full influence on the level of the KEA indicator, the introduction of the incentive scheme is not advisable. Additionally unpredictability of the development of the situation related to Russia's aggression against Ukraine creates significant problem for ANSPs from the East Europe. The implementation of additional financial burdens on institutions providing air navigation services (e.g. through an incentive scheme in the environmental area) may worsen the ANSP's conditions.
NSA (Italy)	CE 2019/317, Recital 18 says that any incentive schemes should be 'for the purpose of rewarding or penalising actual performance in relation to the adopted performance targets.' Yet KEA does not properly reflect actual ANSP performance but rather is strongly influenced by airline operations, their trajectory choices, and other external factors (weather, military activities). The listed critical issues of the KEA are quite sufficient to set some doubt about the formulation of financial incentive scheme that has the KEA as an indicator. In addition, KEA indicator seem to be affected by errors that have an impact on the final value of performance achieved. The combination of the unrealistic objectives proposed can paradoxically create an incentive to not invest in ENV promotion. We think no financial incentive scheme can be introduced at network level until the European Commission introduces a new, coordinated, appropriate KPI.
NSA (Finland)	We fully agree with the objective on environment for RP4. It should be noted however, that the incentive schemes for environmental targets, especially on the improvements on horizontal flight efficiency, are not necessarily suitable for all of the continent. In Northern Europe, ANSPs are delivering capacity and delays have been close to, or remained 0 for the duration of multiple reference periods. Finland for example, has delivered 0-delay capacity for the entirety of RP3, but the environmental targets have jumped high above the target, meaning that there are certain elements that are outside of ANSPs control in relation to capacity and environment. Currently, the traffic flows due to the Russian airspace closure have significantly affected the environmental performance, and it is a factor that the ANSP has no control of.
NSA (Estonia)	Current KPI`s doesn`t support that proposal.
NSA (Switzerland)	Currently, there are no mature (alternative) KPIs for measuring the environmental performance by ANSPs in an adequate way, by means of clearly attributing their environmental impact, neither at network nor at local level. Consequently, setting up financial incentive schemes for environmental targets does not seem feasible and fair. Applying financial incentive schemes to the current KEA KPA would not be conducive as on average a substantial percentage of this metric is outside of ANSPs' control.

NSA (Croatia 2)	Setting-up the financial incentive scheme for environmental target at Member State level is unreasonable because reaching the target for the current KPI (for environment) is not fully under the responsibility /accountability of the ANSPs and its contribution is somehow limited. In addition, if this financial incentive scheme with the current environmental indicator would be introduced for rewarding/penalizing the environmental target, then the same principal should be used and imposed at Airspace User level.
NSA (Austria)	KEA has been identified as an unsuitable KPI to measure environmental performance and that better KPIs would be needed. Building an incentive scheme on this indicator is unsuitable either. It compares to building a skyscraper knowing that the ground below is not able to carry the weight. The proposal made that NSAs should come up with their own indicators is considered unfeasible. On the one hand, it would have to be ensured that these indicators actually contribute to the KEA target, which requires a study to be conducted. Even if the indicators are found to be suitable for this purpose, the difficulty to define the right target values would remain. On the other hand, the measurement of these indicators would be up to the NSA, which goes beyond what a small NSA can deliver.
NSA (Germany)	By just adding a financial incentive, performance of HFE will not improve. Also, the KPI has too many shortcomings that it would seem reasonable to incentivise. We will not put an incentive scheme on HFE just to make a statement on the importance of ENVI KPA. We will though look into the possibility of putting an incentive scheme on possible other indicators on national or FAB-level. Although it needs to be said that, due to the dissatisfaction of the FABEC ANSPs, the reasons of which we are not going to repeat in detail, with the KPI, FABEC states have triggered different analyses from their ANSPs which brought up promising possibilities, none of which are considered sufficiently mature to make it as KPI, even if the implementing regulation was to be changed in time for RP4. In the main report No 86 PRB is stating that it remains available for support during this incentive setting process. We might take come back on this offer, but would have hoped for some support, ideas or examples already from the report itself.
NSA (Latvia 1)	As described above, environmental targets are not 100% under ANSP control. Analysis of contribution of all involved parties will help to conclude if financial incentives bring any additional value and serve any purpose at all and for who (ANSPs, airlines).
Professional staff representative body (IFATCA)	An incentive could be good, but a financial incentive scheme will not necessarily contribute to urge ANSPs and airspace users to fly ‘great circle’ only, as there are many more factors to consider.
Professional staff representative body (ATCEUC)	Flight planning is an Airspace user decision and not an ANSPs one. The volume of traffic and distribution can evolve according to AU strategies and commercial decisions. Political and commercial decisions can make an airport becoming very attractive or completely unattractive in months. The war of Ukraine has also changed military strategies all over Europe. Military troops movements, more and unpredictable activity is seen everywhere. The size, the location and the use of military areas is a decision of mil forces. Air Defender exercise greatly impacted operations during the busy Summer. Orion military exercises blocked French airspace during several weeks. Zena Perigord (new military area) will block south west of French airspace. This new area can be activated 3 times / week for 1h30. All these elements make ANSPs only able to react to adapt afterwards the network and make it efficient. Is not considered as realistic to build a virtuous incentive scheme based on actual 317/2019

Table 6 – Comments received on Question 4.1.

PRB analysis

86 In response to the survey question 4.1 B, most of the stakeholders (39 out of 47) expressed disagreement with the PRB advice to implement an environmental incentive scheme. Most airlines, ANSPs, NSA and Member State representatives disagreed with the advice.

87 As highlighted by the comments, the main reasons for disagreement identified are:

- The suitability of KEA for the environment incentive scheme; and
- The lack of a KPI that is fully under the control of ANSPs and that reflects the interdependencies.

88 The stakeholders commented on the implementation of an environmental incentive scheme that makes use of the current KPI, KEA. It is considered to be unsuitable for evaluating the environmental performance of ANSPs given external influences, including geopolitical factors, airspace user choices, airspace closures, military activities and ANSPs should not be penalised for indicators that are beyond their control.

89 The majority of stakeholders also stated that there is currently no other suitable indicator which would lend itself to the implementation of an incentive scheme, but would welcome the idea of an incentive scheme with an appropriate indicator.

90 Some stakeholders emphasised the importance of distinguishing between ANSP performance and airline performance, which already has environmental obligations under different regulations. If an incentive scheme is to be applied, it should apply exclusively to ANSPs and not to other stakeholders.

PRB response

91 As per answer to question 4.1 A, the PRB acknowledges the shortcomings of KEA, and advises Member States to develop local environmental incentive schemes and additional environmental targets based on indicators which are considered most suitable and reflect the ANSPs' performance, as per articles 10(3) and 11(4) of the Regulation. The incentive scheme is not limited to the use of KEA and should encourage improvements at both local and network levels.

92 In response to the feedback regarding the relevance of indicators exclusively to ANSPs, the PRB acknowledges the importance of keeping indicators pertinent to the responsibilities and performance of ANSPs. While recognising the interdependencies of the aviation ecosystem, the PRB remains committed to ensuring that indicators accurately assess the environmental impact of ANSPs.

Question 4.2

93 The PRB proposes the target ranges for 2029 are built upon the original ambition for the end of RP3 (2024), with adjustments made to incorporate the benefits of recent and future improvements from ATM measures and ongoing updates to the European network as set out in the European Route Network Improvement Plan (ERNIP), and for the interdependency between environment and capacity in the environmental target ranges. In Question 4.2, respondents were asked "*To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of environment?*".

94 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

95 Figure 7 shows the distribution of the replies. The majority of stakeholders (33) disagreed that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of environment (25 fully disagreed and eight disagreed to some extent), while six respondents agreed (one fully agreed and five agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives, as well as all the airlines and professional staff representative bodies, disagreed that the methodology and evidence provided supports the proposed targets.

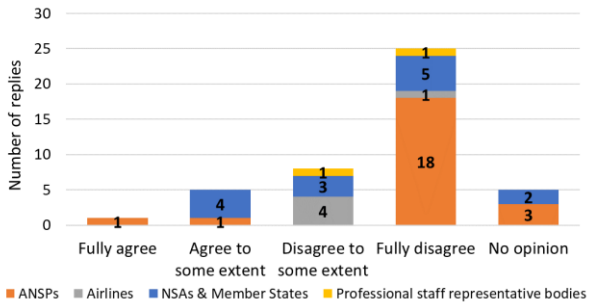

Figure 7 – Number of replies to Question 4.2 "To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of environment?" (source: PRB elaboration).

96 Individual comments are listed in Table 7 (next page). 37 out of 47 respondents made a comment on the question, out of which:

- 18 ANSPs, including one association;
- Five airlines, including three associations;
- 12 NSA and Member State representatives; and
- Two professional staff representative bodies.

4.2 To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of environment?	
Stakeholder	Comment
Airline (Lufthansa Group)	European airlines enlarge their effort to meet the Green Deal and Fit for 55 targets. A cornerstone therefore is an increased Flight Efficiency, which beside reduced fuel burn will contribute to CO2 savings. The KEA targets must reflect our effort for the en route flight phase but even more we would appreciate a Gate-to-Gate approach, knowing that future CO2 savings could be materialized in the TMA area. Air Traffic Control should contribute to a reduction in emission by facilitate fuel optimum routes through improved pre-planning and better balancing demand. Implementation of full cross border free route airspace must be achieved as soon as possible
Airline (IATA)	To show commitment to the environment, targets should not relax the ambition of current RP3 targets. 2,4% is above what has been considered achievable in the past; therefore, it should not be the starting point to calculate the target. How KEP and KES improvement could help to improve KEA seems like not explored enough. The expected benefits from planned actions seem underestimated. Airlines acknowledge the impact of the war. But the correction value is based on the current situation, which is not necessarily optimal, and acknowledges that the results could vary with future data (page 16 Annex III). Uncertainty about how traffic flows could be restored even if the conflict ends is acknowledged.
Airline (Easyjet)	As outlined above, any KPI needs to measure ANSP contribution only - not airline contribution. Consequently, KEA as is, is not suitable for the purpose of measuring environmental performance. Airlines are incentivised to fly the optimum routes which are by common admittance not the same as great circle distance. A KPI for ANSP environmental performance should monitor if and how ANSPs support these optimum routes e.g. by providing the required capacity at the right time and the right location. Without prejudice of the above, we believe that the proposed target range for horizontal flight efficiency lacks the necessary ambition. The 2021 PRB's suggestion for revised RP3 Union-wide environmental targets indicated a 2.37% target by 2024, while the more optimistic target proposal for RP4 is expected to not reach that level at 2.39% even five years later (2029). Considering the suspension of crucial investments supporting capacity and flight efficiency during RP3, we anticipate that their resumption in RP4 could potentially result in more direct en route flight trajectories when there are no capacity constraints.
Airline (A4E)	As outlined above, any KPI needs to measure ANSP contribution only - not airline contribution. Consequently, KEA as is, is not suitable for the purpose of measuring environmental performance. Airlines are incentivised to fly the optimum routes which are by common admittance not the same as great circle distance. A KPI for ANSP environmental performance should monitor if and how ANSPs support these optimum routes e.g. by providing the required capacity at the right time and the right location. Without prejudice of the above, we believe that the proposed target range for horizontal flight efficiency lacks the necessary ambition. The 2021 PRB's suggestion for revised RP3 Union-wide environmental targets indicated a 2.37% target by 2024, while the more optimistic target proposal for RP4 is expected to not reach that level at 2.39% even five years later (2029). Considering the suspension of crucial investments supporting capacity and flight efficiency during RP3, we anticipate that their resumption in RP4 could potentially result in more direct en route flight trajectories when there are no capacity constraints.
Airline (ERA)	See above. *(editor note: see ERA comment in 4.1B)*
ANSP (FABEC)	The methodology to calculate the Union-wide targets is not sufficiently disclosed and the evidence is incomplete. It is therefore of utmost importance that all underlying material is disclosed, including calculations, simulations, all assumptions, and parameter configuration to ensure a meaningful consultation. PRB’s evidence unfortunately lacks the recognition of important influencing factors: Large scale military exercises likely become more common in future. It remains the airspace user’s choice and responsibility when selecting their flight path. Climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations (e.g., increased occurrence of storms, changes in wind patterns and disruptions of ground infrastructures).

ANSP (Polish Air Navigation Services Agency)	Bearing in mind the current difficulties of majority of States to achieve the set targets, including the significant impact of external factors on KEA, which is expected to continue in RP4 – the benefits resulting from the improvement of ATM and the implementation of ERNIP – will not be sufficient to reach such ambitious targets in RP4. RP4 targets should consider as starting point actual performance in 2022 and 2023 and not previous ambition at the end of 2024 which proved to be not realistic. Years 2020-2021 should not be taken into account as the level of traffic was very low and geopolitical situation was different. Values of KEA over 2022-2023 confirm the need for a deep analysis of the range of the KEA indicator for RP4 which must be set at a realistic and achievable level and not based on political ambition. A bottom up approach should be considered for target setting, starting with analysis of feasibility of KEA values for each State and then aggregating them into EU-wide
ANSP (ROMATSA)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The targets set for RP4 build on the unmet targets from RP3. The two Reference Periods should remain independent, so that RP4 can start with some expectation that the targets can actually be met. Otherwise, it will be a “shaming” system rather than an incentivising one. The estimated benefit from ERNIP cannot be supported. For example • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1 • it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA
ANSP (NAV Portugal E.P.E)	The methodology used to calculate the EU target range proposal is rather opaque and the level of evidence is not sufficient to assess it properly. In this sense, more robust material needs to be disclosed, including calculations, simulations and used assumptions. Similarly, the targets set for RP4, which build on the unmet targets of RP3, seem clearly over-ambitious. Therefore, the two reference periods should be treated independently so that RP4 can start with the right level of ambition and expectation that the targets can actually be met.
ANSP (LVNL)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. For example the effects of more and larger scale military exercises are not included. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The targets set for RP4 build on the unmet targets from RP3. The two Reference Periods should remain independent, so that RP4 can start with some expectation that the targets can actually be met. Otherwise, it will be a “shaming” system rather than an incentivising one.
ANSP (ENAV)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The targets set for RP4 build on the unmet targets from RP3. The two Reference Periods should remain independent, so that RP4 can start with some expectation that the targets can actually be met. Otherwise, it will be a “shaming” system rather than an incentivising one. The estimated benefit from ERNIP cannot be supported. For example • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1 • it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA
ANSP (ENAIRE)	EU target ranges methodology lacks disclosure, with incomplete evidence. All materials, including calculations, simulations, assumptions, and parameters, must be disclosed. RP3 targets remain unmet; RP4 must start with clear and justified targets which can be met.5-year traffic forecast, with the current high volatility scenario, need to be more accurate, with justified different ranges between ACCs(averages are no valid in the new scenario post-covid) and fully align with NOP initiatives. Network measures need to be gradually incorporated to the targets to accommodate the individual goals to a network benefit approach. ATM project benefits extend beyond ANSPs, requiring equipage or of the airborne certification, common con ops at network level, among others, so benefits are gradually being applied. Efficient ATCO dimension management is crucial, to maintain an adequate trade-off with CEF indicators, apart from the time frame derived from Initial and Unit training periods needed form new ATCOs
ANSP (DSNA)	The main evidence is that during COVID, with high capacity offer, the KEA reached the targeted value. Even if true at EU level, it was not the case at FABEC level. Therefore the reference initial values used to built-up the RP4 ranges are therefore not adequate for FABEC. The

	methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations.
ANSP (BULATSA)	There is a lack of transparency regarding the methodology used for the target setting. Furthermore, neither data sets nor calculations/evidences have been provided to the stakeholders to support the realistic setting of the proposed targets.
ANSP (CANSO)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, including calculations, simulations, assumptions and parameter configurations. RP4 targets should not be based on RP3 ambition but take into account actual results of 2022-2023 and be based on in-depth analysis of feasible improvements and their realistic impact on KEA. Looking at past results, the current situation and considering possible improvements, the proposed target ranges will not be achievable and ANSPs should not be faced with unrealistic targets. The two RPs should remain independent, so that RP4 can start with some expectation that the targets can actually be met. Otherwise, it will be a "shaming" system rather than an incentivising one. The estimated benefit from ERNIP cannot be supported as explained below (4.3).
ANSP (Austrocontrol)	The target ranges were not met in RP3 and therefore should not be the base for overly ambitious RP4 target ranges. In addition the increasing traffic levels should be taken into consideration, and if capacity can match demand, Air space users SHALL make use of the improved route network and thus improve KEA. KEA performance depends on the Airspace Users route choice
ANSP (ANS CR)	The last year when the values of upper bound targets proposed for RP4 in SES area were achieved was in 2015 (except for the years 2020 and 2021 when the traffic was greatly influenced by a pandemic), the trend is flat or (moderately) increasing. Given the predicted traffic growth in SES area in RP4, the improvement expected in the proposed upper bound target (0,05 %) might be (and according to the predictions will be) heavily outweighed (in terms of greenhouse gas emissions from the air traffic) by mere traffic volume which is (by far) the main environmental factor in terms of the amount of greenhouse gas emissions. Key factor to the trajectories are the decisions made by aircraft operators – flight planning is within their remit. RP4 targets should not be based on RP3 ambition but take into account actual results of 2022-2023 and be based on indepth analysis of feasible improvements and their realistic impact on KEA.
ANSP (LFV)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, including calculations, simulations, assumptions and parameter configurations. RP4 targets should not be based on RP3 ambition but take into account actual results of 2022- 2023 and be based on in-depth analysis of feasible improvements and their realistic impact on KEA. Looking at past results, the current situation and considering possible improvements, the proposed target ranges will not be achievable and ANSPs should not be faced with unrealistic targets. The two RPs should remain independent, so that RP4 can start with some expectation that the targets can actually be met. Otherwise, it will be a "shaming" system rather than an incentivising one. The estimated benefit from ERNIP cannot be supported as explained below (4.3).
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: In general, the methodology and the way of applying current values to define the targeted ones should be explained better. It is not crystal clear now and it does not give the feeling if for RP4 regional differences are to be considered or not. Looking at the proposed network-wide values and our country's correct HFE (above 12), we do not have confidence that Lithuania will be assigned achievable targets. Again and again, we call for more customized approach in target definition. Geographical location and geopolitical factors have always been an issue for us and in current reality they are even more difficult, unavoidable and uncontrollable.
ANSP (AIRNAV)	AirNav Ireland is of the view that the PRB needs to consult on the proposed local reference values for RP4 in tandem with the Union wide reference values. The PRB has acknowledged at the consultation meeting that it relied on local parameters to inform the proposed union wide ranges, and AirNav Ireland requests that these are consulted upon in a transparent manner before any local reference values are finalised/published. Otherwise, we may find that the consultation on local reference values is procedurally flawed as it does not give stakeholders

	an opportunity to review or comment on the proposed targets at local level. The same applies to local reference values that will be set for capacity.
ANSP (DFS)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The targets set for RP4 use the unmet targets from RP3. RP4 plannings should consider shortcomings in defining RP3 targets and include external factors (e.g. growing traffic volumes, increased military activity and a likely continuation of the circumnavigation of Ukrainian, Russian, and Belorussian airspace) more effectively so that RP4 can start with more realistic targets.
ANSP (skeyes)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence is incomplete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The targets set for RP4 build on the unmet targets from RP3. The two Reference Periods should remain independent, so that RP4 can start with some realistic expectation that the targets can actually be met. PRB's evidence fails to consider other important factors: large scale military exercises likely become more common in future. Airspace user's choice and responsibility when selecting their flight path. Climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations (e.g., increased occurrence of storms, changes in wind patterns and disruptions of ground infrastructures). FABEC experts warn against translating pure horizontal route length variations measured as RTE-DES variations into HFE-KEA gains
ANSP (Skyguide)	Targets must be realistic at the point in time when they are set. PRB bases its entire target evaluation exercise on the RTE-DES indicator, translating the gains achieved on it into HFE-KEA on a 1:1 basis. Correlation between them isn't established. When comparing the variation of past perf. of these indicators, differences can be observed. It is not appropriate to use the full RTE-DES improvement to set HFE-KEA targets and the whole PRB approach for the ENV KPI target setting should be reconsidered. A good understanding of the interdep. between factors influencing performance (capacity, weather, costs) is essential for meaningful target setting. Aspects that have an impact on KEA but are not considered by the PRB include large scale MIL exercises that become more frequent, airspace users' choice, weather events, route charge impact and strikes. PRB's acknowledgement that this understanding has not yet been achieved should trigger a critical review of the methodology used to set targets
Member State (Germany)	Given the heterogeneity of the European network it seems evident that interdependencies between environment and capacity vary considerably from country to country. With the evidence provided it is difficult to assess whether all relevant operational benefits and challenges were sufficiently taken into account. (This comment is also valid for points 4.3 to 4.5 below.)
Member State (Netherlands)	The principles to take future improvements into account is supported in the text. However, the conclusions drawn from the Covid traffic-levels are not appropriate as the situation was extreme. Why the performance in a situation with extreme low traffic is an appropriate basis for target setting is not argued or supported.
Member State (Spain)	As a remark and following the previous answers, Spain considers that KEA does not properly reflect the environment KPA and the improvements implemented by the ANSPs because the indicator depends on many factors and actors. In addition, it is important to highlight that achieving the KEA objective does not imply a direct reduction in CO2 emissions or may even increase them because, in terms of emissions, the most efficient route may not be the shortest one. Considering the comments exposed above, the objective on environment linked to KEA is not realistic and achievable.
NSA (Croatia 2)	Environmental EU Wide target setting methodology is not appropriately elaborated thus leaving area for different interpretations as material presented during the Consultation meeting cannot be considered as adequate and is incomplete. Estimated benefit from the ERNIP is not supported as Airspace Users are not obliged to take improvements of route network. Implementation of FUA is at 69% and FRA is 64% on the European level, as per the LSSIP+ database. Many countries have also implemented cross-border FRA (expl. BALTIC & SEE FRA, BOREALIS FRA) and for those countries there is not much room for improvement and gaining benefits. This can be reflected to a great part of Member States
NSA (France)	The methodology, related assumptions and underlying material are not sufficiently disclosed to assess the PRB proposal. In addition, KEA is not fully under control of the ANSPs (depending

	on the military, weather, airspace user choices etc.) and according to many experts is no more relevant to assess ATC environment improvements. Experts are also warning against assumptions based on translating horizontal route distance variation measured as RTE-DES variations into HFE-KEA benefits on a one-by-one basis. PRB arguing that, if during the pandemic KEA target was reached when there were fewer capacity issues due to the low traffic, then KEA would mechanically improve when capacity issues will be solved in RP4 is oversimplistic: many other factors such as military airspace reservation and traffic flow organization were also involved. Reaching the target only when traffic was exceptionally low should on the contrary demonstrate that targets set in RP3 were unrealistic
NSA (Poland)	Changes in the European network and implementation of the modern ATM systems should largely contribute to improving the Environment targets. Taking the 2024 ambitions as a starting point for the 2029 target should be considered as an acceptable proposal. However, factors beyond the ANSP control and geopolitical situation should be also taken into account. Their impact on the conditions to achieve the targets in 2029 is currently difficult to assess
NSA (France)	The methodology to calculate the EU target range proposal is not sufficiently disclosed and the evidence isn't complete. All material must be disclosed, incl. calculations, simulations, assumptions and parameter configurations. The interdependency between ENV and CAP should be more investigate and experienced before setting a financial penalty/incentive scheme.
NSA (Estonia)	Above mentioned example with horizontal flight efficiency is a good example why I think that methodology as well as the KPI`s must be revised and significantly improved.
NSA (Switzerland)	FOCA agrees that the Evidences 1-4 applied (and combined) by the PRB to support the target setting of the environment target ranges are adequate as methodology. However, the final balancing/weighing of these evidences leads to a proposal of environment targets ranges that is not realistic, considering the current / monitored environment values combined with the prospect of an increasing traffic in the coming years. There is a high probability that neither the upper not the lower bound will be met overall during RP4. Furthermore, the correlation between RTE-DES and HFE-KEA is not established. When comparing the variation of past performance values for the two indicators, differences can be observed. We find it inadequate to use the full RTE-DES improvement to set the environment targets. At last, the benefits contained in the ERNIP may be overestimated.
NSA (Croatia 1)	Environmental EU Wide target setting methodology is not appropriately elaborated thus leaving area for different interpretations as material presented during the Consultation meeting cannot be considered as adequate and is incomplete. Estimated benefit from the ERNIP is not supported as Airspace Users are not obliged to take improvements of route network. Implementation of FUA is at 69% and FRA is 64% on the European level, as per the LSSIP+ database. Many countries have also implemented cross-border FRA (expl. BALTIC & SEE FRA, BOREALIS FRA) and for those countries there is not much room for improvement and gaining benefits. This can be reflected to a great part of Member States.
NSA (Austria)	As stated above, starting from the RP3 target levels renders any further calculation useless. The calculation approach as such is understandable, while the evidence values cannot be checked in all details. The impact stemming from the interdependency with capacity is based on the equally unrealistic capacity target.
NSA (Germany)	We disagree with the used methodology and evidence due to the fact that explanations and assumptions are made with no in-depth derivation. When building on the targets for 2024, the foreseeable actual status of implementation can from our point of view not just simply be ignored as the report does for example when it comes to the continued staffing problem. On top of delays in ATCO-training from the pandemic, generations entering the work force prefer to work part-time and cannot be forced to do otherwise. Financial incentives only have limited effect on those individuals. This is a new phenomenon occurring to an increasing degree through which one successful trainee does not translate into even close to one FTE any more. The quantification of benefits from improvements to design and handling of airspaces and route network and supporting ATM-systems and components made by the report cannot be followed and understood. While the details from the simulation by NM on the benefits of CP1 should be made available for better understanding, we have doubts about the translation of the results of the simulation into the values in the report. The quantification of the benefits from ERNIP does not conform with the explanation from our national experts, so we wonder if they have been sufficiently consulted on the matter. Also regarding ERNIP and the evidences

	used by PRB regarding the Evidence 2 we would have expected precise links (in footnotes) to values and derivations from ERNIP. As for the benefits of CP1 the simulation by NM should not only be made available, it should be adjusted to compare the current status of implementation with the status of full implementation instead of comparing implementation to a fictional state of do-nothing. While we support the measures of the ATM-functions, we expected that during the existence of CP1 if you wanted to draw "hard" conclusions from its implementation, there should have been a more transparent and reliable/retraceable. As to the details, for evidence 1 PRB says in the Annex 1 No 47 that during covid low traffic and low delays led to significant improvements in KEA. In fact, only in the year 2020 (achieved value 2,52) and with considering the former EU target (2,53) there was a target achievement. Even the revised EU target (2,37-2,4) would not have been and was not achieved. As it is, we can only expect that unreasonable over-capacities would be needed from ANSPs to achieve the required improvement in HFE, if in some cases at all possible. We also tend to conclude from Covid-times that indeed HFE can only be influence by ANSP to a lesser extent than we used to think. Therefore, an historical evidence should not only consider an interdependency between capacity and environment (which is as stated before not adequately described and therefore not retraceable) but also the historical EU targets should be critically examined. For RP3, too many factors influencing the performance such as the pandemic and its repercussions or political situations and even airspace users choice regarding the flight path and weather phenomena. In our opinion several factors are not considered (although even named by PRB in Annex 1 No 59 as example) in a sufficient way such as rising military airspace reservations, traffic compositions that changed during and past covid as well as weather phenomena. When it comes to the allowance for delays and disruptions caused by weather, we consider it insufficient to consider historical data, even if the number of years to go back is limited compared to other impacting factors. Very recent years and up-to-date climate research indicate that an increase in adverse weather phenomena in frequency and intensity would have to be factored in. It seems quite asymmetrical to point out importance of ENVI KPA and deny the very real and practical influence on aviation in general and ANS performance. -We are not going to go back into the criticism on KEA KPI, but why is the target range on top of the shortcomings of the KPI itself then provided with evidences, methodologies and values which are not fully retraceable and far away from historical performances. A good example for the missing retractability is in the main report No 69 in conjunction with footnote 8. Why is there no further proof on that than a bilateral discussion. Why are there no minutes or anything else provided for transparency reasons? And also a brief analysis mentioned in the main report No 75 should have been provided to improve transparency. It is also not explained if and why/why not there is a weighting approach considered for the used evidences.
Professional staff representative body (IFATCA)	The improvements planned on ATM measures and updates to the European Network are generally good, but they are also too optimistic, in my opinion. Introducing improvements usually comes with temporary capacity constraints, which, with the interdependency between capacity and environment, also will affect environmental targets.
Professional staff representative body (ATCEUC)	One of the bases of this study for the drawing of conclusions was the analysis of capacity and flight efficiency during covid crisis. Traffic was 50% lower, resources available were far above the needs, same for capacity, most of the flight planning restrictions were lifted, aircraft were empty allowing them to have a better vertical performance reducing complexity for ATC: these elements make extremely hazardous to use this period to draw conclusions. The element to be kept in mind is: for RP3 flight efficiency targets were reached when traffic was 40% of 2019. Original RP3 ambition are unrealistic. PRB's call for a careful approach seen in the interdependency study conclusions is not taken into account in the PRB target ranges report. Furthermore, it is not understood how an increased large-scale military exercises and new oversized military areas are taken in consideration. The same need of clarification remains with the impact of weather and changes associated with climate change

Table 7 – Comments received on Question 4.2.

PRB analysis

97 In response to the survey question 4.2, most of the stakeholders (33 out of 47) expressed disagreement with the methodology and with the evidence provided to support the environmental target ranges. This view was prevalent across all stakeholder categories.

98 The main reasons for concern identified by the PRB include:

- The methodology not being fully disclosed and incomplete evidence;
- The consideration of the COVID-19 pandemic period; and
- The translation of RTE-DES into KEA.

99 The stakeholders commented that the methodology for calculating the environment target ranges lacks transparency and completeness. There were calls to disclose all the material, including the calculations, assumptions, and simulations, used to derive the target ranges. Additionally, it was stated that the evidence provided is not sufficient as it lacks considerations of large-scale military exercises, airspace users' preferences, weather disruptions, traffic growth and flow organisation, among others.

100 Stakeholders also commented on the use of assumptions relating to the COVID-19 pandemic period, which could contribute to the unrealistic ambition of the targets. The COVID-19 pandemic period is deemed as an "extreme" period by many of the stakeholders due to the low traffic levels that characterise it. Some stakeholders suggested using the post-pandemic period as a starting point for the RP4 targets instead.

101 Finally, another main theme addressed by stakeholders in this question regards the one-to-one translation of RTE-DES into KEA. Stakeholders argued that the right approach was not used as the correlation between the two indicators is not established yet. This leads to inaccurate target ranges.

PRB response

102 The PRB has provided details of the methodology and evidence used in Annex I and Annex III of the PRB's advice on the Union-wide target ranges for RP4 report and in the relevant references. The Annexes provide extensive information and justification on the data utilised, offering the readers a thorough understanding of the rationale.

103 As mentioned in the evidence, the PRB analysed the KEA values of 2020-2021, during the COVID-19 pandemic, as one of the pieces of evidence to help determine the target ranges. This evidence is not used in isolation but is one factor used to understand how the ATM system should perform when there is sufficient capacity to meet demand.

104 Further comments relating to the ERNIP and the geopolitical situation are addressed in the following sections, where relevant.

Question 4.3

105 The PRB proposes the ramp up rate of the ERNIP benefits to be gradual over RP4, for both the upper and lower target bounds. The resulting yearly lower and upper bound allowances for RP4 are illustrated in the table below, ramping up to the expected values in 2029. In Question 4.3, respondents were asked "*To what extent do you agree with the proposed approach?*".

106 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

107 Figure 8 shows the distribution of the replies. The majority of stakeholders (30) disagreed with the proposed approach (19 fully disagreed and 11 disagreed to some extent), while six stakeholders agreed (one fully agreed and five agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed with the proposed approach. One professional staff representative body disagreed to some extent and one fully disagreed, while one airline agreed to some extent.

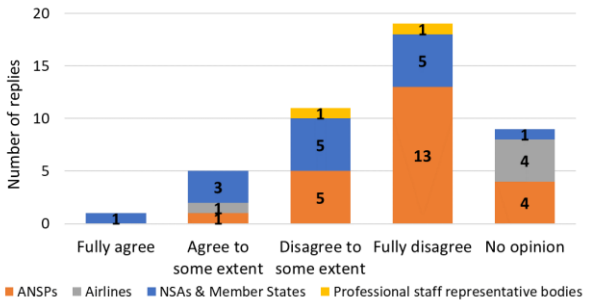

Figure 8 – Number of replies to question 4.3 "To what extent do you agree with the proposed approach? (ERNIP benefits)" (source: PRB elaboration).

108 Individual comments are listed in Table 8 (next page). 35 out of 47 respondents made a comment on the question, out of which:

- 19 ANSPs, including one association;
- Four airlines, including three associations;
- 10 NSA and Member State representatives; and
- Two professional staff representative bodies.

4.3 To what extent do you agree with the proposed approach? (ERNIP benefits)	
Stakeholder	Comment
Airline (IATA)	Our understanding is that ERNIP is calculating benefits based on the existing planned actions. The targets should be top-down, more ambitious than current plans charged on ERNIP database (bottom-up), therefore driving further action. Also, as per ERNIP 2023, in the short term the number of contributing projects is higher than in the long term, so we could expect higher benefits reached in the first years of RP4 than contemplated in the ramp-up. Probably, as we move along the period more contributing actions will appear. 0pp (zero benefits) in 2025 from projects in the target upper bound are not understood when 2025 is the implementation deadline for full FRA, Cross-border FRA and FRA connectivity with TMAs by CP1. We should therefore reconsider the ramp-up benefits and consider benefits higher and possibly flat profiles. Such an approach would also incentivize further improvements and be more consistent with the expected benefits profile presented in Annex IV Figure 6.
Airline (Easyjet)	See above. Not agreed – see 4.1
Airline (A4E)	See above. Not agreed – see 4.1
Airline (ERA)	See above. *(editor note: see ERA comment in 4.1B)*
ANSP (FABEC)	The ERNIP benefits are overestimated: KES/KEP gains seem to be mixed up with KEA when mentioning FRA and route network design improvements. FRA implementation has a positive impact on KEP, but the impact on KEA is only marginal! FABEC Experts warn against translating pure horizontal route length variations measured as RTE-DES variations, into HFE-KEA gains, particularly on a 1:1 basis. Neither simulations nor pen & paper exercise consider realistic knock-on effects. Asking if a certain pp adjustment is appropriate without understanding the calculation of the base value does not enable a meaningful assessment! In any case, the proposed HFE EU KEA target ranges are too ambitious and the indicator is not sufficiently within ANSP control. ANSPs are committed to continuously improve the route network but e.g. the share of overflights or geo-political events will continue to cause traffic shifts that are outside of ANSPs' control.
ANSP (Polish Air Navigation Services Agency)	It seems reasonable to consider ERNIP benefits – as presented in the upper bound column of the table above (-0.04pp) - for the purpose of target setting for RP4, provided that it is confirmed (preferably by NM) that the RTE-DES value expected for 2029 is the same as for 2030 (1.80%). Assumption of gradual improvement also seems reasonable. However, the improvement assumed in the lower bound (-0.09pp) is not based on ERNIP but on some theoretical maximum efficiency calculated (not referred to in any documents) and as such should not be used. For the purpose of both, upper and lower bound the ERNIP value (RTE-DES at 1.80%) should be used. Moreover, the RP4 target should consider actual data, not only estimated forecasts - the starting point for KEA deviates significantly from the PRB expectations
ANSP (ROMATSA)	The estimated benefit from ERNIP cannot be supported. For example • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1 • it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA
ANSP (NAV Portugal E.P.E)	The estimated benefits of ERNIP depend on the degree of synchronisation between the implementation of free route and other airspace improvements. Furthermore, it is not clear where PRB and NM draw the line on how far we can continue to improve the network. The figures seem unrealistic and inconsistent with the current reality and future developments, as there is not much room for manoeuvre on the ANSP side to contribute more than they have done so far. However, it would be interesting to have a better translation of how each of the activities included in ERNIP translates into percentages. On the other hand, airspace users are not obliged to implement route network improvements, so ERNIP improvements cannot be directly translated into KEA improvements. Furthermore, the implementation of FRA has been shown to have a positive effect on KEP, but only a marginal effect on KEA.
ANSP (LVNL)	The estimated benefit from ERNIP cannot be supported, as ERNIP improvements cannot be translated to KEA improvements on a one-on-one basis. Airspace Users are not obliged to take

	the shortest available route, and will often make other choices. Hence they will not fully benefits from the available, improved network. It has been proven that FRA implementation has a positive impact on KEP but only a marginal effect on KEA.
ANSP (ENAV)	The estimated benefit from ERNIP cannot be supported. For example • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1 • it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA. In more detail, para 59 highlights how the connection between improvements introduced by ERNIP and benefits to the KEA is far from certain. With this it becomes clear that ERNIP cannot be the key to solving the KEA problem. Nevertheless, in para 61 reference is made to a hypothetical "new ERNIP," which was never discussed in detail, falling into the same error. The estimates calculated by the Network Manager are totally theoretical.
ANSP (ENAIRE)	To support the rate of increase of ERNIP benefits, it is necessary to demonstrate that changes in the ATM system have a real influence on the KEA. On the other hand, it would be necessary to know the needs of the stakeholders that have an influence on the KEA in order to establish these target ranges, for example, increased use of military areas in the near future.
ANSP (DSNA)	The mix-up between KES/KEP, and KEA is made also when mentioning FRA and route network design improvement. Therefore the improvement expected from evidence 2 cannot be considered as is. It has been proved that FRA implementation has a positive impact on KEP, but the impact on KEA is marginal. Moreover, PRB bases its entire target evaluation exercise on the RTE-DES, translating the gains achieved on the RTE-DES into HFE-KEA on a 1:1 basis. The correlation between RTE-DES and HFE-KEA is not consolidated. When comparing the variation of past performance values, differences can be observed. It is therefore not appropriate to use RTE-DES to set HFE-KEA targets
ANSP (BULATSA)	Airspace Users make use of route network improvements on their own discretions, thus ERNIP improvements cannot be fully translated to KEA improvements; in addition FRA implementation has a positive impact on KEP but only a marginal effect on KEA.
ANSP (CANSO)	While assumption of any improvement to be gradual seems to deserve support, the estimated benefit from ERNIP is considered too optimistic and therefore cannot be supported. E.g. - Airspace Users are not obliged to take the shortest available route, and will often make other choices. Hence they will not fully benefit from the available, improved network. It has been proven that FRA implementation has a positive impact on KEP but only a marginal effect on KEA. It must be demonstrated that ATM system changes have a real, quantifiable influence on KEA. Moreover, the expected improvement used for the lower bound estimation is not supported by any document or feasibility analysis but seems to be only a theoretical expert estimate and as such should not be referred to in the target setting process. While ERNIP may be a helpful roadmap in providing the measures and projects to improve ENV performance, we call for an explanation of how this would be converted to quantitative effect
ANSP (Austrocontrol)	KEA is outside the level of influence of the ANSP especially with a free route system implemented. ANSPs do not have control over the usage of ERNIP improvements.
ANSP (ANS CR)	Given the predicted traffic growth in SES area in RP4, the improvement expected in the proposed upper bound target (0,05 %) might be (and according to the predictions will be) heavily outweighed (in terms of greenhouse gas emissions from the air traffic) by mere traffic volume which is (by far) the main environmental factor in terms of the amount of greenhouse gas emissions (please see also the answer to 4.2 above). As AUs are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1. It has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on horizontal efficiency.
ANSP (LFV)	While assumption of any improvement to be gradual seems to deserve support, the estimated benefit from ERNIP is considered too optimistic and therefore cannot be supported. E.g. Airspace Users are not obliged to take the shortest available route, and will often make other choices. Hence they will not fully benefit from the available, improved network. It has been proven that FRA implementation has a positive impact on KEP but only a marginal effect on KEA. It must be demonstrated that ATM system changes have a real, quantifiable influence on KEA Moreover, the expected improvement used for the lower bound estimation is not supported by any document or feasibility analysis but seems to be only a theoretical expert

	estimate and as such should not be referred to in the target setting process. While ERNIP may be a helpful roadmap in providing the measures and projects to improve ENV performance, we call for an explanation of how this would be converted to quantitative effect.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: While ERNIP does prove to be important roadmap providing the measures and projects to be implemented in order to improve environmental performance, it should be explained better how it is monetized to quantitative effect.
ANSP (AIRNAV)	While assumption of any improvement to be gradual seems to deserve support, the estimated benefit from ERNIP is considered too optimistic and it does not require Airspace Users to take improvements of route network
ANSP (DFS)	While assumption of any improvement to be gradual seems to deserve support, the estimated benefit from ERNIP is considered too optimistic and cannot be translated into a 1:1 improvement of KEA. Among other factors, it is the AUs decision to use them. It has also been proven that FRA implementation has a positive impact on KEP but only a marginal effect on KEA.
ANSP (skeyes)	The estimated benefit from ERNIP cannot be supported. For example: • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1 • it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA
ANSP (Skyguide)	The PRB bases its entire target assessment on the RTE-DES indicator and translates the RTE-DES gains into HFE-KEA on a 1:1 basis. However, the correlation between RTE-DES and HFE-KEA is not established. Differences can be observed when comparing the variation of past performance values for the two indicators. It is therefore not appropriate to use the full RTE-DES improvement to set HFE-KEA targets and the whole PRB approach to setting ENV KPI targets should be reconsidered.
ANSP (NAVIAIR)	The Danish ANSP supports the intention, but some notice needs to be given to the concrete content of the ERNIP, as the operational reality is not at a standstill. This means things and/or prerequisites can change over time due to various circumstances, hence affecting the expected benefits determined sometimes before the project is started.
Member State (Netherlands)	The ERNIP is a rolling plan, as stated in the report, and using it to define detailed targets five years ahead is not appropriate. Although not fitting into the performance regulation, using it as a base for rolling updates of the targets would be more appropriate. As PRB strongly recommends incentive schemes on environment the basis for target setting must be appropriately stable, even at the end of the period. In addition the variability that airspace users bring to Environmental KPA is not accounted for by ERNIP. If ERNIP is used for the European wide targets it must also be taken into account when producing the breakdown values.
Member State (Spain)	Following the previous comments, Spain considers that as a first step we should establish a solid KPI rather than the use of KEA, and a realistic target to establish an appropriate link between environmental KPI and ERNIP.
NSA (Croatia 1)	Estimated benefit from the ERNIP is not supported as Airspace Users are not obliged to take improvements of route network.
NSA (France)	Mixing up KES/KEP and KEA when mentioning FRA benefits and route network design improvement leads to an overestimation of the ERNIP benefits assessment in the report. It is agreed that FRA implementation has a positive impact on KEP, but the resulting impact on KEA is marginal in most airspaces concerned. In addition, it remains unclear how allowance could be set and benefits measured in a consistent way when only part of the KPI is not under control of the ANSPs. For example, the increase of large-scale military exercises which should become more frequent in the future and the increased impact of adverse weather conditions due to climate change should also be considered. It leads to RP4 target ranges which are not realistic and cannot be supported.
NSA (Poland)	Assuming a gradual increase in benefits resulting from ERNIP throughout the entire RP4 period is acceptable. Nevertheless, the methodology for calculating specific values in subsequent years of RP4 requires additional clarification by the PRB
NSA (Italy)	The estimated benefit from ERNIP cannot be demonstrated, at present. For example • Airspace Users are not obliged to take improvements of route network, so ERNIP improvements cannot be translated to KEA improvements 1:1

	• it has been proved that FRA implementation has a positive impact on KEP but only a marginal effect on KEA. In more detail, para 59 highlights how the connection between improvements introduced by ERNIP and benefits to the KEA is far from certain. With this it becomes clear that ERNIP cannot be the key to solving the KEA problem. Nevertheless, in para 61 reference is made to a hypothetical "new ERNIP," which was never discussed in detail, falling into the same error. The estimates calculated by the Network Manager are totally theoretical
NSA (Croatia 2)	Estimated benefit from the ERNIP is not supported as Airspace Users are not obliged to take improvements of route network.
NSA (Austria)	It can hardly be assumed that benefits materialize on a linear scale. Even if the 2029 value is considered realistic, the uptake by airspace users will be slower. This results in a lower impact in the beginning of RP4 that would more exponentially increase towards the 2029 value. With a Free Route Airspace implemented, the influence of the ANSP on the chosen route is negligible, which also means that ENRIP improvements cannot be simply added to the calculation.
NSA (Germany)	NM estimates that the RTE-DES in 2023 is estimated to be 1,84 and the minimum achievable RTE-DES is approximately 1,75%. This is stated in the main report No 69. As evidence is quoted a bilateral discussion in footnote 8 (footnote 10, 11 Annex 1 as well). It should be clear that is no evidence when there are not even minutes attached and such values cannot be considered in any further calculation. PRB also explains that RTE-DES is a theoretical value (Annex 1 No 59). As regards RTE-DES there is so much anticipation, estimation, approximation (one can read that e.g. in Annex 1 No 58, 59, 60, 61, 62). Having a theoretical value with a derivation of its influence to KEA as given in a really brief and non-retraceable way as given by Annex 1 No 59 is not sufficient at all. This “Evidence 2” cannot be considered as an evidence and should therefore be eliminated from the calculations and in consequence from the report.
NSA (Switzerland)	See comment in par. 4.2.
Professional staff representative body (IFATCA)	As mentioned, I agree with the focus on environment, but I find the targets too optimistic. They should be more realistic, which I believe will have a positive impact on stakeholders, and their effort to reach the targets.
Professional staff representative body (ATCEUC)	Same as above, the methodology and how figures are calculated need additional element to be understood. Maybe a practical use case should be developed to help understanding. Free route implementation will have a positive impact on flight planning, but the impact on flight efficiency KEA will not be the same as direct points in neighbouring sectors are already given by ATCOs on a daily basis. As explained above, the proposed RP4 target ranges are not regarded as achievable and realistic. The PRB targets ranges, except for the year 2020, were never even close to be reached in the past ten years. How to imagine that in 13 months, not only actual trends will be reversed but also flight efficiency performance records will be beaten.

Table 8 - Comments received on question 4.3.

PRB analysis

109 In response to the survey question 4.3, most of the stakeholders (30 of 45) expressed disagreement with the proposed approach to ramp up the ERNIP benefit, while six agreed.

110 The main themes raised in the comments regard:

- The gradual approach to ramp up the ERNIP benefits;
- The estimated impacts on environment derived from the ERNIP benefits are too optimistic; and
- RTE-DES and KEA correlation.

111 Whilst there is large support on the gradual approach taken to incorporate the benefits into the targets, the estimated ERNIP benefits translated to KEA are considered to be too optimistic, leading to lower support by the stakeholders.

112 In particular, stakeholders argued that the overestimation is due to the assumption that FRA implementation has significant implications on KEA while in reality the improvements are marginal compared to the improvements expected on KEP. Additionally, airspace users are not obliged to make use of route network improvements and this variability is not accounted for in the ERNIP.

113 On the other hand, some stakeholders argued that the ERNIP benefits at the beginning of the reference period have instead been underestimated. As the regulatory deadline for full FRA cross-border FRA and FRA connectivity with TMAs is 2025, significant improvements are expected, particularly at the beginning of RP4.

114 Finally, stakeholders commented on the correlation between RTE-DES and KEA. They argue that RTE-DES improvements cannot be directly translated into KEA improvements and doing so leads to inappropriate, unrealistic targets.

PRB response

115 The PRB notes the large support on the gradual approach and recognises that stakeholders are concerned about the overestimation of the benefits. The ERNIP is established and implemented by the Network Manager in coordination with Member States and stakeholders. This plan provides a network-consolidated picture of network and local projects and the evaluation of their contribution to the European network performance targets and local reference values.

116 Based on the ERNIP plan, which estimates the expected RTE-DES reduction to be achieved by the end of RP3, the PRB's estimates of ERNIP benefits are low (0pp to -0.09pp). This is because, as noted in the target ranges report, the benefits of FRA and cross-border FRA have largely been achieved in terms of improving the efficiency of the route network design. It now remains for the benefits in route network design to manifest in actual environmental performance.

117 Furthermore, in Annex I of the target ranges report, the PRB acknowledges that RTE-DES is not the same as KEA. However, the PRB has used the scale of the RTE-DES benefits projected for the 2025-2029 period to indicate the scale of improvements that might be expected in KEA. These forecasted KEA improvements are marginal, resulting in a limited impact on the environment target ranges.

118 The PRB believes the judgment used to allocate the benefits relating to the ERNIP is not materially sensitive given the relatively small scale of the ERNIP benefits.

Question 4.4

119 The PRB study into the interdependency between capacity and environment demonstrates that Air Traffic Flow Management (ATFM) delays have a negative impact on horizontal flight efficiency. The PRB considered the inputs given by this study for setting the environment target ranges for RP4. It is estimated that an increase of one minute of average en route ATFM delay per flight causes an increase of 0.14pp to en route horizontal flight efficiency (KEA). In Question 4.4, respondents were asked "*To what extent do you agree with the proposed approach?*".

120 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

121 Figure 9 shows the distribution of the replies. The majority of stakeholders (28) disagreed with the proposed approach (22 disagreed to some extent and six fully disagreed), while 12 respondents agreed (two fully agreed and 10 agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs and NSA and Member State representative disagreed with the proposed approach, while the majority of the airlines agreed. All the professional staff representative bodies disagreed with the proposed approach.

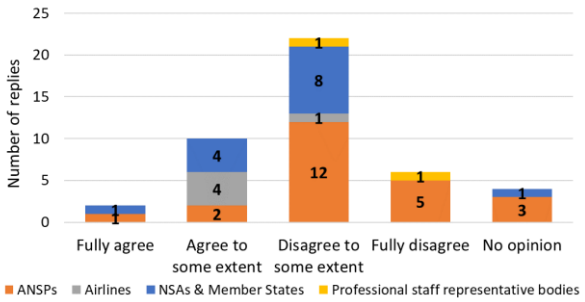

Figure 9 – Number of replies to Question 4.4 "To what extent do you agree with the proposed approach? (ENV-CAP interdependency)" (source: PRB elaboration).

122 Individual comments are listed in Table 9 (next page). 37 out of 47 respondents made a comment on the question, out of which:

- 20 ANSPs, including one association;
- Four airlines, including three associations;
- 11 NSA and Member State representatives; and
- Two professional staff representative bodies.

4.4 To what extent do you agree with the proposed approach? (ENV-CAP interdependency)	
Stakeholder	Comment
Airline (IATA)	The interdependencies report tries to model the relationship between capacity and environment linearly. We acknowledge the simplicity of linear models but, as delay grows exponentially with traffic, maybe a linear model is not the best one (R2=0.31, when perfect adjusted model would have R2=1). The report also points out that different causes of delay affect HFE differently, also with different network impact depending on the originating State. Such impacts and how action on specific causes could impact results has not been considered. The proposed inefficiency allowance for target setting, as proposed, seems, therefore, oversimplified. More importantly, this approach allows horizontal inefficiency to be driven by the expected delay levels. This sounds a bit contradictory with the overall intention to prioritize the environment and provide sufficient capacity to allow the targeted reduced emissions
Airline (ERA)	Capacity and environment are inextricably linked. Delays result in inefficient trajectories. Airline ability to fly the most carbon efficient route is throttled by capacity constraints.
Airline (Easyjet)	While we agree that environment and capacity are linked KEA (as outlined before) is not a suitable indicator. Airline ability to fly optimum trajectories mandates that ANSPs provide capacity where demand is and in the planned amount. Delays, based on the approved flight plan, do have an impact on efficiency. Again it has to be ensured that no perverse effects will materialise based on wrong environmental KPI assumptions.
Airline (A4E)	While we agree that environment and capacity are linked KEA (as outlined before) is not a suitable indicator. Airline ability to fly optimum trajectories mandates that ANSPs provide capacity where demand is and in the planned amount. Delays, based on the approved flight plan, do have an impact on efficiency. Again it has to be ensured that no perverse effects will materialise based on wrong environmental KPI assumptions.
ANSP (FABEC)	The methodology to calculate the Union-wide targets is not sufficiently disclosed and the evidence is incomplete. Again, asking if a certain pp adjustment is appropriate without understanding the calculation of the base value does not enable a meaningful assessment of the proposal! It is urgently required to find effective ways to take these interdependencies substantially into account in the EU/FAB/national target setting process. For both CAP and ENV, it is obvious that the target setting methodology including the consideration of interdependencies does not result in achievable EU target range proposals. Please note, the relation of 1 minute delay leads to 0.14pp circumnavigation, which is an average that is differing with the scale of the exercise, the chosen timeframe, and the area and traffic volume that is selected for the assessment. How do you plan this to be broken down on a national level?
ANSP (Polish Air Navigation Services Agency)	Experience from previous years shows that en-route delays, which, as PRB points out, have an impact on KEA, are much higher than the proposed capacity targets, which also go much beyond agreed and operationally justified NOP values. Therefore, it is expected that the real impact of delays on KEA will be much higher than assumed by PRB. Increased military activities and diverse weather impact, together with their non-predictability, also affect airspace capacity and flight efficiency and they are not sufficiently considered. Traffic volatility and changing geopolitical reality lead to need for constant optimization and changes to airspace structures. Implementation of new solutions and airspace changes will also periodically affect airspace availability, and will generate delays. Therefore the value of KEA is significantly underestimated, which is a direct result of the incorrect estimation of capacity targets for RP4.
ANSP (ROMATSA)	There are still many unknown factors which cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic – during COVID reconfiguration in a neighbouring airspace was also a factor, as demonstrated in Romanian airspace. In times of high demand (summer, etc.), NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. We would also like to know how the CAP-ENV interdependency will be monitored.
ANSP (NAV Portugal E.P.E)	NAV Portugal agrees with the proposed approach to include the impact of capacity constraints, at network level, in the calculation of the target ranges by reflecting it by allowances to the target ranges. Yet, the methodology presented doesn't allow the needed traceability of the figures and its results; as a consequence, the presented percentages are impossible to be disputed.

ANSP (LVNL)	We welcome that PRB has endeavoured to factor in the interdependency between capacity and environment. However, there are still many unknown factors which cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic and too generic. The effect of insufficient capacity on environment performance of the whole route network depends on where the bottleneck is, even though two bottlenecks may have the same average ATFM delay.
ANSP (ENAV)	RP3 targets not met despite COVID; evidence 1, 2, and 3 not robust enough to justify further increase in the ambition in KEA. Benefits predicted by ERNIP are purely theoretical; in RP3 they were not helpful in achieving targets. Many unknown factors that cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic – during COVID reconfiguration in a neighbouring airspace was also a factor. In periods of high demand (summer, holiday periods, sky season, etc.), NM requested ANSPs to operate under Flight Plan Adherence rules, avoiding any direct routing for better capacity planning /predictability, this had negative impact on KEA. Showing the opposite effect anticipated by PRB of CAP improvements supporting ENV. Table 10, to be revised considering a review in defining the KEA. To clarify how evaluation on which States are impacted by the RUS-UKR war, to consider the domino effect on adjacent States. Also other conflicts affecting the Region - MID
ANSP (ENAIRE)	There are still many unknown factors which cannot be captured in figures, neighbouring airspace, route structure, network measures, among others. NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements.
ANSP (DSNA)	This is an interesting study, with an attempt to quantify a well-known interdependency, among other ones. But a good understanding of the interdependencies between all KPAs is essential for meaningful target setting. The PRB's acknowledgement that this understanding has not yet been achieved should trigger additional analyses.
ANSP (BULATSA)	Calculations/evidences have not been disclosed to the stakeholders to support a better grip of the defined interdependencies. It is worth further exploring airlines preferences in times of high demand (summer, etc.) and the impact of NM recommendations to avoid any direct routings, even though these would have negative impact on KEA.
ANSP (CANSO)	We welcome PRB's efforts to factor in the CAP-ENV interdependency. However, equating traffic decrease with KEA decrease is simplistic. During COVID, reconfiguration in a neighbouring airspace was also a factor and 2020-2021 cannot be considered as reference for ENV target setting. The effect of insufficient CAP on ENV performance of the whole route network depends on where the bottleneck is. Interdependence is not linear. COVID proved that with low traffic it was possible to improve HFE values; but the Ukraine war shows that even with reduced traffic and no capacity restrictions HFE trends could be negative. In times of high demand, NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding direct routing, even though this negatively impacts KEA. ENV targets should consider realistic delay levels for RP4: NOP could serve as a basis rather than unachievable CAP target ranges. Lastly, how will the CAP-ENV interdependency will be monitored / addressed?
ANSP (Austrocontrol)	Both target ranges are unrealistic and unachievable.
ANSP (ANS CR)	The ATFM delay is not a cause of horizontal flight inefficiency. It is the effect of a situation when the demand for a given airspace is higher than its capacity. Then, the capacity fills up (which means that ensuring separation in a dense traffic situation requires (besides vertical horizontal manoeuvring, which can decrease horizontal efficiency). Therefore, both decreased horizontal efficiency and delay are the effects of the same cause – excess demand (which can never be eliminated, because the demand is potentially unlimited, in contrast to the capacity).
ANSP (LFV)	We welcome PRB's efforts to factor in the CAP-ENV interdependency. However, equating traffic decrease with KEA decrease is simplistic. During COVID, reconfiguration in a neighbouring airspace was also a factor and 2020-2021 cannot be considered as reference for ENV target setting. The effect of insufficient CAP on ENV performance of the whole route network depends on where the bottleneck is. Interdependence is not linear. COVID proved that with low traffic it was possible to improve HFE values; but the Ukraine war shows that even with reduced traffic and no capacity restrictions HFE trends could be negative. In times of high demand, NM has strongly requested

	that ANSPs operate under Flight Plan Adherence rules, avoiding direct routing, even though this negatively impacts KEA. ENV targets should consider realistic delay levels for RP4: NOP could serve as a basis rather than unachievable CAP target ranges. Lastly, how will the CAP-ENV inter-dependency will be monitored / addressed?
ANSP (AVINOR)	Because Norway is situated in the outskirts of Europe, we see that reduced capacity may not necessarily result in a longer distance flown in Norwegian air space. The delays are absorbed on the ground and the horizontal efficiency ends up as the same or even improved.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: There are still many unknown factors which cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic – during COVID reconfiguration in a neighbouring airspace was also a factor. In times of high demand (summer, etc.), NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. We would also like to know how the CAP-ENV interdependency will be monitored.
ANSP (AIRNAV)	Ireland has had very little ATFM delay but has nonetheless faced some deterioration to its KEA score in RP3 due to factors outside of its control including changed airline behaviour following airspace reconfiguration in neighbouring airspace. AirNav has engaged with NM extensively in relation to this and is available to discuss in more detail with the PRB. In times of high demand (summer, etc.), NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements
ANSP (DFS)	Although the interdependency between ENV and CAP has been acknowledged, it has unfortunately not been addressed in the target range proposal, thus leading to wrong assumptions in the proposal. It is urgently required to find effective ways to take these interdependencies into account in the EU/national target setting process. Interdependence is not linear. COVID proved that with low traffic it was possible to improve HFE values; but the Ukraine war shows that even with reduced traffic and no capacity restrictions HFE trends could be negative. In times of high demand, NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding direct routing, even though this would negatively impact KEA. ENV targets should consider realistic delay levels for RP4, for which NOP could serve as a basis, rather than unachievable CAP target ranges.
ANSP (skeyes)	Although the interdependency between ENV and CAP has been acknowledged, it has unfortunately not been addressed in the target range proposal, thus leading to wrong assumptions in the proposal. It is urgently required to find effective ways to take these interdependencies into account in the EU/FAB/national target setting process. There are still many unknown factors which cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic – during COVID reconfiguration in a neighbouring airspace was also a factor. In times of high demand (summer, etc.), NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements.
ANSP (Skyguide)	Thank you for recognising the interdependence between KPAs. However, HFE is not only influenced by capacity but also by other factors such as weather and cost efficiency: Adjustments should be made taking all relevant factors into account. Taking only capacity into account can only lead to mistakes in the adjustment figures.
ANSP (NAVIAIR)	In 2023, the Danish ANSP experienced a lack of capacity which resulted in a lower performance in the KPA than expected. Hence, sufficient capacity is essential to be able to deliver on the KPA, and it is therefore paramount for the Danish ANSP to achieve sufficient capacity in RP4.
Member State (Netherlands)	The PRB study indicates the interrelation between capacity and environment but is not shown to be exhaustive. Other interactions between the areas and indicators are realistic and should be considered before the results are used for target setting, especially if used in an incentive scheme.
Member State (Spain)	Spain agrees with PRB in considering the interdependency between capacity and environment; however, there are still many unknown factors that cannot be captured in figures and need more

	studies (traffic, airspace structure and military use, neighbouring airspace, network measures…). A good example to highlight is that Spain only achieved the KEA objective during the COVID
NSA (Croatia 1)	It is an opinion that there are still many opened questions that need to be answered before bringing final conclusions and quantifying the capacity-environment interdependency. Especially with the notion that this kind of quantification is performed with Key Performance Indicators that are not adequate for both Capacity and Environment Key Performance Area – as ATFM en-route delay per flight is an indicator of lack of capacity and not capacity offered, while KEA does not take various elements that have even greater effect on the environment.
NSA (France)	It is recognized that environment, including KEA values, is impacted by traffic levels and in some cases by resulting capacity issues, which can also generate delays. However, a complete understanding of interdependencies between all KPAs is needed for target setting and implementing a balanced approach, which is not yet the case today. KEA is highly influenced by many factors outside the control of ANSPs (military activity, airspace user choices, weather disruption etc.) which are not directly linked to delays. In addition, based on information provided in the report, it is quite unclear how such UE level assumption could be broken down at local level. To run a meaningful consultation for EU target setting also implies to provide an insight on the methodology applied to breakdown these values at local level, which has not been done neither for environment nor for capacity. Only the full information would have enabled stakeholders to assess the robustness of the methodology
NSA (Poland)	The PRB study provides to some extend information on the link between capacity and environment and what the overall network benefits should arise from the adoption of such an approach. It would be also highly advisable for the transparency of the process and for the conduct of future consultation with stakeholders that the PRB makes available key data, methodologies, processes applied, and the justifications of all key assumptions for the derivations of KPI target ranges and proposals. This is related to all 4 KPAs.
NSA (Italy)	There are still many unknown factors which cannot be captured in figures; the PRB approach equating traffic decrease with KEA decrease is simplistic – during COVID reconfiguration in a neighbouring airspace was also a factor. In different periods of the year of high demand (summer, holiday periods, sky season, etc.), NM has strongly requested that ANSPs operate under Flight Plan Adherence rules, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. We would also like to know how the CAP-ENV interdependency will be monitored.
NSA (Switzerland)	The interdependency between ATFM delay and environment as stated in the PRB advice is oversimplified. Other factors such as traffic complexity, density, traffic demand, weather, airspace users' preferences (route charges), size of airspace etc. have a substantial effect on the environment KPA. A thorough understanding of interdependencies between KPAs is key for a meaningful and realistic target setting. Furthermore, since KEA is not fully within the control on ANSPs, the accountability (in terms of ENV ambition) cannot be solely attributed to them. Therefore, to correlate an increase of one minute of average en route ATFM delay per flight causes with an increase of 0.14pp to en route horizontal flight efficiency (KEA) is not considered as adequate
NSA (Croatia 2)	The methodology used to quantify the capacity KPI contribution to the achievement/underachievement of environment KPI contains elements that could have an influence for such results. EXPL. during the 2022 and 2023 summer period at pre-tactical and tactical capacity planning level, NM requested the local ANSP's to offer 10% capacity buffer and requested that ANSPs operate under Flight Plan Adherence rules, which resulted with better flight distribution on the network level and ensuring greater predictability, less volatility and less delay. This highly influenced the possibility to use direct routing and reduced the possibility for achieving the environmental target. There are still many questions that need to be answered before quantifying the capacity-environment interdependency. Especially with the notion that this kind of quantification is performed with KPIs that are not adequate for both CAP and ENV KPA.
NSA (Latvia 1)	Probably methodology and assumptions for this estimation should be necessary, just to be transparent.
NSA (Austria)	We agree with the approach to interdependency as such. We disagree however with the values being used, as they are based on the equally unrealistic capacity targets.
NSA (Germany)	In the main report RPB is stating that the capacity targets have to be challenging to minimise the impact of delay and to support the PRB's focus on environmental performance. Hence, the PRB

	proposes targets to minimise the adjustments to the environment targets by setting ambitious, but realistic, capacity targets. In our view, the capacity target ranges as well as the environment target ranges are too ambitious. Although it is understood that delay has an influence on environmental performance, targets should be realistic which they are not due to several misinterpretations and inadequate evidences as further described in our replies to e.g. the methodologies. If for any reason, the expected optimum is too far away from what is realistically and with great ambition possible, targets should at least be reasonable, especially from an economic point of view. In this case the proposed ranges are instead overambitious as not properly derived and determined. Annex 1 No 64 is stating that during covid KEA decreased with sufficient capacity. Many times, in the reports, covid-years are stated as a time not considered in evidences due to its specific nature. Is considered that the years of covid are not benchmark at all. There was due to less traffic no airspace congestion. This is with pre- and past Covid times simply not comparable. In the whole report the timeframe considered should be streamlined, We can also not understand why in the interdependency study only sample days are considered and those even just for the years 2018 until end 2022. Why is not the same timeframe considered for all KPAs and evidences? This is not a scientific approach if one chooses with no further explanation for several KPAs different timeframes of consideration of historical or values or to show interdependencies in the past. Please provide us with studies and their results using the same timeframes. Otherwise evidences cannot be further considered due to their arbitrariness.
Professional staff representative body (IFATCA)	As mentioned, I agree with the focus on environment, but I find the targets too optimistic.
Professional staff representative body (ATCEUC)	One of the bases of this study for the drawing of conclusions was the analysis of capacity and flight efficiency during covid crisis. Traffic was 50% lower, resources available were far above the needs, same for capacity, most of the flight planning restrictions were lifted, aircraft were empty allowing them to have a better vertical performance reducing complexity for ATC: these elements make extremely hazardous to use this period to draw conclusions. The element to be kept in mind is: for RP3 flight efficiency targets were reached when traffic was 40% of 2019. Original RP3 ambition are unrealistic.

Table 9 - Comments received on Question 4.4.

PRB analysis

123 In reference to the survey Question 4.4, stakeholders acknowledge the correlation between capacity and environment and the importance to address it. However, a majority of stakeholders (28 of 44) expressed disagreement with the PRB approach to use the CAP-ENV interdependency study as input, while 12 respondents agreed. Most ANSPs, NSA and Member State representatives, as well as professional staff representative bodies disagreed with the proposed approach, while the majority of airlines agreed with it.

124 As highlighted by the comments, the main reasons for disagreement identified by the PRB regard:

- The incomplete disclosure of the methodology and evidence;
- The need to better understand the relationship between ENV and CAP; and
- The consideration of the COVID-19 pandemic period.

125 Stakeholders called for the disclosure of available data, methodologies, processes applied, and justifications of all key assumptions used to derive the environment target ranges.

126 When it comes to the model used to define the relationship between the capacity and environment KPIs, many stakeholders found that the linear model is too simplistic and various factors, such as the reconfiguration in neighbouring airspace, traffic growth, airspace structures, and network measures cannot be captured.

127 Additionally, the relation of one minute of average en route ATFM delay resulting in 0.14 pp increase in horizontal flight efficiency is an average of the study. Stakeholders questioned how this figure can be broken down to national level.

128 Furthermore, the interdependency study exercises are based on data during the COVID-19 pandemic period, which represents an anomaly in terms of traffic levels, and therefore delay. Hence, the COVID-19 pandemic period should not be used to form the basis on which targets are set upon. Some stakeholders additionally stated that, while the COVID-19 pandemic proved that with low traffic HFE values could be improved, the Russia's war of aggression against Ukraine shows that even with reduced traffic and no capacity restrictions HFE trends are negatively impacted.

129 Stakeholders agreed that there are still numerous open questions regarding the capacity and environment interdependency, emphasising the need to be fully understood before incorporating the input into the targets.

PRB response

130 In Annex I of the target ranges report, the PRB presented comprehensive information on the methodology and supporting data from the interdependency study on capacity and environment. For more detail on the methodology, justifications and data used in the environment and capacity interdependency study, please refer to the "*The interdependency between the environment and capacity KPIs of the performance and charging scheme of the Single European Sky"* PRB report and its annex.[1]

131 Given that there were no indications of non-linearity, the study made use of linear regression models to quantify the interdependency between UW HFE and en route ATFM delays, the impact of seasonal changes on the interdependency, and the different impacts of ATFM delays on HFE.

132 Acknowledging the anomaly introduced by the COVID-19 pandemic, the PRB maintained the data from year 2020 in the scope to ensure a continuous sample enabling the identification of trends and providing relevant data insights on the interdependency between the KPAs in the case of lower traffic levels and more capacity. Furthermore, rather than a reduction in traffic, Russia's war of aggression led to a shift in traffic flows, which had a negative impact on KEA.

133 In terms of breaking down the interdependency value at national levels, the PRB is working closely with the Network Manager to ensure that the national reference values consider local circumstances to the maximum extent possible.

134 The PRB has acknowledged that the current study serves as a starting point and that further research is required to better understand the relationship between the CAP and ENV KPAs. Stakeholders have consistently emphasised the importance of accounting for interdependencies between KPAs

[1] PRB report *The interdependency between the environment and capacity KPIs of the performance and charging scheme of the Single European Sky*.

when setting targets under the performance and charging scheme. Therefore, the PRB considers it important to incorporate the latest information regarding interdependencies to support the development of the targets for RP4.

Question 4.5

135 While it is not possible to predict the evolution of the conflict and the geopolitical climate, the PRB assumes as a starting point that route extensions resulting from Ukrainian, Belorussian, and Russian airspace closures and airspace restructuration in neighbouring Member States will remain in place for the entirety of RP4. The PRB proposes to include a Union-wide allowance for the impact of Russia's war of aggression against Ukraine on KEA. Such an impact should be only considered for a limited number of affected Member States when setting the local targets. In Question 4.5, respondents were asked "*To what extent do you agree with the proposed approach?*".

136 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

137 Figure 10 shows the distribution of the replies. The majority of stakeholders (34) agreed with the proposed approach (nine fully agreed and 25 agreed to some extent), while eight respondents disagreed (five disagreed to some extent and three fully disagreed). When analysing the responses by stakeholder category, the majority of ANSPs and NSA and Member State representatives agreed with the proposed approach, as well as all the airlines. One professional staff representative body fully agreed with the proposed approach, while one disagreed to some extent.

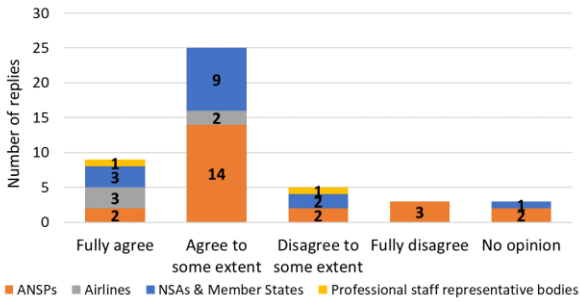

Figure 10 – Number of replies to Question 4.5 "To what extent do you agree with the proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)" (source: PRB elaboration).

138 Individual comments are listed in Table 10 (next page). 36 out of 47 respondents made a comment on the question, out of which:

- 20 ANSPs, including one association;
- Five airlines, including three associations;
- 10 NSA and Member State representatives; and
- One professional staff representative body.

4.5 To what extent do you agree with the proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)	
Stakeholder	Comment
Airline (IATA)	The impact of the Ukraine war affects only a certain number of States, there are concerns about the inclusion of this impact at EU wide level, since it could mask other inefficiencies. We would like clarity on how this impact can be identified and separated in the reference values when presented. The following could be considered: - Define the EU target with and without the impact of the war (separate allowance) - Define 2 EU targets one for the States recognized as affected, another for those who are not Even if the conflict ends, sanctions could last longer, the Ukrainian airspace could still be avoided (security perception).
Airline (Lufthansa Group)	The states should have adopted to the new geopolitical situation in the meantime.
Airline (Easyjet)	It is safe to assume that the repercussions of the Ukraine war are limited to specific states. The inclusion of this inefficiency at EU-wide level raises obvious concerns. We seek clarification on how this impact can be discerned and isolated from other sources of inefficiency. The comments under 4.1-3 apply as well.
Airline (A4E)	It is safe to assume that the repercussions of the Ukraine war are limited to specific states. The inclusion of this inefficiency at EU-wide level raises obvious concerns. We seek clarification on how this impact can be discerned and isolated from other sources of inefficiency. The comments under 4.1-3 apply as well.
Airline (ERA)	With the caveats noted above. *(editor note: see ERA comment in 4.1B)*
ANSP (FABEC)	The impact on Union-wide KEA of Russia's war of aggression against Ukraine is not to be underestimated. States close to the conflict area are carrying most of the burden. States with an already saturated airspace also struggle to accommodate the shift of flows without any KEA or delay impact. Therefore, a relatively small figure showing a small % of the overall traffic is impacted, simplifies the struggle to provide the capacity where required and the risk of exponential increase of delay. The negative KEA impact in most cases cannot be avoided due to the achieved distance approach. National/FAB targets based on KEA therefore are not appropriate.
ANSP (Polish Air Navigation Services Agency)	We strongly support taking into account the impact of the War in Ukraine on KEA. However, the proposed value of 0.24pp seems to be underestimated as 1. it is calculated for the year 2022 (where over Jan-Feb the flights were not yet impacted by the war) 2. impact of some restrictions (e.g. Belarus) was visible already earlier. It is unclear how the EU-wide allowance will be allocated to States – and this is crucial to assess the PRB proposal. Poland had a negative impact on KEA long before the outbreak of the war (restrictions after the shooting down of MH17 in July 2014 and further after the forced landing of FR4978 in May 2021). These factors were not taken into account when setting KEA targets in recent years. It is of utmost importance that the KEA target values are realistic and achievable and the PRB report does not analyse the issue of achievability of the proposed target, neither at Union-wide level, nor at local level, including States directly affected by the war.
ANSP (ROMATSA)	The whole network has been impacted by the Ukraine / Russian/ Belarusian closures, although this is very different between Member States depending on where they are geographically positioned. The European Commission should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values.
ANSP (NAV Portugal E.P.E)	The whole network is affected by the Ukrainian / Russian closures, although the degree of such impact differs between Member States depending on their geographical location. Therefore, the European Commission should generally provide flexibility in the process to break down the EU targets into FAB/local reference values. This flexibility should also include break down of KEA at local level when FIRs are affected by lack of capacity in neighbouring ACC's.
ANSP (LVNL)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. We however strongly oppose setting local targets for KEA, but only keeping it as a network KPI. The disadvantages of this KPI are even stronger at local level than at network level, because what happens downstream or upstream of a State influences the performance at local level without being in control.

ANSP (ENAV)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. The EC should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values
ANSP (ENAIRE)	The impact of Russia's war of aggression against Ukraine on changes in air traffic flows must be properly quantified to consider all affected States when setting the local targets, including Spain.
ANSP (EANS)	The European Commission should provide flexibility in the process to breakdown the EU targets to local reference values
ANSP (DSNA)	Also an important impact to be taken into account. For FABEC countries, the impact is considered limited, thus the local targets will not be notably influenced by it. Yet, the rerouting of traffic flows has an impact on the whole network. The countries that aren't close to the conflict won't be able to bear an additional burden, knowing that their own objectives are extremely challenging.
ANSP (BULATSA)	The whole network is impacted by the war in a different way and as a follow up Member States depending on where they are geographically positioned. Greater flexibility is to be ensured in the process of breakdown of EU targets to local reference values, taking into account the additional rerouted traffic especially in South East Europe.
ANSP (CANSO)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. The European Commission should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values/targets. The allowance for the Ukraine war impact (0.24%) seems underestimated as it considers the whole of 2022, but for January and February this impact was not yet visible.
ANSP (Austrocontrol)	The allowance for the war impact seems underestimated as it considers the whole 2022 where for January and February this impact was not yet visible.
ANSP (ANS CR)	The benefit of using KEA is limited – please see the answer to 4.1 (first question) above, especially in case of local (FIR) use. In the SES area (union-wide) the indicator should reflect real situation, although it is influenced by a war.
ANSP (LFV)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. The European Commission should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values/targets. The allowance for the Ukraine war impact (0.24%) seems underestimated as it considers the whole of 2022, but for January and February this impact was not yet visible. Sweden must be one of the countries given extra allowance in this regard.
ANSP (AVINOR)	The whole network has been affected by the Ukrainian war although the impact varies depending on where in the region the ANSP is situated.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: LT is supporting the approach to apply customized approach to the ranges of the KPI. It would reflect EC and PRB understanding that one-fit-all approach does not suit anymore. Still, in the current report there is no confidence on the methodology applied on the measuring the effect of the war and the corrected KEA excluding the effect. Therefore, EC is expected to collaborate and provide transparent explanations on the value definition approach.
ANSP (DFS)	We do support the proposal to foresee an allowance for the impact of the airspace closures/re-routings caused by Russia's war of aggression against Ukraine. We however do not support the proposal to foresee such an allowance only in a limited number of affected countries, as we believe that the majority of countries in Europe is somehow affected. The impact in fact is very different within Europe. In Germany, an increase in complexity needs to be addressed due to the re-routings towards the south-east axis and the increase of military air traffic. Those effects definitely do also have an impact on KEA and need to be considered in the target development at EU as well as later on at FAB/national level.
ANSP (skeyes)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. The European Commission should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values.

ANSP (Skyguide)	The PRB suggests that efforts to achieve Union-wide targets should be more ambitious for countries not bordering the conflict than for those bordering it. This would be unfair as it would penalise all European countries given that traffic diversions and military exercises have an impact on the whole network.
ANSP (NAVIAIR)	The Danish ANSP agrees that Russia's war of aggression against Ukraine has affected the Danish ANSP's target performance on the KPA. Therefore, the impact should be included in setting the local target for Denmark.
Member State (Netherlands)	The whole network has been impacted by the war. Obviously, some states more than others. This effect should be included. When KEA is measured at local level it loses some of its use, the smaller the area the less relevant it is. Use of KEA is best in the setting of the whole network. Other Environmental indicators are better suited for local use.
Member State (Spain)	Spain agrees with PRB in considering the impact on Union-wide KEA of Russia's war of aggression against Ukraine as it has an impact in all European traffic flows.
NSA (Croatia 1)	Agree to some extent, if during the environmental targets local breakdown, European Commission and the PRB ensures adequate evaluation of the local circumstances and assigns this effect in a proper way to those Member States that are affected.
NSA (France)	Regarding impact on KEA of Russia's war of aggression against Ukraine, the assumption made by PRB is partially shared. It is true that a limited number of Member States will be concerned by major route extensions due to related airspace closures and/or restructuration. Nevertheless, the overall impact at EU level shall not be underestimated. The depiction of this impact on KEA as a pp of the overall traffic is not the most relevant way to measure it. In addition, in highly congested airspace, where ANSPs have difficulties to provide the requested capacity, even a small percentage of rerouted traffic can imply the risk of an exponential increase of delays and has impact on KEA, which is difficult to estimate at local level, based on the information provided in the report. Another related impact which is not properly addressed is the large-scale military exercises that will be organized more frequently in the future and could be more long-standing than the war itself.
NSA (Poland)	The Russian aggression against Ukraine do not affect all EU member states equally. Countries located in Eastern Europe are suffering serious negative effects of this situation. Therefore, the functioning of ANSPs in different regions of Europe is depending on the localisation. PRB should present a mechanism to compensate the effects of the situation in Ukraine. It should be emphasized again that the introduction of the Incentive Scheme in KPA Environment is not supported.
NSA (Italy)	The whole network has been impacted by the impact of Ukraine / Russian closures, although this is very different between Member States depending on where they are geographically positioned. The European Commission should therefore generally provide flexibility in the process to breakdown the EU targets to FAB / local reference values.
NSA (Switzerland)	The PRB suggests that the efforts to achieve the EU-wide targets should be made more ambitious for countries like Switzerland than for countries bordering to the conflict area. However, the impact on Unionwide KEA of Russia's war of aggression against Ukraine is not to be underestimated. The approach chosen by the PRB is considered inadequate as the re-routing of traffic flows and large-scale military exercises have an impact on the entire network. This results in an additional burden in terms of adding to the already ambitious environment targets.
NSA (Croatia 2)	Agree to some extent, if during the environmental targets local breakdown, European Commission and the PRB ensures adequate evaluation of the local circumstances and assigns this effect in a proper way to those Member States that are affected.
NSA (Austria)	The individual allowance is not reflected in the union-wide targets and in our opinion cannot be reflected properly.
NSA (Germany)	We agree with the assumption that the war is unpredictable and a further inclusion of a Union-wide allowance in the computation of local reference values for the states affected is strongly recommended. And while the member states considered affected and possibly affected by Annex III to the report as shown in Figure 1 on page 10 are certainly the ones with the most severe effects not only on their airspace and ATM. Concluding that in all other states in the contrary is a rather short statement and contradicts the fact that there is a chain of relevant effects originated in the war. This chain influences the whole SES, as also stated in Annex 1 No 71. In our opinion the Annex 3 is not explaining the impact sufficiently as one can only see that flight plans were considered, which is again a historical values-based calculation. And again,

	there are more influencing factors like congestion and airline behaviour, which affect different states differently. Please show, how these have been considered here as well since just having impacted flights in % of the total flights seems oversimplified.
Professional staff representative body (ATCEUC)	The proposal to include a Union-wide allowance for the impact of Russia's war of aggression against Ukraine on KEA for the entire RP4 is welcome. Nevertheless, the magnitude of the impact should be precisely identified not only on the neighbouring Member States but also on more regional level due to knock on effects. Furthermore, not only airspace closure and airspace restructuration in neighbouring States but also the impact of evolving military needs should also need to be considered. How airspace is use by military forces is used in the neighbouring states? What is the level of military traffic in the neighbouring States? These questions should also be considered when looking at the consequences on KEA at local level and consequently at EU level.

Table 10 - Comments received on Question 4.5.

PRB analysis

139 In response to question 4.5, the PRB acknowledges that most stakeholders (34 of 45) support the proposed approach to allocate a Union-wide allowance for the impact of Russia's war of aggression against Ukraine on KEA. On the other hand, eight respondents are in disagreement. ANSPs, NSA and Member State representatives, and airlines are generally aligned in their response, while some differing opinions exist within the professional staff representative bodies.

140 The main themes emerging from the responses include:

- Large support for the inclusion of an allowance;
- The overall impact on the network; and
- Requests for more clarity on the breakdown values.

141 Stakeholders largely supported the approach on adding an allowance as a result of the impact of Russia's war of aggression on Ukraine on KEA. However, some stakeholders consider that the 0.24pp allowance might be underestimated. This may be due to the fact that flights of January and February 2022 were not impacted yet and certain restrictions (e.g. Belarus) were already in place.

142 While all agreed that some Member States have been directly impacted and face a greater challenge than others, stakeholders emphasised that the war has a significant impact network-wide as well. Suggestions include presenting targets with and without the allowance, allowing for different targets to be developed for the impacted and non-impacted Member States.

143 Furthermore, when it comes to the local breakdown values, stakeholders called for greater clarity on how the breakdown has been undertaken and whether they will have a chance to review them before the final targets are published. Stakeholders requested that the PRB and the Commission undertake an adequate evaluation of the local circumstances and provide flexibility in the values given the uncertainty that the war brings.

PRB response

144 The PRB notes the large support for including an allowance in the targets for the impact of Russia's war of aggression against Ukraine. The PRB recognises the significant impact that Russia's war of aggression against Ukraine has on both Union-wide and local KEA. The methodology for calculating KEA indicates that there is a real, material and unavoidable impact on KEA for Member States in the vicinity of Ukraine and one which must be accounted for. The PRB, based on Eurocontrol calculations, updated the Union-wide allowance in the target report to reflect the latest circumstances, and established the local reference values that capture the impact on a Member State-by-Member State basis (resulting in an increase from 0.24pp to 0.28pp). The information is available in Annex II of the targets report. The PRB ensured that the full impact of the geopolitical situation is accurately reflected in the advice on the environmental targets to the Commission.

145 On the topic of how the local breakdown values are calculated, the local breakdown will be provided during the target process and are not part of the target ranges consultation. The local breakdown values of the environmental targets are calculated by the Network Manager based on the targets proposed. The PRB is in contact with the Network Manager to ensure that the allowance related to Russia's war of aggression on Ukraine will be considered for the local targets of the impacted Member States

2.4 Capacity

146 This section presents all questions on the capacity KPA included in the survey. This is followed by a table with all comments received. Six questions were asked:

- Question 5.1: To what extent do you agree with the PRB objective on capacity for RP4?
- Question 5.2: To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of capacity?
- Question 5.3: To what extent do you agree with the proposed approach? (ATC capacity & staffing)
- Question 5.4: To what extent do you agree with the proposed approach? (ATC related delays)
- Question 5.5: To what extent do you agree with the proposed approach? (Investment in ATM/ATC systems)
- Question 5.6: To what extent do you agree with the proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)

Question 5.1

147 Given the interdependency between capacity and flight efficiency, the objective for the capacity KPA in RP4 is to enable and support the environmental performance in the European ATM network by eliminating ATFM delays as much as reasonably possible and ensure a low level of delays experienced by airspace users. In Question 5.1, respondents were asked "*To what extent do you agree with the PRB objective on capacity for RP4?*".

148 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

149 Figure 11 shows the distribution of the replies. The majority of stakeholders (29) agreed with the PRB objectives on capacity for RP4 (seven fully agreed and 22 agreed to some extent), while 14 respondents disagreed (five fully disagreed and nine disagreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, airlines, NSA and Member State representatives agreed with the PRB objectives on capacity for RP4. One professional staff representative body agreed to some extent, while one fully disagreed.

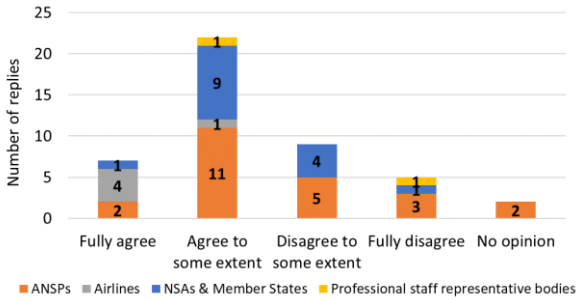

Figure 11 – Number of replies to question 5.1: "To what extent do you agree with the PRB objective on capacity for RP4?" (source: PRB elaboration).

150 Individual comments are listed in Table 11 (next page). 38 out of 47 respondents made a comment on the question, out of which:

- 20 ANSPs, including one association;
- Four airlines, including two associations;
- 12 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.1 To what extent do you agree with the PRB objective on capacity for RP4?	
Stakeholder	Comment
Airline (Lufthansa Group)	Non-sufficient capacity will force airlines to re-plan their flight trajectories, which leads to longer flight routes and efforts to stabilize operation. Therefore, the capacity targets are important to meet. Besides the economic burden for an airline, the passenger's experience is affected badly, and this could lead to additional socio-economic losses for the European Union and its citizens. Bottlenecks need to be addressed and structural improvements incentivized.
Airline (IATA)	Airlines agree on better enforcement for delivery of capacity, as they sustain the full compensation to passengers. Capacity planned and paid for in previous RPs is missing in some areas. Results in RP3 would have been even better than 0,5 min/ft if structural issues had been resolved. In 2022, 17 States reached their targets, many with zero or close to zero delays. Some underperforming States are causing immense disruption. However, airlines should not pay for excess capacity where not needed (cost-inefficient) and/or for previous measures that have been financed but have not been delivered. Expect in RP4 better adaptation to traffic variations. Expectation that capacity is not used just as an excuse for increasing the cost base as it happened in RP3. Targets in the upper bound can be supported, unless lower is necessary to achieve KEA. To better address gate to gate, arrival delays should also have EU targets and/or reference values to also minimize environmental impact in TMA
Airline (Easyjet)	An appropriate implementation of the Free Route Airspace concept and the set up of appropriate incentives for ANSPs to deliver a high quality service at an appropriate cost level to airspace users should be PRB's main goal. The comments under 4.4 nevertheless apply accordingly.
Airline (A4E)	An appropriate implementation of the Free Route Airspace concept and the set up of appropriate incentives for ANSPs to deliver a high quality service at an appropriate cost level to airspace users should be PRB's main goal. The comments under 4.4 nevertheless apply accordingly.
ANSP (FABEC)	The methodology to calculate the Union-wide targets is not sufficiently disclosed, which however is essential to enable meaningful consultation! For example, it is not clear how the economic optimal balance between cost and delay in detail led to the Union-wide target proposals. Historically, the PRB calculated targets were only reached in 2020 and 2021 when the traffic levels were exceptionally low. When traffic levels were high (i.e., 2018-2019), the enroute ATFM delay was very far beyond the target as recognized in evidence 1 (Report, item 85). With this track record, it is difficult to understand why PRBs methodology is not fully disclosed. Also, the delay forecast in the Network Operations Plan 2023-2027 is a factor 2 higher than the proposed target ranges. FABEC experts judge the proposed enroute target ranges as unachievable considering the expected increase in traffic demand.
ANSP (Polish Air Navigation Services Agency)	While in general ENV and CAP are considered important KPAs and providing high quality of service is crucial, any targets set at EU and local level must be achievable and realistic. The currently proposed CAP targets are not only lower than those proposed for RP3 and currently observed actual performance, but also much lower than latest delay forecast presented in NOP. This huge discrepancy may lead to refocusing the individual States'/ANSPs interest into defending the local targets vs. Network achievements. Taking into account capacity constraints in the network, changes in ATM systems/airspace reorganisations, traffic recovery, increasing military activity and expected traffic variability, the proposed targets seem impossible to be implemented. This seems to be confirmed by EC at 8.11.2023 workshop where it was said that targets need to be ambitious even if are considered not fully achievable and it is known that such efficient local performance will not be possible to be delivered.
ANSP (ROMATSA)	CAP improvements can support ENV efficiency, but it should not be assumed that this is always the case. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during periods with high traffic demand, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements.
ANSP (NAV Portugal E.P.E)	The proposal hides the intended increase in capacity behind a more consensual and benevolent goal of improving environmental efficiency. Although the proposal may be in line with the EU's political agenda, the focus must remain on correcting the structural capacity gap at network level, which was "dormant" during the pandemic years and is now being accentuated by

	the rapid recovery of traffic after the pandemic. The PRB's proposal remains out of touch with present reality and is based on a series of assumptions that cannot be solved by the end of RP3, like ATCO training and recruitment to close the respective gaps. In addition, the proposal is manifestly at odds with the work of the NM and the values published in the NOP. It remains to be seen whether the PRB/COM would prefer to maintain targets that are designed to feed the political agenda, but are inconsequential, or instead carry out a thorough gap analysis and see how far it is realistically possible to set the level of ambition
ANSP (LVNL)	Improvements in capacity performance can support environmental efficiency, but it should not lead to unrealistic targets for capacity.
ANSP (ENAV)	The assumption "If capacity can match demand, flights can make use of the improved route network and improve KEA" is uncorrect. It is not true that satisfying demand allows the KEA target to be met, as demand can be met through tactical FMP measures (STAMs) that force traffic to more unloaded operational sectors resulting in longer routes and less flight efficiency oriented profiles. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during periods with high traffic demand, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements.
ANSP (ENAIRE)	ATFM must ensure optimal traffic flow when demand is expected to exceed the available capacity, comprising activities related to traffic management in a way that is safe, orderly, expeditious and kept within the capacity. This goal doesn't always fit with environmental performance, priority of ATFM is SAFETY. Capacity increases have to be achieved moving away from the optimal flight efficiency. Extremely demanding targets for both capacity and flight efficiency, in a very constraint airspace, is not achievable keeping altogether levels of Safety. ENV performance cannot be left under responsibility of the ANSPs. AOs establish their Flight Plan according to aspects as wind, congested and/or regulated sectors or air navigation fees, frequently not following the most environmentally efficient routes. If the cooperation of AUs is taken to the extreme, they could schedule flights at non-congested areas or times without needing any ATFM measures.
ANSP (DSNA)	The statement could be true if capacity increases were earmarked (and therefore earmarkable) for environmental improvements to trajectories. In practice, as the increase in capacity is entirely consumed by the increase in traffic, it only leads to an increase in net CO2 emissions.
ANSP (BULATSA)	CAP improvements can support ENV efficiency, but it should not be considered as the rule. It is worth further exploring airlines preferences in times of high demand (summer, etc.) and the impact of NM recommendations to avoid any direct routings, even though these would have negative impact on KEA.
ANSP (CANSO)	CAP improvements can support ENV efficiency, but should not be overestimated and cannot be taken as a general fact. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during high traffic demand periods, avoiding any direct routing so that there is better capacity planning /predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. The priority of ATFM is SAFETY. Capacity increases have to be achieved moving away from optimal flight efficiency. Extremely demanding targets for both capacity and flight efficiency, in a very constrained airspace, are not achievable while maintaining high levels of Safety. From the network perspective, the proposed over-ambitious CAP targets, transferred into local reference values, can have negative effects as ANSPs would give priority to national needs against the Network.
ANSP (Austro Control)	Target ranges are unrealistic and unachievable
ANSP (ANS CR)	CAP improvements can support ENV efficiency, but it should not be assumed that this is always the case. In our case, we are not sure what influences the development of KEA - despite the implementation of additional X-FRA steps, the indicator is deteriorating. As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were extraordinarily low and far below the forecasts. We believe in setting demanding but achievable targets, setting unachievable targets can have negative influence on perception of the whole scheme. Moreover the translation of the local targets into the network one is not clear and vice versa.

ANSP (LFV)	CAP improvements can support ENV efficiency, but should not be overestimated and cannot be taken as a general fact. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during high traffic demand periods, avoiding any direct routing so that there is better capacity planning /predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. The priority of ATFM is SAFETY. Capacity increases have to be achieved moving away from optimal flight efficiency. Extremely demanding targets for both capacity and flight efficiency, in a very constrained airspace, are not achievable while maintaining high levels of Safety. From the network perspective, the proposed overambitious CAP targets, transferred into local reference values, can have negative effects as ANSPs would give priority to national needs against the Network.
ANSP (AVINOR)	On a network level capacity and environment, to an extent, are correlated. There are however individual differences. And with the principal of flight plan adherence, in order to increase capacity, the KEA weakens
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: We agree that there is interdependence, but it is not linear. COVID period proved that with low traffic it was possible to improve HFE values; but the Ukraine war case shows that even with reduced and distorted traffic-flows even when there's no capacity problems and everything else in operational setup remained ceteris paribus that HFE has become even worse and worse by few at affected States. Therefore, the interdependencies must be addressed carefully.
ANSP (AIRNAV)	CAP improvements can support ENV efficiency, but it should not be assumed that this is always the case. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during periods with high traffic demand, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements. From the network perspective, the proposed overambitious CAP targets, transferred then into local reference values, can have negative effects as ANSPs would give priority to national needs against Network achievements.
ANSP (DFS)	Reducing delays for airspace users as well as passengers and thereby improving flight efficiency is one of the main permanent objectives of ANSPs. However, this should be supported by seeking for realistic and achievable capacity targets. Assuming that existing capacity issues will be solved by the end of RP3 is not realistic. The pandemic-related reduction in training capacities has led to a delay in the planned replenishment of staff. Despite the ramp-up of ATCO training to its maximum capacity since 2022, it will take several more years before the gap can be closed. The priority of ATFM is Safety. Capacity increases have to be achieved moving away from optimal flight efficiency. Extremely demanding targets for both capacity and flight efficiency, in a very constrained airspace, are not achievable while maintaining high levels of Safety
ANSP (skeyes)	The PRB objective to minimize ATFM delays to support ENV performance is acknowledged but delay targets are excessively ambitious and unrealistic. The methodology to calculate the Union-wide targets is not sufficiently disclosed. A consultation is meaningless without this information. For example, it is not even clear how the economic optimal balance between cost and delay in detail led to the Union-wide target proposals. Historically, the PRB calculated targets were only reached in 2020 and 2021 when the traffic levels were exceptionally low. When traffic levels were high (i.e., 2018-2019), the en-route ATFM delay was very far beyond the target as recognized in evidence 1 (Report, item 85). With this track record it is difficult to understand why PRB's methodology is not fully disclosed. Also, the delay forecast in the Network Operations Plan 2023-2027 is a factor 2 higher than the proposed target ranges.
ANSP (Skyguide)	The targets set are not SMART (Specific – Measurable – Achievable – Relevant – Timed) in the sense that they are too optimistic and cannot be reached. And the NOP 2023-2027, with a delay forecast which represents the double of these PRB proposals, underlines this
ANSP (NAVIAIR)	The Danish ANSP supports the PRB objectives on capacity as it greatly affects both the environment and airlines. The Danish ANSP estimates that with increased operational resources, the Danish ANSP will be able to deliver ambitiously on the objectives on capacity. However, new training areas for F35 and their influence on en route capacity should be taken into consideration in local target setting.

Member State (Germany)	The objective is supported when completed by the interdependency with safety and cost-efficiency. With the evidence provided in the report doubts and questions remain, especially on suitability of the potential targets proposed to solve the optimisation problem at union-wide and at local level. With the details provided it seems reasonable to assume that relevant parameters are neglected, and the analysis is not deriving optimal (balancing) results; meaning proposed targets will most likely lead to misdirected incentives.
Member State (Netherlands)	Improved capacity can clearly support environmental performance. This interaction between the two key performance areas contains more aspects than the straightforward one mentioned, “more capacity gives better environmental performance”. Actions taken to improve Environmental performance may also restrict capacity growth and performance. If capacity is to support performance all aspects need to be taken into account.
Member State (Spain)	Spain considers that targets proposed are extremely demanding, as they are for both capacity and flight efficiency, in a very constrained airspace, high levels of safety may not always be achievable. The PRB objective on capacity for RP4, where the targets are 0.5 or lower, does not seem realistic taking into account the current values of the net during the last years. European targets have taken into account the last STATFOR traffic forecast. However, there is a great disparity in forecasts between States where, for example, in Spain, pre-pandemic figures will be obtained by 2023. This should be reflected when European targets will be breaking down to the Member States objectives. European averaging system could penalise certain countries, as Spain.
NSA (Croatia 1)	During the 2022 and 2023 summer period at pre-tactical and tactical capacity planning level, NM requested the local ANSP’s to offer 10% capacity buffer and requested that ANSPs operate under Flight Plan Adherence rules, which resulted with better flight distribution on the network level and ensuring greater predictability and less delay. This highly influenced the possibility to use direct routing and reduced the possibility for achieving the environmental target.
NSA (France)	The objective to put priority during RP4 on environment is shared. However, traffic levels and volatility, changes in flows, which are main drivers for capacity are not under the control of ANSPs, and this should not lead to artificially set unrealistic targets for capacity. The interdependencies between traffic / delays / capacity and environment is recognized (even if the direct link proposed by the PRB study between delays and KEA is considered too simplistic and straightforward). In addition, the methodology used to calculate resulting capacity target ranges is not sufficiently disclosed, including calculations and simulations and all assumption and parameter. To run a meaningful consultation for EU target setting also implies to provide an insight on the methodology applied to breakdown these values at local level, which has not been done.
NSA (Poland)	The assumption to support the environment performance by eliminating the ATFM delays may positively influence the situation, however it is only one factor among others. The PRB target proposal should also indicate the benefits resulting from other initiatives. It should be also underlined that requirements within KPA Environment are politically driven with lack of sufficient rationale or substance on how the operational stakeholders may be able to meet the targets both within KPA Environment and KPA Capacity. While we recognize the existence of interdependencies between the four key performance areas, there is no clear explanation how interdependencies between the proposed ranges of KPIs are assessed
NSA (Italy)	The assumption "If capacity can match demand, flights can make use of the improved route network and improve KEA" isn’t demonstrate. It is not true that satisfying demand allows the KEA target to be met, as demand can be met through tactical FMP measures (STAMs) that force traffic to more unloaded operational sectors resulting in longer routes and less flight efficiency oriented profiles. This year NM has strongly requested that ANSPs operate under Flight Plan Adherence rules during periods with high traffic demand, avoiding any direct routing so that there is better capacity planning / predictability at network level, even though it knew that this would have negative impact on KEA. This shows the opposite effect anticipated by PRB of CAP improvements supporting ENV improvements.
NSA (Estonia)	Safety, environmental and cost efficiency KPAs are co-dependant of each other and objectives should consider this.
NSA (Switzerland)	The interdependency between capacity in terms of ATFM delay and environment as stated in the PRB advice is oversimplified. Other factors such as traffic complexity, density, traffic demand, weather, airspace users' preferences (route charges), size of airspace etc. have a

	substantial effect on the environment KPA. Therefore, by simply making the capacity target more ambitious, this will in turn not improve the environmental performance.
NSA (Croatia 2)	During the 2022 and 2023 summer period at pre-tactical and tactical capacity planning level, NM requested the local ANSP's to offer 10% capacity buffer and requested that ANSPs operate under Flight Plan Adherence rules, which resulted with better flight distribution on the network level and ensuring greater predictability and less delay. This highly influenced the possibility to use direct routing and reduced the possibility for achieving the environmental target.
NSA (Austria)	Overall the target ranges are considered unrealistic and unachievable, which contradicts the SMART principle for target setting. An unachievable target is not suited as motivation to strive for best performance. PRB acknowledges in the report that ANSPs are falling behind schedule in the implementation of new ATM systems and ATCO training. At the same time the PRB assumes that these issues are resolved by the end of RP3. How realistic is this assumption considering that there is 1 year left in RP3? Nevertheless RP4 targets are based on this assumption. Furthermore, we would like to contradict the statement that "ANSPs are offering less capacity than at the beginning of RP1". This ignores the significantly increased and still increasing traffic levels and the fact that capacity cannot be added ad infinitum to balance the traffic increase. Each system has a bottleneck, which defines the achievable maximum.
NSA (Germany)	We understand that the improvement of environmental performance is of paramount importance. We also understand that there is a certain interdependency between capacity and environment, which unfortunately is not explained and derived in a satisfying way due to e.g. the unprescribed selection of examined sample days and years. We also miss further explanations on the interdependency of the remaining KPAs. Several times in the reports it is highlighted that interdependencies between all KPAs do exist, but there is no comprehensive analysis or series of analysis on how all KPAs influence each other. From the report and its annexes, we cannot understand why PRB is stating here the level of delays experienced by airspace users as an additional objective. Although we do see airspace users at the receiving end of capacity KPA, we think that if the delays they experience are focused here, airspace users' influence on reaching the targets should be considered as well. Delays generated by airspace users also influence the environmental performance. On the other hand, we expect airspace users to accept capacity improvements without asking whether they were created in the name of ENVI KPA or as a service to them. What we do not expect is for them to support the increase in costs which would be necessary to generate the capacity needed to come even close to the proposed environmental targets. From our point of view this is no longer a question of feasibility on ANSPs' side but a matter of (lacking) economically reasonable target setting.
Professional staff representative body (IFATCA)	I believe, given the interdependency between environment and capacity, that capacity is a main driver to improve the environmental targets, and agree to being ambitious on this issue. But the assumptions regarding capacity are too optimistic/unrealistic. One thing is ATM systems, but a main factor is staffing, and staffing comes with a cost. And it takes time to fill the gaps, that are a reality all over the network. So even though there is a focus on the capacity, its not enough to put assumptions on paper; we need that PRB will face the reality - and the ANSPs who reports that things are under control should be questioned.
Professional staff representative body (ATCEUC)	As explained above, the PRB call for a careful approach with the interdependency study conclusions is not considered here. Using the Covid period as an element to prove and measure this interdependency link is not appropriate. The wording "eliminating ATFM delays as much as reasonably possible" is important but the today performance is around 2 minutes delay per flight for 2023. The traffic increase will be very high next year, around 7%. Traffic increases are considered as "moderate" for 2025 2029, but 5 years of nearly 2% annual growth is at the end not moderate. It is good to bear in mind that when already close to your actual capacity's limit, complexity increases exponentially and consequently ATFM delays. The assumption used for the calculations on this subject that staffing shortages will be resolved by the end of RP3 (only 13 months from now) is utterly unrealistic.

Table 11 - Comments receive on Question 5.1.

PRB analysis

151 In response to question 5.1, the majority of the stakeholders (29 out of 45) expressed their agreement (including all the airlines), while some of the ANSPs, Member States and NSA, and one professional staff representative body were in disagreement.

152 Stakeholders submitted some diverging comments around the following topics on:

- The achievability of the target ranges and the validity of the PRB's objectives;
- The interdependency between capacity and environment performance, and the lack of transparency on the methodology used for its calculation;
- The balance between cost efficiency and capacity; and
- The relationship between Union-wide targets and local breakdown values.

153 On the achievability of the targets and the validity of the objective, some stakeholders agreed that long-standing issues which are hindering capacity performance must be resolved in RP4, and that therefore current performance should not be regarded as a valid baseline. On the other hand, other stakeholders expressed contradictory views, noting that the assumption of the PRB regarding the resolution of the ATCO shortage was not realistic until 2025 and that traffic growth, increasing complexity and system implementations, would not allow the capacity targets to be reached in early RP4. Stakeholders also noted that the delay forecast included in the European Network Operations Plan (NOP) was substantially higher than the target ranges proposed by the PRB.

154 Regarding the interdependency between capacity and environment, some stakeholders suggested more elaboration of the topic, while others noted that the approach may be oversimplified and also highlighted cases where the improvement of capacity may be at the expense of deteriorating environmental performance, and vice versa. Some stakeholders stated there was insufficient information explaining how the interdependency between capacity and environment was assessed by the PRB.

155 Stakeholders commented on how a balance between cost-efficiency and capacity targets should be achieved in the setting of RP4 targets, noting that further improving capacity may increase costs and this might be a constraint to delivering capacity performance. Some stakeholders commented that overly ambitious capacity and environment targets may be in contradiction with safety targets. At the same time, other stakeholders noted that the resources to improve capacity have been in the system since RP3.

156 Several stakeholders suggested that the relationship between Union-wide capacity targets and the local breakdown values was unclear, and that overly ambitious capacity targets may lead to conflicts between local interests and network optimisation. Stakeholders also noted that disparity in traffic growth should be considered in the breakdown of the Union-wide targets and that local breakdown values should have been published together with the target ranges.

PRB response

157 In response to the comments on the overall level of ambition, historical performance provides ample evidence that traffic demand similar or even higher than that of the past two years could be handled by significantly lower levels of delays. In 2023 there were 9,075 thousand IFR movements in the SES area while the average en route ATFM delay was 1.83 minutes per flight (before post-ops adjustments), which was 1.34 minutes per flight above the target in 2023. As a comparison, in 2016 the number of IFR movements was even slightly higher at 9,085 thousand flights but the average en route ATFM delay was less than half of the 2023 figure at 0.87 minutes per flight. Furthermore, in 2012, 2013, and 2014 the number of IFR movements was between 8,910 and 9,080 thousand each year, while the average en route ATFM delay was between 0.54 and 0.63 minutes per flight. This shows that even without the technological development of the past ten years and the advanced functionalities now available for controllers, ANSPs were able to handle similar traffic demand with only one-third of the delays than that of 2023.

158 The underperformance of 2022 and 2023 was largely driven by technical issues, industrial actions of ATCOs in ANSPs at key locations, and the aftermath of the COVID-19 pandemic. However, by 2025 ANSPs will have had three years to recover from the crisis of the pandemic and adapt to the new operational situation. The PRB gathered further evidence and information over the current difficulties and future plans of ANSPs, and subsequently engaged with the Member States and ANSPs with high delays to follow up on this topic (in particular in relation to the topic of ATCO shortages). The outcome of these discussions is included in Annex III of this report.

159 Regarding the discrepancy between the delay forecast included in the NOP and the target ranges proposed by the PRB, the NOP calculations were carried out before RP4 capacity targets (or target ranges) were proposed. Therefore, they should not be used as a term of comparison. The NOP delay forecast is based on the measures the ANSPs committed to during the planning process, but that does not exclude the possibility of introducing further measures to improve capacity.

160 On the topic of the lack of clarity on the interdependency between capacity and environment, the PRB provided a detailed overview of the methodology and results in its report.[2]

161 On the views expressed by some stakeholders regarding how capacity improvement measures may result in decreasing flight efficiency, the cases quoted by the stakeholders are already in the context of a capacity-constrained network. The request from the Network Manager (NM) to apply flight plan adherence (instead of offering more direct routings), the introduction of tactical air traffic flow management (ATFM) measures, and other operative initiatives are necessary because there are strategically unresolved capacity issues in the network. If capacity constraints were resolved, the need for such measures negatively affecting flight efficiency would be significantly lower (if necessary at all). Regarding the overall balance between the targets in all KPAs, and in particular between the cost-efficiency and the capacity targets, the target setting process allows ANSPs have sufficient resources to provide the required capacity in the network. Furthermore, there is a mechanism in the Regulation to allow ANSPs deviate from the Union-wide cost-efficiency targets for capacity reasons, and this provides further financial flexibility.

162 On the comments raised by stakeholders about how ambitious targets in capacity and environment could be in contradiction with safety performance, the PRB emphasises that safety is and must remain the top priority of the European ATM Network, and that ANSPs should follow the necessary safety management procedures when improving their capacity and environmental performance.

163 On the topic of how the local breakdown values are calculated and the potential conflict between local interests and network optimisation, the local breakdown will be provided during the target process and are not part of the target ranges consultation. The Union-wide targets should not be based on local views, as such an approach would compromise the network perspective. On the methodology used by the NM to calculate the local breakdown values, the PRB invites the stakeholders to consider the capacity assessment and planning guidance document published by Eurocontrol, which provides a description of the process and includes traffic growth and distribution as key parameters.[3]

[2] PRB report *The interdependency between the environment and capacity KPIs of the performance and charging scheme of the Single European Sky*.

[3] Capacity assessment and planning guidance document, June 6th 2013.

Question 5.2

164 To define the target ranges, the PRB considered three pieces of evidence: Historical performance, expected values of weather and disruption-related delays, to which the expected benefits of various capacity improvement initiatives have been added. Based on these, the PRB defined two levels of ambition in reducing delays: The less ambitious approach assumes that ANSPs with the most delay minutes can eliminate 75% of delays by 2029 compared to 2022; and the more ambitious approach assumes that the same ANSPs can eliminate 90% of delays by 2029, compared to 2022. In Question 5.2, respondents were asked "*To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of capacity?*".

165 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

166 Figure 12 shows the distributions of the replies. The majority of stakeholders (33 out of 45) did not agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the KPA of capacity (15 fully disagreed and 18 disagreed to some extent), while nine respondents agreed (three fully agreed and six agreed to some extent). When analysing the responses by stakeholder category, the majority of the ANSPs, NSA and Member State representatives disagreed that the methodology and evidence provided in the PRB report supports the proposed target ranges. The majority of airlines (four) agreed to some extent, with one airline disagreeing to some extent. One professional staff representative disagreed to some extent, while one fully disagreed.

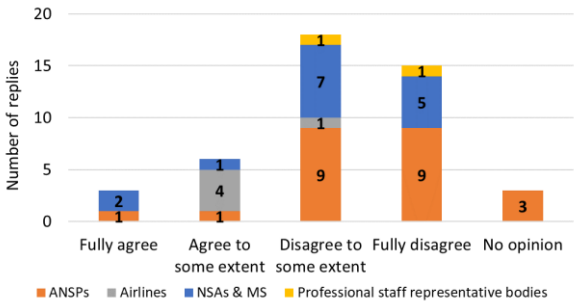

Figure 12 – Number of replies to question 5.2: "To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of capacity?" (source: PRB elaboration).

167 Individual comments are listed in Table 12 (next page). 38 out of 47 respondents made a comment on the question, out of which:

- 19 ANSPs, including one association;
- Four airlines, including three associations;
- 13 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.2 To what extent do you agree with the proposed approach?	
Stakeholder	Comment
Airline (IATA)	Historical performance has not been good; therefore, we agree on its use just up to a point. It should be interpreted that the best value achieved is feasible, and same with the best in class. But we must avoid a method where poor past performance supports the idea that only poor performance can be achieved. The results in "Technical note on en-route capacity: documentation of PRC trial with ANSPs to improve transparency in ATFCM operations" (PRC, 2023) are relevant for a downwards re-estimation of the proposed weather delays. These have been recently investigated, the research showing that delays allocated to this code are often related to other capacity constraints e.g. collapsed sectors and staffing availability. We propose to increase the ambition, and penalties, for underperforming ANSPs, by the end or RP4 they will have spent ten years trying to solve capacity issues.
Airline (ERA)	Historical data has some limitations (eg / cross border FRA implementation not fully taken in to account)
Airline (Easyjet)	Historical data without complete FRA implementation are inherently flawed as they compare different ways of flight planning and flight performance. It would be more useful to take into account the rolling NOP and identify if the promised capacity was delivered. In lieu delays can be used – but need to be supplemented with other available data. In 2022, some ANSPs have been able to meet their capacity targets, with many zero or close to zero delays, while some others did not manage to improve their capacities due to longstanding structural issues. Some others en route ATFM delays resulted from ANSPs being unable to provide the required number of sectors in response to traffic demand, despite having offered them on other days throughout the year. Airlines should not be charged for surplus capacity in areas or times where it is unnecessary, as this is cost-inefficient. This shows that a 0.5 capacity target for the first years of RP4 is realistically achievable by most ANSPs. While some states achieved this already with considerable success, the overall goal should be to minimise ATC-related delays to the point of being the exception. This is the reason we advocate for a more aggressive revision in capacity targets compared to the levels of RP3, transitioning from the proposed minimum target of 0.5 delays to a more ambitious one. Moreover, we expect that capacity is not merely used as a justification for escalating the cost base, as observed in RP3 (the PRB study shows the little statistical significance of delays in explaining cost levels). The existing bonus-malus scheme may also need improvement to better incentivize and penalize performance, as the current framework does not seem to adequately reflect the desired service quality, even when financial incentives are provided. Achieving optimal performance requires a more refined approach to encourage excellence and address any shortcomings in service quality through incentives
Airline (A4E)	Historical data without complete FRA implementation are inherently flawed as they compare different ways of flight planning and flight performance. It would be more useful to take into account the rolling NOP and identify if the promised capacity was delivered. In lieu delays can be used – but need to be supplemented with other available data. In 2022, some ANSPs have been able to meet their capacity targets, with many zero or close to zero delays, while some others did not manage to improve their capacities due to longstanding structural issues. Some others en route ATFM delays resulted from ANSPs being unable to provide the required number of sectors in response to traffic demand, despite having offered them on other days throughout the year. Airlines should not be charged for surplus capacity in areas or times where it is unnecessary, as this is cost-inefficient. This shows that a 0.5 capacity target for the first years of RP4 is realistically achievable by most ANSPs. While some states achieved this already with considerable success, the overall goal should be to minimise ATC-related delays to the point of being the exception. This is the reason we advocate for a more aggressive revision in capacity targets compared to the levels of RP3, transitioning from the proposed minimum target of 0.5 delays to a more ambitious one. Moreover, we expect that capacity is not merely used as a justification for escalating the cost base, as observed in RP3 (the PRB study shows the little statistical significance of delays in explaining cost levels). The existing bonus-malus scheme may also need improvement to better incentivize and penalize performance, as the current framework does not seem to adequately reflect the desired service quality, even when financial incentives are provided. Achieving optimal performance requires a more

	refined approach to encourage excellence and address any shortcomings in service quality through incentives.
ANSP (FABEC)	The PRB's assumption that staffing issues will be solved in RP3, can unfortunately not be supported: The delay in training during the Corona pandemic (social distancing and not enough traffic for required training situations) will not be entirely overcome by end of RP3, ongoing challenges with recruiting and system implementations will continue to play a role in RP4. Moreover, CP1 implementations are delayed due to supply chain issues. Additionally, the volatility of traffic demand can be so high, that irrespective of the strong efforts of the ANSPs, the capacity increase cannot keep up with demand, especially in certain sectors. E.g. States that now manage to handle the increased traffic due to the Ukraine war have only achieved this by ad hoc measures, at the expense of other activities. This cannot continue. Future, yet unknown, significant shifts of traffic flows are hardly accounted for in the target ranges.
ANSP (Polish Air Navigation Services Agency)	The conclusions from evidence 1-3 indicate a highly simplified and "light" approach to RP4 target setting. Ev. 1 shows that the proposed targets are not achievable and still surprisingly the PRB concludes the opposite. Higher delays over past years cannot be ignored and years 2020-2021 should be excluded from the analysis as they are not a reliable reference (pandemic and very low traffic). Year 2023 and analysis of delays linked to the geopolitical situation and increasing MIL activities should be included in the analysis. Traffic increase should be taken into account as well as periodic delays linked to implementation of new systems or airspace reorganisations. Assumption of eliminating 75-90% of delays is arbitrary and not based on any feasibility analysis. The targets should take into account the NOP delay forecast and must be supported by feasibility analysis – bottom-up approach to be considered (analysis of feasible delays for each State and then aggregating them into EU-wide).
ANSP (ROMATSA)	As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were far below the forecasts. This "under performance" is the reason to challenge the indicator as much as the ANSP performance. The knock-on effect from the Ukraine war creates bottlenecks in States that have to handle much more traffic than planned. This will not be resolved in short term. There is uncertainty that CP1 will be implemented on time and its benefits will be delivered to the whole network by 2027. We believe a gap analysis is needed in relation to where we stand today in terms of capacity performance and what realistic actions are to be undertaken to reach the target in 2029.
ANSP (NAV Portugal E.P.E)	As recognised, CAP targets were only met in 2020-21 when traffic levels were well below forecasts. This is a clear symptom of how the gap between demand and installed capacity has widened in recent years. Therefore, the PRB proposal remains out of touch with current reality and is based on a number of assumptions that cannot realistically be achieved by the end of RP3. Particularly regarding CP1, there is great uncertainty that it will be implemented on time and that the associated benefits will be delivered to the whole network by 2027; even if some Member States are fully compliant on the target dates, synchronization at network level is key to deliver all CP1 benefits. Finally, because we're not starting from scratch, since today CP1 is at 60% of the functionalities already deployed the benefits should only be considered for the remaining 40% which, given the level of uncertainty on AF6, may be even lower. Recommendation: to disregard CP1 contribution and to consider it only for RP5
ANSP (LVNL)	Both approaches led to unrealistic target ranges. The PRB's assumption that staffing issues will be solved and system implementations realized by the end of 2024, cannot be supported: the delay in training during the Corona pandemic (social distancing and not enough traffic for required training situations) will not be entirely overcome by end of RP3. Ongoing challenges with recruiting and system implementations will also play a role in RP4. Moreover, CP1 implementations are delayed due to supply chain issues. Additionally, the volatility of traffic demand can be so high, that irrespective of the strong efforts of the ANSPs, the capacity increase cannot keep up with demand. E.g. States that now manage to handle the increased traffic due to the Ukraine war have only achieved this by ad-hoc measures, at the expense of other activities. This cannot continue. Future, yet unknown, significant shifts of traffic flows are hardly accounted for in the target ranges.
ANSP (ENAV)	ENAV always provided excellent results in CAP since beginning of the EU Performance Scheme. As recognised by PRB, EU capacity targets have been only achieved in 2020-2021 when traffic levels far below the forecasts. This "under performance" should challenge the indicator as much as the ANSP performance. The knock-on effect from the UKR war creates bottlenecks in

	States that have to handle more traffic than planned. This will not be resolved in the short term. Uncertainty on CP1 full implementation on time and its benefits delivered to the whole network by 2027: • Even if some States are on time, synchronization at network level is key to deliver full CP1 benefits; • Manufacturers were struck by COVID restrictions and delayed in delivering their products; • When CP1 is applied, related ATCO training takes time; • Some CP1 functionalities already widely deployed (e.g. FRA), thus benefits not to be counted twice; others are implementable only in some States, generally in the core area
ANSP (ENAIRE)	How can be considered as evidence the expected values of weather? ATFM weather measures are fully based on MET certified information/predictions and safety analysis, according with MET scenario. And another question would be, if the value of weather could be expected for future, the value could be discounted of the amount of the target? Nevertheless, historical performance is real good evidence and considering last reference periods, the evidence has shown that targets are ideal but indeed not realistic. If we pay attention to 2018 and 2019 values the ideal but unrealistic target is more than obvious.
ANSP (DSNA)	The intention is laudable, but 2022 is not a good reference year (traffic at only 88% of 2019). No obvious consideration of how massive Special Event regulations are handled when new ATM systems are introduced. Our proposals include objective elements such as strike management, ATM system implementation and HR flexibility. This should eliminate roughly 30% (resp 20% scn pessimistic) of the 2022 delays, or 50% (40% scn pessimistic) of the 2023 delays. Moreover, for DSNA, delays caused by sector opening gaps are low compared to other ANSP, meaning that there are nearly no gains to be expected without large investments and structural changes.
ANSP (BULATSA)	A gap analysis is missing in relation to where we stand today in terms of capacity performance (1.74 min per flight in 2022) and what realistic actions are to be undertaken to reach 0.31-0.40 min/flight in 2029. The overall net benefits from adopting a EU-wide targets which are below the not-achieved target 0.5 min/flight should be justified. The proposal suggests that a lot can be done in terms of capacity by overcoming of internal ANSPs weaknesses only, which is not a well proven statement (at least in the current document) while at the same time it suggests little in terms of necessary operating and investment costs to be incurred by the ANSPs to deliver capacity. In addition, the document does not give any hint on the benefits stemming from prevention of exponentially growing delays.
ANSP (CANSO)	As recognised by PRB, EU CAP targets were only achieved in 2020-2021 when traffic levels were very low and far below forecast. This “under performance” is reason to challenge the set targets as much as ANSP performance. Traffic volatility can be so high that irrespective of ANSPs' strong efforts, the capacity increase cannot keep up with demand. Future unknown, significant shifts of traffic flows are hardly accounted for in the target ranges. There is a huge uncertainty that CP1 will be implemented on time and its benefits delivered to the whole network by 2027: - Even if some States are on time, synchronization at network level is key to deliver all the benefits - Manufacturers supply chain issues due to COVID restrictions have not been fully resolved yet - Even if CP1 is applied, related ATCO training will take time - Some CP1 functionalities are already widely deployed e.g. FRA, so their benefits should not be counted twice; others are implementable only in some States.
ANSP (Austro Control)	The methodology of identifying Sector-Opening Gaps as ATFM Delay generator is not acceptable, because the comparison between maximum number of open sectors at the same time over the year (nota bene for traffic peaks!) versus daily maximum number of concurrent sectors (for periods with less traffic) is not legitimate.
ANSP (ANS CR)	It is not possible to anticipate local targets from the draft indicative target ranges. The methodology for determining local targets is not clear to us. What may make sense on a pan-European level may be completely unfeasible from the point of view of individual FIRs and ACCs (local conditions).
ANSP (LFV)	As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were far below the forecasts. This “under performance” is reason to challenge the indicator as much as the ANSP performance. The knock-on effect from the Ukraine war creates bottlenecks in States that have to handle much more traffic than planned. This

	will not be resolved in the short term. There is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered to the whole network by 2027: • Even if some States are on time, synchronization at network level is key to deliver all the CP1 benefits • Manufacturers were struck by COVID restrictions and delayed in delivering their products • Even if CP1 is applied, related ATCO training will take time • Some CP1 functionalities are already widely deployed (e.g. FRA), so their benefits should not be counted twice; while others are implementable only in some States, generally in the core area • The benefits of CP1 is also varying between states
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were far below the forecasts. This "under performance" is a reason to challenge the indicator as much as the ANSP's performance. The knock-on effect from the Ukraine war creates bottlenecks in States that have to handle much more traffic than planned, others address the opposite effect and this situation apparently will not be resolved in the short term. It is fully recognized that CP1 seeks for coordinated implementation of various functionalities that improve capacity (and other performance KPIs), but there is risk that implementation will not take as synchronized as expected (the reasons are communicated to SDM and PRB by all stakeholders). In addition to the need to implement technical functionalities, there are factors like the need of more ATCOs (due to new ATM system requirements), ATCO training, more military traffic (exercises, missions – especially in NATO-Russia's border countries) that makes implementation of CAP targets much more complex
ANSP (AIRNAV)	From the perspective of Ireland's recent and historic performance on delay measures, and how it differs to the Union wide average, we consider it very important to consult on local reference values before they are finalised. AirNav Ireland therefore requests that the PRB is transparent (from a methodology and evidence perspective) in the manner in which it arrived at a local reference value for Ireland. We recall at the consultation meeting the PRB noted that the local reference values would be made available after the consultation period even though they were used to shape the proposed Union wide targets. AirNav Ireland requests a consultation on these.
ANSP (DFS)	The methodology to calculate the EU-wide target range proposals is not sufficiently disclosed and the evidence is incomplete. All the underlying material needs to be disclosed, incl. calculations, simulations, all assumptions, and parameter configurations. E.g., it is unclear how in detail the economic optimum between capacity and delay led to the target proposals. It is neither realistic nor does it make economic sense to push the delay target at European level to a level of 0.4 minute/flight (or even lower). The findings of the current RP show quite clearly that such values are highly unrealistic and not at all target-oriented. Traffic volatility can be so high, that irrespective of the strong efforts of the ANSPs, the capacity increase cannot keep up with demand. Future unknown, significant shifts of traffic flows are hardly accounted for in the target ranges.
ANSP (skeyes)	As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were far below the forecasts. This "under performance" is reason to challenge the indicator as much as the ANSP performance. The knock-on effect from the Ukraine war creates bottlenecks in States that have to handle much more traffic than planned. This will not be resolved in the short term. There is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered to the whole network by 2027: • Even if some States are on time, synchronization at network level is key to deliver all the CP1 benefits • Manufacturers were struck by COVID restrictions and delayed in delivering their products • Even if CP1 is applied, related ATCO training will take time • Some CP1 functionalities are already widely deployed (e.g. FRA), so their benefits should not be counted twice; while others are implementable only in some States, generally in the core area
ANSP (Skyguide)	Buffer computed on weather should be based only on years that could be similar to what the STATFOR traffic forecast foresees for RP4, i.e., 2018 and 2019. An average over the 5 years is

	not adequate, an average over 10 years neither. The approach should build buffer based on traffic evolution. Industrial action is to a limited extent under ANSP management's control, and cannot be eliminated so easily. Delays evolve exponentially with traffic be it due to weather, industrial action (in on-loaded ANSPs for instance) or in case of any other bottleneck; higher traffic volatility, higher uncertainty on traffic forecast, etc. all these elements concur in increasing delays. This is not taken into consideration in the PRB approach.
ANSP (NAVIAIR)	The Danish ANSP estimates that with increased operational resources, the Danish ANSP will be able to deliver ambitiously on the objectives on capacity. The Danish ANSP plans to increase the number of ATCOs. The plan to increase the net number of ATCOs is based on recruitment and education of enough ATCOs to replace ATCOs that will retire within the RP4 period combined with efficiency improvements that have already been included in the increase.
Member State (Germany)	With the details provided it seems reasonable to assume that the assumptions used in the analysis lead to inefficient targets respectively target ranges. For example the assumption that staffing issues will be solved and relevant system implementations realized by the end of RP3 cannot be supported. Also the statistical findings from the sector opening gap analysis need to be validated and re-assessed in close cooperation with local experts, otherwise the conclusions drawn by the PRB would be misleading. The analysis also seems to assume almost perfect model conditions for ANSPs (perfect information regarding future traffic flows/demands by airspace users, unlimited resources (time, staff, capital…) and influence) which is evidently not applicable. Thus the question remains, how these – thoroughly interesting - statistical findings could be used to set efficient targets at union-wide respectively at local level.
Member State (Netherlands)	Including factors not under ANSP control and then making an allowance for them is unnecessarily complicated and opens up for undue bonus/malus effects. Exclusion of these factors makes for a simpler and more straightforward measurement and clearer system. Taking developments into account is valid, however, the assumption on delivery of capacity effects are not supported in enough detail. At least some of them must be considered uncertain considering the current issues around CP1 implementation.
Member State (Spain)	The Union-wide capacity results are currently far from achieving the objectives. In consequence, it should be reviewed the starting point to establish a demanding but achievable target.
NSA (Croatia 1)	The historical performance and underachievement of capacity targets shows that European Commission and PRB did not take the 'realistic approach' but rather very ambitious approach when setting up capacity performance targets.
NSA (Cyprus)	As a general, the proposed capacity targets are unrealistic and too ambitious (or, in other words, they are more "political" rather than operational). There is no information regarding how the operational stakeholders may be able to meet the targets and close the current gap (1.79 min delay per flight in 2022). In short, what realistic actions could be taken to reach 0.31-0.40 min/flight in 2029? The potential capacity benefits of various initiatives packages (e.g. CP1) are not sufficiently justified.
NSA (France)	The methodology used to calculate capacity targets is not sufficiently disclosed, including calculations, simulations, assumptions & parameters. Methodology and allowance used lead to unrealistic EU targets and would translate in inconsistent values at local level: it will result in local targets set for many ANSPs at more or less 0 delays for the share of delays under the control of ANSPs (CRSTMP) including Industrial action, as from 2025, when EU 2022 achievement is 1,69 min/flight and NM acknowledges delay forecast at 1,28 min/flight for 2025, more than the double of proposed target, including part of CP1 benefits and measures already planned by ANSPs. At the same time PRB acknowledges major ATM system implementation in 2025/2026, full benefit from CP1 not before end 2027, SOGs quite low (for example 26% for DSNA) meaning gaining structural capacity implies medium to long term changes. PRB proposal is unrealistic and unachievable at EU and local level for many ANSPs.
NSA (Poland)	The PRB methodology of determining EU Capacity target for the RP4 based on various available sources (e. g. historical results, ERNIP, studies, actual results, etc.) is understood and acceptable. At the same time the targets set at EU level are considered to be very ambitious. On the other hand, there is no indication of measures, activities and costs that air navigation service providers will incur to provide the required capabilities. This makes the proposals not fully justified and described. The information how interested ANSPs will be able to achieve their

	objectives is missing. Furthermore, the overall benefits of adopting such ambitious EU-wide targets need to be more detailed explained and justified.
NSA (Italy)	As recognised by the PRB, EU capacity targets have been only achieved in 2020-2021 when actual traffic levels were far below the forecasts. This "under performance" is reason to challenge the indicator as much as the ANSP performance. The knock-on effect from the Ukraine war creates bottlenecks in States that have to handle much more traffic than planned. This will not be resolved in the short term. There is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered to the whole network by 2027: Even if some States are on time, synchronization at network level is key to deliver all the CP1 benefits; Even if CP1 is applied, related ATCO training will take time; Some CP1 functionalities are already widely deployed (e.g. FRA), so their benefits should not be counted twice; while others are implementable only in some States, generally in the core area.
NSA (Switzerland)	Looking at the historical capacity performance of the past years (Evidence 1), ATFM delay targets were reached only in 2020 and 2021 when traffic levels were exceptionally low. The effect of the increasing traffic demand in recent months clearly suggests that the EU-wide capacity targets will not be met for the remainder of RP3 (1.79 min delay per flight in 2022). Furthermore, the delay forecast included in the NOP 2023-2027 is considerably higher than the proposed target ranges. The allowance to be factored in for weather may be underestimated considering the increase of disruptive weather phenomena in recent years and the exponential effect of weather on delay, especially in case of high traffic numbers. The effects of CP1 cannot be easily translated into capacity improvements of this magnitude, system implementations may take longer and ATCO staffing issues will not be resolved by the end of RP3 as ANSPs in Europe struggle to recruit and train new staff in adequate numbers.
NSA (Estonia)	Safety, environmental and cost efficiency KPAs are co-dependant of each other and objectives should consider this.
NSA (Croatia 2)	The historical performance and underachievement of capacity targets shows that European Commission and PRB did not take the 'realistic approach' but rather very ambitious approach when setting up capacity performance targets. Years 2020 and 2021 are not used in any case as valuable benchmarks (NM still uses 2019 as a reference), but in the provided report they are used as firm evidence that proposed targets are achievable.
NSA (Austria)	While we recognize that the methodology supports the result provided, we do not agree with the approaches on the evidences (see below).
NSA (Germany)	In the report the 0.5 minute per flight as economic optimum level of delays is mentioned several times. This was in previous RPs the value for the cost-optimised capacity value. This value was provided for RP2, which is nearly 10 years in the past, but even if it originated only from the running RP, the past years have had shown so many developments which would have been considered impossible before, we think an evaluation was due. Besides this it should be considered, that the closest to this value was the performance in 2013 with 0,54 (not mentioning that during the pandemic there were the only years actually meeting the value were 2020 and 2021 – the years with significantly low traffic). Since then there were many evolutions, politically, economically, pandemic-related, ecological, rising traffic (by more than 1 Mio in IFR movements since 2013 (2025 STATFOR forecast value)) and more. This value and its derivation should have been continued, updated and/or evaluated, of which we have found no evidence. We have reasonable doubt on whether it can continue to be considered as an optimum, a starting point or in any other way and would like to ask to give access to any evaluation that has been made by PRB on the matter. We also miss a gap analysis of where we are on EU-wide level today (SES 2022 1,74 min/flight) to where is supposed to be reached (current proposal 0,31-0,4) and with what actions they could be reached. In the main report in No 94 PRB mentions that there were (the example refers to the year 2018) that there were structural issues and significant unresolved capacity problems in some of the ANSPs. Why are these not further taken into consideration especially as to how to address and improve these during RP4? Furthermore, we find a number of delay reasons have not been taken into consideration in the three pieces of evidence or at least it has not been documented. PRB focused for the evidence 1 on delay codes C and S. For Evidence 2 PRB considered delay codes A, E, N, O, NA, W. So there seem to be missing delay codes I, G, P, M, R, T, V which accounted for 0,41 minutes/flight in 2022. Unfortunately, explanations of PRB are rather fragmentary. Therefore,

	we would like to know how these remaining delay codes are considered in the historical performance analysis. As regards evidence 1 in Annex 1 No 86 is mentioning that during RP1 ANSPs were able to manage more IFR flights with lower average delays than in 2022. Did PRB also consider here, that due to Covid, ANSPs might have had in 2022 less staff available and had besides this had to catch up with significant rapid increases in traffic? We could not find an explanation why traffic levels are not further taken into consideration, since traffic is a major influencing factor. We also miss information on interdependencies with all KPAs and how they are considered. Besides this, is there a weighting of the evidences used by PRB? Our doubts concerning the use of mere historical data for prediction of the expected weather disruptions have already been included above, as have been those on the correct or at least transparent quantification of the benefits of CP1 implementation and ERNIP.
Professional staff representative body (IFATCA)	As mentioned above, I find that the assumptions are not correct, and that affects both evidence and methodology.
Professional staff representative body (ATCEUC)	Staffing issues will not be solved within the next 4 years: additional ATCOs are needed for the traffic but also to prepare the massive number of ATCOs going on pension (end of RP4). Added to that, ATCO blaming, decreasing attractiveness of the job, competition with other sectors make the recruitment difficult. Training organisations also need time to adapt: recruitment of additional instructors, simulators and associated facilities are needed. CP1 implementations deadlines are at risk, E C has written several infringement letters to Member States to investigate. Furthermore, the compliance with the regulation should be distinguished to having the full benefits of the new systems/solutions implemented. When a new system is implemented, it also needs several months or even several years to have an optimized use of these technological changes. Considering these 2 elements, added to the uncertainty of the models to evaluate the benefits, CP1 expectations are regarded as over optimist

Table 12 - Comments received on Question 5.2.

PRB analysis

168 In response to question 5.2 the majority of stakeholders (33 out of 45) expressed at least some degree of disagreement: 18 stakeholders indicated some level of disagreement, while 15 stakeholders fully disagreed. Nine stakeholders were showing full or partial agreement, most of them airlines. ANSPs, Member States and NSA, and professional staff representative bodies tended to disagree at least to some extent.

169 Responses from the stakeholders included the following key themes:

- The use of historical performance as a basis for setting the RP4 targets;
- The difficulties experienced in the resolution of ATCO shortage;
- The impact of adverse weather on capacity performance and how this should be considered in the target setting;
- The methodology used in the calculation of sector-opening gaps and the use of the economic cost optimum level of delays;
- The calculation and feasibility of local breakdown values; and
- The consideration of benefits from the implementation of CP1 and concerns about the timing of implementation.

170 Stakeholders expressed diverging views as to how historical performance should be considered in the target setting for capacity. Most stakeholders noted that difficulties in recent years experienced by ANSPs in resolving capacity issues should be recognised and that the targets should be closer to the performance of 2022 and 2023. On the other hand, a few stakeholders commented that the situation of the past two years was a result of not resolving issues that were known long before, implying that these years should not form the baseline for setting targets. Some stakeholders noted that historical data is not suitable as a basis for setting RP4 targets as it does not include the impact from the implementation of cross-border FRA.

171 On the assumption used by the PRB concerning the resolution of ATCO shortage issues by the start of RP4, many stakeholders noted that this assumption was not entirely correct and that such issues could not be fully resolved by 2025. Some stakeholders also noted that underperforming ANSPs should be put under more pressure to resolve these issues and that stronger incentive schemes for capacity should be introduced.

172 As for the impact of adverse weather, stakeholders noted that, given the rising uncertainty around the evolution of weather, its impact should be excluded from the target setting exercise. Other comments noted that the methodology for calculating the weather allowance in the target ranges should not consider the results from 2020 and 2021 as those years were not representative in terms of traffic levels, and that the calculation of the weather allowance should be based on traffic forecasts.

173 As for the methodology applied by the PRB for the calculation of the target ranges, stakeholders noted that the calculation of the sector-opening gap delays was not appropriate, as it was based on the number of concurrent sectors, rather than on daily sector-opening hours, and thus could result in misleading interpretations. Some stakeholders also referred to the idea of the economic cost optimum level of delays, as it was used during the target setting for RP3, and posed questions about how this was considered in the target ranges of RP4. Further inquiries were made as to how the traffic forecast was considered and how the PRB considered ATFM delay codes not highlighted in the target ranges report (codes I, G, P, M, R, T, V).

174 On the topic of how local breakdown values are calculated, and the possible results of the breakdown calculations, stakeholders noted that the breakdown values could not be anticipated from the target ranges, the calculation methodology was unclear, and ambitious Union-wide targets on capacity may lead to locally unfeasible breakdown values. Stakeholders also inquired if and how local breakdown values were considered in the target setting.

175 Finally, stakeholders expressed their views as to how the benefits stemming from the implementation of ATM functionalities included in the CP1 regulation were overestimated. Some stakeholders noted that this is because some of the functionalities are already implemented, and thus some of the benefits should already be visible in the current performance. On the other hand, some stakeholders noted the significant delays in the implementation of CP1 functionalities and argued that potential benefits will only be realised late in RP4 or beyond.

PRB response

176 On the comments received about how historical performance is recognised in the target setting, the PRB reiterates the answers provided under question 5.1. However, as for how the impacts of cross-border FRA is considered, the PRB confirms that historical data does not fully include its impacts, even though some impacts may already be part of the data observed, as some ANSPs already implemented cross-border FRA. On the other hand, as cross-border FRA is part of the CP1 regulation and is mandatory to implement by all ANSPs in the SES area until 31st December 2025, the full impact is considered as part of the CP1 benefits.

177 In relation to the current situation of the ATCO shortage experienced by some ANSPs and the view that these issues cannot be fully resolved by RP4, the PRB highlights that ANSPs could have taken significant steps in resolving such issues as from 2022 and 2023. Following the consultation event in November 2023, and given the importance of the topic, the PRB engaged in discussions with the six ANSPs that had high delays due to ATCO shortages in 2022 and 2023. The outcomes of these discussions are summarised in Annex III to this report. In relation to the comments on how ANSPs should be subject to more incentivisation to meet the required capacity, the PRB notes that the parameters of the incentive scheme are set by the Member States and NSAs.

178 In response to the comments received on how the weather allowance was calculated and the overall questions about the impact of adverse weather, the PRB provides the following points.

- The PRB did consider the increasing uncertainty in the occurrence and severity of adverse weather phenomena in certain parts of Europe, which lead to increased weather-related delays.
- The PRB recognises the important of reflecting this in the target setting process and, to this end, applied a calculation based on the short-term average of the past five years for the weather allowance.

179 Based on the feedback received from the stakeholders, the PRB has decided to revise this short-term average calculation to exclude 2020 and 2021 data from the average weather impact. As a result, the revised short-term average weather impact is calculated at 0.35 minutes per flight, 0.08 minutes per flight higher than the value included in the upper bound of the target ranges (0.27). This is 0.13 minutes per flight higher than the value used in the 2023-2027 edition of the NOP and 0.07 minutes per flight higher than the value proposed in the latest edition of the NOP. The calculation is based on the historical actual delays generated due to weather-related reasons by each area control centre (ACC) in the SES area, and these historical values are extrapolated to RP4 years using the traffic forecasts for each ACCs.

180 On the topic of weather-related delays, the PRB notes that the Regulation does not allow for the exclusion of weather-related delays from the target setting. However, Member States and NSAs have the option to modulate the pivot values of capacity incentive schemes so that ANSPs are not subject to advantages or disadvantages exclusively due to the impact of weather.

181 On the methodology used for the calculation of the sector-opening gap, the PRB considered the feedback provided by the stakeholders and revised the amount of en route ATFM delays due to sector-opening gaps in 2022, based on daily sector-opening hours. The revised calculation considers the maximum number of sector-opening hours each ACC was able to offer on any given day in 2022 and compares the daily sum of sector-opening hours against this figure for each ACC for each day in 2022. The outcome of the calculation

is largely the same as with using the number of concurrent sectors: Around 45% of delays reported under delay codes C and S are considered sector-opening gaps, compared to 43% of the previous methodology.

182 In response to the comments received about an economic cost optimum level of delays, the PRB notes that the economic optimum level of delays referred to by the stakeholders during the consultation process was estimated between 0.08-0.16 minutes per flight during the RP3 target setting process, and as such is lower than system resilience buffer included in the target ranges for capacity in the first two years of RP4.

183 The PRB also notes that the calculation of the economic cost optimum of en route ATFM delays did not consider costs associated with delays borne by passengers, nor the external costs associated with the environmental impact of delays. Even without updating all financial parameters of the calculation and considering these two factors, the economic optimum level of delays is possibly below the originally calculated range of 0.08-0.16 minutes per flight. Nevertheless, given all the uncertainty around the applicability of the calculation, the PRB did not rely on the economic optimum of delay when considering the capacity targets and ranges for RP4.

184 On the topic of traffic forecast, in addition to the information provided under the topic of the weather allowance, the PRB underlines that the growth of the traffic forecast was considered for each ACC and was compared to the existing capacity improvement plans until 2027 (as that was the timeframe of the NOP). Beyond 2027, the traffic growth was translated into a required capacity increase for each ACC (details in Annex I to the PRB advice on the Union-wide target ranges for RP4).

185 As for the specific delay codes raised by the stakeholders, the PRB notes that codes I (ATC industrial action) and T (ATC technical equipment failure) are both disruption-related delays under the control of the ANSP and as such their expected value is zero. As for the other codes mentioned by the stakeholders (G, M, R, P, V) the delays generated under these are included in the target ranges under the system resilience buffer. The PRB's response to comments on how local breakdown values are calculated and their values are addressed in the replies to question 5.1.

186 Regarding the benefits stemming from the implementation of CP1 ATM functionalities, and in addition to the points made related to cross-border FRA implementation, the PRB reiterates that the benefit calculation for CP1 (as provided by the SESAR Deployment Manager) is not applied in the calculations of the target ranges. The basis on which the CP1 benefits are calculated does not allow for this, and thus this information was only used as qualitative evidence. The benefits of CP1 largely stem from the synchronised deployment, meaning that the benefits cannot be realised until all the stakeholders which fall within the scope of the Regulation have implemented the required functionalities.

Question 5.3

187 Over the past years, ATC capacity and ATC staffing reasons were the main reasons of en route ATFM delays. Both of these reasons for delay are related to how ANSPs are able to recruit and train ATCOs and how they are able to allocate personnel to open enough sectors as required by traffic demand. The PRB assumes that these delay causes are fully under the control of ANSPs, furthermore, these issues have been well-known since 2018. Therefore, the PRB assumes that most of the ANSPs will resolve delays due to sector-opening gaps and lack of ATCOs by the end of RP3. In Question 5.3, respondents were asked "*To what extent do you agree with the proposed approach?*".

188 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

189 Figure 13 shows the distribution of the replies. The majority of stakeholders (34 out of 45) did not agree with the assumption of the PRB on these delays (27 fully disagreed and seven disagreed to some extent), while nine respondents agreed (four fully agreed and five agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed on the assumption of the PRB. The majority of airlines (three) agreed to some extent, while two airlines fully agreed. The two professional staff representative bodies fully disagreed.

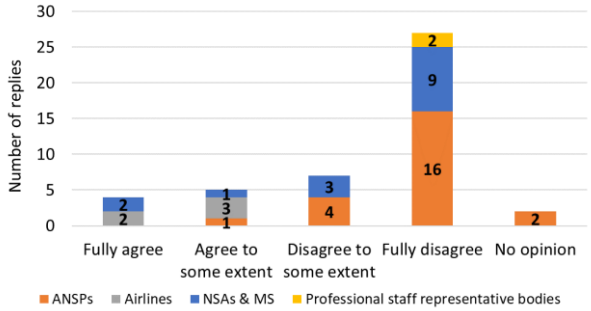

Figure 13 – Number of replies to question 5.3: "To what extent do you agree with proposed approach? (ATC capacity and ATC staffing reasons for delay)" (source: PRB elaboration).

190 Individual comments are listed in Table 13 (next page). 41 out of 47 respondents made a comment on the question, out of which:

- 21 ANSPs, including one association;
- Five airlines, including three associations;
- 13 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.3 To what extent do you agree with the pro-posed approach? (ATC capacity and ATC staffing reasons for delay)	
Stakeholder	Comment
Airline (Lufthansa Group)	We agree that the staffing problems should have been managed by ANSPs since the years of 2018/19. We acknowledge that in some cases training capacities where not enough to get the full number of much needed ATCOs in place. Nevertheless, at the same time we have heard of enhancing the training in order to have cut-down the time needed of the 2,5 to 4 years training time. At the same time in our opinion too less has happened to automatize ATM and transition the role of an ATCO from the traditional monitoring and instructing role to a potential conflict resolution role
Airline (IATA)	In the airlines' opinion more can be done in terms of impact of ATC Industrial Action and weather (worsened by staff shortage). The codes under ANSP responsibility (CRSTMP) should include ATC industrial actions, and new codes reflecting the combination of bad weather and lack of staff. Both targets and incentives must address all codes, since adaptation and resilience is expected from ANS. With better flexibility, rostering and allocation of present resources, delays could be reduced, not all capacity improvements need more staff. Peak periods during day, weekends and season can be better handled, monitoring and action is expected in that sense. Airlines support that these issues are known since 2018, their resolution should not be further postponed. This fact should be reflected in the targets and the incentives' schemes. No bonus should be allowed in RP4, users should not pay extra either for capacity excess or for generous delay allowances (both are still inefficiencies).
Airline (ERA)	Assumption for resolution of delays due sector re-opening gaps and ATCO by end 2024 is ambitious, however agree that delays are fully under the control of ANSPs.
Airline (Easyjet)	The requirement for additional staff to address capacity issues has been a common theme for the entirety of RP3. Staffing levels are a business decision under the control of the management of the ANSPs. This decision is influenced by factors such as demographics, acknowledging that individuals may retire earlier, but this must be considered a part of the business planning process in control of the ANSPs. However, the PRB must closely monitor that the requirement for additional ATC staffing does not become a pretext for ANSPs to escalate staff costs in order to enhance attractiveness or above optimal levels. Wages should align with the efficient level essential to attract the required talent without excessively exceeding market rates. The PRB shall make sure that each ANSP should establish allowances that mirror the efficient levels necessary and those applicable to an entity operating in a competitive environment. It is then for the regulated entity to decide upon its own actions and how it wishes to operate its business within the allowances established and benefit from the productivity gains it might achieve.
Airline (A4E)	The requirement for additional staff to address capacity issues has been a common theme for the entirety of RP3. Staffing levels are a business decision under the control of the management of the ANSPs. This decision is influenced by factors such as demographics, acknowledging that individuals may retire earlier, but this must be considered a part of the business planning process in control of the ANSPs. However, the PRB must closely monitor that the requirement for additional ATC staffing does not become a pretext for ANSPs to escalate staff costs in order to enhance attractiveness or above optimal levels. Wages should align with the efficient level essential to attract the required talent without excessively exceeding market rates. The PRB shall make sure that each ANSP should establish allowances that mirror the efficient levels necessary and those applicable to an entity operating in a competitive environment. It is then for the regulated entity to decide upon its own actions and how it wishes to operate its business within the allowances established and benefit from the productivity gains it might achieve.
ANSP (Latvijas gaisa satiksme,)	Latvia been hit by negative effects twice: covid pandemic and the war in Ukraine. It was very challenging to maintain the amount of staff needed for safe provision of services. Although the traffic dropped (and hence the ATCO demand dropped) one cannot consider that Latvia would have resolved the ATC capacity issues as prior to RP3. We understand that the flight levels are planned lower in RP4 than even in RP2, but one must plan for recovery as well.
ANSP (FABEC)	PRB does not seem to acknowledge that ANSPs are fully committed to constantly deliver and improving performance, also in the light of many ATCOs retiring in the coming years and that during the pandemic, they also were subject to social distancing and supply chain problems while the lack of traffic demand did not allow to adequately train operational staff. Many

	measures could not be implemented at these times and are now competing with what was regularly planned for now and in the next years.
ANSP (Polish Air Navigation Services Agency)	Assuming that ATC staffing and capacity delays will cease to exist by the end of RP3 is not supported by any factual/feasibility analysis and based on information currently available has to be considered unrealistic. Difficulties related to ATCO hiring and training are widely known and cannot be ignored. The PRB analysis of sector opening schemes is very high-level and simplistic – it does not take into account where exactly (in what sectors/sector groups) the delays occurred and whether changing the number or configuration of sectors open would improve the delay value (e.g. majority of delays in PL in 2022 was generated in SE part of airspace and required airspace reorganisation and changes to ATM system to improve the situation – without those changes opening more sectors would not help). ATC staffing and capacity delays are also linked to changes in ATM systems/airspace configuration, changes in traffic flows, MIL activity.
ANSP (ROMATSA)	We do not agree with the PRB's assumption because: • It takes between 3 to 5 years to train an ATCO and the process of selection and training becomes ever more challenging due to labour shortages in several EU countries • ANSPs face a growing resources issue, combining the effect of the age pyramid (many ATCOs and ATSEPs are of the retiring generation) and the difficulty of attracting young candidates (Aviation does not have anymore the appeal it had before, young generations hesitate to enter a profession that works 24/7). • COVID had a delay effect on training and investments due to the need to cut costs and to comply with the health restrictions.
ANSP (NAV Portugal E.P.E)	NAV Portugal has already commented on the assumptions underlying the capacity proposal. This unrealistic ambition is due to the fact that the PRB/COM has never carried out a gap analysis of the current situation and therefore the proposed targets only reflect the end goal without acknowledging the starting point. It is not clear what kind of information the PRB has gathered from the ANSPs that would allow it to state that the recruitment and training plans will be completed by the end of RP3, nor is it stated what the gap is between the existing ATCOs and those planned for the start of RP4. Finally, there is a direct correlation between sector opening and costs. ANSPs will continue to have sector open gaps whenever it is concluded that it is more efficient to regulate than to use ATCOs overtime to implement capacity optimum configurations. ATCOs are an expensive and scarce resource and therefore it should be deployed in the most efficient way.
ANSP (LVNL)	PRB does not seem to note that ANSPs are fully committed to constantly deliver and improving performance, also in the light of many ATCOs retiring in the coming years. However, during the pandemic ANSPs were subject to social distancing and supply chain problems, while the lack of traffic demand did not allow to adequately train operational staff. Many measures could not be implemented at these times and are now competing with what was regularly planned for now and in the next years.
ANSP (ENAV)	We do not agree with the PRB's assumption because: • It takes at least 2.5 years to train an ATCO, and there is a high failure rate • It is known and documented that ANSPs face a growing resources issue, combining the effect of the age pyramid (many ATCOs and ATSEPs are of the retiring generation), the fact that several ANSPs let staff go as part of their effort to decease costs during the pandemic, and the difficulty of attracting young candidates (Aviation does not have anymore the appeal it had before, young generations hesitate to enter a profession that works 24/7). • COVID had a delay effect on training and investments due to the need to cut costs and to health restrictions • Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient.
ANSP (ENAIRE)	ATC Capacity and Staffing aren't only dependent on ANSPs' recruitment & training of ATCOs or how they allocate them to open enough sectors based on demand. Many factors, as changes in traffic flows due to geopolitical situations (e.g. Ukraine war, Algeria's overflight prohibition to Morocco AO) are beyond ANSPs control at local level ANSPs may need new & unexpected airspace structures, requiring time of study, analysis, implementation, procedure definition, training, ENV evaluation & approvals in periods with high flights volatility & uncertainty as the current one. Projects might be stopped or delayed for a better & certain situation in the full context Even opening the maximum configuration of available sectors, airspace is limited. The schedules preferred by AOs often overlap or the demand is clearly displaced

	during the day. These examples support the argument that, this is NOT ONLY responsibility of ANSPs. The explanation regarding sector openings and ATCO hiring is too simplistic
ANSP (EANS)	We see that there is difficulty in attracting young candidates to come to work as an ATCO or ATSEP. Young generations hesitate to enter a profession that works 24/7 and we a in a position where this is an industry-wide issue
ANSP (DSNA)	In France, the ANSP's organizational position within a central government administration means that the FTE ceiling is not only in the hands of the ANSP, but also has a political dimension. Over and above the quality of long-term traffic forecasts, the organization of traffic itself within the European area can be greatly modified by particular events, such as the implementation of a major system or an international geopolitical situation.
ANSP (BULATSA)	The assumptions of PRB are not appropriate due to a number of important circumstances that should be taken into account. ATCO recruitment is more and more difficult - it is very difficult to find sufficient number of applicants, training is time consuming (app. 2.5 years), failure rate is high, the effect of age pyramid, etc. COVID brought additional challenges and pressure due to cancellation of recruitment campaigns, delay in training and investments due to health restrictions and costs cutting.
ANSP (CANSO)	We do not agree with the PRB's assumption: - ANSPs face a growing resources issue, due to the age pyramid (many ATCOs and ATSEPs are of the retiring generation), staff losses by several ANSPs to decease costs during the pandemic - It takes at least 2.5 years to train an ATCO, recruiting of new ATCOs is increasingly difficult and there is a high failure rate - COVID social distancing restrictions and the lack of traffic demand had a delay effect on training and investments due to the need to cut costs and supply chain issues - Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient - Optimizing airspace structures and introducing technological changes in ATM also involve periodic capacity limitations - Other factors are beyond ANSP control, e.g. changes in traffic flows due to geopolitics - Even opening the maximum sector configuration, airspace is limited
ANSP (Austro Control)	Experience from previous crisis shows that ramp up time of capacity increasing measures is at least 2-3 years from the end of crisis (impact of COVID-19 ended in 2023)
ANSP (ANS CR)	The mentioned causes are under the ANSPs control, but in long terms only as it takes couple of years to train a new ATCO. The COVID period had a negative effect on ATCOs training as there were not enough traffic to complete the full training. Training new ATCOs especially in current period of volatile traffic developments has adverse effects on the cost efficiency, in other words the optimal staffing and sector configuration from the operational perspective is often not optimal from a cost efficiency perspective. The PRB approach also does not take into consideration sudden changes of traffic flows triggered by events far behind ANSPs control (like COVID or geopolitical situation).
ANSP (LFV)	We do not agree with the PRB's assumption: - ANSPs face a growing resources issue, due to the age pyramid (many ATCOs and ATSEPs are of the retiring generation), staff losses by several ANSPs to decease costs during the pandemic - It takes at least 2.5 years to train an ATCO, recruiting of new ATCOs is increasingly difficult and there is a high failure rate - COVID social distancing restrictions and the lack of traffic demand had a delay effect on training and investments due to the need to cut costs and supply chain issues - Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient - Optimizing airspace structures and introducing technological changes in ATM also involve periodic capacity limitations - Other factors are beyond ANSP control, e.g. changes in traffic flows due to geopolitics - Even opening the maximum sector configuration, airspace is limited
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: do not agree with the PRB's assumption because: • It takes at least 2.5 years to train an ATCO, and there is a high failure rate • It is known and documented that ANSPs face a growing resources issue, combining the effect of the age pyramid and the difficulty of attracting young candidates - Aviation does not have anymore the appeal it had before, young generations hesitate to enter a profession that works 24/7). • Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient.

ANSP (AIRNAV)	We do not agree with the PRB's assumption because: • Despite issues being well known since 2018, the PRB did not issue any guidance during the pandemic in relation to assurances in relation to ATCO training or recruitment • Since 2018 there have been two RP3 Planning Processes and the PRB did not empower NSAs to permit the recruitment of ATCOs which were deemed to be required by management • The PRB has not, but needs to, tackle the issue in relation to traffic variations in the forecast. For example during RP3 ANSPs were required in the NOP to plan for the High Statfor Scenario +10% buffer, whereas the PRB insisted on RP3 Plans being developed on the basis of the Base Case scenario. • AirNav requests the PRB to consider this topic in more detail rather than simply saying the issues were known since 2018 e.g., the PRB should acknowledge unexpected losses of ATCOs due to lifestyle choices, for example, which impact on planning. • The PRB should also examine the realities surrounding requirements on Overtime and whether a better alternative exists – the Network Manager has recognised Overtime as being the best available method of managing traffic variations, but at the same time a reliance on overtime or certain restrictions on annual leave need to be considered. • AirNav Ireland requests guidance from the PRB in relation to the interdependency between the required number of ATCOs to 2029 and the cost efficiency targets being applied.
ANSP (DFS)	DFS efforts to increase staff-numbers are continuously at a maximum level of 136 new OJTs / year. Nonetheless, the unexpectedly high volumes in traffic increase for parts of DFS´ areas of responsibility (e.g. Karlsruhe sector family Sotuh at 124% of 2019 traffic) could not be foreseen beforehand (thus not in 2018 as the PRB assumes according to the question) Due to this development the PRB´s assumption is only correct for those parts, in which traffic development was in line with the expectation. E.g. all Tower Units and many en-route-sector-groups will have sufficient staff-levels by RP4. The pandemic-related reduction in training capacities has led to a delay in the planned replenishment of staff. Despite the ramp-up of ATCO training to its maximum capacity since 2022, it will take several more years before the gap can be closed. Nonetheless, due to necessary training efforts for system improvements also in balanced sector-groups temporary regulations are inevitable.
ANSP (skeyes)	We do not agree with the PRB's assumption because: • It takes at least 2.5 years to train an ATCO, and there is a high failure rate; • It is known and documented that ANSPs face a growing resources issue, combining the effect of the age pyramid (many ATCOs and ATSEPs are of the retiring generation), the fact that several ANSPs let staff go as part of their effort to decrease costs during the pandemic, and the difficulty of attracting young candidates (Aviation does not have the appeal it had before, young generations hesitate to enter a profession that works 24/7). • COVID had a delay effect on training and investments due to the need to cut costs and to health restrictions • Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient.
ANSP (Skyguide)	During the COVID period, training could not be ensured as appropriate any more (due to lack of traffic and the impossibility to open many sectors, social distance, …). The recruitment activity was strongly reduced during at least 2 years and the process of qualifying ATCOs is long. So even if the issue was known in 2018, there were unexpected events in between that prevented ANSPs from continuously recruiting new trainees.
ANSP (NAVIAIR)	The Danish ANSP has drawn up a plan for ensuring sufficient ATC capacity as soon as possible. The plan implies that the number of ATCOs will increase. The plan to increase the net number of ATCOs is based on recruitment and education of ATCOs also taking into account the number of ATCOs that is expected to retire within the RP4 period. This in combination with efficiency improvements that have already been included in the increase. The Danish ANSP estimates that there will be sufficient capacity from 2025 in accordance with the estimated costs in the RP4 period (initial data).
Member State (Germany)	(See comment under 5.2)
Member State (Netherlands)	The assumptions miss the problem of retaining ATCOs in some areas. Assuming that the problem will be completely solved in the remainder of RP3 when the current situation is known is

	unrealistic. Being unsatisfied with the progress sins 2018 is not a valid argument for believing it will be solved. An analysis of the reasons, which can be expected to vary between countries, would be a good basis for target setting.
Member State (Spain)	In the same way of the previous question, it should be considered the actual figures in order to propose challenging but realistic objectives.
NSA (Croatia 1)	Sector opening gap methodology represents the methodology that does not look at the offered capacity during the whole day but rather at the sector opening at the maximum sector level, thus not giving the real representation of the offered capacity during the day. By this, the results presented in the consultation period are 'corrupted' and cannot be used for the target setting purposes. Once the PRB uses adequate methodology for evaluating 'sector-opening gaps' then the results could be used for the target setting purposes. Also, reduction of costs per unit of service provided with a need of achieving greater number of ATCO licenses (that takes around 2.5 to 3 years) does not show the related understanding of the cost efficiency and capacity related interdependency.
NSA (Cyprus)	Some ANSPs are public sector State entities (operating in the context of a State budget) and cannot directly control the recruitment process.
NSA (France)	The PRB assumption that staffing issues will be solved in RP3 is not supported. At many ANSPs maximum recruitment level is ongoing but covid-19 impact at academies and OJT training have delayed the rating of ATCO in OPS. This impact as to be considered: full ATCO qualification will materialize only during RP4. In many cases, it remains a challenge to recruit and train ATCOs, considering failure rates and reduced candidate numbers, and ensuring at the same time additional training for new ATM system implementation (which does not end in RP3). Some ANSPs, through ongoing discussion, foresee organizational & working conditions changes: the outcome of negotiations will have an impact on staff recruitments, levels and working conditions. In addition, ATCO availability is not a stand-alone item: one of the main factors for non-adequate sector opening scheme remains changes in traffic level or flows at the D-day when roster have already been published according to traffic forecast.
NSA (Poland)	The problem of ATCO training is the issue known for many years, as it was indicated by PRB. ANSPs planned to solve this issue in the past, however without a spectacular success. Taking into consideration such experience and looking at the problem with recruitment of controllers it should be questioned the very optimistic assumption that this issue will be solved by the end of RP3.
NSA (Italy)	We do not completely agree with the PRB's assumption because: • It takes at least 2.5 years to train an ATCO, and there is a high failure rate • It is known and documented that ANSPs face a growing resources issue, combining the effect of the age pyramid (many ATCOs and ATSEPs are of the retiring generation), the fact that several ANSPs let staff go as part of their effort to decease costs during the pandemic, and the difficulty of attracting young candidates (Aviation does not have anymore the appeal it had before, young generations hesitate to enter a profession that works 24/7). • Sector opening gaps will continue, since an ANSP's sector configuration has to take into consideration the most optimal one to accommodate demand as well as the most cost efficient.
NSA (Estonia)	I believe that those assumptions are superficial and root cause of ATC staffing issues are elsewhere.
NSA (Switzerland)	PRB's assumption that all staffing issues and system implementations will be resolved by the end of 2023 is not supported. The effects of the COVID-19 pandemic (economic and operational) will not be entirely overcome by the start of RP4, the issues in terms of ensuring adequate recruitment levels will persist in the coming years. Basing capacity solely on the maximum number of open sectors may also be oversimplified and disregards any improvements in sector productivity and throughput achieved in previous years.
NSA (Croatia 2)	Sector opening gap methodology does not look at the offered capacity during the whole day but rather at the sector opening at the maximum sector level, thus not giving the real representation of the offered capacity during the day. By this, the results presented in the consultation period are invalid and cannot be used for the target setting purposes. Once the PRB uses adequate methodology for evaluating 'sector-opening gaps' then the results could be used for the target setting purposes. Also, reduction of costs per unit of service provided with a need of achieving greater number of ATCO licenses (that takes around 2.5 to 3 years) does

	not show the related understanding of the cost efficiency and capacity related interdependency.
NSA (Austria)	Contrary to what is stated above, these factors are not fully under the control of the ANSP. The last years have shown that there is a lack of workforce in all sectors of the economy and air navigation is no different. ANSPs cannot influence how many people want to become ATCOs and they can only to a certain extent influence how many actually pass the training. Based on the fact that the data shows that delay targets were not achieved in 2022 and 2023 by many ANSPs, one cannot assume that 2024 will totally change the picture. This is not to say that ANSPs should not be 100% ambitious and committed to these goals, but basing the target setting on these unrealistic assumptions inevitably leads to unrealistic targets.
NSA (Germany)	We disagree about the claim, that the stated delay causes are fully under control of the ANSPs. As mentioned by PRB in Annex 1 No 100, only the year 2022 is considered as regards the sector opening gap. Firstly, we consider it too little evidence, to build the assumptions on just one year. Secondly, this was the to date last year with remains of Covid-restrictions and the year with the start of the Russian war in Ukraine. It is therefore even less suitable to draw conclusions from. We can also not retrace how SOG values are calculated since further descriptions and data sources are missing. Assuming that only the number of sectors open is looked at, it is not a useful parameter since it shows no productivity or throughput. Also, the short-term possibility to open a certain number of sectors with existing staff doing extra shifts etc. cannot lead to the conclusion, that permanent opening of this number of sectors would be feasible (or even cost neutral). Additionally and at least relevant for central European airspaces, congestion will not be resolved by opening sectors where no movements occur. A sufficient explanation on why for DFS a value of 58% was interpreted as the amount/ratio of delays that can be resolved or avoided in a relatively short time frame (Annex 1 No 102) could not be discerned from the report or its annexes. We would although have expected to read what a relatively short timeframe is supposed to be, how these values are supposed to be resolved (actions/measures) and again how these values are calculated since evidence is missing (Table 13 of Annex 1) and the value shown is unrealistic according to DFS. The assumption that ANSPs are able to resolve ATC staff issues within the RP3 timeframe is also not supported by the provided evidence or the reality of ANSPs. How did PRB take into consideration that regarding staffing, due to Covid there were 2-3 years of restrictions having as a result lowered training capacity which now needs to be caught-up on? Also, beyond recruitment and training of ATCOs, for the number of available FTEs the (lacking) willingness of licensees to work full time is becoming a more and more relevant factor. It seems that generations entering the ATCO work force at the moment are not sufficiently motivated by money to do so. Lastly, we would like to draw attention to the fact, that while performance measured in delay per flight may be deteriorating, performance measured in throughput may have been improving. This does not eliminate the delay caused by ATC, but it should still be taken into consideration for completeness sake, also when judging the efforts made.
Professional staff representative body (IFATCA)	This is one of the assumptions that are most faulty in my opinion. We see lack of staff - ATCOs and ATSEPs - in most ANSPs, and this issue is definitely not 'under control'. According to the PRB assumption, all staffing issues should be solved in 13 months; but we are not even close to that. On the contrary, this is the main issue for many ANSPs, and by the way, a result of the last years, where ANSPs - through incentives - have been urged to reduce cost, and in that context have minimised recruitment, and training of ATCOs. Today we see the result of that.
Professional staff representative body (ATCEUC)	The statement that ATC capacity and ATC staffing delays causes are under control of ANSPs cannot be considered as true when considering cost reduction of EU policies for RP1, RP2 and RP3. In the last 10 years, political pressures from different aviation actors make ANSPs very restrictive in their recruitment policy. The current situation of lack of ATCOs with associated ATC capacity and ATC staffing delays is the result of these financial cost cutting policies. Sector opening gaps methodology appears to be too simplistic to be used as an element to define targets for RP4. Being able to have a certain number of ATCOs on a certain day of the year does not mean it is also possible to do the same every day of the year. Fatigue, working condition, minimum holidays period during summer, balanced working life: all these elements have to be considered when looking at rostering. National labour law, EASA regulations, sectorial social agreements: all these elements intervene in ATCO rostering.

Table 13 - Comments received on Question 5.3.

PRB analysis

191 Response from stakeholders on question 5.3. was mostly negative as 34 (out of 45) stakeholders expressed at least a partial disagreement, while only nine stakeholders agreed with the approach at least to some extent. Airlines were in largely in agreement of the proposal, while ANSPs, Member States and NSAs, and professional staff representative bodies were disagreeing mostly.

192 Stakeholders provided comments over the following topics:

- The lack and/or simplistic and unrealistic nature of the background analysis conducted by the PRB;
- The impact of the COVID-19 pandemic and how it affected the recovery of ANSPs;
- The trade-off between sector-opening gaps and ATCO overtime, and the lack of guidance related to ATCO training and interdependency between cost efficiency and ATCO numbers; and
- Various aspects related to the target setting, such as the inconsistent approach to traffic variations, and the extension of the 'CRSTMP-only' modulation of the capacity incentive scheme with additional delay codes.

193 In terms of the background analysis of delays due to ATC capacity and ATC staffing reasons, stakeholders commented that the PRB did not conduct a feasibility analysis and/or a gap analysis that would support the assumption of the delays related to staffing issues. In addition, several stakeholders noted that the background analysis was too simplistic and did not consider all the aspects of the operational reality of ANSPs. Stakeholders also argued that traffic volatility was detrimental to capacity improvement measures and that ATC capacity and ATC staffing delays and, in general, shortage of ATCO resources were not fully under the control of ANSPs, due to the general lack of human resources in the European economy. Several stakeholders noted that the time required to resolve such issues is longer than what was left until the end of RP3, due to the length of the ATCO training process. Stakeholders even noted that some ANSPs are not in full control of their recruiting plans due to being part of the state administration.

194 Stakeholders also argued that the aftermath of the COVID-19 pandemic and the associated crisis in aviation was still affecting their ability to improve capacity performance. Stakeholders reported that restrictions introduced by governments during the pandemic years caused delays in the training process, resulting in lowered success rates of trainings, loss of trainees, or even years of delay in the ATCO training plans. Some stakeholders believed that 2022 was not a representative year for the calculation of sector-opening gaps, as it was the first year after the pandemic which was close to the pre-pandemic, normal operations both in terms of traffic levels and other aspects as well.

195 Stakeholders also noted that a trade-off between ATCO overtime and sector-opening gaps may exist, making it economically more efficient to cumulate delays due to sector-opening gaps than using overtime of ATCOs to provide more capacity and avoid delays. Some stakeholders noted that the current shortage of ATCOs was a result of the pressure and focus on cost-cutting measures in RP1, RP2, and RP3. Further to this, few stakeholders also mentioned the lack of guidance material in relation to ATCO training, as well as the interdependency between cost efficiency and ATCO numbers.

196 Finally, stakeholders commented on different aspects and parameters of the performance and charging scheme, not necessarily related to the target setting. Stakeholders pointed to what may be a discrepancy between the recommendation from the NM regarding using the STATFOR High forecast scenario for capacity planning and the requirement to use the STATFOR Base forecast scenario as the basis for the performance planning. Further to this, some stakeholders expressed views about how the modulation of the incentive scheme on capacity performance should be extended, to include delays due to ATC industrial action and potentially, delays due to the combination of lack of capacity and weather impact.

PRB response

197 Regarding the background analysis of delay related to ATC capacity and ATC staffing, the PRB highlights that the methodology applied to the analyse of these delays relied on all the information provided by Member States and ANSPs in the context of the performance plans and monitoring reports of the past years, as well as the publicly available databases of Eurocontrol and the NM. The PRB also notes that the issues around ATCO shortage have been raised in every annual monitoring report of the PRB since 2018, and ANSPs have committed to resolving these issues since at least the beginning of RP3. The PRB is of the view that if ANSPs and Member States had implemented all the measures as planned in their performance plans, most of the existing capacity problems could have been resolved by the end of RP3. Nevertheless, having considered the feedback of the stakeholders, the PRB engaged in further discussions with six ANSPs which generated high delays, to further explore the situation (Annex III of this report).

198 As for the volatility of traffic and how this affected adversely the efforts of improving capacity performance, the PRB reiterates its position from the annual monitoring reports of 2020 and 2021, where it emphasised the importance that ANSPs prepare for a faster traffic recovery and plan their capacity accordingly.

199 The PRB acknowledges the fact that some Member States imposed restrictions during the COVID-19 pandemic that suspended or delayed the training of ATCOs and that any potential backlog accumulated during this period requires time to be resolved. However, the PRB also notes that ANSPs did not yet fully explore all the possibilities to overcome ATCO shortage (such as improving the rostering schemes of ATCOs), and that there is still surplus capacity available in some parts of the network that could be utilised to mitigate the impact.

200 Further to this, using 2022 as the basis for the analysis of sector-opening gaps was the only option available to the PRB, as 2019 was already four years in the past, and data of 2023 was not fully available yet. Even if 2022 data included the remaining impact from COVID-19, this would be representative of the operational reality, and thus cannot be disregarded.

201 On the possible trade-off between sector-opening gaps and the overtime of ATCOs, the PRB highlights that this concept relates back to the economic optimum level of delays, as the comparison should be made between the total cost of one minute of en route ATFM delay and the costs associated with avoiding that delay. The PRB considers that a theoretical level of delay and cost may exist where it is more beneficial to generate delays than it is to provide more capacity. However, at current levels of delay, the total costs associated with delays greatly exceed those of improving capacity.

202 The PRB points out that the focus of the Union-wide performance targets has been on improving capacity and resolving the delay issues in the network since these issues became apparent in 2017. During the performance planning of RP3, ANSPs were provided with the option to deviate from cost-efficiency targets for the sake of achieving their capacity targets.

203 Over the lack of guidance material regarding the interdependency between ATCO numbers and cost-efficiency, the PRB notes that such information is at the core of the operation of the ANSPs and as such the PRB should not advise ANSPs on this matter.

204 Regarding the recommendation of the NM to use the high scenario of the STATFOR forecast for the planning of capacity and the requirement of the performance and charging scheme to use the base scenario of the forecast to plan unit costs, the PRB does not find these to be in contradiction. The PRB invites stakeholders to consider that in the context of capacity planning, the prudent approach is to account for unexpected traffic growth (within the range of the forecast scenarios) to avoid disrupting the network, while in the financial planning, the prudent approach is to plan based on the most likely scenario, which is the base scenario of the forecast. Furthermore, this point has already been raised during the target setting of RP3, and stakeholders have been advised to adhere to the recommendations of the NM in capacity planning.

205 As for any potential changes in the delay codes associated with different options of the incentive schemes on capacity performance, the PRB notes that this is out of the scope of the target setting process.

Question 5.4

206 Aiming at and anticipating zero ATC-related delays is neither reasonable nor realistic. Therefore, the PRB proposes the capacity target range as the sum of the allowance for weather-related delays, the allowance for the non-ATC disruptions, and a system resilience buffer which allows for minor delays. In Question 5.4, respondents were asked "*To what extent do you agree with the proposed approach?*".

207 The PRB proposes that the allowance for weather and non-ATC-related disruption delays is calculated on the basis of historical averages. The allowance for weather-related delays is estimated between 0.20 and 0.27 minutes per flight at the Union-wide level, while the allowance for non-ATC disruptions is between 0.01 and 0.03 minutes per flight.

208 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

209 Figure 14 shows the distribution of the replies. The majority of stakeholders (31) did not agree with the sum for the capacity target range proposed by the PRB (five fully disagreed and 26 disagreed to some extent), while 12 respondents agreed (four fully agreed and eight agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed on the proposed approach of the PRB. The majority of airlines (four) disagreed to some extent, while one airline agreed to some extent. One professional staff representative fully disagreed, while one agreed to some extent.

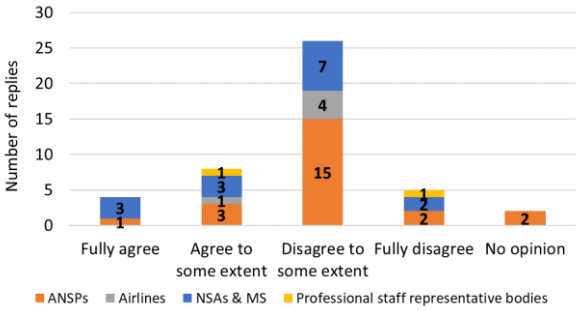

Figure 14 – Number of replies to question 5.4: "To what extent do you agree with proposed approach? (Allowance for adverse weather)" (source: PRB elaboration).

210 Individual comments are listed in Table 14 (next page). 37 out of 47 respondents made a comment on the question, out of which:

- 19 ANSPs, including one association;
- Four airlines, including three associations;
- 12 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.4 To what extent do you agree with the proposed approach? (Allowance for adverse weather)	
Stakeholder	Comment
Airline (IATA)	The weather allowance for RP4 seems overestimated when considering historical data in which a part of weather delays could have been avoided with further capacity/staff. IATA supports the introduction of new reporting codes, as proposed in the PRC technical note previously mentioned, to increase transparency. The system resilience buffer needs better explanation and potential reconsideration downwards. Traffic growth is not so sudden (it is periodically forecasted, and NM does a good work supporting ANSPs with measures to cope with demand) and "minor" issues should not lead to millions of minutes of delay. Note that 0,2 min of delay with the expected traffic in 2025 could lead to costs greater than 200M€ for airlines (using 100€/min, which is lower than expected (2021 value is 109€/min in ACE2023, and increasing with inflation)). The value gets greater as the traffic increases
Airline (ERA)	More transparent reporting on weather as per the PRC technical note of Jan 2023 should perhaps be taken into consideration and in principle is supported.
Airline (Easyjet)	On the basis that there are no alternatives considered the approach can be used. In general, considering base rates can be a rational and statistically sound approach to forecasting. The values for weather and non-ATC disruptions must to be reviewed, as historical data often conceals staffing issues.
Airline (A4E)	On the basis that there are no alternatives considered the approach can be used. In general, considering base rates can be a rational and statistically sound approach to forecasting. The values for weather and non-ATC disruptions must to be reviewed, as historical data often conceals staffing issues.
ANSP (FABEC)	Climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations in future. The proposed allowance for delays related to adverse weather (Report, item 119) does not sufficiently acknowledge this. In addition, we also cannot support computing an average of the last 5 years, be it for weather delay or sector opening gap, considering that 2020, 2021 and to a lesser extent 2022 are not representative years, and the figure 5, page 20, is a perfect illustration of this situation. In this context, the proposed 10 years approach seems to cumulate several drawbacks: 2020, 2021 are not representative years, 2012 to 2015 and 2022 were years with significantly less traffic than 2016 to 2019. Delay evolves exponentially with traffic and delay due to weather regulation follows the same trends. The allowance for weather delays is therefore clearly underestimated as also underlined by climate research
ANSP (Polish Air Navigation Services Agency)	As indicated by the PRB both in the report and at the workshop on 8.11.2023, weather-related delays increase. This is not duly considered in the target setting – increase should be included in the weather allowance which should not be based only on historical average. The system resilience buffer does not take into account the most important and interfering aspects (indicated in the answers to the above questions) that affect the delays. It makes the targets not realistic and not achievable. This buffer should be based on feasibility analysis and consider bottom-up approach. Due regard must be given to MIL impacts, periodic capacity limitations during implementation of operational changes, time-span of expected benefits stemming from OPS improvements (mid to long term). Targets must be realistic and achievable and not based on theoretical assumptions only.
ANSP (ROMATSA)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability in the context of climate change or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future.
ANSP (NAV Portugal E.P.E)	The PRB's proposal for a resilience buffer does not take into account the increasing volatility/unpredictability associated with climate change: the number of weather phenomena has increased with a direct impact on the volume of airspace available for flight, increasing the complexity and therefore the need to implement regulations to manage traffic safely. Although historical data can be used to calculate the allowance, it must also take into account the increase in traffic along RP4 and its impact in terms of delays and should therefore not be

	a constant value but a sliding allowance directly related to traffic. On the other hand, the allowance for weather-related delays has been calculated on the basis of the 5 and 10 year average. However, 2020/21 were characterised by an unprecedented decrease in traffic, and should therefore not be included in the assessment; these two years should be considered as outliers of traffic patterns with a scenario of overcapacity at network level.
ANSP (LVNL)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability of traffic demand or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future. Additionally, climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations (e.g., increased occurrence of storms, changes in wind patterns and disruptions of ground infrastructures).
ANSP (ENAV)	Agree that zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer not taking into account (or without a disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability in the context of climate change or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. The allowance 0,20-0,27 at network level is not consistent with the level of weather related delays faced today (end Nov at network level 0,62 m/f weather related delays). To be highlighted that since 2 years in Italy facing an unprecedented drastic increase in "weather" related delays, which go even beyond the national target "all reasons". Here following the examples: weather 2022 at 0,107 vs target 0,11; weather 2023 until 26th November at a level of 0.169 vs target 0,11), therefore by far the major factor to be considered for the future and extremely volatile.
ANSP (ENAIRE)	We agree on the basis that zero ATC-related delay is neither reasonable nor realistic. But regarding weather and considering the great changes in last years, it seems not easy to estimate right values or right ranges for weather values for next five or six years.
ANSP (DSNA)	Situation in France: 2023 0.43' delay W per flight 2022 0.24' 2019 0.25' 2018 0.38' Historical data show great geographical and temporal disparity, the impact and frequency of phenomena tend to increase. The allowance package appears to be underestimated by at least 0.15'.
ANSP (BULATSA)	The allowance for weather and non-ATC-related disruption delays should be calculated taking into account only years with normal traffic levels. 2020 and 2021 are exceptional ones
ANSP (CANSO)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability of traffic demand or differences within an ACC or even at sector level. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future. Additionally, climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations (e.g. increased occurrence of storms, changes in wind patterns and disruptions of ground infrastructures).
ANSP (Austro Control)	Future impact of climate change on weather delay must be taken into account to a much greater extent. Historical data is not sufficient in this case.
ANSP (ANS CR)	The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability in the context of climate change or differences within an ACC. As well as it does not consider impact of increased MIL activities due to current geopolitical situation in certain parts of airspace.
ANSP (LFV)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability of traffic demand or differences within an ACC or even at sector level. The allowance for weather-

	related delays has been calculated based on the 5- and 10- year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future. Additionally, climate change research strongly supports the assumption that weather events will more often disrupt air and airport operations (e.g. increased occurrence of storms, changes in wind patterns and disruptions of ground infrastructures).
ANSP (AVINOR)	We agree that a goal of zero ATC-related delay is not reasonable. The two pandemic years 2020 and 2021 should not be included in the assessment.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) increasing volatility/unpredictability in the context of climate change or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5 and 10 year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future
ANSP (AIRNAV)	Due to AirNav Ireland's track record in relation to delay, we request the PRB to acknowledge that it is possible to achieve low levels of delay and more importantly to acknowledge that there is no appetite among airspace users for increased delay levels in Irish airspace. AirNav Ireland requests the PRB to consider the request from IATA at the consultation meeting along the lines of suggesting that the delay target should be closer to zero. We also request the PRB to acknowledge there are potentially unintended consequences with stating the following: Aiming at and anticipating zero ATC-related delays is neither reasonable nor realistic. AirNav Ireland requests transparency in relation to the local reference values that have informed the proposed Union wide capacity targets.
ANSP (DFS)	The allowance for weather-related delays has been calculated based on the 5 and 10 years average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future. In addition, as research demonstrates, climate change will lead to an increase in adverse weather that impact capacity. The proposed allowance is not considering that effect and needs to be increased.
ANSP (skeyes)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account (or in the absence of disclosed transparent methodology, it is unclear how it does) the increasing volatility/unpredictability in the context of climate change or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. However, the two years 2020 and 2021, which were characterised by an unprecedented pandemic-related decline in traffic, should not be included in the assessment. In these two years, there was a huge surplus of capacity that cannot be offered in this form in the future. Delays evolve exponentially with traffic and delays due to weather regulation follow the same trend. The allowance for weather delays is therefore clearly underestimated as climate research suggests too.
ANSP (Skyguide)	The weather buffer based on a 5 year average or 10 year average is not in line with the recent weather deterioration (stronger phenomenon) and an average is not in line with how the delay evolve with traffic (delay evolves exponentially with traffic, and therefore a regulation due to weather has not the same impact if applied in 2020, in 2013 or in 2019).
Member State (Germany)	With the details provided it seems reasonable to assume that the allowance for weather delay is underestimating the future delay. The statistical findings on allowance for delays related to adverse weather should be tested again within a larger data set and should take into account latest climate research suggestions on the likelihood of adverse weather situations
Member State (Netherlands)	Recognising weather as not part of ANSP influence is realistic. Excluding it form the targets would be more straight forward and transparent.
Member State (Spain)	Spain agrees with PRB in the statement of weather phenomena are expected to worsen in the coming years. For this reason, it may be necessary to allow a wider weather-related delay.

NSA (Croatia 1)	The question is should the last two years where we had COVID and war effected traffic demand be included in the 10-year statistical representation of the target setting?
NSA (France)	The computation made to establish the weather allowance for both ranges is based on a period of time which does not fit for purpose: years 2020 and 2021 are not representative of weather delay evolution and years between 2012 to 2015 and 2022 were years with significant less traffic than years 2016 to 2019, where major delays were experienced in areas of the network (delays evolve exponentially with traffic in congested areas, and also delays due to meteorological cause). In addition, the weather delays due to climate change should be higher in the coming year and the weather allowance proposed seems underestimated due to this methodological bias. It should also be noted that such allowances should be extended to industrial action as it used to be the case. In most case and in certain countries the institutional set-up and the political culture, which are out of the remit of the ANSPs. Providing no allowance at all in the capacity target for industrial action is not realistic.
NSA (Poland)	It should be accepted that weather conditions have a negative impact on the Capacity area. It is recommended that PRB present details regarding the adopted methodology for calculating the range of the lower and upper ranges of the weather allowance. This will allow stakeholders to better understand the planning process at the local level.
NSA (Italy)	We agree that a goal of zero ATC-related delays is neither reasonable nor realistic. The PRB's proposal for a resilience buffer does not take into account the increasing volatility/unpredictability in the context of climate change or differences within an ACC. The allowance for weather-related delays has been calculated based on the 5- and 10- year average. The allowance 0,20-0,27 at network level is not consistent with the level of weather related delays that we are facing today. It has to be highlighted that since 2 years in Italy we have been facing an unprecedented drastic increase in "weather" related delays, which go even beyond the national target "all reasons". Here following the examples: weather 2022 at a level of 0,107 vs target 0,11; weather 2023 until 26th November at a level of 0.169 vs target 0,11), therefore by far the major factor to be considered for the future and extremely volatile
NSA (Estonia)	It is going to be quite complicated to measure. Airspace users can act differently in the same meteorological conditions
NSA (Germany)	In general, we support the approach of considering historical delays but again the procedure is fragmentary. As stated before already, for non-ATC disruptions PRB considered the delay codes A, E, N, O, NA. Besides these for evidence 1 codes S and C are considered. But codes G, P, M, R, T, V, I are not noticeably taken into consideration even though these added up to a delay of 0,41 minutes/flight in 2022. Why are not all delay codes considered and based on what reasoning are several delay codes ignored? For the weather allowance, we miss a SES/EU-wide historical values view. Annex 1 table 16 provides values on ANSP level only. Looking up the values in the PRU Dashboard, one can see that from 2013 until 2022 Weather delay values were rising significantly from 0,07 to 0,40 minutes/flight. This development as well as up-to-date climate research make it more likely that added to the historical value an allowance for expected future development would be state of the art. To establish the necessary allowance, studies done or requested with or by MET providers could have been considered. As a consequence, the proposed allowance cannot be retraced and should be higher, also due to the fact that is an element which is only to a very limited degree under ANSPs control.
NSA (Switzerland)	Europe experienced extreme weather in July 2023 and the weather-related ATFM delay during this summer was over two and a half times the 2022 figure. The proposed allowance for delays related to adverse weather does not sufficiently acknowledge the increasing severe weather phenomena, as suggested by climate research. In addition, a computing of an average of the last 5 years for weather delay may not be adequate considering that 2020, 2021 and to a lesser extent 2022 are not representative years. Delay evolves exponentially with traffic and delay due to weather regulation follows the same trends. Thus, the allowance for weather delays is underestimated.
NSA (Croatia 2)	Should the last two years where we had COVID and war effected traffic demand be included in the 10-year statistical representation of the target setting.
NSA (Austria)	Related to weather induced delays 1) Historical data shows that weather related delays show an increasing trend over the past years. For realistic data this trend has to be extrapolated rather than using an average over the past years for the future, which will clearly

	underestimate the reality. 2) Historical data shows that weather delays have impacted countries to very different degrees in the past. Nevertheless a uniform average is applied to the union-wide targets without taking into account the differences. This leads to over-generous delay allowances for some countries while for other the averages are way too low
Professional staff representative body (IFATCA)	I'm not sure if the weather related delays are set correctly, but it should definitely be included.
Professional staff representative body (ATCEUC)	The 10 years approach cannot be considered as relevant: 2012 to 2015, 2020, 2021 should not be used to calculate historical averages. Traffic was pretty low and for a same weather phenomenon the consequences with a low traffic situation is not the same. Weather phenomena should be much more significant in intensity /severity to produce a similar effect on ATFM delays in low traffic situation. Climate change produces also consequences on the frequency, intensity/severity of bad weather. Difficult to evaluate this trend but weather delays allowance needs to consider this. Globally, weather delays allowances are considered as underestimated

Table 14 - Comments received on Question 5.4.

PRB analysis

211 Stakeholders once again expressed diverging views about question 5.4: While 12 stakeholders were in partial or full agreement, 27 stakeholders partially disagreed, and five stakeholders fully disagreed with the proposed approach. Airlines, ANSPs, Member States and NSAs, and professional staff representative bodies all had mixed views, often in contradiction to each other.

212 Among the key points raised in the comments were:

- Various aspects of the weather allowance;
- Composition and basis of the system resilience buffer; and
- Delay reasons included in the analysis and the allowances.

213 Comments and views expressed by stakeholders which are already addressed under previous questions are not listed here for the sake of conciseness, unless raised by most of the respondents.

214 On the allowance for weather-related delays, some stakeholders noted that the allowance is overestimated and that new delay codes should be introduced in order to increase transparency. Other stakeholders noted the changes in volatility and impact, and how this was not considered by the PRB, and highlighted that 2020 and 2021 should not be representative years.

215 Regarding the system resilience buffer, stakeholders noted the lack of consideration for the impacts of traffic volatility, climate change, the impact of geopolitical situations, differences across ACCs and other operational elements.

216 Finally, one stakeholder noted that industrial action to ANSPs should also be considered as part of the delay allowance, as ANSPs had no control over ATC staff joining general industrial actions.

PRB response

217 The PRB acknowledged the comments on the calculation of the weather allowance and has decided to revise the methodology to disregard data from 2020 and 2021. For details, stakeholders are invited to refer to the response provided under question 5.1.

218 In relation to the comments on the overestimation of the allowance for weather-related delays, it is important to note that current information suggests an increasing impact of severe weather, and it is more prudent to plan for this tendency in the target setting than to disregard it.

219 In response to the comments raised by stakeholders around the system resilience buffer, the PRB highlights that the impact of climate change is already considered in the weather allowance. Further to this, traffic growth, the impacts of geopolitical situations, and operational differences between ACCs were all considered. Both the weather-related allowance and the capacity improvement plans were analysed for each ACC, considering differences between these to the maximum extent possible allowed by the available data.

220 Finally, on the allowance for delays due to industrial actions at ANSPs, the PRB understands that the ANSPs may not have control over how local legislations govern the rights of ATCOs to partake in industrial action. However, the PRB highlights that the ultimate responsibility of ensuring that the ANSP can perform consistently with the Union-wide targets resides with the Member States and so ATC industrial actions cannot be regarded as external factors in the context of the target setting.

Question 5.5

221 Most ACCs which, historically, were significant contributors to en route ATFM delays are planning to implement state-of-the-art, new ATM systems and advanced ATC tools in the timeframe of the current NOP. The PRB expects that these investments will result in significant improvements in the capacity offered by these ACCs, allowing them to minimise en route ATFM delays in the last two years of RP4. Moreover, it is expected that the implementation of CP1 projects in due time will be a major contributing factor to capacity improvement and delay reduction. In Question 5.5, respondents were asked "*To what extent do you agree with the proposed approach?*".

222 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

223 Figure 15 shows the distribution of the replies. The majority of stakeholders (28) did not agree with the assumption of the PRB on improvements offered by the ACCs (19 fully disagreed and nine disagreed to some extent), while 13 respondents agreed (five fully agreed and eight agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSAs and Member State representatives disagreed on this assumption of the PRB. The majority of airlines (four) fully agreed, while one airline agreed to some extent. One professional staff representative fully disagreed, while one disagreed to some extent.

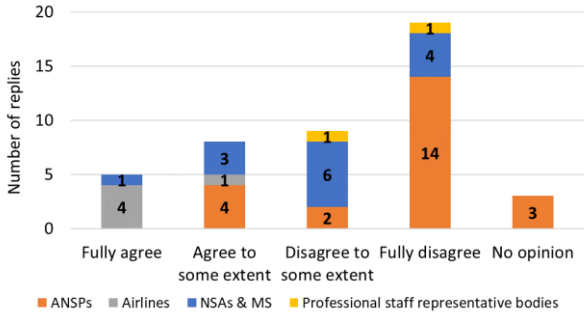

Figure 15 – Number of replies to question 5.5: "To what extent do you agree with proposed approach? (Capacity improvement plans and benefits of CP1 ATM functionalities)" (source: PRB elaboration).

224 Individual comments are listed in Table 15 (next page). 41 out of 47 respondents made a comment on the question, out of which:

- 21 ANSPs, including one association;
- Four airlines, including two associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.5 To what extent do you agree with the proposed approach? (Capacity improvement plans and benefits of CP1 ATM functionalities)	
Stakeholder	Comment
Airline (Lufthansa Group)	For the 1st time we read the contribution of CP1 results, supporting the target setting of RP4. We appreciate this inclusion and are expecting even increased support for future periods, especially the usage of full trajectory-based operation should be reflected in the target setting.
Airline (IATA)	Airlines support the NOP as the collaborative framework between ANSPs and the NM to plan for achievement, and also as a tool to calculate whether the current planned measures suffice to meet the targets. However, as it happens with ERNIP, it is more accurate for the short term, for which most actions are planned. Forecasted delays should be used to identify additional improvement measures, not to relax the ambition of capacity targets, which should stay top down. Mechanisms to encourage/enforce ANSPs to implement the NM suggested remedial measures are supported. Airlines agree that with the current CP1 planned projects as well as the levels of investment in Europe, ANSPs should be able to achieve ambitious targets in RP4.
Airline (Easyjet)	As stated before, capacity needs to be available where demand is. If the new systems do now allow for this i.e. appropriate implementation of Free Route Airspace, these systems will have no positive environmental impact. The assumption that the capacity increase will materialise remains to be seen. Considering the contribution of CP1 and the extent of investments in Europe, ANSPs should have the capacity to attain more ambitious targets in RP4.
Airline (A4E)	As stated before, capacity needs to be available where demand is. If the new systems do now allow for this i.e. appropriate implementation of Free Route Airspace, these systems will have no positive environmental impact. The assumption that the capacity increase will materialise remains to be seen. Considering the contribution of CP1 and the extent of investments in Europe, ANSPs should have the capacity to attain more ambitious targets in RP4.
ANSP (FABEC)	The statement of the PRB assuming that ANSPs will resolve delay issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. With the new ATM systems in place, delays eventually will be reduced, although with increasing traffic, it is unclear to which extend total delay will be impacted. Currently, the ongoing lack of ATCOs is the main reason for the delay. With the measures in place, delay will be reduced during RP4, but likely not be "minimized". Please also consider that during the implementation of new ATM systems, traffic needs to be reduced to guarantee safety, this creates delays which need to be accounted for. The additional CP1 impact on delay performance is expected to be very low in RP4. To better appreciate and understand Capacity performance, a Throughput Indicator would be a valuable addition to improve performance measurement.
ANSP (Polish Air Navigation Services Agency)	The benefits stemming from planned implementation of new ATM systems and ATC tools are already included in the NOP delay forecast – which is much higher than the target ranges. Moreover, as indicated by the PRB in the report and by SDM at the 8.11.2023 workshop, benefits stemming from CP1 are calculated against do-nothing scenario and are already included in NOP – these are not benefits expected on top of the NOP assumptions. Therefore NOP must be considered as realistic delay forecast that includes benefits from CP1 and from ANSPs' plans. It is unclear how the large discrepancy between the proposed targets and the NOP delay forecast can be eliminated – there are no indications on this in the PRB report. Therefore the proposed ranges are considered too ambitious and not realistic. With a target of 0.5 or less capacity incentives will be ineffective and even more punitive for ANSPs, discouraging them from providing more capacity for the Network
ANSP (ROMATSA)	The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging between 0.82-0.97 min/flight. As stated in our answer to 5.2, there is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation.
ANSP (NAV Portugal E.P.E)	As commented before, the assumption that ANSPs will solve the delay problems by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which gives

	a delay forecast for Europe in 2027 of 0.82-0.97 min/flight. (See comments above on CP1 and NOP figures)
ANSP (LVNL)	The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. This is a factor 2 higher than the proposed target ranges. There is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation. To better appreciate and understand capacity performance, a Throughput Indicator would be a valuable addition to the performance scheme.
ANSP (ENAV)	Comparing PRB proposal with Delay forecast from NOP - proposed targets are not realistic and achievable. Due to characters limits only references: 1)Table 17 - Delay forecast for the Eurocontrol NM area (source: NOP 2023-2027 Edition April 2023). 2)Table 21 - Union-wide capacity target ranges. PRB assumption that ANSPs will solve delays issues by end of RP3 and eliminate them by end of 2027 is not supported by evidence (current NOP), which sets a delay forecast in 2027 ranging 0.82-0.97 m/f. As in 5.2 above, uncertainty that CP1 will be fully implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP, so delay forecast contained in the 2023 edition of the NOP already including benefits from CP1.
ANSP (ENAIRE)	We (as an ANSP) also expect that the investments will result in significant improvements in the capacity offered by the ACCs, allowing them to minimise en route ATFM delays. Moreover, that the implementation of CP1 projects in due time will be a major contributing factor to capacity improvement and delay reduction, but it is also important to consider that expected benefits of the ATM projects are not only managed by ANSPs, due to some of them need full equipage and in some cases certification of the airborne side, common con ops ant network level, among others, so the benefits are gradually being applied.
ANSP (DSNA)	Timely implementation of CP1 projects does not imply immediate capacity gains, as there is necessarily a time lag between implementation and translation of the expected performance gains. For example, looking at a new system commissioning, capacity gains spread over 3 years.
ANSP (BULATSA)	It seems that aiming at setting of ambitious wishful CAP targets, all benefits of various initiatives packages (e. g. CP1) without in-depth gap analysis between “today and the timewise transition to tomorrow” have been factored in. Level of ambition should be realistic. Unrealistically low RP4 EU-wide targets for capacity following the delay distribution process at network level is linked to the risk to allocate targets at ACC level which automatically would trigger penalties for nonmeeting capacity targets through incentive mechanisms.
ANSP (CANSO)	The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. This is two times higher than the proposed target ranges. As stated in our answer to 5.2, there is a huge uncertainty that CP1 will be fully implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation as also confirmed at the recent workshop. In light of the above we consider the proposed ranges as overambitious and not realistic. For ANSPs, it is of great importance to get the information on the methodologies to break down the European level to the FAB and national level.
ANSP (Austro Control)	In our understanding the current NOP covers only the period until 2027 and does not reflect latest developments from 2023. Hence the NOP does not support the statement by PRB of resolving delay issues by the end of RP4.
ANSP (ANS CR)	Gradual implementation of the CP1 projects has potential to contribute to capacity improvement. But their effects will not be evenly distributed across Member States, what needs to be reflected while setting the local targets. We know from history that the implementation of state-of-the-art systems is often delayed, and not necessarily due to any fault on the part of ANSPs, which may weaken this assumption. However, selection of right common targets and harmonised implementation supported by CPs is the right approach.

ANSP (LFV)	The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. This is two times higher than the proposed target ranges. As stated in our answer to 5.2, there is a huge uncertainty that CP1 will be fully implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation as also confirmed at the recent workshop. The benefits of CP1 vary between states. In light of the above we consider the proposed ranges as overambitious and not realistic. For ANSPs, it is of great importance to get the information on the methodologies to break down the European level to the FAB and national level.
ANSP (AVINOR)	We do not agree with the conclusion that CP1 will result in a considerable increase in capacity during RP4 as this will take time. In the period of transition, we will probably see reduced capacity.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. As stated in our answer to 5.2, there is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation.
ANSP (AIRNAV)	AirNav Ireland would be happy to engage with the PRB in relation to its plans for a major system upgrade in line with the European ATM Masterplan. COOPANS will endeavour to upgrade the system towards the end of RP4 but with staggered O-dates for practical reasons. On this basis alone the assumption by the PRB is not valid. The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. There is a huge uncertainty across Europe that CP1 will be implemented on time and its benefits will be delivered by 2027 – in fact, the latest developments in relation to AF6 show that this is very unlikely. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation as also confirmed at the workshop on 8.11.2023. In light of the above the proposed ranges have to be considered and overambitious and not realistic
ANSP (DFS)	Although capacity increases are expected through new systems or new functionalities, these will typically only materialise in small steps. They will only be able to partially compensate for the staff-related capacity restrictions. Although the delay forecast in the NOP 2023-2027 does already include CP1 implementation projects, it indicates a delay factor 2 higher than the proposed target ranges. This clearly indicates a discrepancy between the two which needs to be analysed and solved. Since the end of the pandemic, traffic volatility has been increasing, not only at ACC, but often specifically at sector level. In those cases, irrespective of the strong efforts of ANSPs, the often unexpectedly high capacity demand cannot entirely be covered by ANSPs. Future, yet unknown significant shifts of traffic flows (e.g. in the context of further geopolitical developments) need to be further accounted for in the target range proposals
ANSP (EANS)	ANSP does not have capacity issues.
ANSP (skeyes)	The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight. As stated in our answer to 5.2, there is a huge uncertainty that CP1 will be implemented on time and its benefits will be delivered by 2027. Moreover, implementation of CP1 is taken into account by ANSPs in their capacity plans underlying the current NOP. So the delay forecast contained in the 2023 edition of the NOP must be considered as already including the benefits stemming from the CP1 implementation. In order to measure KPA Capacity more comprehensively and more

	relevant for airspace users and ANSPs, a Throughput Indicator would be a valuable addition to the performance scheme.
ANSP (Skyguide)	CP1 will bring some benefits, but it complexifies the systems a lot and this comes with a cost and certainly with some implementation delays (FF-ICE). To believe that all benefits will be harvested before the end of RP4 is over optimistic. The current view of the NM on the FF-ICE implementation foresees a R1 deployment by the end of 2028 and therefore there wouldn't be any gain expected during RP4.
ANSP (NAVIAIR)	While the Danish ANSP mainly agree with the approach, we also caution that the expected benefits from CP1 is not equally distributed among all ANSPs. Some will indeed experience benefits, while others will experience no gains from the investments. We also need to highlight that new technology to a certain extent doesn't deliver direct benefits but enablers, as the realization of benefits need to be delivered by subsequent changes to the remaining part of the functional system (Human and procedures). Those are more often identified after the system change has been concluded and evaluated.
Member State (Germany)	With the evidence provided in the report do not explain the discrepancy between PRB's delay forecast and the ANSP's delay forecast from the NOP. If the PRB can determine concrete measures to reach the proposed targets, this information should be made available to States and ANSPs.
Member State (Netherlands)	The implementation of systems always carry uncertainty, both time and effect. Also the effect of system implantation is often dependent on the environment in which it is implemented, the surrounding systems. The NOP does not seem to support the targets proposed. It suggests a much higher expected delay. It is not convincingly argued why they differ. CP1 are liable to overestimation as many of them may be included in the current NOP. It is not shown how this possible effect has been delt with.
Member State (Spain)	Spain considers the implementation of CP1 projects essential for improving capacity and reducing delays in the network. However, it is important to note that, although the regulations (CP1, PBN…) mostly apply to ANSPs, there are other stakeholders involved, such as airports, airlines or manufacturers.
NSA (Croatia 1)	The current NOP does not foresee the achievement of the capacity targets until the end of the RP4. The calculation of CP1 expected benefits and the methodology used, is not at all disclosed to all the stakeholders and cannot be taken as a valid proof until there is a deeper understanding of the whole process of evaluating the CP1 benefits. In the previous reference periods similar evaluations were used and quantification of results were presented, but both the SDM and PRB never elaborated the methodology in detail and never monitored the CP1 contribution in such manner, thus the question is why to use 'new calculated figures' for the target setting.
NSA (Cyprus)	The level of contribution of CP1 to reducing delays is quite subjective. The PRB's outlook is optimistic.
NSA (France)	The PRB proposal is not consistent with the NOP. Underlying assumptions and calculations are not provided. Current NOP 2023 – 2027 shows delay forecast a factor more than twice higher than proposed target ranges. This NOP version already considers new ATM system implementation and CP1 benefits. Looking at the NOP delay forecast and at the current capacity achievement for 2022 & 2023, it's not understood how any methodology applied on such evidence could lead to the ranges provided for years 2024 – 2027. 15 PRB assumption that, if capacity targets were met in 2020/2021 when traffic was exceptionally low, it means that proposed values are achievable, is not supported: it only demonstrates that such a target is unachievable in normal circumstances. Proposed target levels for 2025 to 2027 are not achievable in a context where major ATM system implementations are still expected and CP1 benefits (which seem overestimated) won't be yet available as it is acknowledged in the report.
NSA (Poland)	The development of the new, state of art ATM systems should result in improvement of the KPA Capacity. CP1 as one of the major projects will have significant influence in this process. The most interesting factor in this case is the time of implementation the new projects.
NSA (Italy)	With reference to the proposed target ranges, if we compare the PRB proposal with the Delay forecast from NOP, we see that the proposed targets are not so realistic and really hard to achieve. The statement of the PRB assuming that ANSPs will resolve delays issues by the end of RP3 and eliminate them by the end of 2027 is not supported by the current NOP, which sets a delay forecast for Europe in 2027 ranging 0.82-0.97 min/flight.

NSA (Finland)	We are having some doubts on the level of improvement in capacity in relation to implementation of new ATM systems and ATC tools. Proposed approach is based on expectations rather than studies or results from the past.
NSA (Germany)	According to the current NOP (p. 209) Union wide delay forecast shows the following values: 2025 1.13-1.28, 2026 1.04-1.19, 2027 0.82-0.97. It cannot be retraced why EU target ranges are supposed to be by factor 2 lower than the NOP delay forecast. A clarification on that discrepancy would be highly welcomed. We disagree, as stated before, on the quantification of improvements from CP1 and ERNIP, at least on the basis of information made available at the time of the consultation.
NSA (Switzerland)	The current NOP 2023-2027 which suggests a realistic capacity planning among ANPSs/ACCs, sets a delay forecast estimation for Europe in 2027 ranging between 0.82-0.97 min/flight. Therefore, it is rather unlikely that the ambitious targets proposed by the PRB (lower and upper range) will be met during RP4. It can be acknowledged that new ATM systems and ATM functionalities to be implemented under the CP1 will improve the capacity situation, however - overall - not to the extent of the proposed targets. Furthermore, the ATCO staffing situation will not be resolved by the end of RP3 and will continue to be an issue during RP4.
NSA (Estonia)	Safety, environmental and cost efficiency KPAs are co-dependant of each other and objectives should consider this. It is possible to reduce delay`s significantly but what will be the cost of it?
NSA (Croatia 2)	The current NOP does not foresee the achievement of the capacity targets until the end of the RP4. The calculation of CP1 expected benefits and the methodology used, is not at all disclosed to all the stakeholders and cannot be taken as a valid proof until there is a deeper understanding of the whole process of evaluating the CP1 benefits. In the previous reference periods similar evaluations were used and quantification of results were presented, but both the SDM and PRB never elaborated the methodology in detail and never monitored the CP1 contribution in such manner, thus the question is why to use 'new calculated figures' for the target setting.
NSA (Austria)	PRB states that many ACCs will implement new ATC systems and tools until 2027, which will enable them to improve capacity and minimise delays in 2028 and 2029. A few comments related to this: 1) The use of the word "minimise" alludes to the fact that these delays cannot be expected to be 0. 2) Not all ACCs will replace their systems by 2027 and experience also shows that projects of this magnitude tend to be delayed. Hence the conclusion drawn is not valid. 3) Even if all implementation are concluded by 2027, the benefits will only materialize gradually. Assuming a full impact in 2028 is unrealistic. Further it is acknowledged that the SDM calculation on delay savings is not directly applicable to the target setting. At the same time it is concluded that CP1 will deliver a significant capacity improvement. We cannot understand and follow this conclusion. Finally, this evidence leaves aside the fact of increasing traffic, which will absorb some of the improvements
Professional staff representative body (IFATCA)	Investment in new ATM systems and ATC tools are really welcome, and will bring a positive effect on capacity - and consequently environment. But...if these investments are planned within RP4, the assumed improvements will most likely not minimise delays in the last two years of RP4. Implementing new systems takes time, and will result in periods of capacity constraints, which, with the interdependency between capacity and environment, also will affect environmental targets.
Professional staff representative body (ATCEUC)	Level of delay is pretty high for 2023. The PRB targets ambitions, except for the year 2020, were never even close to be reached in the past ten years. ATCEUC does not imagine that in 13 months, not only actual trends will be reversed but also low delay performance records will be beaten Lack of ATCOs could be solved, if appropriate measure are taken, but not before the end of RP4. Automation/digitalisation will produce effects making ATM/ANS sector able to face next year 7% increase and around 7% increase between 2025 and 2029 of traffic. CP1 expectations, as explained above (too optimistic consideration of deadlines and benefits), should be partially considered for RP4.

Table 15 - Comments received on Question 5.5.

PRB analysis

225 Stakeholders mostly expressed disagreement, with nine stakeholders disagreeing partially and 19 stakeholders expressing full disagreement (out of 45), most of them ANSPs, Member States and NSAs. Airlines were mostly in agreement with the proposed approach.

226 Stakeholders commented on the following themes:

- The relationship between the target setting process and the NOP;
- The expected benefits of investments and their timeframe;
- The benefits stemming from the implementation of CP1; and
- The overall approach to the target setting and possible new indicators.

227 Regarding the relationship between the target setting process and the NOP, some of the stakeholders noted that capacity plans included in the NOP already included the benefits from the planned investments, as well as the benefits from CP1, until the end of 2027, thus the difference between the delay forecast of the NOP and the proposed target ranges cannot be explained by the benefits of new system implementations. Other stakeholders argued that the delay forecast of the NOP indicates the deficiencies in the network, rather than a baseline for target setting.

228 On the potential benefits of the implementation of new ATM systems, stakeholders provided comments about how capacity performance may be negatively affected during the transition periods to safely train ATCO and test the systems. Stakeholders also pointed out that several ANSPs postponed the implementation of their new ATM systems to 2027 and beyond, due to technical difficulties and issues experienced with the availability of the system manufacturers, and how the benefits of these will hardly be realised in RP4. Contrary to the above, some stakeholders expected significant benefits from new system implementations, and noted that the benefits of trajectory-based operations (TBO) should also be considered. Finally, some stakeholders noted that improvements from the new systems will be absorbed by traffic growth and that this is not considered in the calculations.

229 Regarding the benefits of implementing functionalities from CP1, stakeholders expressed views on how these benefits are dependent on the equipage rate of airline fleets, on how the realisation of benefits may be spread over even three years, and will be realised with delay, and on how the distribution of the benefits across different stakeholders should be considered in the breakdown of the Union-wide targets. One stakeholder noted that the implementation of CP1 will reduce capacity during RP4.

230 On the overall approach of target setting, one stakeholder noted that the process should remain top-down, as opposed to being based on local aspects. Other stakeholders suggested that the introduction of a new performance indicator for capacity measuring airspace throughput would be necessary.

PRB response

231 Regarding the comments about the NOP and the target setting, benefits from the implementation of CP1 cannot be captured in full due to the timeframe of the implementation, and that the PRB only considers the impact of CP1 for 2028 and 2029 which are beyond the current plans of the NOP. This is also the case for the benefits of the ATM system implementations of ACCs, as system transitions during 2027 will produce benefits starting as from 2028. Finally, the PRB reiterates its position that the capacity improvement plans in the NOP were developed before the target ranges (and targets) on capacity were proposed and, thus, cannot be used as a baseline for the target setting.

232 In response to comments about the challenges of transitioning to a new ATM system and having seen the potential disruptive impacts and technical issues during such transitions, the PRB maintains its view that significant overhauls and new ATM system implementations can be managed smoothly if both the technical and the human aspects of change are managed appropriately. During recent years, there have been examples in Europe when the implementation of new ATM systems did not affect the network significantly and, thanks to the implementation, sector capacities were increased by the ANSP. The PRB acknowledges, however, that the benefits of TBO are not yet expected to be realised in RP4.

233 Regarding the benefits of CP1, the PRB recognises the dependency on fleet equipment but also highlights that there is no reason to assume that airlines are not interested in realising the benefits. Over the potential delayed and incremental realisation of the CP1 benefits, some of the functionalities have implementation deadlines at the beginning of RP4 and even earlier. The PRB therefore expects that benefits will begin to materialise during RP4, emphasising (as expressed earlier) that CP1 benefits were not quantified in the calculation of the target ranges.

234 Lastly, regarding the overall approach of the target setting, the PRB agrees that the process should remain top-down, with the addition that the underlying data analysis should be as granular as possible, as was the case with the calculation of the target ranges. On the potential new indicator for measuring airspace throughput, the PRB notes that the topic is out of the scope of the target ranges process.

Question 5.6

235 While it is not possible to predict the evolution of the conflict and the geopolitical tensions, the PRB proposes to not include any allowance related to the impact of the war in Ukraine. The PRB notes that ANSPs have already adapted to the new operational circumstances in 2023, with respect to the capacity KPA. In Question 5.6, respondents were asked "*To what extent do you agree with the proposed approach?*".

236 44 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

237 Figure 16 shows the distribution of the replies. The majority of stakeholders (31) did not agree with the proposition of the PRB to not include any allowance related to the impact of the war in Ukraine (21 fully disagreed and 10 disagreed to some extent), while nine respondents agreed (five fully agreed and four agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed on this proposition of the PRB. All of the airlines (five) fully agreed. One professional staff representative fully disagreed, while one agreed to some extent.

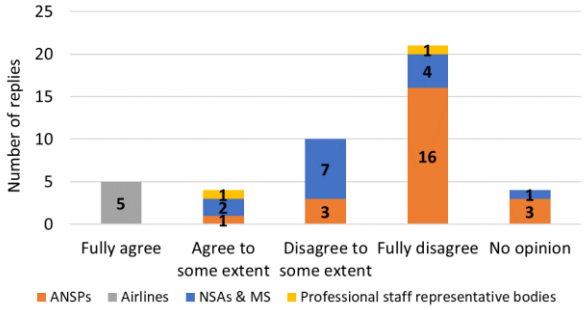

Figure 16 – Number of replies to question 5.6: "To what extent do you agree with proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)" (source: PRB elaboration).

238 Individual comments are listed in Table 16 (next page). 39 out of 47 respondents made a comment on the question, out of which:

- 20 ANSPs, including one association;
- Five airlines, including three associations;
- 12 NSA and Member State representatives; and
- Two professional staff representative bodies.

5.6 To what extent do you agree with the proposed approach? (Allowance due to the impact of Russia's war of aggression against Ukraine)	
Stakeholder	**Comment**
Airline (Lufthansa Group)	The evaluation of the situation is that "ANSPs have already adapted to the new operational circumstances in 2023". If not, where it applies the impact should be handled by allocation of adequate reference values by the NM, 15 as some other ANSPs are currently impacted by the situation with lower traffic than initially planned. The latter supports the request to avoid bonuses in RP4, which could materialize just because geopolitical impact derives in an excess of resources in some areas while reference values account for potential return to normality. Airlines already pay for the excess of capacity, which causes a degree of inefficiency and is not truly driven by additional capacity improvement measures.
Airline (IATA)	The evaluation of the situation is that "ANSPs have already adapted to the new operational circumstances in 2023". If not, where it applies the impact should be handled by allocation of adequate reference values by the NM, as some other ANSPs are currently impacted by the situation with lower traffic than initially planned. The latter supports the request to avoid bonuses in RP4, which could materialize just because geopolitical impact derives in an excess of resources in some areas while reference values account for potential return to normality. Airlines already pay for the excess of capacity, which causes a degree of inefficiency and is not truly driven by additional capacity improvement measures.
Airline (ERA)	Sadly, with no end in sight to the conflict, the situation today must be considered 'ops normal'.
Airline (Easyjet)	The current situation is the new normal. It can be expected that ANSPs have adapted.
Airline (A4E)	The current situation is the new normal. It can be expected that ANSPs have adapted.
ANSP (Latvijas gaisa satiksme)	Possible worst scenario for ANSP (not the situation itself) is that the sanctions are lifted and free movement to-from Russia (including overflights over Russia) is allowed. In this case delays in Latvia is to be expected. The impact on EU wide targets, however will be immaterial.
ANSP (FABEC)	The impact on Union-wide KEA of Russia's war of aggression against Ukraine is not to be underestimated but the depiction as % of overall traffic like provided by PRB seems to be doing exactly that. No doubt, the countries close to the conflict are carrying most of the burden. However, countries with an already saturated airspace also struggle to accommodate the shift of flows without any KEA or delay impact. Therefore, a figure that for example indicates that 1% of the overall traffic is impacted, simplifies the struggle to provide the capacity where required and the risk of exponential increase of delay. The negative KEA impact in most cases cannot be avoided at all, due to the achieved distance approach. In addition to traffic shifts and a further concentration of traffic in the South/East axis, military requirements are increasing (new a/c types demand more space, more and larger exercises), thus further increasing the complexity in the airspace.
ANSP (Polish Air Navigation Services Agency)	The impact of the war should be considered in target setting in all areas, including CAP. First element is related to possible adaptation of ANSPs to new traffic flows – there is no evidence in the PRB report showing that this will be fully possible by end of RP3 – we would expect further feasibility analysis of such assumption for all affected ANSPs. Secondly, the tense geopolitical situation led to significant increase in military activity what has direct impact on airspace availability and on capacity. The PRB report does not refer to that and therefore it must be concluded that this element is not considered. As there are interdependences between ENV and CAP areas, if it is assumed that the war impacts the ENV area, its impact should be also taken into account in the CAP area. Moreover, even if in a given period there are no delays attributed directly to the war, changes introduced in the airspace due to the war may generate delays in the ATC Capacity area.
ANSP (ROMATSA)	The PRB's assumption is unrealistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for. The evolution of the war, if it will either end, escalate or remain in the same parameters as well as the unfolding of military activities are still unpredictable on the medium and long term and impacting ANSPs capacity performance for RP4.
ANSP (NAV Portugal E.P.E)	It is not possible to identify how the PRB assumes that the current status of the conflict will be the default scenario for the planning of the most affected ANSPs. In a pessimistic scenario, we

	could see the continuation of the conflict or its eventual worsening with collateral effects on other Member States. In a more optimistic and desirable scenario, we could see the end of the conflict, with the progressive reopening of currently closed airspace and the comeback of pre-conflict air traffic patterns, which may have an impact on other neighbouring ANSPs. In this sense, it would be reasonably fair to calculate an allowance for both scenarios to be used accordingly by the ANSP most affected.
ANSP (LVNL)	The PRB's assumption is unrealistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for. States that now manage to handle the increased traffic due to the Ukraine war have only achieved this by ad-hoc measures, at the expense of other activities. This cannot continue. Moreover, ANSPs do not know: • whether the war will end, continue on the same level or escalate • which unused airspace will be reserved for military and security purposes
ANSP (ENAV)	The PRB's assumption is unrealistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for. For example, ANSPs do not know: • whether the war will end, continue on the same level or escalate • which unused airspace will be reserved for military and security purposes • what the impact on the wider network will be as well as the impact of other conflicts in the Middle East and south eastern part of the region
ANSP (ENAIRE)	The Russia´s war of aggression against Ukraine (or the evolution of this conflict) cannot be considered now as the only situation that could change the operational circumstances of the ANSPs. The Israel-HAMAS conflict and related politics issues and its evolution or new geo-political crisis could affect on Union-wide en route ATFM delays even more widely in the coming period. Besides, the increase in daily military activity across Europe has to be taken into account because it constraints even more the available airspace for commercial operations. For this reason, it would be desirable to include any allowance respect to the capacity KPA.
ANSP (EANS)	There must be allowances because there is too much volatility and it is unpredictable whether the war will, continue on the same level or escalate. Due to that unpredictability, we do not know the impact on the airspace, or whether there will be additional reserved areas for military and security purposes.
ANSP (DSNA)	The measures taken by the ANSPs to accommodate the reorganization of traffic due to Russia's war of aggression against Ukraine are only temporary. Should the conflict continue, this new distribution will have to be taken into account over the long term, particularly in terms of adapting staff recruitment. Similarly, the effects of increased military activity and the acceleration of rearmament and training programs have not yet been fully taken into account.
ANSP (BULATSA)	The PRB's assumption is not well grounded. There is too much ongoing volatility and increased complexity, higher number of military flights, non-use of significant portions of airspace, unusual structural changes of traffic flows which altogether make the planning process very difficult and uncertain.
ANSP (CANSO)	The PRB's assumption is unrealistic. There is too much volatility and increased complexity. States that now manage to handle the increased traffic due to the Ukraine war have only achieved this by ad-hoc measures, at the expense of other activities. This cannot continue ANSPs can only plan to a certain extent, for example, they do not know: - whether the war will end, continue on the same level or escalate - which unused airspace will be reserved for military and security purposes Increased military activities are expected to continue over RP4, impacting airspace availability for civil flights what seems not to be sufficiently considered in the PRB analysis.
ANSP (Austro Control)	The volatility of the crisis shall be taken into consideration and an allowance due to the war should be included
ANSP (ANS CR)	The PRB's assumption is unrealistic and totally incorrect. There is too much volatility and increased complexity, which only to a certain extent can be planned for. For example, ANSPs do not know: • whether the war will end, continue on the same level or escalate • which unused airspace will be reserved for military and security purposes Increased MIL activities are expected to continue over RP4, impacting airspace availability for civil flights what seems not to be sufficiently considered in the PRB analysis. Even STATFOR took into considerations impact of the war in Ukraine for next ten years. To which proposed position of PRB completely opposite, missing any justification.
ANSP (LFV)	Difficult situation as we do not know: - whether the war will end, continue on the same level or escalate - which unused airspace will be reserved for military and security purposes

	Increased military activities are expected to continue over RP4, impacting airspace availability for civil flights what seems not to be sufficiently considered in the PRB analysis
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: The PRB's assumption is unrealistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for. For example, ANSPs do not know whether the war will end, continue on the same level or escalate and/or which unused airspace will be reserved for military and security purposes
ANSP (DFS)	The war in Ukraine affects the performance of ANSPs on several levels. In addition to traffic shifts and a further concentration of traffic on the South/East axis, military traffic and activities are increasing, thus increasing the complexity in the airspace. At the same time, the requirements from the military side to conduct large-scale exercises with numerous partners on a regular basis are increasing. We therefore do not support the assumption of PRB that countries will adapt to Ukraine war by the end of RP3 – there is too much volatility and increase in complexity which only to a certain extent can be planned (potential end of the war vs risk of escalation, …)
ANSP (skeyes)	The PRB's assumption is unrealistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for. For example, ANSPs do not know: • whether the war will end, continue on the same level or escalate • which unused airspace will be reserved for military and security purposes The war in Ukraine affects the performance of ANSPs at several levels. In addition to traffic shifts and a further concentration of traffic in the South/East axis, military traffic and activities are increasing, thus further increasing the complexity in the airspace. At the same time, the requirements from the military side to conduct large-scale exercises with numerous partners on a regular basis are increasing.
ANSP (Skyguide)	The war will continue to have a major impact on Eastern European countries. Measures to offload these countries will need to be taken, with a snowball effect on all their neighbours. All of this will produce delays.
ANSP (NAVIAIR)	The Danish ANSP agrees that impact from the war in Ukraine should be implemented if there is evidence for it for certain states. It should, however, not be to the detriment of lesser impacted states when distributing the union-wide capacity target – in other words, it should not be used to set more ambitious targets for lesser impacted states.
Member State (Netherlands)	The war causes volatility in the network and how this will impact the capacity, especially in the later years of RP4 is very uncertain. To take not account of this seems to leave out a known unknown. It would be reasonable to include some allowance for the unpredictability at network level.
Member State (Spain)	The Russia´s war of aggression against Ukraine (or the evolution of this conflict) cannot be considered now as the only situation that could change the operational circumstances of the ANSPs. The Israel-HAMAS conflict and related political issues and their evolution or new geopolitical crisis could have an effect on Union-wide en-route ATFM delays even more widely in the coming period. Besides, the increase in daily military activity across Europe should be taken into account as it constrains the available airspace for commercial operations. Due to the reasons explained above, Spain considers that it would be desirable to include any allowance respect to the capacity KPA.
NSA (Croatia 1)	This part of the methodology presents that the PRB is not presenting the realistic targets at all, as volatility related to ANSP's long term planning depend on the possible end or greater escalation of the war.
NSA (Cyprus)	Geopolitical tensions are often the main reason for the volatility of air traffic demand and should not be ignored. We understand that it is difficult to predict the exact impact of such events, but to assume that they do not have an impact is incorrect. This factor should be considered and will inevitably lead to a reduction in the ambition for the capacity target. The amount of reduction could rely on historical evidence (e.g. how many "tensions" per 5 yr period, impact of delays per event etc).
NSA (France)	Some ANSPs in the Eastern part of Europe have already announced they expect to experience increased delays during RP4 and have asked the NM to provide an updated assessment of their situation in order to define ad-hoc measures. In addition, in highly congested airspace, where ANSPs have difficulties to provide capacity at the requested level, a small percentage or rerouted traffic due to unpredicted evolution of the traffic in the Eastern part of Europe due to the Russia's war of aggression against Ukraine implies the risk of an exponential increase of delays to accommodate changing flows, which is difficult to estimate at local level. This should also be

	taken into consideration when setting the RP4 capacity target ranges for capacity. Such unrealistic low values proposed by the PRB cannot accommodate such an impact.
NSA (Poland)	Similar to the comments in the KPA Environment, it is almost impossible to predict the situation concerning the war in Ukraine. It is questionable that ANSPs have fully adjust to the disruptions caused by the conflict. The situation depends on the geographical location of the ANSP PRB should provide information/methodology how to deal with the delays and negative impact of the aggression against Ukraine at the local KPA Capacity level.
NSA (Italy)	The PRB's assumption is not so realistic. There is too much volatility and increased complexity, which only to a certain extent can be planned for.
NSA (Estonia)	I`m sure that ANSPs have already adapted to the current situation but nobody knows how this war of aggression develops and what will be the impact 2024+.
NSA (Germany)	We cannot support this assumption. Based on what evidence does PRB note that ANSPs have adapted to the situation? As regards environment KPA, allowances are considered, for capacity this is not the case. As we could not find an explanation, this seems like a rather imbalanced approach. Were ANSPs consulted on this? Traffic is still shifted, sectors are additionally loaded, more staff is needed – a chain of effects which would seem rather evident. Also, with the war in the Ukraine came larger and more frequent military exercises, which also and often upon short notice have to be incorporated in the existing airspace and handled with the existing staff. Evidence that this has been taken into consideration could not be found in the material made available.
NSA (Switzerland)	The impact on Union-wide ATFM delays due to Russia's war of aggression against Ukraine on the entire network should not to be underestimated While the countries close to the conflict are carrying most of the burden, States with an already saturated airspace also struggle to accommodate the shift of traffic flows, having an impact on their delay situation. Traffic shifts, a further concentration of traffic in the South/East axis and military requirements need to be taken into account, thus further increasing the complexity in the entire European ATM network.
NSA (Latvia 1)	It's about defining the "new normal". some allowance must be included, as military conflicts are not predictable.
NSA (Austria)	We consider it inappropriate and unrealistic to assume an adaptation of ANSPs to the situation, while the KPI evidence shows that this is not the case and due to the volatile nature of a crisis like this cannot be the case. A buffer for this should be added.
Professional staff representative body (IFATCA)	It's important to keep a close look at the capacity in the area around the Ukraine, as MIL and CIV traffic shares small areas with a lot of traffic. So there might be a need for an allowance related to the impact of the war in Ukraine.
Professional staff representative body (ATCEUC)	ATCEUC does not understand this choice. How to adapt to new "operational circumstances" when 1/3 of your airspace is impacted by the war? The same concern exists with the growing needs of military forces all over Europe. Oversized military areas are now implemented by military forces. This is particularly true in areas neighbouring the conflict zone but also in the rest of Europe. Some of the EU ANSPs, especially but not only those in the Mediterranean part of the Union, provide ATM/ANS in FIRs that comprise not only its sovereign airspace (the airspace above its land areas and adjacent territorial waters) but also airspace over the high seas. Those FIRs are constantly affected by military flights and exercitations, sometimes held by the different Air Forces without any coordination with the Civil Authority (the so called "due regards") and have a huge impact on the paths of the flights crossing those airspaces. This has increased since February 2022, NM NOP figure show this.

Table 16 - Comments received on Question 5.6.

PRB analysis

239 Nine stakeholders expressed views in agreement with question 5.6. out of which five airlines were in full agreement, while two Member States and NSAs, one ANSP, and one professional staff representative body agreed partially. Ten stakeholders disagreed to some extent and 21 stakeholders fully disagreed.

240 Stakeholders provided comments on three key aspects of the approach of the PRB:

- The analysis of the current geopolitical situation;
- The assumptions and the approach used by the PRB; and
- How the ANSPs were able to adapt to the situation and whether that adaptation is sustainable.

241 As regards the analysis of the current situation, stakeholders emphasised that the complexity and the unpredictability of the situation should be taken into consideration. Some stakeholders also noted that emerging conflicts and new geopolitical issues may cause further disturbance to the network, by changing military requirements and shifting traffic flows.

242 On the approach of the PRB and the assumptions taken, some stakeholders noted that the approach did not sufficiently consider the impact of military airspace use and that the already saturated blocks of airspace could not handle additional traffic without delays and/or impact on horizontal flight efficiency. Some stakeholders expressed the need for an allowance related to the of impact of Russia's war of aggression against Ukraine, arguing that adaptation was impossible and that if the allowance was proposed in the environment KPA, it should also be proposed for capacity.

243 Finally, related more closely to the adaption of ANSPs, some stakeholders noted that the adaptation of ANSPs to the impact of Russia's war of aggression against Ukraine was not supported by evidence and it was not possible due to operational reasons. Other ANSPs noted that the adaptation was only temporary and was achieved through measures that were not sustainable. Other stakeholders noted that ANSPs should have managed to adapt. However, as the situation remained uncertain and it is difficult to plan how to adapt.

PRB response

244 The PRB acknowledges the uncertainty of the situation and the unpredictability of the impact of Russia's war of aggression against Ukraine on the SES area as well as other potential new conflicts affecting the European ATM Network. The impact cannot be determined nor forecasted. Therefore, an allowance cannot be introduced within the capacity target ranges.

245 As for the allowance included in the environment target ranges, the PRB highlights that the impact on horizontal flight efficiency is entirely different from that on capacity, as the closure of blocks airspace have an unavoidable impact on trajectories, irrespective of traffic levels and airspace capacity. Evidence shows that the impact on horizontal flight efficiency remained following an initial adaptation period after the outbreak of the conflict, while the capacity impact diminished significantly for most of the affected ANSPs.

246 Over the adaptation of ANSPs, the PRB highlights the contradiction in the views of stakeholders regarding ANSPs adaption to changed circumstances. As shown by the examples of some of the ANSPs and supported by evidence of delay data, there are possibilities to mitigate these impacts, even if the situation remains uncertain. The PRB acknowledges that when sectors are already saturated, shifting traffic flows and additional traffic might cause further delays. However, in these cases, it was not clearly demonstrated that the saturation of the airspace was not already due to existing capacity problems which were not resolved in previous years. Indeed, when liaising with NSAs and ANSPs on the impact of Russia's war of aggression against Ukraine, both NSAs and ANSPs expressed difficulties in isolating whether it was exclusively due to it in many cases.

247 Finally, the PRB encourages ANSPs to seek cooperation with each other and the NM to explore potential commonly executed ATFM measures to reduce network disruptions stemming from the impact of Russia's war of aggression against Ukraine.

2.5 Cost-efficiency

248 This section presents all questions on the cost-efficiency KPA included in the survey. This is followed by a table with all comments received. Six questions were asked:

- Question 6.1: To what extent do you agree with the PRB objective on cost-efficiency for RP4?
- Question 6.2: To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of cost-efficiency?
- Question 6.3: To what extent do you agree with the proposed approach? (Statistical analysis)
- Question 6.4 A: To what extent do you agree with the proposed approach? (Academic study)
- Question 6.4 B: To what extent do you agree with the proposed approach? (Recovery of inefficiencies)
- Question 6.5: To what extent do you agree with the proposed approach? (Baseline 2024)

Question 6.1

249 The RP4 priority for cost-efficiency is to ensure the delivery of environment and capacity performance improvements at the most efficient cost. The achievement of the environmental targets needs to be supported by consistent capacity targets and facilitated by an appropriate cost-efficiency target. In Question 6.1, respondents were asked "*To what extent do you agree with the PRB objective on cost-efficiency for RP4?*".

250 45 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 15 NSA and Member State representatives; and
- Two professional staff representative bodies.

251 Figure 17 shows the distribution of the replies. The majority of stakeholders (28) agreed with the PRB objectives on cost-efficiency for RP4 (nine fully agreed and 19 agreed to some extent), while 15 respondents disagreed (six fully disagreed and nine disagreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs and NSAs agreed with the PRB objectives on cost-efficiency for RP4, while the majority of airlines disagreed to some extent. One professional staff representative body agreed to some extent, while one disagreed to some extent.

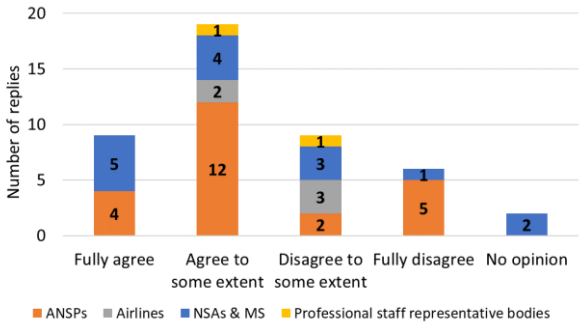

Figure 17 – Number of replies to question 6.1: "To what extent do you agree with the PRB objective on cost-efficiency for RP4?" (source: PRB elaboration).

252 Individual comments are listed in Table 17 (next page). 40 out of 47 respondents made a comment on the question, out of which:

- 23 ANSPs, including one association;
- Four airlines, including two associations;
- 11 NSA and Member State representatives; and
- Two professional staff representative bodies.

6.1 To what extent do you agree with the PRB objective on cost-efficiency for RP4?	
Stakeholder	Comment
Airline (Lufthansa Group)	Lufthansa Groups opinion is that cost efficiency should not be regarded as an inferior target during RP4. It remains to be an equally important KPA as the other three Key Performance Areas, especially when we see that there is still significant inefficiency in the system and that there is only limited coherence between cost efficiency and delay levels. We want to highlight especially the finding 7.10. of the academic study that "Delays did not significantly impact cost efficiency, but indicated that minimizing delays might incur higher costs for ANSPs." We are of the opinion that this is one of the most important statements of the academic study, as it clearly shows that today's system is not setting the right incentives for ANSPs to find the right balance between cost and delays. This shows that cost efficiency and punctuality can be delivered at the same time, on the other hand it also shows that today's malus system is not driving the right motivation to minimize delays
Airline (IATA)	RP3 has not only been cost-inefficient (insufficient cost reduction, despite drop of traffic) but also cost ineffective (the promised "preparedness to provide sufficient capacity when the traffic is back" did not happen). We have not built back better. The required capacity should not come at any cost to the users and no further cost increases for additional capacity already paid for in RP3 should be allowed. The regulation needs to address the excess of capacity where traffic demand is still low, as well as final prices, which continue increasing despite the lack of results. The system seems more oriented to revenue assurance than to cost efficiency, and sometimes it is not even cost-related (e.g. inflation on unmaterialized 16 planned costs, charged costs not truly dimensioned to traffic levels, etc). The transfer of spare capacity costs to the users does not support efficiency. States must step up and finance any temporary excess of resources or costs when and where applicable.
Airline (Easyjet)	It can be agreed that all targets need to support efficiency in capacity and environment but they also exist on their own right. ANSPs work in a monopolistic environment, hence cost efficiency is an important target to ensure that services are provided at an appropriate cost level. However, it is the PRB that must ensure that services are provided at an appropriate cost level. The PRB shall make sure ANSPs incorporate only efficient levels in their cost bases. Additionally, it shall implement measures to incentivize ANSPs to enhance efficiency and productivity throughout RP4. This is essential for promoting consumer benefits and productivity at levels comparable to those anticipated in a competitive market environment. Finally, the necessary capacity in RP4 should not be imposed on users at no additional cost increases, as it has been already largely funded in RP3 should unfold in RP4. We want to highlight especially the finding 7.10. of the academic study that *"Delays did not significantly impact cost efficiency, but indicated that minimizing delays might incur higher costs for ANSPs."* We are of the opinion that this is one of the most important statements of the academic study, as it clearly shows that today's system is not setting the right incentives for ANSPs to find the right balance between cost and delays. This also implies that the effectiveness of bonus-malus systems is questionable. RP3 has not delivered on either cost efficiency or effectiveness as the ATC system did not provide a product of satisfactory quality to airspace users.
Airline (A4E)	It can be agreed that all targets need to support efficiency in capacity and environment but they also exist on their own right. ANSPs work in a monopolistic environment, hence cost efficiency is an important target to ensure that services are provided at an appropriate cost level. However, it is the PRB that must ensure that services are provided at an appropriate cost level. The PRB shall make sure ANSPs incorporate only efficient levels in their cost bases. Additionally, it shall implement measures to incentivize ANSPs to enhance efficiency and productivity throughout RP4. This is essential for promoting consumer benefits and productivity at levels comparable to those anticipated in a competitive market environment. Finally, the necessary capacity in RP4 should not be imposed on users at no additional cost increases, as it has been already largely funded in RP3 should unfold in RP4. We want to highlight especially the finding 7.10. of the academic study that *"Delays did not significantly impact cost efficiency, but indicated that minimizing delays might incur higher costs for ANSPs."* We are of the opinion that this is one of the most important statements of the academic study, as it clearly shows that today's system is not setting the right incentives for ANSPs to find the right balance between cost and delays. This also implies that the effectiveness of bonus-malus systems is questionable. RP3 has not

	delivered on either cost efficiency or effectiveness as the ATC system did not provide a product of satisfactory quality to airspace users.
ANSP (Latvijas gaisa satiksme)	Convergence between western and eastern Europe should be taken into account.
ANSP (FABEC)	While PRB designates "Environment" as a top priority without any notable re-balancing against other KPAs, the KEA indicator – as commonly acknowledged - is not adequately within the control of ANSPs. Consequently, targets should not be set at the national or FAB level for the same reason. Assuming that delay could be reduced to the proposed level is unrealistic considering the increasing traffic demand. The increasing traffic increases traffic complexity and thereby reduces HFE KEA performance, even in the hypothetical absence of delay. Funding of capacity increasing measures is certainly required to drive capacity performance improvement.
ANSP (Polish Air Navigation Services Agency)	We welcome the recognition that CEF targets should support SAF, ENV and CAP performance, although as stated above ENV KPI is rather impacted by external factors than ANSPs' activities. Unfortunately, the PRB report does not include any analysis of interdependencies between CEF and those other areas, does not quantify how much delivery of higher SAF level may cost or how improving CAP (including provision of required No of ATCOs, investments and ATSEP) would impact ANSPs' costs (no analysis of impact of proposed targets in SAF, ENV and CAP areas on CEF). The PRB refers only to theoretical cost "inefficiency" which can be used to deliver a better performance in other areas – but there is also no evidence that the not recovered inefficiency is sufficient to deliver proposed performance in other areas. The proposed CEF ranges do not take into account the starting level of ANSPs and additional (on top of existing) resources needed to reach the OPS and SAF expectations.
ANSP (ROMATSA)	We believe that CEF targets should support and reflect the ambitions for capacity and environment, while guaranteeing the needed resources for meeting the required safety level. Interdependencies between cost efficiency and all the other KPAs should be recognized not only in theory but also in the assessment of performance plans.
ANSP (Port Lotniczy Bydgoszcz S.A.)	The report states that safety and environmental issues are the most important for the fourth reference period. Also, the capacity is the key issue from the Airspace Users' point of view. Therefore, in our opinion it is not possible to expect significant improvements in these three crucial KPAs and at the same time force ANSPs to achieve ambitious targets in cost-efficiency, ranging even to the level of -3.1% CAGR within the RP4, which results in ca. 15% decrease in DUC over this period. The interdependencies between the KPAs are crucial and if the main goal of the EU is to improve the safety levels and environment and at the same time improve the capacity in a 'green' way, it cannot be done without additional economic costs.
ANSP (NAV Portugal E.P.E)	We agree with PRB objectives for RP4 stating that "the priority for cost-efficiency is to ensure the delivery of the safety, environment and capacity performance improvements at the most efficient cost" and "the achievement of the environmental targets needs to be supported by a consistent capacity target and facilitated by an appropriate cost-efficiency target". However, the level of ambition of the proposed cost efficiency targets does not reflect the intent of these statements. In particular, at the lower bound, the average annual reduction of 3.1% does not allow for the necessary investment to support the targeted environmental and capacity improvements.
ANSP (LVNL)	CEF targets must support the availability of adequate resources to deliver and invest in a high quality of service to meet stakeholders demands in all performance areas in RP4 and in the long term. Safety is paramount. LVNL encourages the initiative to improve the environmental performance. A well-balanced target setting reflecting the interdependencies and developments among all performance areas should facilitate all this.
ANSP (ENAV)	Cost-efficiency is a key driver to ensure that the overall Performance Scheme works appropriately. With safety that is a paramount and should never be compromised, as following step CEF targets should support the delivery of CAP/ENV targets. Without a suitable balance, ANSPs will not be able to invest in the necessary resources to deliver the capacity sought by airspace users.
ANSP (ENAIRE)	Targets on cost efficiency are too ambitious, taking into account the challenging targets proposed for other areas such as capacity and environment. Although the report mentions the need to balance targets between KPAs, a more specific analysis and evidence is needed. Please refer to the document "ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges" for further details.

ANSP (EANS)	In general, targets on cost efficiency are too ambitious, taking into account the challenging targets proposed for other areas such as capacity and environment.
ANSP (DSNA)	We fully agree with the approach and with the fact that, to ensure environmental and capacity targets, major investments are needed, setting costs as a mean to achieve other targets. However, it is not clear how this approach translates in the target setting process: would it be possible to think about some flexibility between the targets expected KPI or PI related to each area?
ANSP (BULATSA)	The lack of interdependency methodology makes the proposed target ranges sounding high-level and declarative, without giving sufficient confidence to the operational stakeholders that those target ranges are interdependently sustainable. The existence of interdependencies between the four key performance areas has been recognized while at the same time there is neither clear model how interdependencies between the proposed (ranges of) KPIs are assessed and reflected therein. There is no common denominator against which the interdependencies and the related trade-offs are to be looked at in their integrity when a choice must be made. The document sheds light on the link between capacity and environment, but does not contain justified explanation of the most natural interdependency between capacity and cost-efficiency.
ANSP (CANSO)	CANSO has always advocated for CEF targets that support delivery of CAP targets. Without a suitable balance, ANSPs will not be able to invest in the necessary resources to deliver the capacity sought by airspace users. This was the experience of many of our members during RP2. Current target range proposals on cost efficiency are too ambitious, taking into account the challenging target ranges proposed for other areas such as CAP and ENV. Although the report mentions the need to balance targets between KPAs, a more specific analysis and evidence is needed on how this can be assured. The PRB report lacks any analysis of resources needed to improve CAP and ENV performance, as well as SAF compliance, and their impact on RP4 costs. It does not include any analysis of interdependencies between CEF and those other areas. CANSO suggests that PRB should complete its material with an analysis of such interdependencies and how it intends to consider them.
ANSP (Austro Control)	The interdependencies are still not adequately considered for target ranges in RP4.
ANSP (ANS CR)	Especially in a period when all KPAs are a priority, it is necessary to build on the well-described and understood interdependency between them when setting the targets. We are afraid that this is not the case as the PRB report lacks any analysis of resources needed to improve CAP and ENV performance and their impact on RP4 costs and it does not include any analysis of interdependencies between CEF and those other areas.
ANSP (LFV)	It is important that the CEF target support delivery of the other targets. It is also important to take into consideration the local circumstances in the target setting. Without a suitable balance, ANSPs will not be able to invest in the necessary resources to deliver the capacity sought by airspace users. Current target range proposals on cost efficiency are too ambitious, taking into account the challenging target ranges proposed for other areas such as CAP and ENV. Although the report mentions the need to balance targets between KPAs, a more specific analysis and evidence is needed on how this can be assured. The PRB report lacks any analysis of resources needed to improve CAP and ENV performance, as well as SAF compliance, and their impact on RP4 costs. It does not include any analysis of interdependencies between CEF and those other areas. CANSO suggests that PRB should complete its material with an analysis of such interdependencies and how it intends to consider them.
ANSP (AVINOR)	It is of the utmost importance that the target setting is balanced. When setting the cost efficiency target, the incentives and ability to invest to secure the safety and capacity targets must be maintained. The report does however not present any evidence to support the adaption of the cost efficiency target in order to secure the operational performance. How do we know the adaption is sufficient?
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: Completely agree on a first part of the statement – safety and performance delivery at efficient costs should always be an aim and an ambition and overall mission of any business and any organization. No doubts. 2. The second part about environmental targets is also a fundamental basic truth, however, neither current KPIs of this KPA are well-developed and right for the purpose, nor can they be influenced by ANSPs substantially. And this is especially vivid and targets are especially difficult to achieve in the Baltic region (or Eastern NATO border with Russia States) affected by sanctioned States' neighbourhood, distorted

	routes due to war in Ukraine and closures of airspaces as well as sanctions and increased and further increasing military activities.
ANSP (AIRNAV)	AirNav Ireland fully agrees and requests full transparency from the PRB in how this will be achieved, including from a KPA interdependency perspective. The burden of proof should not be solely placed on ANSPs after a target setting process that is not fully transparent.
ANSP (DFS)	Besides an appropriate (realistic and achievable) cost-efficiency target, it is essential that also the targets set in the other KPIs are realistic and achievable. Otherwise, “money alone“ will not ensure the delivery of the required performance improvements. Current target range proposals on cost efficiency are too ambitious, taking into account the challenging target ranges proposed for other areas such as CAP and ENV. Although the report mentions the need to balance targets between KPAs, a more specific analysis and evidence is needed on how this can be assured. The PRB report lacks any analysis of resources needed to improve CAP and ENV performance, as well as SAF compliance, and their impact on RP4 costs. It does not include any analysis of interdependencies between CEF and those other areas. DFS therefore suggests PRB to complete its material with an analysis of such interdependencies and how it intends to consider them.
ANSP (skeyes)	While PRB designates "Environment" as a top priority without any notable re-balancing against other KPAs, the KEA indicator is not adequately within the control of ANSPs. Hence, targets should not be set at the national or FAB level for the same reason. Assuming that delay could be reduced to the proposed degree is unrealistic considering the traffic forecast. The intensifying traffic increases traffic complexity and thereby reduces HFE KEA performance, even in the hypothetical absence of delay. Little justification is provided whether the decision to use 5% or 10% from the theoretical inefficiency calculation of 16% would suffice to fund capacity and environmental measures. The global cost inefficiency estimate in itself does not consider the specific situation of each country – e.g. wage indexation is automatic in Belgium, high vertical and horizontal traffic complexity, etc.
ANSP (Skyguide)	After 3 RPs and the slowdown in activity (Covid), massive invest is required in innovation and for obsolescence. Skyguide has underinvested in infrastructure to meet its CEF targets. SG financed VC at the expense of obsolescence to extend life cycle of equipment to a point that is no longer sustainable. SG invested half of what it would have cost to renew the asset base. Investments in innovation are low compared to other tech companies: they invest 7% of their revenues, SG has invested only 1/3 of this proportion. CEF targets are not compatible with the costs required to implement a modernized technical architecture, which is necessary to provide a better service quality & efficiency. An ANSP could cause much greater financial damage to an airline by failing to provide sufficient capacity than it costs in its unit rate. For the sake of the entire aviation value chain, we strongly encourage ANSPs to be given the necessary tools to help their customers create sustainable value.
ANSP (NAVIAIR)	The Danish ANSP finds it unrealistic and ill-suited to reduce costs in the RP4 period in light of the need for increased operational robustness and an increase in the number of ATC staffing. Furthermore, the Danish ANSP has already calculated efficiency gains that have been included in the plan to increase the ATCO staffing. The Danish ANSP finds it paramount to: - Determine a baseline for 2024 that reflects the actual budgeted cost level for 2024. - Maintain Naviair’s estimated costs for the RP4-period (initial data). - In case of a long term target, it is important that Naviair’s previous corrections to the RP3 baseline is taken into consideration in deciding the long-term target.
Member State (Germany)	As indicated above it seems reasonable to assume that the optimisation problem neglects relevant parameters and interdependencies and sets over-ambitious target values based on ideal model conditions. With the evidence provided so far, doubts and questions remain whether an efficient cost ratio can be deducted from the target ranges proposed for environment and capacity performance (at union wide level).
Member State (Netherlands)	The cost efficiency target must support en enable environmental and capacity changes, including the maintenance, development and upgrade of systems.
Member State (Spain)	Spain considers that the targets on cost-efficiency are too ambition taking into account the challenging targets proposed for other areas such as capacity and environment.
NSA (Latvia 2)	We fully agree with PRB objective on cost efficiency for RP4 defined above, however, there are concerns that the vision proposed in the PRB report does not cover this, as the report envisages

	that the capacity targets are resolved before the start of RP4, while also not taking into account the geopolitical situation of some countries and liquidity problems related to a significant drop in traffic due to the war in Ukraine, while for environmental targets there is a reference to involvement of Member States without precisely defining the financial aspect of this involvement.
NSA (Germany)	To most extend if not in total we agree with this objective. But in our opinion interdependencies are not considered in a way one would expect from this stated objective of the PRB. Explanations and evidence are not sufficiently made transparent. Currently it rather seems to be a theoretical approach with missing practical consideration in the report.
NSA (France)	The PRB objective on cost efficiency for RP4 "to ensure … the achievement of the environmental targets", which "needs to be supported by a consistent capacity target and facilitated by an appropriate cost efficiency target" is understood. However, the cost efficiency targets setting process (input data, methodology, etc) is questionable in the absence of detailed information as well as whether that objective may be achieved through the proposed targets. The balancing against other KPA is not consistent as capacity and environment targets are not achievable. Indeed, the underlying material (incl. calculations, simulations, studies, detailed assumptions and parameter configuration) should be disclosed in order to enable a meaningful assessment and build up confidence in the outcome of the consultation. Detailed concerns regarding target ranges for setting UE level RP4 targets for cost-efficiency are more detailed in the following answers to the questionnaire.
NSA (Poland)	While we fully agree with the CEF-related priority defined by PRB, we have a feeling that too little research has been done on the interdependencies between KPAs in order to ensure CEF target facilitates meeting targets in other KPAs. We would like to encourage the PRB to do a more extensive quantitative research into the aforementioned interdependencies that might support the precise target setting for CEF.
NSA (Italy)	Cost-efficiency is a key driver to ensure that the overall Performance Scheme works appropriately. With safety that is a paramount and should never be compromised, as following step CEF targets should support the delivery of CAP targets. Without a suitable balance, ANSPs will not be able to invest in the necessary resources to deliver the capacity sought by airspace users.
NSA (Finland)	Traffic in Finland has declined so drastically due to the closure of Russian airspace that achieving improvements in unit cost evolution for RP4 is not realistic. Certain service level has to be maintained even for the lower traffic level and targets aiming for reduction of unit costs are not feasible in this situation. The proposed targets may be more suitable for those parts in Europe which have reached and possibly even exceeded 2019 traffic level.
NSA (Switzerland)	While in principle FOCA fully agrees to the above stated objective on cost-efficiency, the understanding on the adequate level of funds to deliver the improvements in the KPAs safety, capacity and environment and the associated costs needed to be taken into consideration when setting the cost-efficiency target diverge from FOCA's understanding. There is a general mistrust expressed by the PRB that ANSPs resp. States in principle engage in regular gaming and aim at inflating their cost base in preparation for the subsequent reference period. This certainly was not the case for Switzerland in RP3 and in previous reference periods
NSA (Austria)	While the result seems reasonable to a certain extent, we have some concerns with the methodology, see comments to the following questions.
Professional staff representative body (IFATCA)	It's important to make sure, that cost-efficiency targets are set to be able to secure enough capacity to support the environment targets; i.e. the cost-efficiency targets should support sufficient funding.
Professional staff representative body (ATCEUC)	ATCEUC agrees on "appropriate cost-efficiency target" to be able to recruit sufficient number of ATCOs and to plan proper investment. Without additional financial efforts the situation cannot evolve positively. Delays will increase, and flight efficiency will not improve. As explained above horizontal flight efficiency and delays target ranges are not realistic.

Table 17 - Comments received on Question 6.1.

PRB analysis

253 In response to survey question 6.1, most of the stakeholders (28 out of 45) agreed with the PRB objectives on cost-efficiency for RP4, while 15 respondents expressed disagreement. Predominantly, ANSPs and NSAs agreed, while the majority of airlines expressed disagreement.

254 When it comes to the comments received, the main themes addressed by the respondents regard:

- General agreement with the objective of cost-efficiency;
- The ambition of the cost-efficiency targets; and
- Requests for more detailed analysis disclosure.

255 While there is a general consensus on the objective of cost-efficiency, some stakeholders emphasised that cost-efficiency during RP4 is an essential target, and call for better ANSP incentive systems, stronger regulations to manage costs and delays, reduction of excess capacity, and implementation of measures to enhance efficiency and consumer benefits.

256 Various stakeholders commented on the ambition of the cost-efficiency target, considering it too strict to support reaching the other targets which are priorities. In particular, three entities from countries impacted by Russia's war of aggression against Ukraine commented on not being able to reach the target, due to the traffic drop.

257 Many stakeholders expressed the need of disclosure of more detailed analysis to support the target setting process. Some specifically asked the PRB to conduct an interdependency study of cost-efficiency and the other KPAs and then consider the results in the target setting process.

PRB response

258 In terms of target ranges, the primary focus during RP4 is to deliver improvements in safety, environmental, and capacity performance. The accomplishment of the environmental goal requires consistent support from capacity targets and must be facilitated by a suitable cost-efficiency target. This does not mean that costs can be increased without control, indeed the target as proposed are still based on the concept of offering the service at the most cost-efficient level.

259 The Regulation requires a Union-wide target for cost-efficiency, rather than local differentiated targets for the local level (differently from the other KPAs, cost-efficiency has three consistency criteria, and two possible deviations). The PRB highlights that local circumstances are taken in due consideration during the assessment process. In addition, the PRB has revised the comparator group analysis which is based on the comparison of air navigation service providers operating in similar operational and economic environment. The recommended revised comparator groups are reflecting relevant local circumstances to the maximum extent possible, including the impact of Russia's war of aggression against Ukraine.

260 Finally, the PRB does not share the view that there was a lack of transparency about the methodologies employed. Detailed information on the methodologies and assumptions used were set out in Annex I of the PRB's advice on the Union-wide target ranges report and further clarified during the consultation process. All calculations and models can be replicated using the data available on the ESSKY platform (or on the relevant websites). Moreover, data, clarifications, and explanations have been provided to stakeholders when requested on an ad-hoc basis.

Question 6.2

261 The approach followed by the PRB combines statistical methodologies to estimate a range of costs and the related unit cost for RP4. The PRB considered the submission of initial data from the Member States, historical performance, and the contribution from academics in relation to the cost base inefficiency. In Question 6.2, respondents were asked "*To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of cost-efficiency?*".

262 47 out of 47 respondents replied to the question, out of which:

- 24 ANSPs, including one association;
- Five airlines, including three associations;
- 16 NSA and Member State representatives; and
- Two professional staff representative bodies.

263 Figure 18 shows the distribution of the replies. The majority of stakeholders (37) did not agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the KPA of cost-efficiency (10 fully disagreed and 27 disagreed to some extent), while eight respondents agreed (three fully agreed and five agreed to some extent). When analysing the responses by stakeholder category, all the ANSPs and the majority of NSA and Member State representatives disagreed that the methodology and evidence provided in the PRB report supports the proposed target ranges. The majority of airlines (four) agreed to some extent, with one airline disagreeing to some extent. One professional staff representative fully agreed, while one fully disagreed.

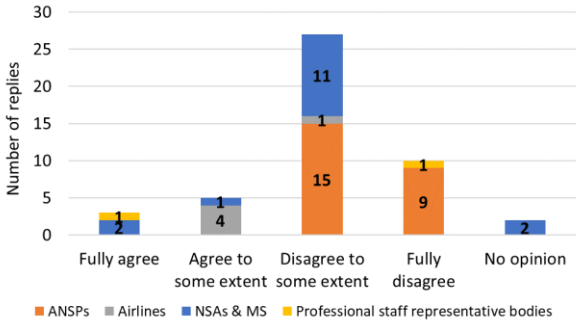

Figure 18 – Number of replies to question 6.2: "To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of cost-efficiency?" (source: PRB elaboration).

264 Individual comments are listed in Table 18 (next page). 43 out of 47 respondents made a comment on the question, out of which:

- 24 ANSPs, including one association;
- Four airlines, including two associations;
- 13 NSA and Member State representatives; and
- Two professional staff representative bodies.

6.2 To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of cost-efficiency?	
Stakeholder	Comment
Airline (Lufthansa Group)	Lufthansa Group regrets that only limited data mentioned was used to estimate the baseline and not the full set of data the PRB is assessing and reporting to the public. We would also deem it important to regard the regulative return in setting the baseline and also to take into account the service quality provided by ANSPs. In setting the baseline values the overall state of the ANSP provision should be taken into account. There is a complete miss match of price and service quality. Ideally the cost and price match, but if the quality of the product is inferior, the customer won't be willing to pay the price of production. We further would like to understand if the PRB has assessed the individual cases, where the PRB estimation of the baseline was higher than the national submission? We think that in some cases the states would just still not be able to provide a full service and that additional funds would not make any difference in the service provision (ATCO not fully trained).
Airline (IATA)	Historic values are not necessarily any proof of efficiency and are bottom-up data, as they are the initial RP4 submissions. In RP4 submissions, IATA observed a certain number of States updating 2023 and 2024 cost bases with respect to determined. However, in 2021, 23 charging zones recorded nominal costs below determined, in 2022, there were still 19 of them below planned, despite inflation. Not clear how this fact supports paragraph 175 of Annex I which considers submitted 2024 aggregated costs as possibly underestimated. This is clearly evidence of regulatory gaming. These two sets of data in "Evidence 1" include present inefficiencies that might influence the result of models in Evidence 2, which do not seem to provide top-down criteria to help target setting.
Airline (Easyjet)	A4E RP4 cost-efficiency target study confirms results of the approach as sensible. Nevertheless, a thorough assessment of the validity of the submitted cost data (imminent cost increases from 2024 to 2025) needs to be carried out. We are also uncertain whether historical performance serves as a reliable predictor for targets designed to incentivize positive behaviour, especially considering the acknowledgment by the PRB itself that the RP3 targets were eventually deemed too conservative and widely achievable. We further would like to understand if the PRB has assessed the individual cases, where the PRB estimation of the baseline was higher than the national submission. We think that in some cases the states would just still not be able to provide a full service and that additional funds would not make any difference in the service provision (e.g. ATCOs are not fully trained yet).
Airline (A4E)	A4E RP4 cost-efficiency target study confirms results of the approach as sensible. Nevertheless, a thorough assessment of the validity of the submitted cost data (imminent cost increases from 2024 to 2025) needs to be carried out. We are also uncertain whether historical performance serves as a reliable predictor for targets designed to incentivize positive behaviour, especially considering the acknowledgment by the PRB itself that the RP3 targets were eventually deemed too conservative and widely achievable. We further would like to understand if the PRB has assessed the individual cases, where the PRB estimation of the baseline was higher than the national submission. We think that in some cases the states would just still not be able to provide a full service and that additional funds would not make any difference in the service provision (e.g. ATCOs are not fully trained yet).
ANSP (Latvijas gaisa satiksme)	Convergence and different status of economies should be taken into account. Historical data, in our opinion, would be suitable only and if only, all the Member states would have an identical outlook. Which is not true.
ANSP (FABEC)	FABEC experts agree that the methodology to calculate the Union-wide CEF targets is not sufficiently disclosed, and the evidence is incomplete. All the underlying material therefore should be disclosed, including calculations, simulations, studies, all assumptions and parameter configuration to ensure a meaningful consultation! For example, in the context of the academic study, there is no information about robustness of applied models and approaches available, the treatment of outliers, or the testing of different functions, all of which can alter and distort the results profoundly. All three evidence approaches are so far off from each other that confidence in all of them can only be low. With the information so far provided, it is unfortunately not possible to provide advice on the validity of factors included or not. Overall, the quality and confidence could be improved by considering local circumstances for target setting.

ANSP (Polish Air Navigation Services Agency)	The MSs' submissions should be the main basis for target setting. Further explanation should be provided by the PRB on how additional information provided by the MSs together with cost figures was considered in target ranges setting. Due regard must be given to much increased market and traffic volatility in RP3 and probably RP4 than observed in RP2. RP4 targets should not be based on academic, theoretical statistical modelling but on in-depth analysis of financial impact of resources needed to provide the expected level of service over RP4 and beyond. It needs to be remembered that ANSPs operate in different local circumstances and simple statistical comparisons do not provide right picture for all of them and are purely theoretical. Due regard must also be given to differences in traffic evolution among States due to the outbreak of the war – the PRB should further consider this element in target setting.
ANSP (ROMATSA)	Evidence 1 - Member States submissions When setting the upper and lower bound targets, different cost bases are used even though data submitted by Member States in June 2023 are available. Evidence 2 – Cost forecast based on historical data. It is not appropriate to use historical actual costs without including complex factors to forecast future costs. Two periods have a very different context: • 2012-2019 – most ANSPs could reduce unit costs in real terms • 2024-2029 – there will be a strong need to re-invest in obsolete infrastructures as in innovation to realize the AAS/ATM Master Plan. For Evidence 1 and 2, we cannot fully assess as the calculation methodology for the baseline value has not been disclosed transparently. Evidence 3 – Cost base inefficiency academic study We do not support using the study results for the EU target range proposals, for reasons set out in our answer to 6.4. Finally, there should be consideration of interdependencies with other KPAs.
ANSP (Port Lotniczy Bydgoszcz S.A.)	In our opinion, having in mind the situation that has happened during the RP3 preparations, there should be proposed a universal methodology that is applicable in the same way to define both – the Union-wide and the local targets. It has to be underlined that the target is a product of not only the range of cost reduction (as proposed, from -0.7% to -3.1% p.a), but also the methodology of calculating the baseline value. All actions – both on the EU-wide level and local – should be taken in the same way.
ANSP (NAV Portugal E.P.E)	The PRB considered the submissions from the Member States in the analysis, but not in full: i) They are not used to calculate the baseline value, and ii) They were not taken into account for targets at the lower bound. The historical performance analysis and extrapolation are based on statistical models with low predictive power. R2 values of 0.19 are acceptable in social models, but too low in economic models as this. As the PRB recognizes, other variables may better explain the evolution of costs, so it seems too simplistic to base this analysis on a single variable (volume), as reality is complex and dependent on multiple factors. The activity of providing air navigation services is labour intensive, with a high fixed cost component, which undermines any analysis based exclusively on traffic movements (in the case of service units, the causal relationship is even weaker, since part of this metric - the weight of the aircraft - is completely irrelevant to the service being provided).
ANSP (LVNL)	LVNL does not support the use of historical cost data and the academic study to estimate costs for RP4. Analyses based on historical data do not take into consideration the complexity of future investment plans, organizational developments and changing external factors. Without taking these developments into consideration historical data is not suitable to estimate costs for RP4. The academic study (Annex II) does not provide enough information to make a proper analyses and consultation. Based on the provided information in Annex II we can only conclude that the methodology and the conclusions are too generic. Therefore this study may not be used to estimate costs for RP4 and for target setting. LVNL supports to use the RP4 data set submission of the Netherlands.
ANSP (ENAV)	Target setting process should be based on real experience and results and move from the lesson learnt to foster further improvements for the system. A methodology based on a pure theoretical model runs the risk of not reflecting the complexity of the environment where ANSPs are asked to operate. In that context, the request to the States/ANSPs to provide initial cost estimates for RP4 fits perfectly. This because States /ANSPs have the highest sensitivity in identifying cost boundaries that take into consideration safety requirements, the complexity of the environment, improvements planning and ANSPs financial viability. Said that, it seems that in the PRB proposal both Member States submission as well a proper analysis of the of the historical data (which implies to consider the context complexity) are not accompanied by

	a transparent disclosure of the methodology used for the calculations. For what said above, and further disclosed in answer 6.4, the academic study is not supported.
ANSP (ENAIRE)	Please refer to the document "ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges". Evidence 1: Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data. Evidence 2: This is a very simplistic approach; it does not consider ANSPs spare capacity to cope with the expected extra traffic. ANSPs that are facing traffic delays with little spare capacity have a bigger cost effort and operative and infrastructure limitations. Evidence 3 - Cost base inefficiency academic study: The analysis is completely theoretical, therefore its translation to the real institutional, economic, operational, or other specific factors affecting ANSPs performance results, could be of almost impossible practical application.
ANSP (EANS)	There is a significant variation in unit cost for some ANSPs due to the impact of the Ukrainian war. For the next RP, there will be a strong need to re-invest in obsolete infrastructures and only data submitted by States should be considered.
ANSP (DSNA)	The approach followed by the PRB is extremely theorical, the mix of three methods which are far from the operational considerations: each ANSP has its own operating system and a uniform application of three different theorical methods, without any local construction (the methods seem only built at a UE level) can't be applied rigorously. We need to obtain the local data used to prove that the target ranges proposed can fit at a local level. Moreover, the PRB methods don't highlight the priority of the environmental indicator which is expressed in the previous question. The targets should be determined by using the order of priority between indicators for RP4: improve environmental along with capacity performance while maintaining high safety standards. By the way, the targets should be defined with operational considerations.
ANSP (BULATSA)	The evidences are theoretical. Cost-efficiency target ranges lack justified interdependencies with any other KPA and the KPIs therein, which suggest that interdependencies are recognized in theory only and assessment of cost efficiency will be separated from the other KPA. Furthermore, there is lack of sufficient explanation of the methodology how baselines values have been derived as well as what is the impact of CP1 in terms of cost-efficiency.
ANSP (CANSO)	Evidence 1 - Member State submissions Only data submitted by States should be considered, since these are mature and have been adjusted by PRB to include missing or erroneous data. Evidence 2 – Cost forecast based on historical data It is not appropriate to use historical actual costs without including complex factors to forecast future costs. Two periods have a very different context: - 2012-2019 – most ANSPs could reduce unit costs in real terms - 2024-2029 – there will be a strong need to invest in replacing old infrastructure, as in innovation to realise the AAS / ATM Master Plan Provision of ANS is labour intensive, with high fixed costs, which undermines any analysis based exclusively on traffic volumes. Evidence 3 – Cost base inefficiency academic study We do not support using the study results for the EU target range proposals, for reasons set out in our answer to 6.4. There should be consideration of interdependencies with other KPAs and local circumstances.
ANSP (ANS CR)	Given the fundamentally different development of traffic in particular Member States, we do not believe that it is appropriate to set a uniform requirement for the development of DUC, which is fundamentally influenced by the level of traffic. Moreover, the consideration of interdependencies with other KPAs is inadequate.
ANSP (LFV)	Evidence 1 - Member State submissions Only data submitted by States should be considered, since these are mature and have been adjusted by PRB to include missing or erroneous data. Evidence 2 – Cost forecast based on historical data It is not appropriate to use historical actual costs without including complex factors to forecast future costs. In the coming period- 2024-2029 – there will be a strong need to invest in replacing old infrastructure, as in innovation to realise the AAS / ATM Master Plan Provision of ANS is labour intensive, with high fixed costs, which undermines any analysis based exclusively on traffic volumes. There are also large retirements in the coming years. Evidence 3 – Cost base inefficiency academic study We do not support using the study results for the EU target range proposals. There should be consideration of interdependencies with other KPAs and local circumstances.
ANSP (AVINOR)	Regarding cost forecast based on historic data: Without adjustments the historic costs are not representative for the period in front of us. RP4 is a period where there will be a need for a substantial increase in the investments due to the ATM master plan and this is a scenario which

	the statistical forecast does not incorporate. One makes the assumption that service units and IFR-movements drive the costs, and this does not necessarily apply to the mentioned investments which are investments according to the CP1 regulation. The benefits of these projects include improved quality and capacity which do not necessarily translate into cost reductions but benefit the European network as a whole. As mentioned in answer to question 6.1, the evidence to support the adjustment in the cost efficiency target is not sufficient.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: 1.Statistical methodologies are fine, but they are good only for statistical reasons. Economic efficiency KPI for Union average level and target should be constructed (or derived) by employing bottom-to-top approach (from regional or, ideally, State level) and not from statistical averages as this approach ignores macroeconomic, geographical and, now also relevant in RP4, geopolitical differences among European regions and States. 2. Academic study is academical and theoretical. It is fine from scientific point of view. But the question is – is such complex industry with so many States involved fits into standard theories? And are all important factors taken into the model? And in current distorted-traffic-flows situation – are past results and data relevant in new reality? 3.There's a contradiction that historical performance is taken into account, because it might again differ among States significantly and average does not show-case that. E.g. some States, especially in Baltic region, overperformed in previous RP's the average, but due to low weight in total market it might not have impacted the average or is even outweighed by underperformance of others.
ANSP (AIRNAV)	Evidence 1 - Initial submissions When setting the upper and lower bound targets, different cost bases are used even though data submitted by Member States in June 2023 are available. AirNav Ireland's initial plan would have to be significantly curtailed in order to meet the draft targets proposed by the PRB, and there is no information available in relation to how this can be justified at a national level. Accordingly, similar to the other KPAs AirNav Ireland believes the consultation can only be meaningful when the local values informing the union wide targets are transparent as part of this consultation process. Several NSAs and ANSPs requested this at the consultation meeting. Evidence 2 – Cost forecast based on historical data. It is not appropriate to use historical actual costs without including complex factors to forecast future costs. Two periods have a very different context: • 2012-2019 – most ANSPs could reduce unit costs in real terms • 2024-2029 – there will be a strong need to re-invest in obsolete infrastructures as in innovation to realize the AAS / ATM Master Plan For Evidence 1 and 2, we cannot assess fully the PRB's determination of the baseline value as it has not disclosed transparently the calculation methodology. Evidence 3 – Cost base inefficiency academic study We do not support using the study results for the EU target range proposals, for reasons set out in our answer to 6.4. Lastly, there should be full consideration of interdependencies with other KPAs.
ANSP (Hungarocontrol)	Regarding Evidence 2 and 3 we have strong concerns and don't consider these two as reliable source for the target setting. The PRB's proposal lacks of transparent explanation of the applied methodologies especially regarding how input data were taken into account, and whether regulations specific aspects were taken into account, when calculating potential efficiency gaps. Our special concern is related to the way how real term costs are calculated, since based on the legislation – especially – CAPEX related costs are not discounted. This is of high importance, taking into account the fact, that for RP4 CAPEX related costs are generally foreseen to significantly increase. That means, that even if on other fields relative cost savings might be realistic, but CAPEX related costs can outbalance this effect. An appropriate inclusion of the phenomenon is essential, and we have concerns, that this is not ensured in the Evidence 2 and 3, leading to distorted results. As for Evidence 3 we would like to reiterate our concern already indicated during the stakeholder consultation in November, i.e. this methodology was already used for previous RP's, but proved to be inappropriate since it is based on unrealistic assumptions. Furthermore we would like to highlight the fact, that even with this method a very significant efficiency improvement can be observed for ANSPs in the previous years. That

	leads to the question, why no embedded efficiency gain is assumed by the PRB in the figures submitted by States for the initial cost estimates?
ANSP (DFS)	The increasingly high volatility of the traffic situation makes it very difficult to set meaningful targets for the entire reference period. All three evidence approaches are so far off each other that confidence in all of them is low. With the information provided, it is impossible to provide advice on the validity of factors included or not. The quality and confidence could be improved by considering local circumstances for target setting. E.g., the statistical approach is too complex. Targets should be challenging, but transparent and achievable. If a process is used, which is only understood of a small group of scientists, it is not transparent to the community. Nevertheless, the study underlines the arguments of DFS in older RPs, that the individual situation should be reflected in the process of target setting (7.12, page 41).
ANSP (skeyes)	FABEC experts agree that the methodology to calculate the Union-wide CEF targets is not sufficiently disclosed, and the evidence is incomplete. All the underlying material must be disclosed, including calculations, simulations, studies, all assumptions and parameter configuration. A consultation is meaningless without this information! For example, in the context of the academic study, there is no information about robustness of applied models and approaches available, the treatment of outliers, or the testing of different functions, all of which can alter and distort the results profoundly. All three evidence approaches are so far off from each other that confidence in all of them is low. With the information provided it is impossible to provide advice on the validity of factors included or not. The quality and confidence could be improved by considering local circumstances for target setting.
ANSP (Skyguide)	We disagree on the use of evidence 2 and 3 (see details in the next questions).
ANSP (Austro Control)	see our comment regarding 6.4
ANSP (NAVIAIR)	In 2023, the Danish ANSP's experience with inadequate levels of ATC staffing was that it had a negative impact on its performance regarding environmental and capacity objectives. Considering the need for increased operational robustness and the necessity to increase ATC staffing levels, the Danish ANSP finds it unrealistic and ill-suited to reduce costs in the RP4 period.
Member State (Germany)	Based on the evidence made available it seems reasonable to assume that the assumptions made in the model are not consistent. For example: By the time, when member states submitted their initial cost data they weren't aware of the target ranges proposed for environment and capacity. Which could have led to an underestimation of cost. Given the ambition proposed in the area of capacity and environment one could reasonably argue that to fullfil these expectations cost would need to be extrapolated in an exponential (instead of an linear way). Unfortunately, the report is not providing details in this respect. In addition, the reliability of the historical data used cannot be assessed given the details available in the PRB's report.
Member State (Netherlands)	The academic studies are similar to the once used in RP3 target setting and with two exceptions still have the same weaknesses. The two models are not demonstrated to be robust and the results indicate they are not. In summary: - Robustness not shown - Usages of purchasing parity unclear - Outlier test unclear - Test of variable relevance is not shown, unclear - Unclear selection of functions - Unclear if sample size is sufficient. - Heterogeneity of sample is large. - KPA interdependencies are not taken into account.
NSA (Latvia 2)	Unfortunately, it is not clear how the MS estimates for RP4 were taken into account. The use of the academic approach is to be welcomed, but it seems incomplete - the period used in the analysis from 2012 to 2019 is a stable growth in aviation and the crisis period of the Covid-19 years was excluded. It does not consider the local circumstances and the current situation of the MS (the impact of the Russian war in Ukraine, while considering that this is the second sequential crisis where cost-saving measures are implemented). Thus, the countries start RP4 from different starting positions with the same targets, with the PRB assumption that the shortcomings have already been eliminated in RP3, thus not providing equal conditions for achieving the targets. There are concerns whether the academic approach sufficiently consider the conflicting nature of the targets - in the achievement of capacity and environmental targets there is a significant role of additional funding needed.
NSA (Germany)	While the models are described, used raw data, other information, assumptions, calculations, explanations and the interaction of the parameters are not made transparent. In general, the

	methodology of the determination cannot be fully retraced. As shown in the examples below, we got the opinion that PRB did a mixture of detailed analysis and unfortunately many assumptions which are neither derived using data nor explained in detail. In general, we would appreciate more transparency in order to be able to retrace or support the proposed target range values. As examples for assumptions without evidence or with other flaws as stated: Main report No 127 (assumption that ANSPs prioritised for the shown years 2015-2018 accounting conservatism and targets lack ambition), No 128, No 142 (assumption that ANSPs did not efficiently adapt their cost base in regards to Covid, while especially staff cannot be significantly adjusted on a year to year basis, if the expectation is, to have any staff left in the following years and operating costs are to some degree fixed costs as technical equipment will still need maintenance work. On the contrary, times of very low traffic were used sometimes long due maintenance, which would otherwise have impacted on capacity). The request for ANSPs to use pandemic to implement innovative or radical changes in their operations does neither reflect upon the major problems of supply chains which remain even until today. Nor does it consider the fact, that due to lack in income most stakeholders in aviation had to delay measures of improvement, even if those had been decided before the pandemic. We have a list of other examples from Annex I which we are happy to provide for better understanding of our doubts. Corrections to submitted data without verification with the originator seems rather farfetched, even in this case it can be supposed to be in favour of the stakeholder in question. Also, the general assumption that initial cost data from ANSPs do contain a certain amount of regulatory bargaining is not supported. It punishes any stakeholder who actually did try and submit the best possible data and incentivises the wrong kind of behaviour. It is also unclear of the used three pieces of evidence are weighted equally. Was there any consideration weighting the evidences not equal?
NSA (Croatia 1)	RP4 characterize a strong need to re-invest as much in obsolete infrastructures as in innovation to realize the EU long-term goals depicted in Airspace Architecture vision / ATM Master Plan. The benefits of these projects include improved quality and capacity which do not translate into cost reductions at least not in the short run. CEF targets should be set accordingly.
NSA (Cyprus)	The methodologies are not always transparent, especially the ones used in order to assess compliance with the targets
NSA (France)	The evidences provide outputs in various directions: combining them into one set of targets is not deemed appropriate. The lack of details on the way each evidence was established does not enable a proper assessment (e.g. on inputs, assumptions, sensitivity to various parameters) and does not ensure consistency with local circumstances (highlighted by the identification of several singularities by some MS on certain elements pointed out by PRB). Some contradicting elements are also hampering trust in the reliability of the outcome, for example when noting an overestimation of RP3 initial data compared to member States' RP3 performance plans and the application of overhead by PRB in some MS RP4 initial cost data, as well as acknowledging the interdependency with other areas while only relying on the retention of certain inefficiencies (…) that MS transform (…) into measures to demonstrably improve the operational performances leading to improved capacity and environmental outcomes.
NSA (Poland)	Answering the question raised it can be stated that the results in terms of CEF target are consistent with the input. However there are serious concerns about the validity and appropriateness of the methodology itself, especially regarding the basis for the conclusions drawn in the academic study.
NSA (Italy)	Target setting process should be based on real experience and results and move from the lesson learnt to foster further improvements as beneficial for the system. A methodology that is based on a pure theoretical model runs the risk of not reflecting the complexity of the environment where ANSPs are asked to operate. In that context, the request to the States to provide initial cost estimates for RP4 fits perfectly. This because States have the highest sensitivity in identifying cost boundaries that take into consideration safety requirements, the complexity of the environment, improvements planning and ANSPs financial viability. Said that, it seems that in the PRB proposal both Member States submission as well a proper analysis of the of the historical data are not accompanied by a transparent disclosure of the methodology used for the calculations. For what said above, and further disclosed in answer 6.4, the academic study is not supported.
NSA	Historical performance and data doesn`t give in current situation any benefit.

(Estonia)	
NSA (Switzerland)	The methodologies (Evidences 1-3) combined and applied by the PRB may not support an adequate target setting for cost-efficiency and the final methodology to calculate the Union-wide CEF targets in terms of weighing the Evidences is not sufficiently disclosed. All the underlying material including the final calculations should be disclosed. In the context of the academic study included in Annex II of the PRB report, there is no information about robustness of applied models and approaches available, the treatment of outliers, or the testing of different functions, all of which can alter and distort the results considerably.
NSA (Croatia 2)	RP4 characterize a strong need to re-invest as much in obsolete infrastructure as in innovation to realize the EU long-term goals depicted in Airspace Architecture vision / ATM Master Plan. The benefits of these projects include improved quality and capacity which do not translate into cost reductions at least not in the short run. CEF targets should be set accordingly.
NSA (Austria)	The methodology supports the target ranges as presented, however, we have some concerns with the methodology, in particular the academic study.
Professional staff representative body (IFATCA)	I agree to that PRB must combine statistical evidences to estimate the range of costs.
Professional staff representative body (ATCEUC)	ATCEUC understood that the average evolution of the total costs compared to the average evolution of the SU, or the IFR movements, from 2012 to 2019, are the only two elements considered to produce PRB forecasts. This methodology does not look appropriate to build a resilient financial scheme for such an essential infrastructure. Traffic patterns, level of complexity, relation between level of traffic and complexity, geopolitical situations, evolution of labour market, local specificities: these elements need to be captured to build a good forecast. The submission of Member states is mixed with these PRB forecasts, the final result does not appear to be sufficiently accurate to be used for planning of ANSPs financing for 2025-2029.

Table 18 - Comments received on Question 6.2.

PRB analysis

265 In response to the survey question 6.2, most of the stakeholders (37 out of 47) expressed disagreement with the methodology and evidence provided in the PRB report, while eight were in agreement. The predominant disagreement came from ANSPs and NSAs, while the majority of airlines agreed to some extent.

266 When it comes to the comments received, the main themes addressed by the respondents concern:

- The use of historical data, methodology and consideration of initial RP4 data submitted by the Member States;
- The disclosure request of more detailed analysis; and
- The need for contextual considerations and interdependency among KPAs.

267 Some stakeholders commented on the reliability of using historical data and academic studies for forecasting future costs. Stakeholders argued that historical data may not adequately account for contextual differences between periods and the multifaceted factors influencing costs. Stakeholders questioned the lack of adjustments for future investments and changing external factors in historical data analysis, which could lead to inaccurate cost estimations. Specifically, some argued that investments are necessary for staffing and infrastructures innovation. For this reason, stakeholders suggested the inclusion in the analysis of RP4 initial data submitted by the Member States.

268 Some commented on a lack of transparency in PRB methodologies, particularly concerning input data, calculations, assumptions, and the determination of baseline values. Specifically, concerning the Academic study, they emphasised the necessity to disclose the robustness of the models and the handling of outliers.

269 Stakeholders demanded target-setting processes rooted in real-world experience and operational results, arguing for methodologies that reflect the complexity of the operational environment and prioritise operational considerations over purely theoretical models. Additionally, they stressed the importance of adopting nuanced approaches that account for diverse regional and geopolitical factors, rather than imposing uniform target requirements across different states.

270 Stakeholders argued that the interdependency among KPAs should be considered in the target setting process, given the difficulty of reaching the capacity and environment targets within the proposed ranges and the proposed cost-efficiency targets ranges.

PRB response

271 The PRB has considered the comments received from stakeholders regarding the approach followed and the statistical methodologies combined to estimate a range of costs and the related unit cost for RP4. The PRB has decided to revise the methodology used to estimate the 2024 baseline and the 2029 cost base.

272 Regarding the 2024 baseline, the PRB has decided to revise its methodology to put more weight on the cost forecasts submitted by Member States. For more details regarding the revised methodology for the definition of the 2024 baseline values, please refer to the PRB response to question 6.5.

273 Regarding the PRB cost forecasts, the PRB disagrees with the comments questioning the validity of these forecasts. As discussed during the consultation event, the difference in 2029 costs between the PRB forecast and the Member States' submissions (7%) was largely due to a small number of Member States presenting a disproportionate increase in cost (Annex I of the PRB advice to the target ranges for RP4). When excluding the six submissions showing the largest difference with the PRB forecast, the difference between the PRB forecasts and the Member States' submissions for 2029 becomes negligible (1.1%). As a conclusion, the PRB forecast (IFR based) is in line with the majority of the submissions. For more details regarding the PRB costs forecast, please refer to the PRB response to question 6.3.

274 Regarding the need for contextual considerations, as stated in the PRB response to question 6.1, these are taken in due consideration during the assessment process and through the comparator groups analysis. Regarding the need to consider interdependencies in the target setting process, the proposed cost-efficiency targets provide enough resources to support the implementation of operational improvements necessary to achieve the targets in the other three KPAs. Finally, Annex IV of the Regulation allows for two potential deviations from the cost-efficiency

criteria provided that the conditions for such deviations are satisfied.

275 As stated in the PRB response of Question 6.1, the PRB refutes the claim of any lack of transparency in the methodological approach.

Question 6.3

276 The PRB applied statistical analyses to forecast the Union-wide cost base for RP4. The PRB also considered, in the analysis, the submissions from the Member States and the historical values (without considering the years impacted by the COVID-19 pandemic). In Question 6.3, respondents were asked "*To what extent do you agree with the proposed approach?*".

277 45 out of 47 respondents replied to the question, out of which:

- 24 ANSPs, including one association;
- Five airlines, including three associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

278 **Error! Reference source not found.** shows the distribution of the replies. The majority of stakeholders (34) did not agree with the proposed approach of the statistical analysis (12 fully disagreed and 22 disagreed to some extent), while six respondents agreed (two fully agreed and four agreed to some extent). When analysing the responses by stakeholder category, the majority of ANSPs and NSA and Member State representatives disagreed that the proposed approach provided in the PRB report supports the Union Wide cost base for RP4. The majority of airlines (four) disagreed to some extent. One professional staff representative fully agreed, while one fully disagreed.

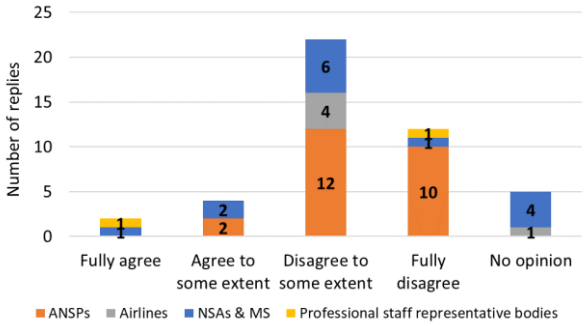

Figure 19 – Number of replies to question 6.3: "To what extent do you agree with proposed approach? (Statistical analysis)" (source: PRB elaboration).

279 Individual comments are listed in Table 19 (next page). 37 out of 47 respondents made a comment on the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- Eight NSA and Member State representatives; and
- One professional staff representative body.

6.3 To what extent do you agree with the proposed approach? (Statistical analysis)	
Stakeholder	Comment
Airline (Lufthansa Group)	Excluding the years of the pandemic from the consideration (not the statistical analysis) is in our point of view not the best approach, as the years of the Covid-19 pandemic have shown some of the most pressing items in ATC provision in Europe: Missing scalability and flexibility to adjust cost and service provision to the actual situation. This should also be regarded in some way in the baseline setting, as most ANSPs were not able to adjust to the situation, as much as airlines had to. Bad performing countries which were more or less continuing as if there was no downturn in traffic have now the same recovery methods as those countries that have gone the extra mile.
Airline (IATA)	The models consider data up to 2019 (only RP2). Known inefficiencies in RP3 should also be considered, from unambitious target setting to factual proof that costs can be lower than estimated/determined, giving room to increase ANSPs regulatory returns, which the economic regulation and regulators should be limiting. Statistical analysis is supported, but modelling data already contain inefficiency. Models are also limited (e.g. low R2). Results similar to initial submitted data might only mean that hypothesis under the initial estimations are reproduceable. Note that the forecast based on number of IFR flights is more relevant (it affects more ATC staff dimensioning) than the one based on service units (for same number of flights, heavier aircrafts increase service units with low impact in staff or technology (and, therefore, costs).
Airline (ERA)	Not including COVID years could have been beneficial which may have highlighted airlines issues with ANSP scalability and flexibility.
Airline (Easyjet)	It would have been appropriate to consider the COVID years as well. These years have shown some of the issues within the ANSP community e.g. only limited scalability and flexibility to adjust cost and service provision to the actual situation. While ANSPs did not adapt their cost base and did not implement innovative or radical changes within their operations during COVID, the Union-wide targets of cost-efficiency and capacity have been both met for 2020/21. The low impact of delays on the cost base, as indicated by the academic study commissioned by the PRB, should advise to include the COVID years in the historical analysis. Analysis of the state submissions needs to follow in a next step to ensure the targets are ambitious and realistic. Determined costs have been consistently above the actual costs of the ANSPs during RP2 and RP3. RP3 showed that costs have been lower than estimated. We would advise the PRB to more carefully assess States' predictions as these are likely affected by heuristics, biases and conflict of interest, as there is a regulatory incentive for ANSPs to retain efficiencies, as showed by the regulatory returns ANSPs have been collecting in the COVID years
Airline (A4E)	It would have been appropriate to consider the COVID years as well. These years have shown some of the issues within the ANSP community e.g. only limited scalability and flexibility to adjust cost and service provision to the actual situation. While ANSPs did not adapt their cost base and did not implement innovative or radical changes within their operations during COVID, the Union-wide targets of cost-efficiency and capacity have been both met for 2020/21. The low impact of delays on the cost base, as indicated by the academic study commissioned by the PRB, should advise to include the COVID years in the historical analysis. Analysis of the state submissions needs to follow in a next step to ensure the targets are ambitious and realistic. Determined costs have been consistently above the actual costs of the ANSPs during RP2 and RP3. RP3 showed that costs have been lower than estimated. We would advise the PRB to more carefully assess States' predictions as these are likely affected by heuristics, biases and conflict of interest, as there is a regulatory incentive for ANSPs to retain efficiencies, as showed by the regulatory returns ANSPs have been collecting in the COVID years
ANSP (Latvijas gaisa satiksme)	Forecasting based on historical performance can include inefficiencies. Magnitude of cost savings during the crisis must be taken into account at least as a context.
ANSP (FABEC)	By calculating a baseline value above the costs submitted by members states, the PRB creates an artificial inflation of the baseline value: it has an impact of -0,6% on the advised targets range. In addition, the models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units, or the IFR movements, for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. It is unclear why the evolution of costs during the years 2012 to 2019 directly relate to the evolution of costs during the years 2024 to 2029? Why was no inflation added to the model? The correlation of the model is significantly too low (19%),

	meaning they cannot be used to forecast accurately (higher than 80% is the norm). Furthermore, the assumptions of the academic study, that ANSPs operate in the same economic and legal environment, cannot be supported.
ANSP (Polish Air Navigation Services Agency)	Taking into account the MSs' submissions is supported as each MS planned its cost reliably taking into account local circumstances and taking into account feasibility and actual performance by end of RP3. We agree that historical data analysis should not be affected by data from years impacted by the COVID-19 pandemic. However, the target setting needs to support operational performance and consider high traffic volatility, including at local level (possible further changes to traffic flows after the war ends). Proposing costs at different level than submitted by the States should be supported by additional analysis of impact on the States' plans regarding staffing and investments which were submitted in the additional information together with cost forecasts.
ANSP (ROMATSA)	Evidence 1 - Member States submissions The PRB should take into account only Member States submission data set. Evidence 2 – Cost forecast based on historical data. • The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the costs evolution. • The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the cost evolution, which is insufficient.
ANSP (Port Lotniczy Bydgoszcz S.A.)	We believe that the statistical analyses are the right tool for the benchmarking exercises. The DEA, SFA methods and regression analyses are commonly used in this area. However, we believe that the conclusions should be drawn by taking into consideration more than just one academic study.
ANSP (NAV Portugal E.P.E)	Please refer to our comments on question 6.2 and additionally: - Regarding historical values - the PRB assumes that RP4 will take place in a similar context to previous years covered by regulation (excluding those affected by COVID-19). However, as stated several times in the report, the priorities for the near future are capacity delivery and environmental improvements, but no evidence of these trade-offs is included in the proposed approach. - Regarding the academic study - To calculate the Union-wide target ranges for RP4, the PRB also used an academic study on cost inefficiency based on a benchmarking approach that ignores the different contexts of air navigation service provision, as detailed in the comments to question 6.4. Furthermore, evidence 2 does not include the costs of NSAs and Eurocontrol in the cost inefficiency gains, which makes the effort required from ANSPs even higher (- 0.9% CAGR upper bound and - 3.5% lower bound).
ANSP (LVNL)	See answer in 6.2. LVNL advocates to use the RP4 data set submission of the Netherlands
ANSP (ENAV)	For what reported in answer 6.2, please consider that in our opinion the PRB should take into account only Member States submission data set. Consider as well that the approach of developing cost forecast based on historical data is weak: as admitted by the PRB, the method that calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019, does not consider the complexity of the evolution of the costs. Moreover, the correlation coefficient of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
ANSP (ENAIRE)	Please refer to the document "ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges". Evidence 1 - Member States submissions. The PRB should take into account only Member States submission data set. 17 Evidence 2 – Cost forecast based on historical data. •The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the evolution of the costs. •The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
ANSP (EANS)	The PRB should take into account only the Member States submission data set.

ANSP (DSNA)	The PRB should only consider the data provided by Member States in the performance plan draft. The model used in the 2nd evidence doesn't accurately predict the 2024 costs. As the time scale goes by it can only increase the inaccuracy of the forecast. PRB should not use these models to forecast the 2029 costs; Furthermore, the coefficient of correlation of the model is significantly low (19%), meaning they cannot be used to forecast accurately as stated by the PRB (academically, a coefficient higher than 80% is the norm to indicate a good correlation).
ANSP (BULATSA)	Cost-efficiency target ranges lack justified interdependencies with any other KPA and the KPIs therein, which suggest that interdependencies are recognized in theory only and assessment of cost efficiency will be separated from the other KPA. Furthermore, there is lack of sufficient explanation of the methodology how baselines values have been derived as well as what is the impact of CP1 in terms of cost-efficiency. It would be beneficial if PRB could explain better the meaning of paragraph 127 of the main report "The lower actual costs have signalled a deficiency in the planning process, in which some ANSPs prioritised accounting conservatism over the ambition of more efficiency and the provision of more capacity. Moreover, the lower actual unit cost indicated that the targets lacked ambition. Both reasons have led to the situation in which the system was far from optimal."
ANSP (CANSO)	In addition to our answer to 6.2: Evidence 1 - Member States submissions. The PRB should take into account only Member States submission data set. Evidence 2 – Cost forecast based on historical data. - The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the evolution of the costs. - The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
ANSP (Austro Control)	The PRB should take into account only Member States submission.
ANSP (ANS CR)	The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the evolution of the costs. The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
ANSP (LFV)	Evidence 1 - Member States submissions. The PRB should take into account only Member States submission data set. Evidence 2 – Cost forecast based on historical data. - The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the evolution of the costs.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: Average of averages of several estimates usually ends up as a worse proxy than just extrapolated actual data or initial estimates based on actual data. 2024 baseline should be taken as costs that were provided by Member-States. From the submitted Initial data. Verified and cross-checked by data in current approved Performance Plans, since they are not really old ones. Potentially verified and approved by NSAs and consulted with AU's. On a case-by-case (State level) basis. And then summing the to the total and average. Or new estimates could be provided by States. The same approach and methodology should be applied to Eurocontrol's and other entities' provided planned costs, not differentiating methodology as it creates even more bias. Or then baseline and targets should be set and measured only for ANSP's and not overall State level.
ANSP (AIRNAV)	Evidence 1 - Member States submissions The PRB should take into account only Member States submission data set. Evidence 2 – Cost forecast based on historical data. • The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB has acknowledged that this method does not consider the complexity of the evolution of the costs. • The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.

ANSP (DFS)	In addition to our answers to 6.2.: Evidence 1 - The PRB should take into account only Member States submission data set. Evidence 2 - The model calculates the average evolution of the total costs compared to the average evolution of the service Units or the IFR during the period 2012 to 2019; and the PRB admits that this method does not consider the complexity of the evolution of the costs. The coefficient of correlation of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
ANSP (skeyes)	The models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units, or the IFR movements, for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. Unsurprisingly, the coefficient of determination of the model is significantly too low. In the particular case of Belgium, the years 2012 to 2019 were following a loss making period where investments and recruitment were kept at a minimum, thereby building backlog in equipment replacement and jeopardizing the stability of the ATCO pyramid of age. Taking an abnormally low cost base as reference to extrapolate can only lead to an unrealistic estimate. Furthermore, the assumptions of the academic study, that ANSPs operate in the same economic and legal environment, cannot be supported due to a number of very specific local constraints which are not considered.
ANSP (Skyguide)	The use of historical actual costs without taking into account complex factors to forecast future costs is questionable. Indeed, the two periods (2012-2022 and 2024-2029) have very different contexts. In the 2012 to 2019 period, most ANSPs have been able to reduce the unit cost in real terms (incl. Switzerland). The 2024-2029 Reference Period will be different from those of the past, as there is a strong need to re-invest in obsolete infrastructures and in innovation to realise the Airspace Architecture vision. PRB forecast does not sufficiently take into consideration the level of modernity of the technical infrastructure, the current staffing levels, the waves of retirements, the obsolescence of assets, … All these elements cannot be derived from statistical analysis or from historical values. We therefore recommend to focus on States submissions which take into account these elements.
ANSP (Avinor)	See comment to question 6.2.
ANSP (NAVIAIR)	The Danish ANSP is concerned that the statistical method is not fit for purpose in forecasting the cost base for RP4. The Danish ANSP finds it paramount that the cost levels in the RP4 period equals the Danish ANSP's actual expected cost level from 2025-2029.
Member State (Germany)	Central questions that are unfortunately left open by the PRB's report is to which extend these – thoroughly interesting - statistical findings could be used to set efficient targets at union-wide level; and which methodology could be used to enable NSAs in charge to propose efficient, fair and transparent targets at local level.
NSA (Latvia 2)	Such an approach would be effective if all countries were in equal conditions (what was the basis of the analysis, where Covid-19 was excluded). In our opinion the different effects of the Ukrainian war (both very favourable and critical) should be taken into account.
NSA (Germany)	The approach of using mainly these three parameters seems a good one. But unfortunately, in the practical execution of the PRB this approach is not conducted in a satisfying way. For more detail on this please see our answer to the question 6.2. As stated before, we can submit a list of detailed questions on more aspects of the provided material. We would have appreciated as a first step of target range setting, a workshop with involved parties. Beyond the data submission in summer 2023, all stakeholders known to us would have been happy to provide more data could upon request to prevent the given amount of assumptions in the proposed approach.
NSA (France)	Agreement could be reached on the general objective, however, the implementation seems wrong since the linear regression models used to forecast 2029 costs are inaccurate and with low predictability (as evidenced by the 0,19 value for R2). In addition, considering that the models to predict 2024 costs are also inaccurate, the quality of data, degraded over time up to 2029, can only be poor.
NSA (Italy)	For what reported in answer 6.2, please consider that in our opinion the PRB should take into account only Member States submission data set. Consider as well that the approach of developing cost forecast based on historical data is weak: the average evolution of the total costs

	compared to the average evolution of the service Units or the IFR during the period 2012 to 2019, does not consider the complexity of the evolution of the costs. Moreover, the correlation coefficient of the models presented is significantly too low: academically a coefficient higher than 80% is the norm to indicate a good correlation. The result of the models shows only 19% of the evolution of the cost, which is insufficient.
NSA (Estonia)	Historical data and values doesn`t give right picture, union wide approach is not correct as states are in very different situations caused by Russian aggression and war against Ukraine.
NSA (Switzerland)	By calculating a baseline value above the costs submitted by States, the PRB creates an artificial inflation of the baseline value, which has an impact of -0,6% on the advised targets range. In addition, the models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units, or the IFR movements, for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. It is unclear why the evolution of costs during the years 2012 to 2019 directly relate to the evolution of costs during the years 2024 to 2029.
NSA (Austria)	The forecast should primarily based on Member State submissions. The use of historical data distorts the picture. Actual costs of previous years, some more than 10 years in the past and none more current than 4 years ago are an inappropriate baseline in our opinion.
Professional staff representative body (ATCEUC)	Statistical analysis is very complex to use due to the diversity of ANSPs situation. This is further developed below. Using historical values is also complicated as the situation can be completely different in terms of complexity, needs of resources. During the last 10 years, 2013 to 2015, 2020, 2021 and 2022 can be 17 considered as low traffic years. Data for these years cannot be used to draw conclusions for 2024 level of resources necessary.

Table 19 - Comments received on Question 6.3.

PRB analysis

280 In response to the survey question 6.3, most of the stakeholders expressed disagreement with the proposed approach of the statistical analysis (34 out of 47), while six agreed. All categories of stakeholders were mostly disagreeing.

281 When it comes to the comments received, the main themes addressed by the respondents regard:

- The exclusion of COVID-19 pandemic years from analysis;
- The use of historical data and Member States' submissions; and
- Transparency regarding the forecasting methodology.

282 Stakeholders commented on the decision to exclude the COVID-19 pandemic years from the analysis, arguing that these years shed light on critical issues within the ANSP community. They commented on the lack of scalability and flexibility among ANSPs to adjust their costs and service provision to match the actual traffic situation. They also stressed the importance of considering ANSPs' ability to adapt to fluctuations in traffic volume, noting that the challenges faced during the pandemic underscored the need for more dynamic and adaptable cost structures.

283 There is a consensus among stakeholders regarding the importance of historical data in forecasting future costs, but they raised concerns about the methodology used and advocate for a more nuanced approach. They consider that the volatility of the cost evolution and the different context of RP4 with respect to RP2 should be taken into account.

284 Stakeholders emphasised the significance of Member States' submissions in setting realistic baselines and targets, criticizing the use of simplistic models that overlook the complexity of cost evolution. They highlighted the need for more sophisticated analytical techniques that account for contextual differences and the evolving nature of the aviation sector.

285 Stakeholders stressed the importance of transparent methodologies in setting baseline values and targets, calling for more detailed explanations on the PRB's decision-making processes. They commented on the perceived lack of consideration for the impact of geopolitical events, such as Russia's war of aggression against Ukraine, on cost forecasts, and advocated for more context-aware strategies. Overall, stakeholders emphasised the need for greater transparency, accountability, and adaptability in the methodologies used by the PRB to ensure informed decision-making and effective cost-efficiency targets. Moreover, some stakeholders commented on the low predictive power of the forecasting models (reflected by the R^2), fearing potential inaccuracy.

PRB response

286 Regarding the decision to exclude the years of the COVID-19 pandemic from the analysis, the PRB understands that these have been challenging times for the sector as a whole. However, these years are viewed as an anomaly, especially for the cost-efficiency KPA. Hence, their inclusion in forecasting would introduce a degree of uncertainty and inaccuracy not conducive to constructing an effective forecast.

287 Regarding the PRB cost forecasts, the variables included and the statistical method (i.e. fixed effect approach) take into consideration the multidimensional factors influencing the evolution of future costs to the maximum extent possible. All forecasting methodologies are based on historical data. The absence of complete and reliable information on variables such as complexity, FTEs, and flight-hours controlled prevented the inclusion of these metrics in the forecasts (as detailed in Annex I of the PRB advice on the target ranges for RP4). Nevertheless, the PRB would like to stress that differences across periods and local differences have been considered in the forecasting exercise as much as possible (e.g. forecasts include the baseline adjustments). As stated in the PRB response of Question 6.1, the PRB believes that the assumptions and the methodology followed have been presented and discussed in full transparency. Finally, regarding the statistical accuracy of the models, the PRB highlights that the R^2 is not a suitable measure of forecast accuracy. When considering metrics more suitable to evaluate forecasting capabilities, both PRB forecasts (calculated based on IFR movements and service units) show a MAPE of 5.7%, indicating that the inaccuracy of

the models is, on average, approximately only 5.7%.[4]

288 As described in response to question 6.2, the 7% difference between the PRB forecast and the Member States' submissions was largely due to a small number of Member States submitting a disproportionate increase in cost over RP4 (Annex I of the PRB advice to the target ranges for RP4). When excluding the six submissions showing the largest difference with the PRB forecast, the difference between the PRB forecasts and the Member States' submissions for 2029 becomes negligible (1.1%). Considering this, and to take into consideration the feedback received, the PRB has decided to revise the calculation methodology of the 2029 cost base underlying the cost-efficiency targets.

289 The revised methodology uses as a point of reference the costs submitted by the Member States, provided that these costs do not exceed 130% of the 2019 baseline actual values. If these costs are above this threshold, the PRB cost forecasts (IFR movement base) are used to define the 2029 cost base. With this approach, five Member State's submissions have been replaced by the PRB cost forecast for the calculation of the 2029 Union-wide costs.

290 The PRB notes that such an approach is without prejudice to the assessment of the draft performance plans that will be carried out as from October, for which local circumstances or deviations for the cost-efficiency targets will be examined.

[4] In statistics, the Mean Absolute Percentage Error (MAPE) is a measure used to determine the accuracy of a forecasting method by calculating the average of absolute percentage errors of predictions. MAPE is a metric reflecting the average percentage deviation between predicted values and their corresponding actual values in a dataset. A MAPE value below 10% is generally regarded as indicative of good accuracy.

Question 6.4 A

291 The PRB considered as an input the study undertaken by academics on the ANSPs cost base inefficiency (Annex II of the report). In Question 6.4, respondents were asked "*To what extent do you agree with the proposed approach?*".

292 46 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 16 NSA and Member State representatives; and
- Two professional staff representative bodies.

293 Figure 20 shows the distribution of the replies. The majority of stakeholders (39) did not agree with the proposed approach of the academic study (24 fully disagreed and 15 disagreed to some extent), while two respondents agreed to some extent. When analysing the responses by stakeholder category, the majority of ANSPs and NSA and Member State representatives disagreed that the academic study provided in the PRB report tackles the ANSPs cost base inefficiency. All airlines (five) disagreed to some extent. One professional staff representative body fully disagreed, while the other professional staff representative body disagreed to some extent.

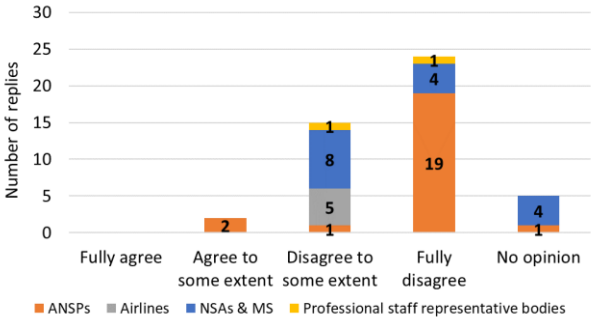

Figure 20 – Number of replies to question 6.4 A: "To what extent do you agree with proposed approach? (Academic study)" (source: PRB elaboration).

294 Individual comments are listed in Table 20 (next page). 38 out of 47 respondents made a comment on the question, out of which:

- 21 ANSPs, including one association;
- Four airlines, including two associations;
- 11 NSA and Member State representatives; and
- Two professional staff representative bodies.

6.4 To what extent do you agree with the proposed approach? (Academic study)	
Stakeholder	Comment
Airline (Lufthansa Group)	Lufthansa Group regrets that the initial cost data has not been included more in the academic study to forecast the inefficiency to be reached until the end of RP4. This would have shown that ANSPs themselves are not ambitious to achieve further efficiency gains during RP4. An alternative academic study by university Leuven on behalf of A4E confirms that the efficiency gap of equal magnitude, but comes to the conclusion that it widens again during RP4 to 19%. This is very worrying as ANSPs themselves don't strive for efficiency gains during next five years but even plan to become more inefficient again, losing the gains achieved since RP2. This would mean 15 years of efficiency gains would be lost
Airline (IATA)	Previous academic study (2018), with data until 2016, revealed an inefficiency of 40% when using the DEA model, however with this new calculation, using data until 2019, DEA inefficiency is calculated at 15% (without delays). Please explain the change. The reason could be a wrong use of delays in the model. Cost-efficiency is about to provide the required quality of service at lower (optimum) cost. If adding delays in the model results in higher efficiency score, the model seems to conclude better cost-efficiency when not delivering the required quality of service, which sounds wrong, because in such case there is not even cost-effectiveness, (the costs are not fulfilling their purpose of providing capacity), so efficiency cannot be even discussed. The conclusion that we either assume more delays (and route extensions) or we assume cost inefficiency needs correction. There has to be a way to provide quality efficiently. We miss the actual benchmarking previous study provided.
Airline (Easyjet)	The A4E RP4 cost-efficiency study confirms that the efficiency gap for RP3 and RP4 are of equal magnitude. However, it also raises concern by concluding that this gap is projected to widen during RP4, reaching 19% instead of diminishing. This is alarming because ANSPs not only fail to pursue efficiency gains in the upcoming five years but also plan to become more inefficient, thereby reversing the progress made since RP2. If this trend persists, it implies that the efficiency gains of the past 15 years would be forfeited.
Airline (A4E)	The A4E RP4 cost-efficiency study confirms that the efficiency gap for RP3 and RP4 are of equal magnitude. However, it also raises concern by concluding that this gap is projected to widen during RP4, reaching 19% instead of diminishing. This is alarming because ANSPs not only fail to pursue efficiency gains in the upcoming five years but also plan to become more inefficient, thereby reversing the progress made since RP2. If this trend persists, it implies that the efficiency gains of the past 15 years would be forfeited.
ANSP (Latvijas gaisa satiksme)	Just as a reference, study on inefficiencies is acceptable.
ANSP (FABEC)	In the academic study, the 16% gap is not backed by realistic computation data or robust models. Furthermore, the efficiency score shouldn't directly translate into costs. The biggest flaw of using a DEA is to consider that all 29 ANSPs are operating in the same legal, fiscal and economic environment. The benchmarking (and the variability observed) only shows this methodological flaw: not the inefficiency is observed in the cost-base of the ANSP, instead it is the difference in the operating environment. The staff costs are influenced by national law which purchase parity power (PPP) cannot transcribe accurately. The depreciation costs are calculated from the past CAPEX expenditures without any means of actions by the ANSP. On the SFA inputs, we can remark that the Capital price has very little correlation of the number of sector opening hours of the same year. A sum of the Capital price from the last 10 years seems to be more realistic for the capital expenditure.
ANSP (Polish Air Navigation Services Agency)	While the academic study can be considered as an interesting additional view, it should be disregarded for the purpose of target setting. It needs to be stressed that ATM/ANS industry is composed of rather small number of entities operating in different states (with many local differences) with a large heterogeneity amongst ANSPs. Large differences between outcome of the two models used as well as between the current results and the ones from 2019 prove that the models do not work well for ANSPs and therefore their results should not be the basis for defining expected CEF evolution over RP4. Moreover, the analysis does not consider impact of the war and related traffic changes on individual ANSPs and their CEF performance now and over RP4.
ANSP (ROMATSA)	ROMATSA cannot support the following approaches in the study: • it assumes ANSPs operate in same economic and legal environment

	• it assumes that they should all be performing at the same level • not all factors are considered e.g. Ukraine war • there is a lack of transparency • the baseline of costs is too high • Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs • There is no documentation on robustness or to test outliers • Variables have not been tested for relevance • ATM/CNS is very heterogeneous with local national characteristics • Interdependency of KPAs not addressed Furthermore: • NSA and EUROCONTROL cost base should be included in cost inefficiency gains; by excluding these, the effort required from ANSPs increases to -0.9% CAGR upper bound and -3.5% lower bound • The used data set is not homogeneous and the analysis is entirely theoretical.
ANSP (NAV Portugal E.P.E)	The analysis of the academic study is theoretical and its results, which are based on two benchmarking models to evaluate the cost inefficiency of ANSPs, cannot be supported for the definition of Union-wide targets, as: •it assumes that all ANSPs operate in the same operational, economic and regulatory environment and should therefore perform at the same level; •it ignores national traffic characteristics (e.g. complexity, volatility and seasonality) and the gap between operational needs and available resources; •External factors are not taken into account (e.g. war in Ukraine); •The interdependence of KPAs is not addressed; •There is no documentation of the robustness of the analysis or test outliers.
ANSP (LVNL)	See answer in 6.2. LVNL does not agree with the approach of the academic study. Because of the absence of adequate information we cannot develop a proper consultation position on this question. The approach seems to be too generic for benchmarking because not all ANSPs are operating in a comparable operational, organizational, (geo)political, economic and legal environment. LVNL does not support the approach, the conclusions and the use of the academic study for target setting.
ANSP (ENAV)	The Academic Study is lacking in robustness in its assumptions and modelling providing with a pure theoretical study. In effect: • it assumes that ANSPs operate in same economic, operational and legal environment, which is not realistic; • it assumes that ANSPs should all be performing at the same level. Experience has shown that performance can be significantly different amongst ANSPs; • the data set used is not homogeneous; • the cost baseline is too high; • the study seems to be lacking in transparency, also in terms of variables used; • not all external factors are considered e.g. Ukraine war; • real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs; • all the entities costs should have been included when assessing the cost inefficiency gains in order to avoid the requirement of an extra effort for ANSPs in terms of cost efficiency.
ANSP (ENAIRE)	Please refer to the document “ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges”. ENAIRE cannot support the following approaches taken by the study: •it assumes that ANSPs operate in same economic and legal environment •it assumes that they should all be performing at the same level •not all factors are considered e.g. Ukraine war •there is a lack of transparency •the baseline of costs is too high •Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs •There is no documentation on robustness or to test outliers •Variables have not been tested for relevance •ATM/CNS is very heterogeneous with national characteristics

	•Interdependency of KPAs is not addressed Furthermore: •The NSA and Eurocontrol cost base should be included in the cost inefficiency gains. •The data set used is not homogeneous and the analysis is entirely theoretical.
ANSP (DSNA)	DEA is a good model to estimate production costs of a group of homogenous organizations to benchmark it. The flaw of using a DEA is to consider that all 29 ANSPs are operating in the same legal, fiscal and economic environment. The results of the benchmarking (and the variability observed) shows this methodological flaw: we are not witnessing inefficiency in the cost-base of the ANSP, we are witnessing difference in the operating environment. The SFA is estimating the efficiency of a firm to convert inputs into outputs. It measures how far from the full cost minimization is the firm. On the inputs, we can remark that the Capital price (depreciation cost + cost of capital) of a year has very little correlation of the number of sector opening hours of the same year. A sum of the Capital price from the last 10 years seems to be more realistic to take into account the capital expenditure.
ANSP (BULATSA)	The study is theoretical. Mathematics is not finance. It assumes that ANSPs operate in same economic and legal environment; that they should all be performing at the same level; not all factors are considered e.g. Ukraine war; there is a lack of transparency; the baseline of costs is too high, Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs, there is no documentation on robustness or to test outliers, Variables have not been tested for relevance, ATM/CNS is very heterogeneous with national characteristics, Interdependency of KPAs is not addressed.
ANSP (CANSO)	CANSO cannot support the following approaches taken by the study: - it assumes that ANSPs operate in same operational, economic and legal environment - it assumes that they should all be performing at the same level - not all factors are considered e.g. Ukraine war - there is a lack of transparency, e.g. for the baseline of costs methodology - Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs - There is no documentation on robustness or to test outliers - Variables have not been tested for relevance - ATM/CNS is very heterogeneous with national characteristics - Interdependency of KPAs is not addressed Furthermore: - The NSA and Eurocontrol cost base should be included in the cost inefficiency gains - The data set used is not homogeneous and the analysis is entirely theoretical.
ANSP (Austro Control)	Academic Study: "the DEA model presents estimated efficiency levels of approximately 79%, while the SFA model estimates efficiency levels of 89%. The weighted average therefore suggests potential efficiency levels of 84%." It is not a reasonable academic approach to take the weighted average of two such different result (inefficiency DEA 21%, SFA 11%) and conclude: "ANSPs could save approximately 16% of total costs on average by adjusting to best practices."(see p.41 7.11) It is not reasonable how average inefficiencies in comparison with best practise can lead to average cost reductions which has to be delivered by all ANSPs including the best performer. The academic study is not suitable for the EU wide target setting. "The large variation in the performance of the multiple ANSPs suggests that a one-size-fits-all approach, …., is insufficient." (see p 41 7.12)
ANSP (ANS CR)	We cannot support the following approaches taken by the study: • it assumes that ANSPs operate in same economic and legal environment • it assumes that they should all be performing at the same level • not all factors are considered e.g. Ukraine war • there is a lack of transparency • the baseline of costs is not transparently presented • There is no documentation on robustness or to test outliers • Variables have not been tested for relevance • ATM/CNS is very heterogeneous with national characteristics • Interdependency of KPAs is not addressed
ANSP (LFV)	This is very complex and LFV support the view of CANSO. There is a risk of using an approach that is too theoretical in the target setting. In order to further support the delivery of the environmental and capacity performances, the PRB proposes to recover a proportion of the ANSPs' inefficiency in the costs, noting that the cost inefficiency not recovered should be used by the ANSPs to improve operational performances. To that end, the PRB proposes to recover between 5% to 10% (i.e. corresponding to 1/3 and 2/3 of the inefficiency) by the end of RP4.

ANSP (AVINOR)	There is a lack of transparency in the establishment of the cost efficiency targets. Each ANSP should have a full understanding of their benchmark result.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: Studies are great in general. But this is only talks about averages and is very academic. More comments in other section.
ANSP (AIRNAV)	We cannot support the following approaches taken by the study: • it assumes that ANSPs operate in same economic and legal environment • it assumes that they should all be performing at the same level, or at the same level of efficiency / inefficiency – it fails to consider ANSPs such as AirNav Ireland which have the some of the lowest unit rates in Europe and the corresponding effects of applying a union-wide inefficiency factor • there is a lack of transparency in terms of the composition of Union wide targets • the baseline of costs is not transparently presented • Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs • There is no documentation on robustness or to test outliers • Variables have not been tested for relevance • ATM/CNS is very heterogeneous with national characteristics • Interdependency of KPAs is not addressed Furthermore: • The NSA and Eurocontrol cost base should be included in the cost inefficiency gains; by excluding these, the effort required from ANSPs increases to -0.9% CAGR upper bound and -3.5% lower bound • The data set used is not homogeneous and the analysis is entirely theoretical.
ANSP (DFS)	As already explained in the context of the very similar academic study prior to RP3, we do not support the usage of the study results in the development of the EU target range proposals, as essential presumed conditions cannot be applied to ANSPs: ANSPs do NOT operate in the same economic and legal environment They are NOT all performing at the same level Furthermore, essential elements are missing: No documentation on robustness available No documentation to test outliers available, which may distort results Variables have not been tested whether they are relevant, likelihood that complexity and variability are not relevant and thus distortion of results likely ATM/CNS is very heterogeneous at national level Interdependency of KPAs is not addressed The study results cannot be used as contributors to develop EU target range proposals.
ANSP (skeyes)	In the academic study, the 16% gap is not backed by realistic computation data or robust models. Furthermore, the efficiency score shouldn't directly translate into costs. The biggest flaw of using a DEA is to consider that all 29 ANSPs are operating in the same legal, fiscal and economic environment. The benchmarking (and the variability observed) only shows this methodological flaw: not the inefficiency is observed in the cost-base of the ANSP, instead it is the difference in the operating environment. The staff costs are influenced by national law which purchase parity power (PPP) cannot transcribe accurately. The depreciation costs are calculated from the past CAPEX expenditures without any means of actions by the ANSP and which in the case of skeyes proves to be abnormally low reference. On the SFA inputs, the sum of the Capital price from the last 10 years seems to be more realistic to take into account the capital expenditure than a single year.
ANSP (Skyguide)	We recommend considering the inputs of States which are based on their operational reality and its related dynamic rather than on academic studies.
ANSP (NAVIAIR)	The Danish ANSP is concerned that the benchmark method – while academically sound as presented by PRB and suitable for the best-practice inspiration – is not a fit for purpose tool in the target setting for the union-wide targets where the process of determining an overarching EU-level of cost-development is wanted. The Danish ANSP finds it paramount that the cost levels in the RP4 period equals the Danish ANSP's actual expected cost level from 2025-2029. Considering the need for increased operational robustness and an increase in ATC staffing levels, the Danish ANSP finds it unrealistic and ill-suited to reduce costs in the RP4 period.

	To ensure ambitious performance on the safety, environment, and capacity objectives, the Danish ANSP must increase ATC staffing which means that costs will have to increase.
Member State (Netherlands)	Not enough detail is given on the study making an evaluation of it difficult. The result seems not to take the specific situations into account, leading to a general figure that cannot be evaluated. A more detailed study could possibly give the needed answers.
NSA (Latvia 2)	*The period used in the analysis from 2012 to 2019 is a stable growth in aviation and the crisis period of the Covid-19 years was excluded. The academic approach, it seems so, does not consider the local circumstances of the member states and the current situation of these countries, thus, the countries start RP4 from different starting positions with the same targets, with the PRB assumption that the shortcomings have already been eliminated in RP3. *There are concerns whether the academic approach sufficiently consider the conflicting nature of the targets - in the achievement of capacity and environmental targets there is a significant role of additional funding needed, especially in post-crisis conditions.
NSA (Germany)	The academic study opens the possibilities to see the results from the two different models as a range or use the average. While both possibilities exist, there should have been an explanation for the choice made in the end and why it was considered the most suitable way forward. In this case, we are looking for target ranges. Using the results from the study also as a range would therefore have seemed almost natural. Another major point of criticism is, that the study does not consider that the ANSPs are heterogeneous entities, existing in very different situations and environments. The study assumes that all ANSPs have the same economic, legal and fiscal situation. As it should be already widely known that this is not the case (as example: different airspace structure/complexity, ANSPs are organised in different forms of companies) this, too, is an assumption which would not only have been unnecessary, it is also so far away from reality that it leaves all results from the study highly questionable.
NSA (Croatia 1)	Academic study on cost-efficiency finds that the supposed inefficiency in ANSP cost bases is on average 16%. However, this is based on theoretical methods which are based on an unrealistic analysis and cannot be applied to ANSPs.
NSA (France)	The DEA-VRS model is a good model to estimate and benchmark production costs of a group of homogeneous organizations. However, the 29 ANSPs subject to the Performance regulation do operate within various legal (for example with regard to staff regulation / costs), fiscal and economic environments. Therefore, applying that model to benchmark ANSPs cost-efficiency does not look appropriate. The use of the SFA model raises concerns on the data used as inputs. The use of the sum of the Capital price over 10 years (vs one year) could have offered more realistic results while better reflecting the benefits associated to CAPEX. Again, the lack of details on the assumptions and parameters (for example, not taking into account 2019 baseline the DEA-VRS and the rationale supporting the formula to compute potential cost savings) does prevent further assessment or comments. The RP3 academic study was already discarded as inappropriate to ANSPs, it is the same for RP4.
NSA (Poland)	There are serious doubts regarding the results of the academic study. The yawning gap in results between the two models applied to describe a single phenomenon (cost inefficiency in ANSPs) suggests that either there were some methodological issues with applying this approach to ANSP industry or (which is even more likely) there were some issues with input data and/or processing of this data. Averaging the results in a simple arithmetic way is an oversimplified workaround of this serious methodological issue.
NSA (Italy)	The Academic Study is lacking in robustness in its assumptions and modelling providing with a pure theoretical study. In effect: • it assumes that ANSPs should all be performing at the same level. Experience has shown that performance can be significantly different amongst ANSPs; • the data set used is not homogeneous; • the cost baseline is too high; • the study seems to be lacking in transparency, also in terms of variables used; • not all external factors are considered e.g. Ukraine war; • real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs; • all the entities costs should have been included when assessing the cost inefficiency gains in order to avoid the requirement of an extra effort for ANSPs in terms of cost efficiency.
NSA	There are too many questions and opinions about the study.

(Estonia)	
NSA (Switzerland)	The academic study appears to have some methodological flaws in terms of the robustness of statistical models applied, and based on this a realistic computation of data. The assumptions of the academic study that ANSPs operate in the same economic, fiscal and legal environment cannot be supported, therefore assuming an overall efficiency gap of 16 % and applying parts of it to the cost-efficiency target is not adequate. With the DEA methodology applied, we do not witness inefficiency in the cost-base of an ANSP but the difference in the operating environment. We also see an issue with the usage of the scope and the results of the DEA-VRS model: The range of the box plot of efficiency scores in terms of distribution raises the question of the validity of the model. The DEA-VRS models clearly demonstrate the impact of delays on financial performance, the reduction of delays implies higher costs induced by seasonality and complexity of airspace, this should have been considered.
NSA (Croatia 2)	Academic study on cost-efficiency finds that the supposed inefficiency in ANSP cost bases is on average 16%. However, this is based on theoretical methods which are based on an unrealistic analysis and cannot be applied to ANSPs.
NSA (Austria)	1) The two models chosen in the study lead to very different results. Rather than assessing where these significant differences stem from, simply the average of both results is taken. This doesn't appear to be a sound approach. 2) The various ANSPs have very different starting levels with respect to cost efficiency. These differences are not taken into account and all ANSPs have to deliver the same - thus ignoring cost savings achieved in previous years. In other words, those that have achieved the least savings previously, have the easiest task now and vice versa. This is acknowledged by the study itself "The large variation in the performance of the multiple ANSPs suggests that a one-size-fits-all approach, ….,is insufficient." Why is this approach taken then?
Professional staff representative body (IFATCA)	[…] but I find the gap between the two results of the two methods so different, that it makes me question the method to just calculate with the average.
Professional staff representative body (ATCEUC)	Difficult to consider these models as helpful. When looking at the differences between ANSPs: legal environment, labour laws, cost of living, size of airspace, number of centres, size of airports, complexity of airspace, military activities, any models couldn't be of any help to compare efficiencies level. Basing the Cost Efficiency targets on purely financial models does not reflect the essential nature of the services provided and the consequences that an over-tightening of the resources available to ANSPs could have on the European society as a whole.

Table 20 - Comments received on Question 6.4.

PRB analysis

295 In response to the survey question 6.4 A, most of the stakeholders (39 out of 47) expressed disagreement with the proposed approach of the academic study, while two agreed to some extent. All categories of stakeholders were mostly disagreeing.

296 When it comes to the comments received, the main themes addressed by the respondents regard:

- The methodologies and lack of transparency;
- The need for contextual considerations and realistic targets; and
- The computed inefficiencies levels considered too optimistic.

297 Stakeholders commented on the lack of transparency in the academic study's methodologies. Stakeholders called for greater transparency in data sources, model assumptions, and outlier testing procedures. They underscored the importance of robust analytical frameworks that account for relevant variables and ensure the validity of study outcomes.

298 Other stakeholders commented on the academic study's use of a weighted average to reconcile disparate results from different models. They argued that this approach oversimplifies complex data and may lead to misleading conclusions. Moreover, stakeholders questioned the validity of averaging inefficiency scores without considering underlying factors contributing to variations among ANSPs. They stressed the need to move beyond theoretical models and incorporate real-world data to develop meaningful cost-efficiency targets.

299 There is a consensus among stakeholders regarding the need for contextual consideration in setting cost-efficiency targets. Numerous stakeholders highlighted the heterogeneous nature of ANSPs, operating in diverse legal, fiscal, and economic environments. Stakeholders stressed the importance of tailoring targets to reflect ANSPs' unique circumstances and challenges, rather than adopting a one-size-fits-all approach. Some entities also mentioned that the impact of Russia's war of aggression against Ukraine and the related traffic changes are not sufficiently considered on individual ANSPs and their cost-efficiency performance.

300 Some stakeholders have commented on the lack of consistency and coherency of the results of the study. Others confirmed that the level of inefficiency estimated was similar to in-house studies (such as the A4E RP4 cost-efficiency study).

PRB response

301 The PRB recognises the value and significance of benchmarking as a regulatory and management tool and works to implement this approach with ANSPs. The goal is to compare the entities to a relative standard of excellence, to help drive performance improvements. All benchmarking methodologies considers the heterogeneity within the sector analysed (e.g. size, economical and operational environment), with model-based benchmarking reflecting variations and complexities accurately.

302 Benchmarking methods, and in particular Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA), are standard economic regulation analytical tools, but are also managerial tools to foster performance improvements through the identification and quantification of best documented practice. At the request of the PRB, these methods were applied by world leading academics, who defined the best fitting models and variables to carry out the analyses.

303 Both DEA and SFA are applied to regulate many industries (e.g. water, telecommunications, local transportation, airport charges, prospective payments to hospitals from the public sector, school and universities, railways, and motorways). They generate a measure of distance between the observed performance and an estimated optimal frontier, and this distance is taken as a reference for implementing an incentive regulation. The latter is based on an annual target of increased efficiency which is set for a given period. DEA and SFA are required because ANSPs are multi-output and multi-input organizations, and indicators (e.g. KPIs) are not considering the overall performance. Therefore, it is necessary a total factor indicator, which is indeed provided by the frontiers estimated with DEA and SFA. The two methods have important differences: DEA considers any distance from the frontier as inefficiency, while SFA takes the possible impact of random shocks into account. On the other hand, SFA requires a functional form (e.g. Cobb-Douglas, Translog, etc.), which is an ex-ante assumption. The two

methods, despite having the same goal, are different from a theoretical and methodological approach. Moreover, in the study the DEA method is applied to estimate a frontier where several outputs are generated by a single input (ANSPs' total costs) while SFA is implemented by estimating a costs function, with inputs' prices and outputs among the independent variables. The two methods provide different results because they address the problem of ANSPs efficiency from two different angles: DEA as the distance from a production function, where the dependent variables are ANSPs' multiple outputs and total costs are the only input; SFA as a distance from a costs function, where a change in output levels, or in input prices, gives rise to a shift in total costs.

304 While the issue of efficiency is addressed under different perspectives, both methods generate ANSPs' efficiency levels. Clearly, under the DEA approach there is no role played by input prices, and this mitigates the possible impacts of different institutional settings (e.g. national contracts, labour market regulation, financial market standards); on the other hand, how do ANSPs respond to input price variations is essential in estimating a costs frontier, since they have to choose the amount of inputs taking into account their relative prices (taken into consideration by the SFA model). Both measures are essential to obtain an estimate of ANSPs efficiency at the system level.

305 The PRB has included details of the methodology and evidence used by the Academic study, in Annex II of the PRB's advice on the target ranges report and in the relevant references. The Annexes provide extensive information and justification on the data and variables utilised, the methodologies with the pros and cons of each of them. The Annex offers the readers a thorough understanding of the rationale.

306 Regarding the input data considered, the main source is the data submitted by the Member States and Eurocontrol. Since 2002, Eurocontrol has consistently gathered data on ANSP services. Moreover, since 2012, Member States have been submitting cost data to the European Commission in accordance with the Single European Sky (SES) framework. An extensive data verification process has been carried out to ensure the reliability of the data from the period under review (from 2012 to 2019).

307 In relation to the use of a weighted average to reconcile the results from different models, the PRB understands that there is no one-size-fits-all solution. The approach has sought to create a balanced representation that considers the varying sizes and circumstances of the 29 ANSPs. The weighted average prevents distortions that could be caused by an equal weighting of all ANSPs, irrespective of their size, which would give a skewed depiction of the broader sector. Finally, as highlighted in the study, both the approaches applied have their advantages and disadvantages and the weighted average of the results allows to consider both models in the results.

308 The PRB does recognise the importance of a context-specific approach in setting cost-efficiency targets, considering each ANSP's unique circumstances and challenges. While using an overarching model which incorporates to the extent possible local situations, factors such as different legal, fiscal, and economic environments are also analysed during the assessment process. In this context, the cost-efficiency targets are including a 5% inefficiency recovery, one third of inefficiency identified by the study.

309 The PRB notes the stakeholders' views linked to the findings of the A4E RP4 cost-efficiency study, which largely support the results of the Academic study.

Question 6.4 B

310 To further support the delivery of the environmental and capacity performances, the PRB proposes to recover a proportion of the ANSPs' inefficiency in the costs, noting that the cost inefficiency not recovered should be used by the ANSPs to improve operational performances. To that end, the PRB proposes to recover between 5% to 10% (i.e. corresponding to 1/3 and 2/3 of the inefficiency) by the end of RP4. In Question 6.4, respondents were asked "*To what extent do you agree with the PRB objective on cost-efficiency for RP4?*".

311 46 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Five airlines, including three associations;
- 16 NSA and Member State representatives; and
- Two professional staff representative bodies.

312 Figure 21 shows the distribution of the replies. The majority of stakeholders (38) did not agree with the proposed approach of the academic study (24 fully disagreed and 14 disagreed to some extent), while two respondents agreed to some extent. When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed that the proposed approach provided in the PRB report supports the recovery of inefficiencies by the end of RP4. Most of the airlines (three) disagreed to some extent, while two airlines fully disagreed. One professional staff representative body agreed to some extent while one professional staff representative body fully disagreed.

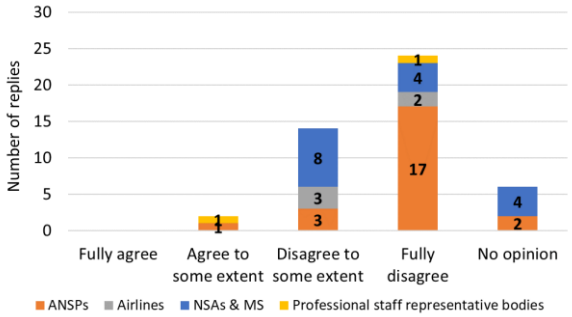

Figure 21 – Number of replies to question 6.4 B: "To what extent do you agree with proposed approach? (Recovery of inefficiencies)" (source: PRB elaboration).

313 Individual comments are listed in Table 21 (next page). 38 out of 47 respondents made a comment on the question, out of which:

- 22 ANSPs, including one association;
- Four airlines, including two associations;
- 10 NSA and Member State representatives; and
- Two professional staff representative bodies.

6.4 To what extent do you agree with the proposed approach? (Recovery of inefficiencies)	
Stakeholder	Comment
Airline (Lufthansa Group)	Given the quite moderate traffic outlook this should also mean that cost for service providers should more or less stay flat, even if no efficiency gains would be achieved. Given the poor service quality delivered, we also want to highlight the significant regulative returns ANSPs have achieved during RP2, which was on average 9% and even for the first 3 years of RP3 it still reached a value of 7%, which is in no way comparable with ANSPs' customers. The LH Group's EBIT margin during RP2 was on average 7% and during the first three years of RP3 -21%. At the same time, we see the worst performing years in the field of delays during RP2, '22 and YTD'23. This again shows the limited relation between financial and delay performance and underlines the need for the highest ambition level possible. Already today we see that a significant amount of countries had lower actual nominal cost in 2022 than determined meaning that they were able to compensate the highest CPI in Euro history (see 7). Therefore, it should be noted that the suggested "targets upper bound" would automatically lead to a nominal price increase as expected CPI levels would overcompensate for the real cost decrease. As long as service quality is not coming near the targeted values, it should be the clear goal to come to price reductions, as in any other business, where quality problems can only be compensated with lower prices. We support the statements made by A4E and IATA fully.
Airline (IATA)	The target should be to remove inefficiencies. RP3 is proof that allowed cost-inefficiency is not necessarily used to improve operational performance. Additionally, IATA invites the PRB to consider that regulatory results in RP2 (2.9 B€2022) and RP3 (1.3B €2022 only achieved in 2021 and 2022) should have also served to remove the operational inefficiencies. We should not be perpetuating either cost-inefficiencies or operational ones. Five States asked for deviation in cost-efficiency targets amounting to 70M€. All five underspent in 2022 their determined costs and only one achieved the target in 2022.
Airline (Easyjet)	Inefficiencies of ANSPs should be recovered in full as they are in complete control of ANSP. We hardly find any evidence that in the recent past cost inefficiencies have been used by ANSPs to improve operational performance. The regulatory objective should be the elimination of inefficiencies and the limitation of excessive regulatory returns while enhancing operational performance. Given the poor service quality delivered, we also want to highlight the significant regulative returns ANSPs have achieved during RP2, which was on average 9% and even for the first 3 years of RP3 it still reached a value of 7%, which is in no way comparable with ANSPs' customers. This again shows the limited relation between financial and delay performance and underlines the need for the highest ambition level possible.
Airline (A4E)	Inefficiencies of ANSPs should be recovered in full as they are in complete control of ANSP. We hardly find any evidence that in the recent past cost inefficiencies have been used by ANSPs to improve operational performance. The regulatory objective should be the elimination of inefficiencies and the limitation of excessive regulatory returns while enhancing operational performance. Given the poor service quality delivered, we also want to highlight the significant regulative returns ANSPs have achieved during RP2, which was on average 9% and even for the first 3 years of RP3 it still reached a value of 7%, which is in no way comparable with ANSPs' customers. This again shows the limited relation between financial and delay performance and underlines the need for the highest ambition level possible.
ANSP (Latvijas gaisa satiksme)	Inefficiencies should be eliminated in full. However, it is hard to judge (subjective) what is an inefficiency and what is not.
ANSP (FABEC)	As the determination of this proposal is mainly based on the results of the academic study, which for the reasons described in the previous section, cannot be supported by us, the proposal is not supported by FABEC ANSPs.
ANSP (Polish Air Navigation Services Agency)	As stressed above, the academic study should be disregarded for the purpose of target setting. While CEF targets should be set at level supporting building additional capacity and ensuring safety, inefficiency calculated based on unclear analyses with possible flawed outcome should not be the source of financing those additional resources. RP4 target setting in CEF should be based on bottom up approach, with detailed analysis of States' submissions and underlying assumptions on resources required to support performance in the three other KPAs. Comparing the proposed target ranges with MSs' submissions indicates significant discrepancies – the proposed targets are too ambitious and will negatively impact provision of resources needed

	to support other KPAs. It is obvious that to ensure better CAP performance additional investments and ATCOs as well as technical support are needed – what leads to higher costs of staff, depreciation and cost of capital.
ANSP (ROMATSA)	Please see our answer above to question 6.4. The analysis is completely theoretical, without distinguishing on the specificities of ANSPs and the factors affecting their performance result. Also, the study does not take into account that a significant amount of ANSPs costs correspond to ATCOs staff with very specific skills and long training, unlike what happens in other regulated sectors. Thus the margin on "inefficiency reduction costs" is extremely low, without jeopardizing all the other KPAs.
ANSP (Port Lotniczy Bydgoszcz S.A.)	In our opinion, the academic study results in the identification of the fact that the average value of ANSPs' cost-inefficiency in relation to the most effective ANSP is at the level of ca. 16%. However, we do not agree with the way of transmission of that conclusion into the EU-wide targets that forces all ANSPs, despite of the fact whether they are already highly cost-efficient or not, to achieve the further levels of efficiency at relatively the same level. This approach benefits the inefficient ANSPs which can achieve the targets more easily and harms the already efficient ANSPs that will struggle to achieve even higher levels in this KPA.
ANSP (NAV Portugal E.P.E)	Following the concerns raised in the previous question, NAV Portugal cannot support the results of the academic study which advocates a weighted average cost base inefficiency of between 11% and 21%, with a Union-wide average inefficiency of 16%. If the PRB proposes to recover between 5% and 10% of global cost inefficiency, the "starting point" is not the same: MS submissions at the upper bound and Evidence 2 at the lower bound. In this case, the proposed lower bound costs for 2029 would be 15.5% lower than those submitted by the MS, a reduction that absorbs almost all of the cost inefficiencies identified in the academic study. In addition, by considering inefficiency recovery at the Union level, the PRB places all ANSPs at the same level, requiring additional savings from both the least efficient and those at the top of the pyramid.
ANSP (LVNL)	The PRB assumption that ANSPs did not implement responsive cost reduction measures to the dramatic decrease in traffic due to the COVID-19 pandemic is not applicable. LVNL consulted multiple stakeholders including airlines and government how to respond to the dramatic traffic decrease and agreed on a set of financial and operational measures for the situation in the Netherlands. LVNL does not support the approach, the conclusions and the use of the academic study for target setting.
ANSP (ENAV)	The proposed approach seems to be penalising for those ANSPs that so far have performed in order to achieve operational targets and it is introducing an additional discretional element that goes far beyond the consideration of the local circumstances. Not counting all the perplexities reflected in our previous answers.
ANSP (ENAIRE)	Please refer to the document "ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges". Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data. In this sense, we propose a more achievable target, accepting the inefficiency gain proposed by the PRB, i. e. -5% and -10% reduction on 2029 ANSPs costs, but taking into account the following inputs: - 2024 starting point, i.e., 6,959M€2022 cost base and 53.77€2022 unit cost – 2029 target ranges: - upper bound ~ 53.58€2022 unit cost (-0.07% CAGR) – lower bound ~ 50.89€2022 (-1.09% CAGR) In addition, we have found that the PRB CEF proposal has a serious mistake, since different cost bases are used for upper and lower bound (-7% lower cost base) what translates in a bigger effort to obtain an annual decrease on unit cost of -3.1% CAGR, of around 17% reduction on ANSPs costs.
ANSP (DSNA)	We don't understand how this would be operate because the CEF is already really restrictive and implies with the CRS and the TRS a recovering of the cost for the users. Moreover, a penalty on the environmental and capacity performances has to be linked with some achievable targets, otherwise this won't be an incentive system, only a restrictive one which ANSP won't be able to achieve, a little bit like the capacity targets that are proposed today, and seems really unrealistic.
ANSP (BULATSA)	Such approach is completely unrealistic.
ANSP (CANSO)	Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data. Please see our answer

	above to question 6.4. and our document 'CANSO Comments on the PRB's proposal on RP4 cost-efficiency target ranges'.
ANSP (Austro Control)	Averaging the different proposed recovery of expected inefficiencies, which includes a wide range of different countries, would be in inappropriate approach for the range of countries covered by the target. See our comment regarding the academic study;
ANSP (ANS CR)	Once again, the ANSPs operates in very heterogenous environment, be it traffic levels and developments, the overall economic situation in a given Member State or local conditions. The One size fits all approach pushed by the PRB represents a misunderstanding of local circumstances (as in the case of the academic study) and interdependencies between KPAs.
ANSP (LFV)	Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data.
ANSP (AVINOR)	No assumptions or evidence is given to why the assumption of the cost efficiency target from the measured inefficiency to a reduced target is the right one and secures the appropriate cost-efficiency target which supports safety and capacity targets (6.1.). The targets of cost efficiency and the CP1 regulation is in conflict.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: 1. It might be that there are inefficiencies. On average. Maybe even up to 16% that are calculated by this sophisticated statistical study. But again it then should be recovered from the inefficient States and not from all the States on a "one-size-fits-all" model. Especially from the States that have already delivered and outperformed in the past RP's, that have put efforts to optimize their cost, invested and prepared for long-term-future capacity provisions, but, for example, now are faced with the traffic distortions due to war in Ukraine and various sanctions. Artificial and unplanned traffic-loss that turned into gain on the other part of Europe, but other region and States gained it and this puts States into a different challenges, but providing additional capacity is marginally easier task than maintain capacity that might return overnight and maintain other services (CNS, Terminal), safety and quality and comply with same target requirements (fixed-costs absolutely dominates cost-structure in any infrastructure industry). 2. Why not setting final targets in 2 or even 3 differentiated segments and bounds? For differently affected countries applying lower one (traffic-loss due to war AND performing in the past and now) and higher one (traffic-gain due to war AND non-performing in the past and now). Regulation does not forbid to have a supporting material or reference values that help set and build-up average Union-wide target. Or differentiated targets that in the end lead to Union-wide target. 3. The same academic study should/could've shown which States are the "golden-standard" or "role-model examples" for benchmarking others' inefficiency. Which are outperforming and which are underperforming. If "A" has been said, it should be also then said "B" and entire heterogeneous picture revealed – where that potential of 1 billion savings exactly might be found.
ANSP (AIRNAV)	AirNav Ireland requests information from the PRB in relation to how its intended approach below can be justified in the context of Ireland's track record. To support the delivery of the environmental and capacity performances, the PRB proposes to recover a proportion of the ANSPs' inefficiency in the costs.
ANSP (DFS)	As the determination of this proposal is mainly based on the results of the academic study, which for the reasons described in the previous question, cannot be supported by us, the proposal is not supported by DFS.
ANSP (skeyes)	Besides the questionable approach and calculations on the economic efficiency which falls short on a series of assumptions (see CANSO remarks, PPP, ignoring local circumstances…), this proposal adds another layer of subjectivity by fixing the portion of inefficiency to recover without demonstrating that this portion would suffice to finance the developments in environment and capacity. Setting a constraint on the cost efficiency can only impede or limit the achievements of the previous said higher priorities which question the consistency and the sincerity of the global approach. Should the willingness on the environmental and capacity KPA be real, then cost efficiency should be viewed as the adjusting variable in the equation and not set a limit on.
ANSP (Skyguide)	Apart from the fact that the result of the academic study is questionable when confronted with the operational reality, the PRB recommendation is too ambitious, as it would mean that

	all ANSPs would have to reach at least the current rate of the best ANSPs in a short period of time.
ANSP (NAVIAIR)	The Danish ANSP is concerned that the benchmark method – while academically sound as presented by PRB and suitable for the best-practice inspiration – is not a fit for purpose tool in the target setting for the union-wide targets where the process of determining an overarching EU-level of cost-development is wanted. Considering the Danish ANSP's need for increased operational robustness and an increase in ATC staffing levels, the Danish ANSP finds it unrealistic and ill-suited to reduce costs in the RP4 period. As experienced in 2023 inadequate levels of ATC staffing negatively impacted the Danish ANSP's performance on environmental and capacity objectives. To ensure ambitious performance on safety, environmental, and capacity objectives, the Danish ANSP must increase ATC staffing which means that costs will have to increase.
Member State (Germany)	Regarding the robustness of the results some question remain open, especially regarding the consistency with the assumptions used to determine the target ranges for safety, environment and capacity; the general suitability of the models (DEA and SFA) used given the « product » and the heterogeneity of ANSPs and their differences in legal, economic, social and operational environments; the reliability of the basis year for the analysis; the degree of simplification permitted and validation needed in order to translate the statistical results back into reality.
Member State (Netherlands)	The principle to use part of cost efficiency improvement to enable improvements in environment and cost is supported. However, the assumptions on how large the cost inefficacy is, is not, as stated above.
NSA (Latvia 2)	We believe that academically calculated equivalent cost inefficiency in all countries, without taking into account current local circumstances and traffic volumes, is not an objective indicator for defining proportionate and achievable targets.
NSA (Germany)	In Annex 1 No 206 PRB proposes to recover a proportionate share of inefficiencies in the ANSP cost base. PRB therefore considers to the average of 16% of inefficiencies. How this value is identified stays unclear to the reader. PRB then explains that it proposes to recover 5%-10%. Also, how these proposed values were derived is not further described. The way it is written here, it rather seems like a guess than like an academic work. How did PRB get to the assumption that the remaining 11% respectively 6% are sufficient to improve operational performances?
NSA (Croatia 1)	The target to reduce cost base inefficiency is too ambitious, as it would mean that all ANSPs would have to reach at least the current rate of the best ANSPs (11%) in short period of time.
NSA (Cyprus)	The way this will be done is not clear. Further scrutiny is needed.
NSA (France)	This PRB proposal does not adequately address the interdependency between areas (through the so-called transformation) and would imply that the alleged cost inefficiency would be solved from RP4 day 1. Again, the way local circumstances might have been taken into account is not made available despite being essential to better assess the proposal and. How would this be further refined at MS level for example Versus the best performers Member States and/or comparator group.
NSA (Poland)	Since there are serious doubts about the validity of the results obtained in the academic research one cannot agree that they constitute a solid basis for further application in the CEF target setting process. The inefficiencies in the study were calculated with data RP2. The assumption that there were no efficiency improvements over RP3 is not grounded in a valid way. Considering the nature of ANSP industry it is very likely that most of them operate with costs higher than economically efficient. However, prior to setting a roadmap for efficiency improvement an estimation of the inefficiencies should be done in such a way that both methodology and results do not raise serious doubts. Moreover, there should be clear evidence that fast reduction of cost inefficiency will not lead to missing targets in other KPAs.
NSA (Italy)	The proposed approach seems to be penalising for those ANSPs that so far have performed in order to achieve operational targets and it is introducing an additional discretional element that goes far beyond the consideration of the local circumstances. Not counting all the perplexities reflected in our previous answers.
NSA (Austria)	Recovering 2/3 of the alleged inefficiency seems overly ambitious in a 5 years period, even in a best case scenario.

Professional staff representative body (IFATCA)	I believe that the inefficiency, and the recovery of inefficiencies to improve the operational performance are too optimistic. Of course, some inefficiencies should be recovered, but I don't think it's possible to recover up to 10%
Professional staff representative body (ATCEUC)	As the methods to draw conclusions regarding efficiencies level is not supported, consequently it is not possible to have a positive opinion on the results. As stated above, ATCEUC agrees on appropriate funding levels to be able to recruit sufficient number of ATCOs, to plan proper investment. Without additional financial effort the situation cannot evolve positively. Delays will increase, and flight efficiency will not improve. ANSPs need a firm reassurance that their financial positions will not continue to weaken through RP4 so they can embark on more ambitious projects to improve training, staffing and operational systems to deliver the environmental and capacity performance needed.

Table 21 – Comments received on Question 6.4.

PRB analysis

314 In response to survey question 6.4 B, most of the stakeholders (38 out of 47) expressed disagreement with the proposed approach of the academic study, while two agreed to some extent. All categories of stakeholders were mostly disagreeing.

315 When it comes to the comments received, the main themes addressed by the respondents regard:

- The single rate for the recovery of inefficiencies;
- The ambition of the objective; and
- The assumption that reducing inefficiencies can improve performance in other KPAs.

316 Stakeholders commented on the flat recovery of inefficiency, arguing that this one-size-fits-all approach does not fit the differences among ANSPs and does not consider local circumstances. Stakeholders commented that heterogeneity among ANSPs has not been considered in the academic study, and that this approach would penalise the most efficient ANSPs. Stakeholders also disputed the idea that all ANSPs can match the efficiency level of the top performers in a short period of time.

317 Some stakeholders argued that inefficiencies should be fully recovered and that cost inefficiencies do not promote improved operational performance. Other stakeholders, instead, deemed the PRB's proposal to recover between 5% and 10% as too ambitious.

318 Others highlighted that the PRB objective to recover part of the inefficiency contradicts PRB's priority of enhanced environmental and capacity performance, as setting an ambitious target on cost-efficiency could jeopardise investment on other KPAs.

PRB response

319 The academic study (Annex II of the PRB advice to the target ranges for RP3) highlights that, due to large variations in the performance of ANSPs, a one-size-fits-all approach is not best suited. However, as the Regulation foresees a Union-wide target for cost-efficiency and not differentiated local targets, a uniform efficiency recovery is applied. Furthermore, the PRB highlights that in the proposed targets 5% of inefficiency is requested to be recovered by the end of RP4, rather than 16% as identified by the study. Therefore, the recovery is gradual, limited to only a part of the inefficiency identified, and not set against the best in class. The PRB considers its proposal to recover a 5% inefficiency realistic and sufficiently challenging for ANSPs. In addition, the recovery of inefficiencies spreads across the entire reference period, thus enabling the ANSPs to gradually put in place the necessary measures to improve their efficiency level over RP4.

320 The remaining unrecovered inefficiency, amounting to 843M€$_{2022}$ only for 2029, should enable Member States and ANSPs to improve their operational performance and to meet ambitious environmental and capacity targets. This approach is coherent with the PRB objective to ensure the delivery of the safety, environment, and capacity performance improvements at the most efficient cost. The resources defined by the cost-efficiency target as currently defined are considered sufficient to enable the achievement of environmental and capacity targets. The PRB still acknowledges that additional means may be needed by some Member States to improve operational performance. The PRB considers that these additional costs could be allowed on a case-by-case basis, even though they are not reflected in the target setting (i.e. deviation criteria).

Question 6.5

321 Considering the potential bias of the estimations, the PRB proposes as 2024 baseline the average between four estimated values. The resulting 2024 unit cost baseline equals 55.61€$_{2022}$. In advising the Commission on the cost-efficiency targets for RP4, the PRB will revise the baseline values in light of the new traffic forecast, the new inflation forecast, the latest available information, and the outcomes of the stakeholder consultation. In Question 6.5, respondents were asked "*To what extent do you agree with the proposed approach?*".

322 43 out of 47 respondents replied to the question, out of which:

- 23 ANSPs, including one association;
- Four airlines, including two associations;
- 14 NSA and Member State representatives; and
- Two professional staff representative bodies.

323 Figure 21 shows the distribution of the replies. The majority of stakeholders (29) did not agree with the proposed approach for the baseline value of 2024 (12 fully disagreed and 17 disagreed to some extent), while one respondent fully agreed, and six respondents agreed to some extent. When analysing the responses by stakeholder category, the majority of ANSPs, NSA and Member State representatives disagreed that the proposed approach provided in the PRB report supports the 2024 baseline for RP4. The majority of the airlines (four) disagreed to some extent. One professional staff representative body fully agreed.

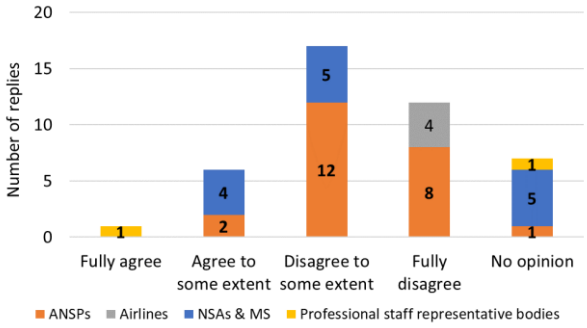

Figure 21 - Number of replies to question 6.5: "To what extent do you agree with proposed approach? (Baseline 2024)" (source: PRB elaboration).

324 Individual comments are listed in Table 22 (next page). 37 out of 47 respondents made a comment on the question, out of which:

- 22 ANSPs, including one association;
- Four airlines, including two associations;
- 10 NSA and Member State representatives; and
- One professional staff representative body.

6.5 To what extent do you agree that the methodology and evidence provided in the PRB report supports the proposed target ranges in the key performance area of cost-efficiency? (Baseline 2024)	
Stakeholder	Comment
Airline (Lufthansa Group)	LH Group sees significant increases in cost estimations for the later two years of RP3 which are not corresponding to either determined cost of the performance plans nor the actual cost development presented until 2022. Therefore, this is a significant hint for regulative gaming by the member states. We are not sure if the problem of regulative gaming is adequately addressed by proposed approach and member states have used the initial cost estimations to start the base-line discussion from the highest possible starting point. Already today we see that a significant amount of countries had lower actual nominal cost in 2022 than determined meaning that they were able to compensate the highest CPI increase in the Euro history. Therefore, LH Group suggest that the baseline should be also revisited against the actual numbers for 2023 – irrespective of the then adopted KPI performance path – and evaluate the baseline also by deviation between the initial cost estimation and actual.
Airline (IATA)	Please clarify how the maximum of evidence 1 (6,959) and evidence 2 (7,206; 7,173) can be 7,452. Airlines disagree to calculate an average counting the maximum of the bottom-up approach and the models 19 from a set of cost-inefficient data twice, pulling the result up, for no clear reason. Maximum model scores are recognized in Annex II as leading to the lowest possible cost reductions. Inefficiencies in RP3 should also be considered, starting by non-ambitious targets (cost reductions (-3%; -6%; -4%; -3%) despite service units being forecasted as (-56%; -31%; -29%; -7%) with respect to 2019 levels. Decision EU 2021/891 indicated that forward-looking costs in RP2 had been overestimated by an average of 8%. RP3 data used for target setting also seem over-estimated, (see PRB monitoring reports) by 2.3% in 2021 and 3,9% in 2022. This trend in actual costs versus determined also needs to be considered, providing a top-down correction on proven overinflated estimates.
Airline (Easyjet)	There is another significant increase in the estimations for RP4 although the remaining years of RP3 are not corresponding to either determined cost of the performance plans nor the actual cost developments in 2022. Also, no downward correction is applied considering the consistent overestimation of costs during RP2 and RP3 as mentioned in 6.3. Similarly, inefficiencies from RP3 shall be considered: PRB admits that the revised RP3 targets have been not ambitious and have been largely met. We also disagree with the use of maximum estimates to calculate the average cost levels. Finally, according to A4E study the efficient costs for 2024 are 41.46€. Based on the same study the inefficient costs per SU are 49.27€ in 2024. The suggested baseline should be revisited against actual numbers of 2023 including the deviation between the initial cost estimation and the actual values.
Airline (A4E)	There is another significant increase in the estimations for RP4 although the remaining years of RP3 are not corresponding to either determined cost of the performance plans nor the actual cost developments in 2022. Also, no downward correction is applied considering the consistent overestimation of costs during RP2 and RP3 as mentioned in 6.3. Similarly, inefficiencies from RP3 shall be considered: PRB admits that the revised RP3 targets have been not ambitious and have been largely met. We also disagree with the use of maximum estimates to calculate the average cost levels. Finally, according to A4E study the efficient costs for 2024 are 41.46€. Based on the same study the inefficient costs per SU are 49.27€ in 2024. The suggested baseline should be revisited against actual numbers of 2023 including the deviation between the initial cost estimation and the actual values.
ANSP (Latvijas gaisa satiksme)	We would like if a more sophisticated baseline value approach to be adapted, including baselines from 2014, 2019.
ANSP (FABEC)	By calculating a baseline value above the costs submitted by members states, the PRB creates an artificial inflation of the baseline value: it has an impact of -0,6% on the advised targets range. In addition, the models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units, or the IFR movements, for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. It is unclear why the evolution of costs during the years 2012 to 2019 directly relate to the evolution of costs during the years 2024 to 2029? Why was no inflation added to the model? The correlation of the model is significantly too low (19%), meaning they cannot be used to forecast accurately (higher than 80% is the norm).

	Furthermore, the assumptions of the academic study, that ANSPs operate in the same economic and legal environment, cannot be supported.
ANSP (Polish Air Navigation Services Agency)	The level of costs underlying RP4 BV should be based on States' latest forecasts – if some of them are considered underestimated, the PRB should seek to clarify the issue with those States. The PRB proposal seems to not fully reflect definition of BV calculation provided in Regulation 2019/317 and is not transparently presented – we expect full calculation of BV to be made available for the final PRB target proposal. Further clarification should be also provided on the proposed long-term trend (RP3+RP4) and related BV calculation. Due regard must be given to impact of the war in Ukraine in BV calculations of DUC trend proposal for States negatively impacted in terms of traffic levels.
ANSP (ROMATSA)	We call on the PRB to take into consideration all of our answers to Section 6.
ANSP (Port Lotniczy Bydgoszcz S.A.)	As we have stated in the previous sections, we believe that the most important issue is how the proposed methodology will be transmitted to the evaluation of the local targets. We cannot find the precise information on this topic in this Report.
ANSP (NAV Portugal E.P.E)	Member States' submissions should be the main source for setting the 2024 baseline. In paragraph 210 of its report, the PRB states that "Member States' submissions for 2024 may have been underestimated for some, while for others the projected costs are more accurate and reflect the latest available data". This could be seen as a subjective statement: in cases where the PRB has concerns about the adequacy of the data, coordination with the relevant MS would be beneficial. If the initial values provided by the MS are kept, the baseline unit cost should be €53.77 or €54.08 (note that there is a discrepancy between the 2024 unit cost in Tables 25 and 26 and in Table 31) and not €55.61 as proposed by the PRB.
ANSP (LVNL)	We would like the PRB to take all our answers on cost efficiency in this survey into consideration setting the baseline values and cost efficiency targets.
ANSP (ENAV)	We call on the EC/PRB to take into consideration all of our answers to Section 6.
ANSP (DSNA)	The Regulation specifies that the baseline value "shall be estimated by using the actual costs available and adjusted to take into account the latest available cost estimates, traffic variations, and their relation to cost". The baseline for 2024 has been determined by the PRB as a median value of the costs from the submission of the member states and the cost from 3 different models, with the 3 values calculated by the PRB standing higher than the cost submitted by the members states. It is highly intriguing that the PRB chooses a different methodology to determine the baseline value as all the data necessary were provided be the members states and it has an impact of +0,6% on the advised target range. The models constructed to estimate the costs for 2024 have a R^2 values between 19% and 4%, meaning that they explain only between 19% and 4% of the evolution of the costs. These models should have been discarded from the start as they are clearly not suitable for the exercise.
ANSP (BULATSA)	In our opinion the only realistic baseline value approach, eliminating any speculations, is using the determined costs and determined traffic forecast for 2024. All other options are misleading and artificial with huge speculative possibilities.
ANSP (CANSO)	We call on the PRB to take into consideration all of our answers to Section 6. The baseline value should be based on States' forecasts and if any of those are considered underestimated, PRB should seek to clarify the issue with the State concerned. Baseline value calculation methodology should be disclosed transparently.
ANSP (Austro Control)	The PRB should take into account only Member States submission.
ANSP (ANS CR)	The approach described above may make sense for setting Union-wide targets but cannot, given the remarks above, be applied to the individual MS level.
ANSP (LFV)	The baseline value should be based on States' forecasts and if any of those are considered underestimated, PRB should seek to clarify the issue with the State concerned. Baseline value calculation methodology should be disclosed transparently.
ANSP (AVINOR)	The chosen approach makes the analyses on a national level difficult because the methodology is not transparently disclosed. The basis of the decision not to use the reported data is not transparent and documented.
ANSP	Lithuanian ANSP's view:

(AB Oro Navigacija)	Average of averages of several estimates usually ends up as a worse proxy than just extrapolated actual data or initial estimates based on actual data. 2024 baseline should be taken as costs that were provided by Member-States. From the initial costs data submissions. Verified and cross-checked by data in current approved Performance Plans, since they are not really old ones. Potentially verified and approved by NSAs and consulted with AU's. On a case-by-case (State level) basis. And then aggregating these all States to the total and Union-wide average indicator – bottom-to-top approach. Or even new estimates could be provided by States as most of entities currently are finalizing their next year's (which is the same base year) budgets. The same approach and methodology should be applied to Eurocontrol's and other entities provided costs, not differentiating methodology as it creates even more bias and unequal situation of contribution towards united goals. Or alternatively then baseline and targets should be set and measured only for ANSP's and not overall State level.
ANSP (AIRNAV)	We call on the PRB to take into consideration all of our answers to Section 6. The BV should be based on States' forecasts and if any of those are considered underestimated, PRB should seek to clarify the issue with the State concerned. BV calculation methodology should be disclosed transparently.
ANSP (DFS)	We call on the PRB to take into consideration all of our answers to Section 6. The baseline value should be based on States' forecasts and if any of those are considered underestimated, PRB should seek to clarify the issue with the State concerned. The calculation methodology for the 2024 Baseline value should be disclosed transparently for better understanding.
ANSP (skeyes)	By calculating a baseline value above the costs submitted by members states, the PRB creates an artificial inflation of the baseline value: it has an impact of -0,6% on the advised targets range. In addition, the models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units, or the IFR movements, for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. It is unclear why the evolution of costs during the years 2012 to 2019 directly relate to the evolution of costs during the years 2024 to 2029. Why was no inflation added to the model? The correlation of the model is significantly too low (19%), meaning they cannot be used to forecast accurately (higher than 80% is the norm). Furthermore, the assumptions of the academic study, that ANSPs operate in the same economic and legal environment, cannot be supported.
ANSP (ENAIRE)	Please refer to the document "ENAIRE Comments on the PRB's proposal on RP4 cost-efficiency target ranges". We call on the PRB to take into consideration all of our answers to Section 6.
ANSP (Skyguide)	The calculation of the baseline contains two issues: 1. The baseline is an average of State's submission and an extrapolation based on traffic evolution. It is acknowledged that cost and traffic do not have a linear relationship. Consequently, the inclusion of evidence 2 in the calculation of the baseline introduces a bias in the cost estimate. State's submission is based on operational reality and should therefore be considered as the baseline. 2. The reduction targets in percentage are calculated by difference between the baseline value and the target in 2029. The higher the baseline, the higher the ambition in percentage. Applying these percentages to a lower baseline (the baseline value derived from State's submission is indeed lower than the one chosen by the PRB) generates a bias and an undue pressure on cost. This method is not consistent with the ambition to invest in modern technologies and architecture and to deliver enough capacity.
ANSP (NAVIAIR)	The Danish ANSP finds it paramount that the Danish ANSP's baseline for 2024 is equal to its latest expected costs in 2024, and ultimately the corporate approved budget for 2024. The Danish ANSP therefore urges the PRB to take into account the definition from the regulation (317/2019, art. 9.4) of the baseline, i.e., latest available cost estimates, traffic variations and their relation to costs.
Member State (Germany)	In order to facilitate the assessment of the local targets proposed in the performance plans the Assumptions used to calculate targets and the baseline value need to be reliable, valid and objective. This should – in exceptional cases – not prevent local variations if assessed reasonable by the NSA in charge.
Member State (Netherlands)	The cost target process has several weaknesses and these should be addressed before the proposed target is set.

NSA (Latvia 2)	We would like to understand how the different situation in war affected countries will be taken into account (not the proportional average).
NSA (Germany)	We fully agree on the point that latest available information should be considered. And we also hope and urgently request the PRB to consider the outcomes of the stakeholder involvements.
NSA (Cyprus)	Further scrutiny is needed.
NSA (France)	As acknowledged during the RP4 stakeholder consultation event held on November 8th, PRB did not take into account the actual costs available for the preceding reference period (i.e. RP3) as requested by the regulation. In addition, the PRB linear regression models provides three unit cost values; all of them higher than the one resulting from costs submitted as RP4 initial data by the Member States. This creates an artificial inflation on the baseline value, having a detrimental impact (-0,6%) on the advised target ranges.
NSA (Poland)	As the baseline value is one of the key parameters that will impact meeting or missing CEF target in RP4 it is crucial to set using the most unbiased approach possible. The supposed underestimation of costs by Member States should be clarified on a case-by-case basis and the approach to setting the 2024 baseline value should fully reflect the provisions of Regulation 2019/317.
NSA (Finland)	The traffic forecasts in Finland differ significantly from the rest of Europe and the traffic situation and evolution is not comparable to most of the European countries. As expressed in previous comments, it's difficult to comment this from the perspective of 'low traffic level region'. The Finnish ANSP has made numerous cost saving measures in RP3 but even those are inadequate in view of traffic levels.
NSA (Switzerland)	By calculating a baseline value above the costs submitted by States, the PRB creates an artificial inflation of the baseline value, which has an impact of -0,6% on the advised targets ranges. In addition, the models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units or the IFR movements for 2012 to 2019. The PRB admits that the complexity was not taken into account to explain the evolution of costs. It is unclear why the evolution of costs during the years 2012 to 2019 directly relate to the evolution of costs during the years 2024 to 2029.
NSA (Italy)	See answers to Section 6.
Professional staff representative body (IFATCA)	I'm not sure though, that inputs from the stakeholder consultation will be taken into consideration. Inputs appeared to be met with counterarguments instead of taken in and listened to […]

Table 22 – Comments received on Question 6.5.

PRB analysis

325 In response to the survey question 6.5, most of the stakeholders (29 out of 47) expressed disagreement with the proposed approach for the baseline value of 2024, while seven agreed. All categories of stakeholders were mostly disagreeing.

326 The main themes addressed by the respondents' comments regard:

- The methodology and evidence provided for the calculation of the forecast and baseline;
- The overestimation of the 2024 baseline costs compared to the Member States' submissions; and
- The methodology for the assessment of local targets.

327 Stakeholders noted that the proposed 2024 baseline was above the value resulting from Member States' submissions and suggested relying exclusively on the forecasts provided by Member States for the computation of the baseline. In addition, stakeholders suggested to address concerns about costs being underestimated with the related Member States. Airline representatives commented on the increased cost estimations for RP4 and the discrepancy between determined and actual values.

328 Stakeholders commented on the assessment of local targets and the methodology for their evaluation. Stakeholders also suggested that the impact of Russia's war of aggression against Ukraine should be included in the calculation of the baseline.

PRB response

329 Following comments from stakeholders, the PRB has revised the methodology for the calculation of the baseline. The revised cost baseline is calculated taking into account the Member States' submissions and complemented by the PRB cost forecast (IFR based). The PRB considers that this revised approach, by using the 2022 Union-wide actual cost, fully reflects the "*actual costs available for the preceding reference period*", the "*latest available cost estimates*" and the "*traffic variations and their relation to costs*", as provided by Article 9 (4) of the Regulation. The PRB also considers that the revised methodology addresses comments from stakeholders to consider Member States cost forecasts in the calculation of the baseline.

330 The revised cost baseline is calculated based on the Member States' submissions and the PRB cost forecast for 2024. As described in Annex I of the PRB advise on the target ranges for RP4 (paragraph 210), the Union-wide aggregation of the Member States' submissions for 2024 may be biased. Some of the Member States' submissions potentially underestimated costs, given that six Member States did not update the 2024 nominal costs from the RP4 performance plans while updated upwards both the service units forecast and the inflation index. Therefore, in order to correct for the potential underestimation, for the six Member States which did not update the 2024 costs the PRB applied its cost forecast. The resulting revised costs baseline equals 7,100M€$_{2022}$. The 2024 determined unit cost baseline is calculated by applying the latest available STATFOR base scenario of February 2024 (i.e. 55.07€$_{2022}$). The resulting baseline in terms of determined unit costs is -1% lower than then one proposed by the PRB in the target ranges report.

331 Regarding the impact of Russia's war of aggression against Ukraine, the PRB acknowledges that as it is not possible to predict when hostilities will cease, targets have been set based on the current status. The PRB acknowledges the concerns regarding the perceived high level of ambition of the cost-efficiency targets expressed by entities particularly affected by Russia's war of aggression against Ukraine (due to a drop in traffic and slow recovery). In this regard, the comparator groups of air navigation service providers proposed by the PRB takes into account relevant local circumstances, as well as the impact of Russia's war of aggression against Ukraine (Annex IV of this report).

2.6 General comments

332 This section provides the information on additional feedbacks stemming from Question 7 "*Do you have any further views you would like to provide on the development of the targets for RP4?*".

333 Comments are listed in Table 23 (next page). In total, the PRB received 32 general comments out of 47 respondents at the end of the survey, out of which:

- 18 ANSPs, including one association;
- One airline, being an association;
- 12 NSA and Member State representatives; and
- One professional staff representative body.

7 Do you have any further views you would like to provide on the development of the targets for RP4?	
Stakeholder	Comment
Airline (IATA)	While SES II+ discussions continue, RP3 has proven again that we are far from defragmentation. RP4 shows limited opportunity to change Regulation 2019/317, while relevant provisions seem open to significant and impactful differing interpretation by NSAs, and this is the only monopolistic industry without an EU independent economic regulator. If Regulation is not amended, clear guidance from EC is required on cost exempt of risk sharing adjustments (inflation on unmaterialized elements, double counting, deviations in controllable investment costs, etc) that are leading to unbelievably high regulatory results. The economic regulation must protect the customer from high prices and over-charging. Price capping and EU targets in Arrival ATFM delays and Terminal Cost efficiency should be introduced by the regulation. RP4 should be more gate to gate regulated, or, alternatively, terminal services more liberalized. The proposed RP4 targets lack ambition and are not supported.
ANSP (FABEC)	The proposed targets are regarded by FABEC experts as unachievable and unjustified; their interdependence is regarded as unbalanced. The SAF targets are impossible to evaluate without the revised questionnaire. To summarize, delay alone does not represent the KPA capacity sufficiently, additionally monitoring the achieved throughput would comprehensively represent KPA Capacity. KEA is an inadequate metric to measure ANSP performance, particularly on national level. It is unclear what behavioural change the capacity incentive scheme should drive, considering the full utilization of academies, the maxed-out OJT training, the number of extra hrs. worked and all other measures in place at struggling ANSPs. Furthermore, in the absence of an appropriate indicator, what change should the environment incentive scheme drive? We therefore ask you to set clear priorities. An appropriate incentive scheme needs to reward effort/penalize, based on considering the starting position of ANSPs.
ANSP (Polish Air Navigation Services Agency)	The evidences provided in the PRB report do not correspond to the proposed ENV and CAP target ranges – they clearly indicate that the proposed targets do not reflect actual situation and expected developments and therefore they have to be considered not realistic and not achievable. We therefore urge the PRB to propose realistic targets, going beyond the presented ranges and to support the final target proposal with feasibility analysis proving their achievability. Purely academic approach to defining cost-efficiency evolution should also be disregarded – we expect the PRB to provide in-depth analysis of additional resources needed to deliver capacity and safety improvements, taking into account also increased volatility and other implications of the current tense geopolitical situation. Bottom-up approach should also be considered in target setting in all KPAs. We do not support setting targets based on political ambitions, especially by a body which should be expert and independent.
ANSP (ROMATSA)	The targets appear to be aspirational rather than realistically achievable, for the reasons stated in our answers. Moreover, current volatility has a significant impact, particularly at the local level. We believe bilateral meetings with states would have been very useful for collecting inputs and feedback. We therefore urge the European Commission / PRB to take into account the collected feedback and propose revised EU target ranges, or fixed EU target proposals outside the upper/lower ranges.
ANSP (NAV Portugal E.P.E)	Most of our comments at this stage are spread throughout the questionnaire. However, it's our understanding that this target-setting process has been lightly planned and a lost opportunity given the recent situation created by the pandemic that would have justified a renewed approach with a clear view of what is intended by this exercise and, in particular, the desirable outcome of performance scheme. It's always easier to set targets than to meet them, and even easier to find someone to blame. Instead, we should all be working more closely and in the same direction. With this in mind,10 years after the first RP, it's time for a serious reflection on what we're doing well and what needs to be improved. This is how the aviation sector has always moved forward. With this in mind, we hope that this consultation process is indeed a full consultation process and not just a formality to comply with regulation. The outcome of this process will shed light on which situation will prevail.
ANSP (ENAV)	The targets appear to be aspirational rather than realistically achievable, for the reasons stated in our answers. Moreover, current volatility has a significant impact, particularly at the local level. We also note that the consultation process is constrained: • the methodologies to calculate the EU target range proposals are not sufficiently disclosed and the evidence is incomplete. This has made the assessment challenging in some cases. • participation in the stakeholder consultation

	is limited compared to previous reference periods, e.g. the number of participants in the 8 November Workshop was limited • there were no RP4 preparatory workshops. We therefore urge the European Commission / PRB to take into account the feedback collected and propose revised EU target ranges, or fixed EU target proposals outside the ranges. Final note: due to the limit of characters some sentences have been shortened and might not be fully clear, we remain available for further clarifying.
ANSP (ENAIRE)	The arguments and methodologies of the PRB do not have a solid basis. We urge the Commission to propose targets outside the ranges proposed by the PRB in some of the KPAs, based in solid and transparent basis. The current volatility has a significant impact, particularly at the local level, making the achievement of these targets unfeasible. Traffic forecasts extending beyond one year, taking into account present uncertainties, are not reliable for establishing five-year targets. The growth in traffic at the regional level in certain member States, such as Spain, and across their respective ACCs far surpasses the average forecasted increases for the global country and, of course, is well above the equivalent references in European ANSPs. As an example, Spain will recover in 2024 the same level of traffic that the main European averages estimate for 2029 as indicated in the October 2023 STRATFOR forecast.
ANSP (DSNA)	A consultation at a local level: with bilateral meetings between the PRB or UE and the states and ANSP in order to establish real targets would be relevant and would permit to define targets which are achievable for ANSP's. By the way, we don't understand why the scores of efficiency are averaged on multiples year, as the last value is the more accurate to describe the ANSP. Why past performance should be used to penalise the score of the ANSP? Furthermore, DSNA would like to indicate other PIs to be taken into account by the PRB, that could possibly become KPIs for RP5 : The Throughput indicator for capacity; The average time in flight level for environment. It should be noted that an accreditation (CANSO Green ATM, EMAS or ISO 14001) could be used for the Environment KPA.
ANSP (BULATSA)	It would be highly advisable for the sake of transparency and for the conduct of a meaningful consultation with stakeholders, PRB to publish all key data, methodologies used processes applied, and the justifications of all key assumptions for the derivations of KPI target ranges and proposals. This is related to all 4 KPAs, and especially to Capacity, Environment and Cost-efficiency. The lack of interdependency methodology and model (for more than already 10 years) makes the proposed target ranges sounding high-level and declarative, without giving sufficient confidence to the operational stakeholders that those target ranges are interdependently sustainable.
ANSP (CANSO)	The targets appear to be driven by aspirational, political goals e.g. the proposed CAP target ranges deviate from capacity in the NOP agreed with NM, thus not being realistically achievable, for the reasons stated in our answers. Moreover, current volatility has a significant impact, particularly at the local level due to unforeseeable (geo)political developments, which cannot be planned for 5/6 years. We understand the politically motivated prioritization of ENV. The potential contribution from ANSPs however is constrained, considering the unsuitability of KEA. Interdependencies have not been addressed accordingly in the other KPAs, mainly CAP and CEF. Lastly: - Methodologies to calculate the target range proposals are not sufficiently disclosed and the evidence is incomplete – Participation in the stakeholder consultation is limited compared to previous reference periods – There were no RP4 preparatory workshops. We therefore urge the EC/PRB to take account of our comments.
ANSP (Austro Control)	The approach for explaining the EU-Ranges seems to be overengineered. To work through 150 pages is an additional admin burden. Less extensive material should be sufficient.
ANSP (ANS CR)	Generally, we do not support the proposed targets and the methodology for setting them because: • Some of the targets set measure something other than what they should represent. • Other targets are dependent on factors outside the regulated entities. • The proposed targets do not adequately reflect the degree of interdependencies between KPAs. • The setting of targets needs to take more account of the situation in individual Member States.
ANSP (LFV)	We would like to see ambitious but realistic targets and that a proper consideration is take to local circumstances in the target setting.
ANSP (AB Oro Navigacija)	Lithuanian ANSP's view: 1. One-size-fits-all approach in Cost-efficiency KPA was in the past, but now is especially and completely irrelevant today and within RP4 perspective. It should be abandoned. It is a first and (not coincidentally, that is for sure) KEY recommendation from the respected academics in their study.

	Which is completely ignored in the process of setting targets for RP4 currently, but we hope this will be addressed. 2. Setting inflation index's starting point as 2022 completely ignores and erases huge overall double-digit inflation and differences of inflation rates among EU states of that year. This means that smaller and more open-economies that import inflation instantly are put in worse position. It also ignores an ever-increasing pace of convergence of newer-EU members vs. old ones. It further distorts the measuring/benchmarking and punishes new-member States with even higher efficiency-search efforts than older ones. Inflation index should be set at 100 at 2019 – last normal year before macroeconomic turmoil impacted by war and pandemics. 3. Past-performance should be taken into account. Targets should be set taking into account past RP's. At least RP2 and RP3. Moreover – compliance of targets set in draft PPs should take into account period from the very beginning of the Performance scheme (i.e. from RP1) and also should take into account capacity track-record during this period as well as States efforts to answer AU's and same EC's call at a time requesting to cut costs during pandemics and recovery years as much as possible to help faster recovery (this means that those who've put these efforts – postponed lots of opex and capex into future – namely into RP4). 4. Comparator Groups, especially Cluster 3 and Cluster 4, were in the past, but now are especially and completely irrelevant today and within RP4 perspective in the context of different traffic situation and outlook. These comparator Groups should be revised reflecting new reality or this approach should be completely abandoned.
ANSP (AIRNAV)	The targets appear to be arbitrary, aspirational and political rather than based on detailed impartial expert analysis and realistically achievable, for the reasons stated in our answers. We also note that the consultation process is constrained: • The methodologies to calculate the EU target range proposals are not sufficiently disclosed and the evidence is incomplete. This has made the assessment challenging in some cases. • Participation in the stakeholder consultation is limited compared to previous reference periods, • there were no RP4 preparatory workshops. We therefore urge the European Commission / PRB to take into account the feedback collected and propose revised EU target ranges, or fixed EU target proposals outside the ranges. AirNav Ireland also requests clarification from the PRB why there was a need to publish a decision on the Union Wide Target Ranges before this consultation process had concluded, particularly when it was clear from the consultation meeting that there are significant issues in terms of transparency.
ANSP (Hungarocontrol)	For all the points we agree with the submitted remarks of CANSO. The comments included in this response sheet are additional to those of CANSO
ANSP (DFS)	The targets appear to be driven by aspirational and political goals e.g. in the context of the proposed capacity target ranges deviating from capacity in the NOP agreed with NM, thus not being realistically achievable, for the reasons stated in our answers. Moreover, current volatility caused mainly by numerous (geo-) political unforeseeable developments has a significant impact, particularly at the local level, which cannot be planned for a duration of 5 to 6 years. This new reality does need to be properly considered in the target setting process. We understand the politically motivated prioritization of the KPA Environment for RP4. The potential contribution from ANSPs however is reduced to a minimum, considering the KEA indicator which is supported by the whole aviation industry as not being suitable to properly measure ANSP performance. In addition, the interdependencies arising from setting such a priority have been mentioned but unfortunately have not been addressed accordingly in the target range proposals in the other KPAs, mainly CAP and Cost Efficiency. We therefore urge the European Commission / PRB to take into account the feedback summarized in our answers and propose revised EU target ranges, or alternatively EU target proposals outside the ranges.
ANSP (skeyes)	"The targets appear to be aspirational rather than realistically achievable, for the reasons stated in our answers. Moreover, current volatility has a significant impact, particularly at the local level. We also note that the consultation process is constrained: • The methodologies to calculate the EU target range proposals are not sufficiently disclosed and the evidence is incomplete. This has made the assessment challenging in some cases;

	• Participation in the stakeholder consultation is limited compared to previous reference periods, e.g. the number of participants in the 8 November Workshop was limited; • there were no RP4 preparatory workshops. We therefore urge the European Commission / PRB to take into account the feedback collected and propose revised EU target ranges, or fixed EU target proposals outside the ranges."
ANSP (Skyguide)	Overall, we note little understanding on the part of the PRB of the issues faced by ANSPs during and after COVID. There is a significant need for investment to deliver future and sustainable benefits to the aviation industry. We note some inconsistencies between ambitions in the areas of environment, capacity and cost efficiency. We also observe that the PRB has a biased approach when analysing achievements in different areas. In fact, when ANSPs don't meet their environmental and capacity targets, it is analysed as a lack of effort, but when ANSPs meet their cost efficiency targets, the PRB concludes that the targets were not ambitious enough. We also do not support the introduction of a financial incentive for the environmental KPA and we do not support a more ambitious financial incentive for the capacity KPA.
ANSP (NAVIAIR)	The Danish NSA supports the contribution to the consultation from the Danish ANSP.
Member State (Germany)	Do you have any further views you would like to provide on the development of the targets for RP4? Once further information is available regarding local parameters used or local breakdowns values derived from proposed union wide targets, the German MoT would be happy to exchange views/evidence and discuss potential effects on union wide or local targets with the PRB.
Member State (Spain)	Spain considers that the objectives proposed by the PRB are very demanding, even becoming unfeasible in some cases. It should also be taken into account the current volatility scenario, which may have a great impact on achieving the proposed objectives. In addition, Spain would like to highlight that the growth in traffic at the regional level in certain member States, such as the Spanish case, and across their respective ACCs far surpasses the average forecasted increases for the global country and, of course, is well above the equivalent references in European ANSPs. As an example, Spain will recover in 2024 the same level of traffic that the main European averages estimate for 2029 as indicated in the October 2023 STATFOR forecast. RP3 performance results area far from comply with the objectives. Traffic in some areas of Europe, as in Spain, is nowadays, soared. Therefore, we share the idea of having ambitious objectives, but at the same, it is not useful establishing unfeasible
NSA (Latvia 2)	The importance of the factor of local circumstances has been proven by the events in recent years (this factor is also incorporated into the SES II+ regulation). The local circumstances are taken into account in determining the other targets or justified the exclusion of such. The statistical method is used for cost efficiency, where these important conditions are excluded or their no effect on the reliability of the statistical method is not sufficiently justified and described.
NSA (Cyprus)	The priority should be to have a meaningful association between the targets for the different key performance areas. For example, if it is necessary to accept higher costs for more capacity or more safety then this should taken into account when deciding on the cost efficiency targets of RP4.
NSA (France)	In summary, for safety the new questionnaire should be made available to correctly assess the proposal; environment and capacity target ranges are not supported and considered overambitious and not realistic: they are not in line with current achievements or NOP delay forecast and not backed by strong evidence. The models used by the academic study are not adequate and the overall methodology for cost-efficiency is not robust enough for a good forecast. The lack of methodological information on how the proposed target ranges will be broken down at local levels hampers a correct assessment of the proposal and an overall consistency assessment by the stakeholders.
NSA (Germany)	In our opinion, the report and its annexes make it difficult if not impossible to deal with the applied basics and retrace the derivations as well as sources used. In the preparation phase of RP3, stakeholder involvement was much better than for RP4. Apart from involvement in regards to the RP3 IR, we remember more of a working relationship between all parties involved and experts from the relevant stakeholders had a voice and could contribute to have not only the best possible outcome, but to foster mutual understanding and acceptance of the different positions. There were bilateral meetings and a white paper for example. We are convinced that earlier and more intensive stakeholder involvement would have had major benefits under more than just the technical/factual aspects. Also data request towards member states comparable to the one for cost

	efficiency for all remaining KPAs in addition to an earlier first stakeholder workshop would have supported the target range setting more than only using reports and other theoretical data, even if there is no legal requirement to do so. For many matters of the perceivable reality, we would have appreciated to find in the report more conclusions from facts and less assumptions. This concerns among others the main report No 100 and the assumption that ATC capacity and staffing issues will be resolved by the end of RP3. While the war against the Ukraine itself is unpredictable and will have to be subject to some assumptions, the matter of possible adaptation of ANSPs to the known and expected effects of the war would have been accessible to further fact-finding. Instead, PRB assumes ANSPs will fully adapt to the current status by the end of RP3 as regards the war and its impact on capacity (main report No 116). And also on data on RTE-DES there is so much anticipation and estimation followed by approximation (e.g. Annex 1 No 58, 59, 60, 61, 62) the steps in themselves lack transparency and are rather impossible to follow. The methodological descriptions are, as stated several times in our replies, in relevant parts not satisfactorily detailed or even completely missing, as are several of the sources referred to in the report or the annexes. While referring to possible interdependencies, those have really only partially been analysed in a quantifiable way and taken into consideration. Even though it should be obvious that the high goals for environment and capacity will if at all possible, lead to massive cost increases due to e.g. higher staff costs and investments. The legal requirement for the time being is to set Union-wide target ranges. From the consultation on 8 November we understood that local circumstances have not been taken into consideration when establishing the published target ranges, which we think is at least questionable. For consistency of the results and to make a connection to the practical application of the EU-wide targets to come, it would have been recommended if not even necessary to make a forecast on how national breakdown values of EU-wide targets within the provided ranges would look like and if they were at least plausible. Were there any control calculations e.g. bottom-up-calculations made by PRB already? From a theoretical point of view the target ranges seem to be ambitious, maybe overly so. But can they be broken down into national values without leading to inconsistencies or implausibilities? Furthermore, we miss explanations for the inconsistency in years and evidences (war in Ukraine) considered throughout the different KPAs. As a last point, we are of the opinion that the report consists of too many different papers. We would have appreciated a report with all relevant information in a maximum of 2-3 papers instead of one short main report, 4 annexes plus the link to e.g. NOP, ERNIP, interdependency study. The multitude of papers with the questions of the survey contribute to a certain degree of repetition in our answers and comments, which we would have liked to avoid in order to make the result easier to read or otherwise process.
NSA (Italy)	The targets appear to be aspirational rather than realistically achievable, for the reasons stated in our answers. Moreover, current volatility has a significant impact, particularly at the local level. We also note that the consultation process is constrained: • the methodologies to calculate the EU target range proposals are not sufficiently disclosed. This has made the assessment challenging in some cases. • participation in the stakeholder consultation should be longer and dedicated for each single domain • we hope in a fruitful RP4 preparatory workshops We hope the European Commission / PRB to take into account the feedback collected and propose revised EU target ranges, or fixed EU target proposals outside the ranges.
NSA (Finland)	Finland trusts the Commission's discretion to take into account the difficult traffic situation in Finland when assessing Finland's consistency for the cost-efficiency and environment targets.
NSA (Switzerland)	As a general remark, the proposed initial target ranges appear to be over-ambitious, especially in terms of capacity and environment, as potential benefits stemming from the ERNIP incl. CP1 are clearly overestimated and their implementation timelines unrealistic. It is positive to note that the PRB report recognizes the interdependencies between the KPAs, however it does not become apparent how these interdependencies between the proposed target ranges are assessed and reflected in the target setting process, lacking the considerations of possible trade-offs. While the report assesses to some extent the interdependency between capacity and environment, it does not contain justified explanation on the interdependency between capacity and cost-efficiency. It can be assumed that the need for investments for implement CP1 and for ensuring the modernisation of ATM systems will remain unchanged, having an impact on the costs.
NSA (Croatia 2)	It is not clear what methodology is used to obtain presented data (from the interdependence of ATFM delay and capacity to defining the upper limit of the target range for capacities).

	Furthermore, it is unclear on what basis the 20% reduction (from 0.5 to 0.4 minutes per flight) in the average ATFM en-route delay for the last two years of the RP4 is based. Furthermore, the calculation of local targets is not a publicly available and transparent process, and is carried out after the Union level targets have been adopted. Such unattainable goals are a significant problem for many countries that have a higher traffic return compared to the network level.
NSA (Austria)	We would like to reiterate that targets should follow the accepted SMART principle, which we unfortunately do not see reflected in the current proposal.
Professional staff representative body (IFATCA)	I believe that some of the assumptions which is the basis for the target setting are incorrect, and when argued from stakeholders that these assumptions can be questioned, it's counter argued by the PRB. It would be positive, if the PRB would be willing to listen to other stakeholders, and take arguments like this into consideration, and not only base the assumptions on information gathered from stakeholders with an agenda that is, in my opinion, counterproductive.

Table 23 - Comments received on Question 7.

3 CONSULTATION EVENT

3.1 Overview

334 The consultation event on 8th November 2023 allowed the PRB to present to stakeholders its advice to the European Commission on the RP4 Union-wide target ranges. The purpose was to better inform stakeholders in the preparation of their responses to the consultation and to gather initial feedback. There was a total of 71 participants present in person and online (list of participants in Table 24, next page), including:

- Six Organisations (Eurocontrol, European Aviation Safety Agency, European Defence Agency, SESAR Joint Undertaking, SESAR Deployment Manager);
- 23 NSA and Member State representatives;
- 13 Airline representatives;
- 16 ANSP representatives; and
- Six Professional staff representative bodies.

335 The discussions addressed the PRB's approach to setting the target ranges for each KPA of the performance and charging scheme (Agenda of the event in Table 25, next page).

336 The next sections outline the questions received during the event on both Slido (a verbatim) and from the room, and a summary of the replies provided by the PRB during the event. In total, 34 questions and comments have been raised:

- Three general questions and comments;
- Three on the safety KPA;
- Six on the environment KPA;
- Eight on the capacity KPA; and
- 14 on the cost-efficiency KPA.

337 Out of the total 34 questions:

- Ten from NSA and Member States representatives;
- 13 from airline representatives;
- Eight from ANSP representatives;
- Three from professional staff representative bodies.

Organisation	Stakeholder category
A4E	Airline
AIRE	Airline
EBAA	Airline
ERA	Airline
IATA	Airline
AirNav Ireland	ANSP
Austro Control	ANSP
AVINOR ANS	ANSP
BULATSA	ANSP
CANSO Secretariat	ANSP
Croatia Control	ANSP
DFS	ANSP
DSNA	ANSP
ENAIRE	ANSP
HungaroControl	ANSP
LFV	ANSP
LVNL	ANSP
NAV Portugal	ANSP
PANSA	ANSP
ROMATSA	ANSP
skeyes	ANSP
France	Member State
Germany	Member State
Hungary	Member State
Ireland	Member State
Spain	Member State
Bulgaria	NSA
Croatia	NSA
Czech Republic	NSA
France	NSA
Germany	NSA
Ireland	NSA
Italy	NSA
Luxembourg	NSA
Norway	NSA
Poland	NSA
Portugal	NSA
Sweden	NSA
Switzerland	NSA
The Netherlands	NSA
EASA	Observer
EDA	Observer
Eurocontrol	Observer
Network Manager	Observer
SESAR Deployment Manager	Observer
SESAR Joint Undertaking	Observer
ATCEUC	Professional staff representative body
ETF-ATM committee	Professional staff representative body
IFATCA	Professional staff representative body

Table 24 – List of participants of the stakeholder consultation event held on 8th November 2023.

Item	Time	Topic
1.	09.45 – 10.15	Welcome / Information on RP4 preparation
2.	10.15 – 10.45	PRB priorities Q&A
3.	10.45 – 11.15	Safety KPA Q&A
4.	11.15 – 12.45	Capacity KPA Environment KPA Q&A
	12.45 – 14.00	*Lunch break*
5.	14.00 – 15.00	Cost-efficiency KPA Q&A
	15.00 – 15 :15	*Coffee Break*
6.	15 .15 – 16 .15	Discussion
7.	16.15 – 16.30	Summary and next steps

Table 25 – Agenda for the stakeholder consultation event held on 8th November 2023.

3.2 General comments

338 In total, the PRB received three general questions and comments during the consultation event (Table 26).

Stakeholder	Comment or question	PRB response
Professional staff representative body (ETF)	Is there still a chance that RP4 is shorten to less than 5 years?	The target ranges proposed are based on the current regulation which sets out a five year reference period.
Airline (Lufthansa Group)	The Regulation reads in a way that the four KPAs are important, while in RP4 the priority is on ENV and CAP. It is uncomfortable to say that one is more important than the other.	As mentioned in the report, the PRB is aligning its priorities to the European Union's green agenda, hence, the increased focus on the environment. However, it is important to note that the prioritisation of environment does not reduce the im-portance or focus of the other KPAs. The PRB recognises the interdependence of these KPAs and acknowledges that a balanced approach is essential.
Member State (Germany)	Has the PRB assessed and quantified local sensitivities regarding the assumptions made at Union-wide level and is the PRB able to share that information and first expectations on local breakdown values before the deadline of the written consultation?	Local specificities have been analysed and detailed in the Annex I of the target ranges report. The local breakdown will be calculated once the targets will be proposed.

Table 26 – General comments received during the stakeholder consultation event held on 8th November 2023.

3.3 Safety

339 Three questions were raised during the event on the safety targets (Table 27).

Stakeholder	Comment	PRB response
NSA (Luxembourg)	The safety target approach - in line with the slides presented - is not yet achieved. In fact, currently at "stage 2", the EoSM RP4 questionnaire doesn't exist yet. How do you justify that there is many assumptions not yet proven correct leading to the RP4 targets e.g. RP3 final -1 LVL = RP4 start?	The PRB and EASA have conducted an analysis to evaluate the potential EoSM level given the future questionnaire. In addition, the CANSO SoE has been reviewed by EASA's oversight team to determine if a particular question was above or lower than what would be expected based on EU standards. The EoSM questionnaire for RP4 is currently under development, and it will be ready before the target setting in Q1 of 2024.
Airline (IATA)	It appears that the methodology to develop these targets takes us back to pre RP3 levels, evidenced by the PRB showing recovery to previous EoSM levels was achievable <five years for many ANSPs during RP3, (in 2022, 27 ANSPs reached a minimum of C in all MOs, 16 already reached the full targets).	The PRB stresses the importance of having a pragmatic approach to the targets. The PRB does not expect ANSPs reaching a certain level of maturity in an area of the EoSM during RP3 to allow a degraded performance during RP4.
ANSP (DFS/CANSO)	Current safety levels are high and need to stay as such or possibly improve. Draw attention to cost related to high safety levels. New SAF elements coming up in context of drones or cybersecurity need to be addressed. There is a cost element resulting from the implementation of the Regulation. This needs to be considered in the context of interdependencies.	Achieving the current high level of safety has been part of the cost of service provision in the current cost base. Any potential impact to ensure compliance with new regulatory requirements (e.g. for drones and cybersecurity) would in addition need to be reflected in the cost base. However, the PRB considers the additional cost of reaching the proposed EoSM targets for RP4 to be marginal for the overall cost of service provision.

Table 27 - Comments on the safety KPA received during the stakeholder consultation event held on 8th November 2023.

3.4 Environment

340 Six questions were raised during the consultation event on the environmental target ranges (Table 28).

Stakeholder	Comment	PRB response
Airline (Lufthansa Group)	You are correctly saying that most fuel efficient flight trajectories should be able to be operated by the airspace users. But environment KEA is still measured against GCD. Is this still the right measurement?	Whilst the PRB understands the shortcomings of KEA, the PRB is bound to use it as the sole environment KPI in the performance and charging regulation. The Commission has commenced a study on future KPIs. The PRB suggests engaging with this work in upcoming forums to provide feedback on indicators and help identify appropriate KPIs.
Airline (Lufthansa Group)	Why are we still not addressing the vertical flight efficiency?	The PRB is bound to use the indicators as set out by the performance and charging regulation and vertical flight efficiency is currently not included. The Commission has commenced a study on future KPIs and PIs, hence, the PRB suggests engaging with this work in upcoming forums to provide feedback on indicators and help identify appropriate indicators.
Airline (Vueling)	Is a new Environmental indicator based on real CO2 emissions rather than Great Circle Distance going to be included into RP4?	The Commission has commenced a study on future KPIs, including the suitability of KEA. The PRB suggests engaging with this work in upcoming forums to provide feedback on indicators and help identify appropriate KPIs.
Airline (IATA)	Why are we expecting so little benefits in 2025 in environment from CP1 deadlines on full FRA and cross-border FRA?	The CP1 deployment of FRA and cross-border FRA is currently on time, meaning that by 2025 FRA will be already deployed and the benefits have already been captured in the current RP3 targets. Additionally, the RTE-DES figure for 2023 already excludes the vast majority of benefits of what the NM considers to be achievable in terms of route network design.
NSA (Croatia)	What is the methodology for the breakdown of Union wide targets to Local targets?	The NM is responsible for providing the breakdown of the Union-wide targets to the local level. This will be done once the PRB has provided its advice to the Commission on the Union-wide targets for RP4. The PRB could not share any information at the time of the consultation event.
NSA (Croatia)	Where does the 1 minute of delay causes additional pp on KEA come from?	The PRB undertook a study on the interdependencies between the capacity and environment indicators which concludes that 1 minute of additional en route ATFM delay per flight leads to 0.14pp of additional KEA.

Table 28 - Comments on the environment KPA received during the stakeholder consultation event held on 8th November 2023.

3.5 Capacity

341 Eight questions and comments were raised on the capacity target ranges during the consultation event (Table 29).

Stakeholder	Comment	PRB response
Airline (IATA)	How will the PRC technical note, showing that delays reported under W code actually are affected by capacity/staffing, be considered?	Further discussions with the PRC will take place in order to understand the technical note better and its impact on the targets.
NSA (Italy)	Don't you think that these figures for the capacity are too ambitious to be no realistic to reach the contrary of the goal? And if you don't have any opportunity to reach the goal, you probably find it more convenient to remain at a low level failing all the other targets.	As demonstrated by the evidence, target ranges are not unrealistic and unachievable. Good examples exist where ANSPs have been able to significantly reduce delays over a short period of time. Furthermore, ANSPs had plenty of time to resolve longstanding capacity issues. Less ambitious targets would acknowledge past underperformance and would result in the same situation and trends as in RP3.
NSA (Croatia)	Are we aware of the ATCO training issue? The comeback of the traffic? The inadequacy of SOG methodology?	These issues are recognised by the PRB, as explained in the report. The comment on the SOG methodology was also taken on board.
Professional staff representative body (ATCEUC)	What is the objective basis for the assumption that staff shortages will be solved by the end of RP3?	The problem of staff shortages is now long standing. Enough time passed to not face the matter, and this is the area in which ANSPs need to improve and believe that the target ranges proposed are achievable in RP4.
ANSP (CANSO)	CANSO is concerned about the targets proposed. They are too ambitious and unrealistic. Previously we had a much more predictable environment, and currently the NOP 23-27 delay forecast is twice as high as the proposed target ranges. On assumptions, resourcing issues will not be achieved by end of RP3. It is extremely difficult to attract people in the aviation industry in general. Same applies for CP1, it requires time to implement and probably some CP1 parts will not meet the requirements.	The CP1 has been adopted during the pandemic, "relaxing" all the deadlines UW is broken down to national reference values that are different from 0.5 and not all will achieve 0.5. It was always like this in previous years. The Union-wide targets are driving the national targets. On resourcing, it is based on information submitted by ANSPs in June.
ANSP (AustroControl)	AustroControl stated that each usage of weather code is documented and does not cheat the weather code.	The PRB noted the intervention.
NSA (Croatia)	The average time needed for an ATCO to be trained is two years and half. Only one ANSP broke the record in two years and ten days. Delays saved by playing with rostering are not serious. The sector opening gaps should not be used	The PRB understands that it takes time to train ATCOs. The question is when to start the two years of training. The ATCO problem is long standing since RP2 and ANSPs have had the time to solve the issue of shortages since then.

	as evidence. 0.5-0.4 of RP4, how? The successful rate of ATCOs passing the training is of 50-60%.	
ANSP (Croatia Control)	The PRB stated that the CP1 is the main contributor to CAP and ENV targets. The majority of the savings is calculated against the do-nothing scenario, and, at EU level, FRA is implemented in 60% of the Member States. Could you elaborate on the savings and how it influences the CAP and ENV targets. From a Croatian perspective, we are there, there are no more benefits for us.	All the savings are reflected in the ERNIP and NOP documents. The do-nothing scenario. Converting additional cap in minutes. Some already reached, next evolution TBO.

Table 29 - Comments on the capacity KPA received during the stakeholder consultation event held on 8th November 2023.

3.6 Cost-efficiency

342 15 questions and comments were raised during the consultation event on the cost-efficiency target ranges (Table 30).

Stakeholder	Comment	PRB response
Airline (Lufthansa Group)	Can you please explain again the point about NSA cost to be taken as submitted? Does this mean they will no more checked against eligibility and necessity by the PRB?	NSAs costs have not been forecasted nor decreased by the efficiency recovery. Eligibility of costs will be evaluated during the assessment of the draft performance plans.
ANSP (HungaroControl)	If you assume, there was an error with the submitted figures for initial cost estimate, did you try to clear it with the affected States?	Technical mistakes in the submissions were corrected. However, the figures submitted for 2023 are for some Member States equal to the current determined costs. The PRB did not modify the submissions.
ANSP (PANSA)	Can you please explain if/how the additional information provided by States together with cost tables was used by the PRB for the target ranges development?	The additional information provided by Member States were considered in the analysis when setting the target ranges.
Airline (IATA)	Can you please explain further how the inclusion of delays in the models has influenced the result?	As described in the academic report, higher delays should correlate with lower total costs since ANSPs does not utilise all necessary inputs. In the DEA approach, the additional output dimension enables ANSPs with low delay levels to improve their relative performance (i.e. therefore the scores are higher than without considering a delay variable). In the SFA model, the variable is not statistically significant (i.e. not impacting the results). Despite the result, it is important to consider negative externalities in the benchmarking process, as also indicated in the stakeholder comments to the RP3 study.
NSA (Switzerland)	How has the PRB factored in the interdependency with other KPAs when calculating the CEF target ranges?	The interdependencies between cost-efficiency and the other KPAs has not been considered quantitatively (there are not well accepted studies quantifying this relation). However, such interdependency has been considered by the PRB when considering the level of ambitions. As a result, the target ranges for RP4 are below what has been proposed for the previous reference periods.
Airline (IATA)	How does current results (many States having actual costs below planned) supports the idea of submitted costs possibly being underestimated?	The 2024 costs may be underestimated as some Member States reported determined costs from their RP3 performance plans in nominal terms associated with a higher revised inflation forecast.
ANSP (HungaroControl)	Do I understand correctly that PRB assumes no embedded efficiency gains in the initial cost estimates, and nor in the statistical models? Did you compare the previous results of the academic study (done in 2018) to the actual figures to try to define the accuracy of the academic study?	The assumption is correct, the PRB applied the efficiency gains to the submitted (and forecasted costs). The academic study is based on the same models of the previous version, updated with new years of observations, and upgraded in the calculation of the variable. Moreover, the models are now including negative externalities as also indicated in the stakeholder comments to the RP3 study.

Airline (Lufthansa Group)	How can the Max of Evidence 1 and Evidence 2 be higher than all the Evidences (1,2a,2b)?	The baseline is calculated as the maximum for each Member States (and not as the maximum of the total sum). Therefore, by construction it is greater than the other evidence.
NSA (Poland)	Inefficiency estimates using two models differ significantly (11% vs 21%). This might suggest there is a methodology issue in the approach taken. Have you double checked the models adopted for methodology correctness?	The methodology of the academic study is sound, as it is provided by two leading experts in the field and has already been used for the previous reference period.
Airline (A4E)	The efficiency figures 11%-21% are they retrospective or forecasts?	The efficiency is calculated on historical data, therefore is related to the years of analysis. The PRB applies such efficiency figures to the future values, arguing that no efficiency gain has been observed during RP3.
Airline (Lufthansa Group)	How do you ensure that regulative gaming is avoided?	The assessment of the draft performance plan aims to minimise regulatory gaming.
NSA (Poland)	A high CEF target could jeopardise the ENV and CAP goals.	Interdependency has been considered by the PRB when defining the level of ambitions. As a result, the target ranges for RP4 are below what has been proposed for the previous reference periods.
ANSP (ENAIRE/CANSO)	Why use a different methodology to determine the baseline value when we have the information from the Member States?	As for the cost forecasts, the PRB has considered the submissions of the Member States. However, the values of some Member States were not updated from the current determined costs. Therefore, the PRB applied also own methodologies to estimate 2024 costs.
Professional staff representative body (IFATCA)	With ENV being the priority, we need more CAP, meaning more expenses, financed how? By improving the inefficiencies? How can this expenses be financed if costs need to decrease?	Please note that the decrease refers to the unit costs (i.e. the costs divided by the service units). The cost base itself is higher than the current actual costs for both upper and lower bounds.

Table 30 - Comments on the cost-efficiency KPA received during the stakeholder consultation event held on 8th November 2023.

3.7 Consultation event: Discussion session

343 The last session of the consultation was open for discussion to all the stakeholders present or online.

General comments

344 CANSO, the Swiss NSA, and the Franch NSA expressed interest in receiving more information pertaining to the local breakdown values and to the methodology for their calculation The European Commission replied that the breakdown values will be made available by the Network Manager.

345 A few NSAs addressed the trade-off between setting ambitious and realistic targets. In particular, some concern was voiced regarding the level of ambition of capacity targets.

346 Some stakeholders were supportive of the PRB's proposed target ranges. In fact, A4E undertook its own analysis on the KPIs and reached very similar outcomes to those proposed by the PRB. A4E also agreed to some extent on the benchmarking of cost-efficiency. Other stakeholders have stated that additional comments will be provided in the survey or via email.

347 Finally, the provision of guidance material from the PRB was requested by the German Ministry of Transport. PRB chair Cathy Mannion added that performance plan guidance material will be provided early 2024.

Environment

348 Regarding the environment KPA, the main feedback received regarded the suitability of the current environment KPI, KEA, and that it may not be the best indicator for the application of incentive schemes, as ANSPs do not have much influence on it. Additionally, the focus of environment as the top priority for RP4 was questioned, suggesting that all KPAs should be of equal priority.

Capacity

349 Airline representatives raised the issue of how to design a better bonus and malus system to incentivise optimal service delivery. In addition, they mentioned that staffing is a business decision under the control of ANSPs, and that the focus for RP4 should not be only on environment but also on financial sustainability. Furthermore, the topic of optimal routes was addressed by CANSO. There are trade-offs between the predictability of optimal routes and the impact of network manager actions to avoid congestions.

Cost-efficiency

350 Regarding the cost-efficiency KPA, the evidence presented by the PRB as a basis for the target ranges was discussed, referring to the findings and the methodology of the academic study.

4 POSITION PAPERS

351 The PRB received position papers from the following stakeholders:

- Airspace User Community;
- ATCEUC;
- CANSO;
- DSNA; and
- ENAIRE.

352 The points raised in the position papers largely echo those addressed in the preceding sections, with corresponding responses provided by the PRB.

353 For safety, the comments raised in the position papers regard the approach taken, indicating a reduction in maturity levels for RP4 compared to RP3. A proposal suggests regaining RP3 maturity levels by 2027 (mid RP4) and setting more demanding targets for the end of RP4 (achieving level D on one or more management objectives). All these comments have been addressed in the section 2.2 of this report.

354 For environment, comments are raised on the prioritisation of the KPA and ambition levels, the oversimplification of the interdependency between capacity and environment, the underestimation of the ERNIP benefits, the incentive scheme and the allowance of Russia's war of aggression against Ukraine. These comments have been addressed in section 2.3 of this report.

355 For capacity, comments are related to how the weather allowance was overestimated, and how weather-related delays were masking capacity issues. Further to this, stakeholders expressed views about how the incentive schemes should include no bonuses, and capacity targets should not be higher than 0.5 minutes per flight, while in contradiction to this, views on how delay targets below 1 minute per flight were also submitted. Comments were also raised on the interdependency with the horizontal flight efficiency. Comments also noted various issues around training of ATCOs, system implementations, and the deadlines included in the CP1 regulation. All these points have been addressed in section 2.4 of this report.

356 For cost-efficiency, the comments raised in the position papers regard the ambition of the target, the approach used for the definition of the target, the overestimation of costs from ANSPs, excessive regulatory results of ANSPs, the methodology of the academic study, and the lack of consideration of interdependencies between KPAs. Stakeholders also proposed using only initial data submitted by Member States for the definition of the targets. These comments have been addressed in section 2.5 of this report.

4.1 Airspace User Community

[redacted]

Date 1 December 2023

Deputy Director for Aviation
Head of Unit Single European Sky
Directorate-General for Mobility and Transport
Rue De Mot/De Motstraat 24, Office 5/153, B-1040
Bruxelles/Brussels

Dear [redacted]

Airspace User Community Response the EC consultation on EU performance targets 2020-24

We are writing to you as the Airspace Users community to emphasize the need for European Commission's leadership in the upcoming fourth reference period (RP4) of the SES Performance and Charging scheme.

RP3 has been a challenging reference period due to the outbreak of COVID-19 and the Ukrainian war. These events have revealed that the current regulation has room for improvement, as also pointed out by the PRB, during crisis, especially from the perspective of the financial approach. RP3 has resulted in high price increases for airspace users, that will last over RP4, while still lacking improvements in service quality. Such price increases are the result of a weak economic regulation which:

- Failed to encourage cost reductions during the pandemic, despite the dramatic and unprecedent drop in traffic. The perspective of full cost recovery from the years 2020-2021, the application of relaxed compliance criteria focusing only on the end point of the period, and heterogeneous criteria in the application of adjustments in the unit rate, have diverted the regulation from its purpose of protecting the customers in the context of a monopolistic environment.

- Set unambitious cost-efficiency targets, as the actual costs below determined are proving along RP3, even despite high inflation levels.

- Has been not only cost-inefficient, but also cost-ineffective, as certain Member States continue to not deliver the required quality of services, in particular, capacity and environment.

In fairness, not all States are in the same situation. Contrary to the pandemic, the impact of the war is uneven across Europe. Also, the current situation of traffic flows shift because of the war is likely to last at least during the whole RP4 period. This raises some concern on how the RP4 proposed targets, which regrettably include recognized levels of inefficiency, will cascade down to the local level. This includes cost-efficiency targets on which traditionally there are no local reference values, but in which adaptation of cost to reduced service levels where traffic remains before 2019 levels is expected with no further excuses.

Regarding incentive schemes, the airspace users insist once again that no bonuses should be allowed. As per 2022 monitoring results, 17 States were able to meet their capacity targets, many of them with delay levels close to zero. The capacity problems are known to be concentrated in specific locations. The airspace users request elimination of any potential bonuses steaming from generous reference values either for the ANSPs currently causing costly delays in the network, or for the locations that currently seem to have excess of capacity.

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The airline community strongly urges the European Commission to adopt an ambitious approach:

- From the performance perspective, through ambitious target setting to reach the necessary operational improvement.

- From the charging perspective, by addressing the current behaviour of customized interpretations of the regulation, at the very least by providing clear guidelines that prevent double counting and adjustments calculated on unmaterialized costs. Ideally, price capping should also be introduced to ensure that prices do not increase significantly with respect to determined costs.

Our overall expectation is to ensure that European network performance is restored to sustainable levels for Airspace Users and their passengers. The Air Navigation Services should support the operation of declared gate-to-gate flight schedules in the safest, most cost-efficient, effective, and environmentally sustainable manner.

If the opportunity is open to review current Performance and charging regulation, effective changes to avoid excessive regulatory results for ANSP are strongly encouraged. The unit rates charged to airspace users need to be included as KPI on which a target (price cap) should be introduced as a mechanism of price control to complement the current cost control. Any other potential new indicators should keep oriented to measure and drive the performance of the regulated monopolies.

Please find in the annex an analysis of the proposed target ranges in the different areas. In summary, we are convinced that the current proposal should increase ambition in all the four areas:

- **Safety:** targets should better reflect the European commitment to excel, therefore RP4 could target to regain the level set by RP3 targets by mid RP4 (2027), and to target D levels for one or two additional MOs by 2029.
- **Environment:** RP4 targets should not fall below RP3 targets to avoid sending the wrong message to society on the levels of commitment that the aviation sector has with the environment.
- **Capacity:** Should support the achievement of environmental targets and resolve the known issues with poor performers. Weather allowance needs to be reduced as historically it masks staffing issues. The bonus in the incentive mechanisms needs to be removed.
- **Cost-efficiency**: the baseline should be reconsidered downwards, and the reduction of known inefficiencies should go as far as possible. A genuine price cap scheme complementing current cost control should be introduced. The regulation must stop the current gaming and excessive regulatory results for ANSPs.

We would welcome the opportunity to meet with you and your staff at the earliest possibility to further support your deliberations.

Yours sincerely,

[redacted]

Regional Vice President, Europe,

IATA

[redacted]

Managing Director

Airlines for Europe (A4E)

[redacted]

President & Director General

Airlines International Representation in Europe (AIRE)

[redacted]

Chief Operations Officer

European Business Aviation Association (EBAA)

[redacted]

Director General

European Regions Airline Association (ERA)

[redacted]

Managing Director

The International Council of Aircraft Owner and Pilots Association (IAOPA)

ANNEX: Analysis of the target ranges proposal per KPA

1. General comments

The main weaknesses of the current Performance and charging scheme continue being:

- **Capacity failure**: Some ANSPs continue failing to provide sufficient capacity, because of reasons largely within the control of the ANSPs. Studies have demonstrated that even delays reported under weather are affected by staffing issues, the latter worsening the impact of the weather events.

- **Environment targets missed**: Only three States achieved their KEA targets in 2022. This is not only due to the traffic shifts due to the war in Ukraine, as in 2021, despite low traffic levels, 16 Member States did not achieve their national targets.

- **Gaming for cost-efficiency target setting**: Even though the revised draft performance plans were submitted in October 2021, there were large discrepancies between the actual and determined costs for that year. 25 Member States showed lower actual total costs compared to planned in 2022, of which 19 showed reductions of more than 5%.

- **Excessive profits over service**: regulatory results in RP2 ascended to 2.9 B€$_{2022}$ and to additional 1.3B€$_{2022}$ in 2021 and 2022 only.

2. Comments per KPA

SAFETY

For the second consecutive reference period we note that changes in the CANSO Standard of Excellence (SoE) seem to trigger changes in the EoSM questionnaire that derive in the expectation of safety levels being set back one level with respect to the currently achieved one.

While improvements in the questionnaire are supported, targeting only level C in most MOs, does not project the image that Europe deserves in terms of maturity of the Safety Management System, and the proposal is not fully consistent with the objective of setting progressively stretching but achievable targets.

The PRB monitoring reports 2021 and 2022 show that recovery to previous EoSM levels was achievable in less than five years for many ANSPs during RP3, (in 2022, 27 ANSPs reached a minimum of C in all MOs, 16 already reached the full targets).

As safety is paramount, and targets should reflect the European commitment to excel, we propose that RP4 targets aim to regain the level set by RP3 targets by mid RP4 (2027), and to target D levels for one or two additional MOs by 2029.

ENVIRONMENT:

The airspace users' community supports that environment is prioritized in RP4, despite the challenges introduced by the re-routings of flights caused by the war.

There is, however, some concern that the allowance made at European level to account for such inefficiency masks inefficiencies caused by other reasons. Also, the inefficiencies accounted for in the calculations seem based on real results, without sufficient justification on whether they respond to the most optimal possible situation or not.

In addition to that, the way targets are defined makes room for inefficiency driven by delay levels, which is a bit contradictory with the proposed approach. Delay is not the only influence factor in en-route inefficiency and although the simplicity of linear models is acknowledged it probably leads to oversimplification, especially in non-congested areas. Although a relationship between lack of capacity and KEA is acknowledged (NM re-routings to avoid congested airspace, for instance) PRB 2021 monitoring report shows that even exceeding the capacity target (0.32 vs 0.35 min/ft), the KEA target was not met (2,59% vs 2,35%).

Last, but not least, according to CP1 there are several implementation deadlines that should derive in significant improvements. In particular, the regulatory deadline for full FRA, Cross-border FRA and FRA connectivity with TMAs is 2025. Bottom-up evidence gathered from ERNIP, also tends to show more contributing projects by the beginning of the period than by the end of it, for which we strongly believe that expected benefits at the beginning of the RP4 period have been underestimated. We are also confident that the number of contributing actions by the end of the period will increase in the next year, as more clarity with respect to short term actions appear.

For all the abovementioned reasons we believe that the upper bound of the targets lacks ambition, and for the lower bound the capacity allowances should not be permitted since it is contradictory to the approach to reduce the environmental impact by providing sufficient capacity.

The challenge of the traffic diverted as a consequence of the war is acknowledged, but in order to avoid that the KEA allowance masks other inefficiencies, we propose to either separate this effect (with post-ops, for instance) or to set two different targets for the airspaces affected and non-affected by this impact. We do have concerns that accepting 0.24 pp of inefficiency as unsurmountable and setting less ambitious targets than in the previous reference period, could sent the wrong message to society on the levels of commitment that the aviation sector has with the environment.

On a different topic, the documentation also opens the discussion on whether incentive mechanisms should be compulsory for the environment targets. In the users' opinion, in case incentives mechanisms are set, it needs to be ensured that there is no possible bonus stemming for a scheme set on an indicator measuring inefficiency. The same is true for the capacity KPA where bonus should not be allowed for still introducing inefficiency into the system.

CAPACITY:

According to the PRB Monitoring Report in 2022, 17 States were able to meet their capacity targets with an average delay of 0.02 min/flt. However, the en-route ATFM delay was 1.74 minutes per flight in 2022, 1.24 minutes above the Union-wide target, and higher than in 2019, despite less IFR movements. Several ANSPs, especially some with structural problems already since RP2, did not use the COVID-19 period to undertake the promised initiatives to provide capacity during the expected post-pandemic recovery, despite having dimensioned their costs to do so. 7 ANSPs recorded a level of delay higher than the 0.5 allocated to the whole Europe.

While setting RP4 capacity targets we need to be commensurate. While the capacity targets have only been reached in 2020 (with significant lack of traffic), the reality is that in many locations there is sufficient, potentially even excess of capacity, and the system should avoid continuous rewarding on non-performing ANSPs in detriment of good performers.

In that sense, we urge the European Commission to act with respect to bad performers, through effective incentive mechanisms that eliminate potential bonus and set penalties commensurate with the impact on the customers, the environment, and at network level.

The ambition of capacity performance targets should be no less than in previous reference periods, that is, delay should not be higher than 0,5 min/flt. Target levels beyond that level should not serve as justification for cost-increases, especially in the cases where additional costs have been justified in the past, with zero positive results. The targets should also support the achievement of environmental targets.

The weather allowance is not supported, as it seems over-dimensioned. In the light of the recently published "Technical note on en-route capacity: documentation of PRC trial with ANSPs to improve transparency in ATFCM operations" (PRC, 2023), the weather code has historically masked other staff and capacity constraints. This fact is not adequately addressed by the PRB proposal.

COST-EFFICIENCY:

The airspace users are astonished and dismayed about the approach followed by PRB during this cycle, where a cost baseline even more generous than the one calculated by the States is proposed, even if the States' proposal is known to have a buffer, as proven in RP3.

We believe that considering only theoretical models' projections and data provided by the States in the calculation of the baseline value is not sufficiently taking into consideration the actual RP3 situation, which, as per the monitoring reports show that the data presented by States is recurrently overestimated. PRB monitoring reports also point out that regulatory results in RP3 are considerably higher than planned (in 2021 6.1% of the en-route revenues, compared to 3.2% ex-ante; in 2022, 8.9% of the en route revenues, compared to 3.0% ex-ante). We request for a starting point correcting these effects.

Academic Study on benchmarking of ANSPs and EU-wide cost targets in 2018 conservatively estimated EU-wide cost-inefficiencies in the range of 25% to 30%. In particular, when using the DEA model the calculated inefficiency was estimated at 40%, while in the new study it is recalculated to be in the range of 15% (without delays).

While we understand this might be due to the variables considered in the studies, the inclusion of delays in the calculations seems to have perverse effects. It is not understood that when including delays (which represent both inefficiency and ineffectiveness of the system) the model results in higher cost efficiency.

While airspace users support the information provided by statistics, they must be interpreted with common sense, since predictive models do not eliminate inefficiencies by themselves and, also, the study is not taking into account the level of inefficiency in RP3, which, for sure, has been higher than in previous reference periods as costs have not been flexible enough to adapt to levels of traffic in most cases. Any potential achieved efficiencies by those who have reacted in the right directions have not been considered either.

We suggest that, in order to adequately benchmark and assess current inefficiency of the system in Europe, and evaluate potential future savings, other complementary information is also taken into account, such as:

- EU-FAA comparison reports comparing the ANS efficiency between Europe and USA.
- ACE Benchmarking reports to determine from where the highest potential contributions can be expected.

- CANSO Global ANS reports, providing a comparison with other ANSPs in the World. Reflection is welcome on how certain costs in some ANSPs in Europe are above USA or Canada. Also, both ACE and CANSO reports provide insight about the effect of PPP adjustments in specific areas, where it seems that certain costs ANS-related are much higher than they could be.
- Recent reports on shared costs between military and civil infrastructure could also be considered, as potential cost reductions for civil airspace users could derive from better implementation of cost sharing between users. This can also be extended to new entrants as soon as charging mechanisms for them are put in place.
- Potential savings to come from optimization in infrastructure through minimum operational networks.

From all the above the airspace users believe that the baseline should be reconsidered downwards, and the reduction of inefficiencies should go as far as possible after a third reference period where there has been strong unwillingness to set ambitious targets, even if cost reductions could go significantly further than planned, as actual results show.

In the cost-efficiency area, RP4 should:

- Stop the gaming on both starting points and overinflated determined costs over the period. Gaming includes compliance criteria based only on the trend calculated on the last year of the period, since such a value gets recalculated as baseline of the next reference period.
- Address the excessive regulatory results achieved by many ANSPs during RP1, RP2 and even RP3.
- Introduce a genuine price cap scheme that helps with price control as a complement to the current cost control.
- In summary, the economic regulation should start delivering as it should, controlling both the prices and the relationship price-quality of the monopolistic services in favor of the customer.

SUMMARY

Targets could be more ambitious in all the four KPAs:

- **Safety:** targets should better reflect the European commitment to excel, therefore RP4 could target to regain the level set by RP3 targets by mid RP4 (2027), and to target D levels for one or two additional MOs by 2029.
- **Environment:** RP4 targets should not fall below RP3 targets to avoid sending the wrong message to society on the levels of commitment that the aviation sector has with the environment.
- **Capacity:** Should support the achievement of environmental targets and resolve the known issues with poor performers. Weather allowance needs to be reduced as historically it masks staffing issues. The bonus in the incentive mechanisms needs to be removed.
- **Cost-efficiency**: the baseline should be reconsidered downwards, and the reduction of inefficiencies should go as far as possible. A genuine price cap scheme complementing current cost control should be introduced. The regulation must stop gaming and excessive regulatory results for ANSPs.

4.2 ATCEUC

"[air navigation control, [...] is a task involving the exercise of public authority and is not of an economic nature, since that activity constitutes a service in the public interest which is intended to protect both the users of air transport and the populations affected by aircraft flying over them".
(Extract of decision C.364/92 of the European Court of Justice).

www.atceuc.org secretariat@atceuc.org

PRB Union-wide target ranges for RP4: ATCEUC calls for one step back, it is time for a reality check!

Brussels, 23 November 2023

"Assumptions", "experiments", "forecasts", "models with advantages and disadvantages", "statistics", "probability", "expected benefits". One thing is sure when you add uncertainties one after the other: **the end result will be completely different from reality!**

It is ATCEUC's reaction when considering PRB's ***"Advice on the Union-Wide target ranges for RP4"***. ATCEUC does not discuss the PRB's probity and willingness to produce qualitative results. The PRB worked to fulfil the task: studies were made, experts gave their conclusions. Nevertheless, at the end of the process, one step back is essential. A simple question shall be asked: is the final result in line with what the ATM/ANS sector can deliver?

ATCEUC invites all aviation stakeholders to consider actual ATM/ANS challenges:

- Lack of ATCOs.
- Difficulty in recruitment of ATCOs and ATSEPs with specific competencies;
- Decrease in job attractiveness with ATCO blaming;
- Increased conversion training due to new ATM systems;
- Capacity improvement of training organisations;
- Growing implementation cost of new technologies;
- Overambitious CP1 implementation deadlines.

Considering all of this, how can the proposed RP4 target ranges be regarded as achievable and realistic?

The PRB targets ambitions, except for the year 2020, were never even close to be reached in the past ten years. How to imagine that in 13 months, not only actual

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trends will be reversed but also low delay and flight efficiency performance records will be beaten?

No need to insist on the geopolitical threats associated with growing military activities, blurred economic situation, cost of fossil fuel, evolving regulation linked with climate change. Aviation has always evolved in an uncertain environment, imposing by the way more realism and future proof solutions than other sectors.

At the end, who will suffer the consequences of those refusing to consider reality again and again?

ATCEUC calls for a different approach, to be started and based on operational reality. Targets need to be associated with clear understanding of challenges and the way ahead shall be commonly agreed by those in charge to implement it. It is one thing to push for improvement and another to burden ATM/ANS sector with incorrect targets. Producing long term political aspirational goals is a different exercise and cannot be the basis of short and medium term operational and industrial decisions. What is at stake is the level of staff, the level of investment, the definition of solutions to be implemented for tomorrow. Uncertainties cannot be accepted by stakeholders.

Air Traffic Controllers European Unions Coordination (ATCEUC) was created in 1989 and is currently composed of 33 professional and autonomous trade unions representing more than 14000 Air Traffic Controllers (ATCOs) and Air Traffic Safety Electronics Personnel (ATSEPs) throughout Europe. ATCEUC is part of the "European Union Sectoral Social Dialogue - Civil Aviation" in the air traffic management field and it is recognised as a full member of the ICB. ATCEUC with its experts participates in every work group where the voice of its Members can and have to be expressed: SESAR JU, TSG, EGHD, EASA STeB, EASC, ASPReT, ATM Partners and other workshops or programmes within the framework of EUROCONTROL and the European Commission.

4.3 CANSO

CANSO EUROPE

CANSO Comments on PRB's proposal for RP4 Cost Efficiency targets

November 2023

Introduction

The cost efficiency of Air Navigation Services Providers (ANSPs) is an important element for the development of an efficient Single European Sky. However, ANSPs' cost efficiency is not straightforward, as it depends on several factors, such as the level of traffic, the complexity of the airspace, the investment grade, the regulatory framework and the financial market conditions.

CANSO has always advocated for EU CEF targets that support delivery of Air Navigation Services with the highest safety standards, a lower environmental impact and provision of the required capacity.

In June 2023 EU Member States submitted initial cost data and information about traffic forecasts related to the upcoming reference period RP4, as inputs for the setting of Union-wide performance targets in line with Article 9 of the Performance and Charging Scheme Implementing Regulation 2019/317.

In this context the PRB published in September 2023 a complete report on "Advice on the Union-wide target ranges for RP4" including a proposal on unit cost efficiency targets.

The cost efficiency proposal includes two ranges of compound average growth rate (CAGR) for the EU unit costs throughout RP4 (2025-2029).

This CAGR is calculated taking into account a **unit cost baseline value for 2024** and **two different targets for 2029-unit costs:**

PRB advice on Union-wide efficiency targets ranges for RP4 – data in €2022.

PRB proposal	2024 baseline value	2029 DUC Target	CAGR
Upper bound target	55.61	53.58	-0.7%
Lower bound target	55.61	47.49	-3.1%

After reviewing the methodology that the PRB uses to set the CEF targets, we believe that there are some inconsistencies and differences in calculation criteria.

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Comments on the calculation of PRB proposed RP4 CEF targets

Cost base forecasts - Evidences

Cost base forecasts used to calculate the unit costs target ranges are based on three different evidences:

- **Evidence 1:** Latest available cost data submitted by the States in June this year (ANSPs, NSAs and EUROCONTROL costs) for the period 2023-2029, including *an adjustment made by the PRB to include missing or erroneous data.*

  CANSO proposal: Only data submitted by States - Evidence 1 - should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data.

- **Evidence 2:** Forecasts on costs estimated by the PRB based on a linear dependency of costs and traffic as stated in the academic study:
  - Service units based forecast costs: 0.33% increase in forecast ANSPs costs per 1% increase in service units.
  - IFR based forecast costs: 0.39% increase in forecast ANSPs costs per 1% increase in IFR movements.

  CANSO comment: This is a very simplistic approach; it does not consider ANSPs' spare capacity to cope with the expected extra traffic. ANSPs that are facing traffic delays with little spare capacity have a bigger cost effort and operative and infrastructure limitations.

  CANSO proposal: Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data.

- **Evidence 3: Academic Study: resulting in ANSPs inefficiency in costs of around 16%.**
  The PRB proposes a range from 5% to 10% reduction in ANSPs' costs, taking into consideration that extra cost is needed to meet RP4 EU capacity and environment targets.

  The Academic study (Annex II) analyses the efficiency of ANSPs through two Benchmarking models (DEA - Data Envelopment Analysis; SFA - Stochastic Frontier Analysis) widely used in different sectors, including some regulated by European governments. Both models mathematically simulate the behaviour of the ANSPs by comparing them with statistical functions based on the "Best Practices" that result from the calculations. Each of these models has certain limitations and present different results that are finally combined.

CANSO comment: CANSO cannot support the following approaches taken by the study:

- it assumes that ANSPs operate in same operational, economic and legal environment
- it assumes that they should all be performing at the same level
- not all factors are considered e.g. Ukraine war
- there is a lack of transparency, e.g. for the baseline of costs methodology
- Real term cost calculation methodology of the PS is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs
- There is no documentation on robustness or to test outliers
- Variables have not been tested for relevance
- ATM/CNS is very heterogeneous with national characteristics
- Interdependency of KPAs is not addressed

Estimate of 2024 Union wide baseline values.

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4* - Page 43/45- Paragraph 210-211 -Table 31.

210. "*As defined by the Regulation, both a Union-wide baseline value for the determined costs and a Union-wide baseline value for the determined unit costs should be defined in respect to the year preceding the start of the reference period (i.e., 2024). The PRB considered four baseline values, calculated by dividing the 2024 costs estimated in the evidence by the 2024 STATFOR base forecast.* ***The Member States' submissions for 2024 may have been underestimated for some, while for others the forecast costs are more accurate and reflect the latest available data****. In order to eliminate the bias of the underestimated data and capture at the same time the latest available costs forecasts, the PRB calculated a baseline based on the sum of the maximum costs per Member State (i.e., the maximum costs between Evidence 1 and 2 for each Member State separately). (…)*"

	2024 Costs ($M€_{2022}$)	2024 Service units (M)	2024 Unit cost ($€_{2022}$)
Evidence 1 – Member States submission	6,959	129	53.77
Evidence 2 – SU based fore-cast	7,206	129	55.68
Evidence 2 – IFR based fore-cast	7,173	129	55.42
Max of evi-dence 1 and 2	7,452	129	57.58

Table 31 – 2024 baseline values as estimated from the cost-efficiency evidence.

211. "Considering the potential bias of each evidence, the PRB recommends, as 2024 baseline, the average between the four values estimated. The resulting 2024-unit cost baseline equals **55.61€2022.** "

CANSO comment: PRB should take into account only Member States submission data - Evidence 1.

The planning on 2024 costs is mature enough since they have been elaborated seven months ahead, and no significant variation on ANSPs reported costs should be expected.

In this sense, **there is no clear justification to use any other data than Evidence 1** to estimate 2024 union wide baseline values. The result of the study is artificially higher what translates in a more demanding reduction percentage target.

There is no clear justification for not using latest and reliable data to estimate the 2024 starting but the clear intention to obtain a more exigent reduction percentage CEF target.

Estimate of 2029 Union wide costs

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4 - Page 45/45- Paragraph 214 - Table 32*

PRB has defined two ranges of unit costs targets for year 2029:

- **Upper bound target** (less ambitious), -5% reduction on 2029 ANSPs cost base, that is **-4,6% on total costs** 8,023 M€2022 (**evidence 1**), resulting in a **DUC 53.58€2022**
- **Lower bound target** (more ambitious), -10% reduction on 2029 ANSPs cost base (**evidence 2- IFR movements**), that is **-9,2% on total costs** over **7,471 M €$_{2022}$**, with an associated **DUC 47.49€2022.**

CANSO comment: There is a clear inconsistency. The same figure (8,023M€2022) should be used to calculate both upper and low ranges.

Other findings - PRB Advice on the Union-wide target ranges for RP4

EUROCONTROL costs in the RP4 CEF union wide targets.

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4 - Page 44/45 par 214*

> ***"Given that the cost inefficiency from Evidence 3 is estimated on the ANSPs costs, the percentage is applied only to a part of the cost base (i.e., NSAs and ECTL costs are not reduced).*** *Dividing the resulting cost bases by the 2029 Union-wide service units as forecast by STATFOR base scenario, the 2029-unit costs for the upper and lower bounds of the targets (…)".*

CANSO comment: Only ANSPs' cost data are subject to inefficiency cost reductions, there is no justification for not including all costs, such as EUROCONTROL costs as part of the EU CEF targets proposal.

EUROCONTROL and NSAs costs represent around **7.5% of total costs submitted for RP4**, with an **increase of 13%, in year 2029 in respect of 2024** reported costs **(+2,5% CAGR for RP4**) but **no pressure is put on EUROCONTROL costs.**

CANSO proposal: EUROCONTROL's cost base should also be included as part of the objective on cost efficiency for RP4.

Academic study on cost efficiency

Analysing the data model sample of the Academic Study the following aspects should be considered:

A. The set of data considered **is not homogeneous** due to the quite distinctive characteristics of reference periods 1 and 2:
   - **RP1 (2012-2014)**; ANSPs designed the performance plan in 2011 considering an optimistic evolution on traffic and increasing ATCOs number staff and investment but the 2012 global financial crisis led to a decrease on the expected traffic. As a result, there was a clear inefficiency in costs in this period.
   - **RP2 (2015-2019);** ANSPs designed the performance plan in 2014 considering an optimistic but progressive evolution on traffic and planning ATCOs number staff and investment accordingly. However, years 2018 and 2019 marked records of traffic increase, what resulted in high-cost efficiency gains.

B. Assumptions are taken into account to analyse ANSPs' cost efficiency in an environment of delay and zero delay on traffic.

   No comparison on cost efficiency can be made since an ANSP without traffic delays has an extremely low cost to cope with additional traffic; however an ANSP that is facing traffic delays with little spare capacity has a bigger cost effort and operative and infrastructure limitations.

Conclusion

In conclusion, the data set is not homogeneous. This can be demonstrated if we take a look at the same RP3 academic study carried out in 2018 with 2012-2017 set data and where the so called "inefficiency in costs" was around 40%, showing ranges of inefficiency in ANSPs costs very divergent (16% inefficiency vs 40%).

The analysis is completely theoretical, therefore its translation to the real institutional, economic, operational, or other specific factors affecting ANSPs' performance results, could be almost impossible to apply practically. Furthermore, the study does not take into account that the major amount of ANSPs costs correspond to ATCO staff who need very specific skills and long training. This is unlike in other regulated sectors, so the margin on "inefficiency reduction costs" is an overly simplistic approach.

4.4 DSNA

Foreword

In the description of the PRB approach to set the target ranges, we can only observe that the PRB has a biased analysis of the actual ANSP's performance in RP3. Indeed, when ANSPs don't meet their Environment and Capacity targets, it is analysed as a lack of efforts but when ANPS accomplish their Cost-efficiency targets, the PRB concludes that the targets were not ambitious enough.

We would like the PRB to acknowledge that maybe the conclusion reached for the Cost-efficiency can be applied to the Environmental and Capacity targets, i.e. the setting of the targets is also to blame when analysing the results (the values of the targets may have been too ambitious for the ANSPs to reach).

2.1 Interdependency between key performance areas

2.1.1 The goals for RP4 are to improve environmental performance while maintaining high safety standards: FABEC ANSPs perfectly agree with these aspirations. As demonstrated by the PRB, there is a strong correlation between delays and horizontal flight efficiency: a rise in delays directly deteriorates the environment KPI, the KEA. It is also observed that delays rise when the number of flights gets close to the sector's capacity limit (measured as a number of flights in an air volume). As the number of flights increases, ANSPs are expected to improve their ability to handle the traffic in an efficient manner to improve delays and trajectories. The mention of "*sufficient funds to deliver these improvement*" and "*the associated costs need to be taken into consideration when setting the cost efficiency target range*" are mentioned as an introduction of the presentation of the target ranges.

2.1.2 However, despite these strong statements, it is used in the methodology to justify only 6% of 2029 total costs.

2.2 Determination of the 2024 baseline

Context

2.2.1 The regulation needs to define the starting-point for the year-on-year change of Union-wide level (baseline value) for determined cost, and determined unit cost for the year preceding the start of the reference period (i.e. 2024). The Regulation specifies that the baseline value "*shall be estimated by using the actual costs available and adjusted to take into account the latest available cost estimates, traffic variations, and their relation to cost*".

2.2.2 In the document, the PRB chooses the median value of the costs from the June 2023 submission of the member states and the costs resulting from 3 different statistical models as the Baseline for the CEF calculation. It is intriguing that the PRB chooses a different methodology to determine the baseline value as all the data necessary ("*latest available cost estimates*") were provided be the members states.

Artificial inflation of the baseline value

2.2.3 The PRB created 3 linear regression models to estimate the baseline value of 2024. The results of the computation are unit cost of 55,68€2022 ; 55,42€2022 and 57,58€2022.

2.2.4 The unit costs submitted by the members states accounts to 53.77€2022. It is estimated from the latest actuals costs available as written in the implementing regulation (point 2.2.1).

2.2.5 It is not clear why the PRB choose to do an average of the four values when the costs submitted by the members states are lower than the computed value as it creates an artificial inflation of the baseline value and creating a more difficult target.

2.2.6 The artificial inflation of the baseline value by not retaining the minimum value (the costs submitted by members states) has **an impact of -0,6% on the advised targets range**.

Methodological problems with the Evidence 2 models

2.2.6 The models used are overly simplistic, they only calculate the average evolution of the total costs compared to the average evolution of the service units or the IFR movements during the year 2012 to 2019.

2.2.7 The PRB admits that the complexity was not taken into accounts to explain the evolution of costs.

2.2.8 We can inquire why the evolution of the costs during the year 2012 to 2019 directly relates to the evolution of cost during the year 2024 to 2029.We can also inquire why no inflation was added to the model. Calculation from the evidence 2 shows that the costs estimated for an additional service unit are **decreasing during the 2025-2029 period**: from 17€ per additional service units in 2025 to 15,5€ per additional services units in 2029 (-8%). Considering the added complexity of adding flights to a saturated airspace and the evolution of costs (inflation, energy), we should assume an increase of the costs per service units. The model demonstrates that it is not fit to forecast future costs.

An increase in the costs per service units doesn't mean that the ANSP gets inefficient, the ANSP gain productivity as long as its cost increase less than the increase of service units.

2.2.9 The coefficient of correlation of the model presented are significantly too low, meaning they cannot be used to forecast accurately as stated by the PRB.

The coefficient of determination lies between 0 and 1. The closer it is to 1, the better the linear regression matches the data collected.
- if $R^2 = 0$, the model explains nothing: variables X and Y are not correlated.
- if $R^2 = 1$, the model explains all the variations.
- A value of R^2 close to 1 is necessary for a reasonable no means sufficient fit, e.g. academically, a coefficient higher than 80% is the norm to indicate a good correlation.

2.2.10 The models constructed to estimate the costs for the years 2024 to 2029 have a R^2 values of 19%, meaning that they explain only between 19% of the evolution of the costs. These models should have been discarded as they are clearly not suitable from the exercise.

2.3 Determination of the Upper and lower bound 2029

Forecasting of the 2029 costs

2.3.1 As seen on the points 2.2.6 to 2.2.10, the linear regression models used are inaccurate and have very low predictive value as the coefficient of determination (R^2) demonstrates that the model only explains 19% of the evolution of the costs.

2.3.2 We can see they the models used doesn't accurately predict the 2024 costs. As the time scale goes by in can only increase the inaccuracy of the forecast. PRB should not use these models to forecast the 2029 costs.

Academic study on cost- efficiency

In the academic study, the 16% gap of score is not backed by realistic computation data and by strong models. Furthermore, the efficiency score shouldn't directly translate to costs.

Academic study on cost-efficiency - Methodologic problems with the DEA-VRS model

2.3.3 The Data Envelopment Analysis is a good model to estimate production costs of a group of **homogenous organizations** to benchmark it. It points out which plants are producing the most (electricity, cars, containers) with the lowest amount of costs.

2.3.4 The biggest flaw of using a DEA is to consider that all 29 ANSPs are operating in the same legal, fiscal and economic environment. The results of the benchmarking (and the variability observed) is the

results of this methodological flaw: we are not witnessing inefficiency in the cost-base of the ANSP, we are witnessing difference in the operating environment.

2.3.5 The second flaw is to consider that the costs incurred directly produced outputs (Flight hours and Number of sectors opening hours). An ANSP can have high costs due to an expectation of a high traffic without the realisation of the expected traffic. Another ANSP can have an unexpected high traffic resulting in a high value of Total IFR Flight hours without having plan the associated staff and investments costs.

2.3.6 The third flaw is that the model doesn't take into account that the outputs are not linear with the costs. The model doesn't address the fact that ANSP can have different level of saturation and different capability to scale the production of flight-hours with the existing means of production.

2.3.7 On the inputs of the DEA model : the staff costs are often very influenced by national law which purchase parity power (PPP) cannot transcribe accurately. The depreciation costs are calculated from the past CAPEX expenditures without any means of actions by the ANSP. Some ANSP will have an unexcepted low depreciation value for one year due to the end of amortization of past investments.

2.3.8 Considering points 2.3.4 and 2.3.7, we observe that one ANSP will always be the best at producing flights hours with the lowest costs (due to unexcepted high traffic; low saturation of the airspace; advantageous legal, fiscal and environment; low depreciation point). **Comparing each ANSP to the best one each year of each category is unrealistic and doesn't mean that some ANSP have inefficiency in their cost-base**.

2.3.9 The terms "Best practices" is highly litigious. The term implies that ANSP can converge to the cost-level of the best ideal practitioner. In reality, it doesn't seem possible to adopt the national law relating to employment of a neighbouring country, to act on the economic variables of the evolution of the costs (inflation, price of energy) or to modify the amortization plan of past CAPEX expenditure.

<u>Academic study on cost-efficiency - Methodologic problem with the SFA model</u>

2.3.10 The Stochastic Frontier Analysis (SFA) is estimating the efficiency of a firm to convert inputs into outputs. It measured how far from the full cost minimization is the firm.

2.3.11 On the inputs, we can remark that the Capital price (depreciation cost + cost of capital) of a year has very little correlation of the number of sector opening hours of the same year. A sum of the Capital price from the last 10 years seems to be more realistic to take into account the capital expenditure.

<u>Academic study on cost-efficiency - Methodologic problems with the usage of the score</u>

2.3.10 On the results of the DEA-VRS model : The box plot distribution of efficiency score have been provided for each year by the PRB. It raised several questions:

- How accurate is a model who scores range from 0.2 to 1 ?
- As more than ¼ of the ASNP score 1 in efficiency (upper 25th percentile at 1 from 2012 to 2019), we can remark that the full range of notation value is not used. It has very probably an impact on the computation of the weighted average.
- Why is arithmetic mean presented as it has no value to the exercise?

2.3.11 For realistic purpose, it is unclear why the PRB didn't use the data from the last year (e.g. 2019) as it the most accurate description of the efficiency of the ANSP. It is unclear why the ANSP should be penalize for past low score from theses models.

<u>Academic study on cost-efficiency - Methodologic problems with the absence of the data from MUAC</u>

2.3.12 The absence of the MUAC data to the analysis is disturbing. What is the relevance of computing an average estimated score from which the derivative targets will be applied indiscriminately to all members states without taking into accounts the data from a single member State. **The MUAC ANSP will be applied a target on its cost efficiency which depends only from external parameters.**

Academic study on cost-efficiency - Methodologic problems with the translation to the costs

2.3.13 We observe that the scores of the model is converted to potential saving using the following formula :

Potential cost saving = 1- average efficiency score

As demonstrated in the point 2.3.8, efficiency score doesn't equal to potential costs saving. The PRB should provides the methodology used to make the assumption of the above formula.

2.3.14 As the target will be applied indiscriminately, we can also remark that the methodology discriminates again the best scorer. How the most cost-efficient ASNP can improve theirs cost-bases by 16% ? **A higher value than the average should be chosen for the efficiency score to take this into account.**

2.3.15 As the efficiency score is linearly related to potential cost savings we can inquire of the ASNPs scoring 0,20 on the DEA-VRS scores. Does it means that they have 80% a cost saving available ? **The linearity between potential cost savings and efficiency score of the formula above should be questioned.**

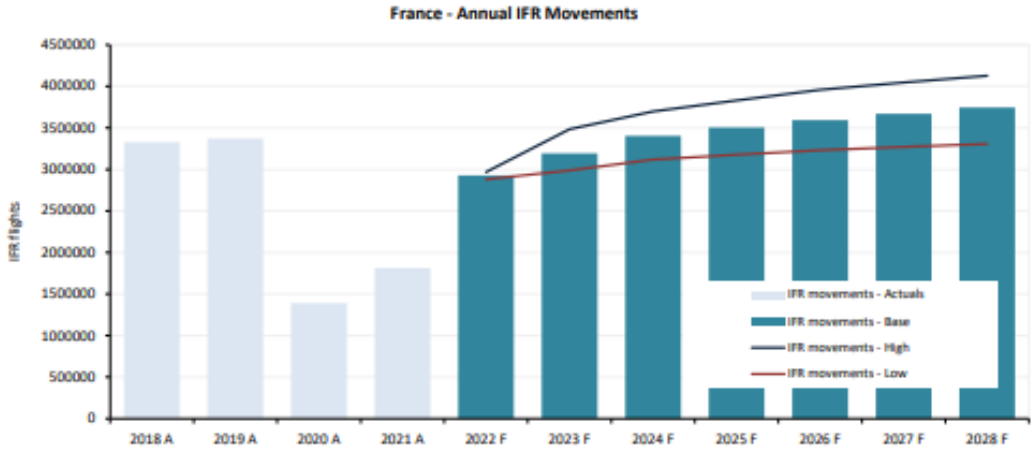
2.3.16 The DEA-VRS model clearly demonstrates the impact of delays on financial performance. This should be reflected in the target setting process.

2.3.17 The SFA model demonstrates that the reduction of delays implies higher costs as the seasonality and complexity of airspaces. These findings are not taken into account within the target setting process.

DSNA's en-Route delay simulation for RP4

1. Traffic forecast 2023-2028

EUROCONTROL's seven-year forecasts predict an average annual increase of between 2.3% and 5.7% over the planning cycle, with a baseline average growth of 4.2%.



2. Forecast changes in ACC capacity over the summer periods

3.

		2023	2024	2025	2026	2027
Bordeaux ACC	**Free Route Airspace**					
	Airspace Management Advanced FUA	Improved Airspace Management / FUA				
		TSA9 evolution: work in progress	ZENA Périgord	ZENA Ardèche		
	Airport & TMA Network Integration					
	Cooperative Traffic Management	Improved ATFCM Procedures and STAM				
		CDM processes and procedures				
		MAC				
	Airspace					
	Procedures					
	Staffing	Maintain number of ATCOs				
		Densified roster				
	Technical				NVCS 4-Flight	
	Capacity	Increase of some OTMV of sectors				
	Significant Events		Training 4-Flight (outside school holidays)		Implementation 4-Flight	Increasing progressively due to 4-Flight
	Max sectors	16 UCESO	15 UCESO	15 UCESO	16 UCESO	16 UCESO
	Planned Annual Capacity Increase	10%	0%	0%	3%	3%

Brest ACC	**Free Route Airspace**				FRA implementation Central/East cells	
	Airspace Management Advanced FUA	Improved Airspace Management / FUA				
		TSA9 evolution: work in progress				
	Airport & TMA Network Integration		LFRS south east traffic flow DCT LFBB -> N sector reduced load			
	Cooperative Traffic Management	Improved ATFCM Procedures and STAM				
		CDM processes and procedures				
		MAC				
	Airspace	FRA UK SW interface				
	Procedures	SALCO/DEL OG axis x2				
	Staffing	Maintain number of ATCOs				
		Densified roster				
	Technical	NVCS Implementation				
	Capacity				Implementation of 4-Flight	Increasing progressively due to 4-FLIGHT
	Significant Events		Training 4-Flight (outside school holidays)			
	Max sectors	18 UCESO	17 UCESO	16 UCESO	16 UCESO	16 UCESO
	Planned Annual Capacity Increase	20%	0%	0%	3%	3%
Marseille ACC	**Free Route Airspace**		Implementation of FRA – Mediterranean cell (Q1 2024)	Full Implementation of FRA – (Q4 2025)		
	Airspace Management Advanced FUA	Improved Airspace Management / FUA				
	Airport & TMA Network Integration					
	Cooperative Traffic Management	Improved ATFCM Procedures and STAM				
		CDM processes and procedures				
		MAC				

	Airspace					
	Procedures					
	Staffing	Gradual increase of number of ATCOs – East Stabilization of number of ATCOs - West				
	Technical	4-FLIGHT implementation (06/12/2022)				
	Capacity	Increasing progressively due to 4-FLIGHT				
	Significant Events					
	Max sectors	29 UCESO (15+14)	30 UCESO (16+14)	30 UCESO (16+14))	31 UCESO (17+14))	31 UCESO (17+14))
	Planned Annual Capacity Increase	6%	10%	7%	3%	0%
Paris ACC	**Free Route Airspace**			Q4 FRA implementation north-east cell with LFEE	Q4 FRA implementation north-west cell with LFRR	
	Airspace Management Advanced FUA					
	Airport & TMA Network Integration			PBN to ILS LFPO		
	Cooperative Traffic Management	Improved ATFCM Procedures and STAM CDM processes and procedures MAC				
	Airspace	Transfer of Seine Airspace	Reorganisation of lower airspace and delegation of ATS to APP units below FL115 (North West of FIR)		Channel interface Reims/MUAC Paris/Skeyes interface	
	Procedures					
	Staffing	Stability of number of ATCOs				
	Technical	Transfer of Seine Airspace	4-Flight implementation (Q4 2024)			
	Capacity		Increasing progressively due to 4-FLIGHT			

	Significant Events	Training for 4Flight (beginning 2022 to end 2023)	Olympic games Paris			
	Max sectors	12 UCESO (6+6)	12 UCESO (6+6)	12 UCESO (6+6)	12 UCESO (6+6)	12 UCESO (6+6)
	Planned Annual Capacity Increase	19%	6%	7%	7%	0%
Reims ACC	**Free Route Airspace**		Q1 FRA implementation NE cell	Q4 FRA North cell		
	Airspace Management Advanced FUA	Improved Airspace Management / FUA				
	Airport & TMA Network Integration					
	Cooperative Traffic Management	Improved ATFCM Procedures and STAM				
		CDM processes and procedures				
		MAC				
	Airspace			Reorganisation of lower airspace with Strasbourg and Bale APP		Channel interface Reims/MUAC interface French Corner with DFS
	Procedures					
	Staffing	Densified rostering				
		Maintain number of ATCOs	Maintain number of ATCOs	Maintain number of ATCOs		Maintain number of ATCOs
	Technical					
	Capacity	Increasing progressively due to 4-FLIGHT				
	Significant Events					
	Max sectors	14 UCESO	15 UCESO	15 UCESO	15 UCESO	16 UCESO
	Planned Annual Capacity Increase	22%	12 %	7%	0%	5%

4. Projected timescales for en-Route, 2024 and beyond

As an input, we observe a delay of 5.9 million minutes in 2023, i.e. 2.46 minutes per flight, broken down by cause as follows:41% Industrial action

- 20% Staffing
- 17% Capacity ATC
- 16% Weather

- The remaining 6% is broken down into various causes, with very low values.

In assessing the projection, the following factors are taken into account:

- Restructuring of air traffic control services: DSNA will implement major measures to restructure its services, the first effects of which will be seen from the middle of the period: removal of the ceiling on CRNAs, regrouping of approaches, introduction of two FICs for all French airspace, and closure of ATC services at certain aerodromes whose traffic characteristics do not justify such services;

- Capacity ATC : the increase in capacity in Reims and Marseille air traffic control centres should continue as staff take on board the system and a new V2.0 version is brought into service, bringing a number of improvements. The gain in capacity is estimated at between 10 and 20%, leading to a 15 to 20% reduction in related delays. On the other hand, the introduction of 4-FLIGHT in Paris in 2024 and Brest and Bordeaux in the following years will generate delays of 200,000 minutes per year.

- Weather: although we are seeing increasingly frequent and severe weather, the introduction of advanced coordination measures at NM level should make it possible, despite the increase in traffic, to keep Weather delays at the same level as in 2023.

5. RP4 Targets

In view of the above, it does not seem unreasonable to set the RP4 targets for the whole period at 1 minute delay per flight for en-route.

4.5 ENAIRE

ENAIRE

ENAIRE Comments on PRB's proposal for RP4 cost-efficiency targets

1. Introduction

The cost efficiency of Air Navigation Services Providers (ANSPs) is an important element for the development of an efficient Single European Sky. However, ANSPs cost-efficiency is not straightforward, as it depends on several factors, such as the level of traffic, the complexity of the airspace, the investment grade, the regulatory framework and the financial market conditions.

ENAIRE has always advocated for EU CEF targets that support delivery of Air Navigation Services with the highest safety standards, a lesser environmental impact and providing the required capacity.

In June 2023 EU Member States submitted initial cost data and information about traffic forecasts related to the upcoming reference period RP4, as inputs for the setting of Union-wide performance targets following Article 9 of Performance and Charging Regulation 2019/317.

In this context the PRB published in September 2023 a complete report on "Advice on the Union-wide target ranges for RP4" including a proposal on unit cost-efficiency targets.

The cost efficiency proposal includes two ranges of compound average growth rate (CAGR) for the EU unit costs throughout RP4 (2025-2029).

This CAGR is calculated taking into account a **unit cost baseline value for 2024** and **two different targets for 2029-unit costs:**

PRB advise on Union-wide efficiency targets ranges for RP4 – data in €2022.

PRB proposal	2024 baseline value	2029 DUC Target	CAGR
Upper bound target	55.61	53.58	-0.7%
Lower bound target	55.61	47.49	-3.1%

After reviewing the methodology that the PRB uses to set the CEF targets, some inconsistencies and differences in calculation criteria have been found.

In this respect, after analysing all evidence of the PRB report, and accepting the proposed reduction on 2029 ANSP costs in real 2022 monetary terms by -5% and -10%, (what is denominated in the report as "ANSP cost inefficiency" reduction gap), but considering only Member States cost data submission adjusted by PRB -Evidence 1 of the report- ENAIRE has revised RP4 cost efficiency range targets that would respond more to the reality and therefore would be more achievable:

Union-wide efficiency targets ranges – ENAIRE RP4 proposal – data in €2022
Based on Evidence 1: States data submission plus PRB adjustment-

ENAIRE proposal	2024 baseline value	2029 DUC Target	CAGR
Upper bound target	53.77	53.58	-0.07%
Lower bound target	53.77	50.89	-1.09%

ENAIRE

2. Comments on the calculation of PRB proposed RP4 CEF targets.

2.1. Cost base forecasts- Evidences

Cost base forecasts used to calculate the unit costs target ranges are based on three different evidences:

- **Evidence 1:** Latest available cost data submitted by the States in June this year (ANSPs, NSAs and Eurocontrol costs) for the period 2023-2029, *including an adjustment made by the PRB to include missing or erroneous data.*
  ENAIRE proposal: Only data submitted by States -Evidence 1- should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data.

- **Evidence 2:** Forecasts on costs estimated by the PRB based on a linear dependency of costs and traffic as stated in the academic study:
  - Service units based forecast costs: 0.33% increase in forecast ANSPs costs per 1% increase in service units.
  - IFR based forecast costs: 0.39% increase in forecast ANSPs costs per 1% increase in IFR movements.

  ENAIRE comments: This is a very simplistic approach; it does not consider ANSPs spare capacity to cope with the expected extra traffic. ANSPs that are facing traffic delays with little spare capacity have a bigger cost effort and operative and infrastructure limitations.
  ENAIRE proposal: Only data submitted by States should be considered, since these data are mature enough and have been adjusted by the PRB to include missing or erroneous data.

- **Evidence 3: Academic Study: resulting in ANSPs inefficiency in costs of around 16%.**
  The PRB proposes a range from 5% to 10% reduction in ANSPs costs, taking into consideration that extra cost is needed to meet RP4 EU capacity and environment targets.

  The Academic study (Annex II) analyses the efficiency of ANSPs through two Benchmarking models (DEA - Data Envelopment Analysis; SFA - Stochastic Frontier Analysis) widely used in different sectors, including someone regulated by European governments. Both models mathematically simulate the behaviour of the ANSPs by comparing them with statistical functions based on the "Best Practices" that result from the calculations. Each of these models has certain limitations and present different results that are finally combined.

  ENAIRE comments: ENAIRE cannot support the following approaches taken by the study:
  - ***it assumes that ANSPs operate in same economic and legal environment***
  - ***it assumes that they should all be performing at the same level***
  - ***not all factors are considered e.g. Ukraine war***
  - ***there is a lack of transparency***
  - ***the baseline of costs is too high***
  - ***Real term cost calculation is not taken into account, resulting in misleading conclusions, especially due to high future CAPEX costs***
  - ***There is no documentation on robustness or to test outliers***
  - ***Variables have not been tested for relevance***

ENAIRE

2.2 Estimate of 2024 Union wide baseline values.

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4*- Page 43/45- Paragraph 210-211 -Table 31.

> **210.** *"As defined by the Regulation, both a Union-wide baseline value for the determined costs and a Union-wide baseline value for the determined unit costs should be defined in respect to the year preceding the start of the reference period (i.e., 2024). The PRB considered four baseline values, calculated by dividing the 2024 costs estimated in the evidence by the 2024 STATFOR base forecast.* ***The Member States' submissions for 2024 may have been underestimated for some, while for others the forecast costs are more accurate and reflect the latest available data****. In order to eliminate the bias of the underestimated data and capture at the same time the latest available costs forecasts, the PRB calculated a baseline based on the sum of the maximum costs per Member State (i.e., the maximum costs between Evidence 1 and 2 for each Member State separately). (…)"*

	2024 Costs ($M€_{2022}$)	2024 Service units (M)	2024 Unit cost ($€_{2022}$)
Evidence 1 – Member States submission	6,959	129	53.77
Evidence 2 – SU based forecast	7,206	129	55.68
Evidence 2 – IFR based forecast	7,173	129	55.42
Max of evidence 1 and 2	7,452	129	57.58

Table 31 – 2024 baseline values as estimated from the cost-efficiency evidence.

> **211**. "Considering the potential bias of each evidence, the PRB recommends, as 2024 baseline, the average between the four values estimated. The resulting 2024-unit cost baseline equals **55.61€2022.** "

ENAIRE comments: PRB should take into account only Member States submission data-evidence 1.

The planning on 2024 costs is mature enough since they have been elaborated seven months ahead, and no significant variation on ANSPs reported costs should be expected.

In this sense, there is no clear justification to use any other data than Evidence 1 to estimate 2024 union wide baseline values. The result of the study is artificially higher what translates in a more demanding reduction percentage target.

There is no clear justification for not using latest and reliable data to estimate the 2024 starting but the clear intention to obtain a more exigent reduction percentage CEF target.

ENAIRE proposal: Taking into account evidence 1 (States costs submission +PRB adjustments), the proposed EU starting point (**55.61€2022**) ***should be changed by a more realistic unit cost that is 53.77€2022***

ENAIRE

2.3 Estimate of 2029 Union wide costs:

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4 - Page 45/45- Paragraph 214- Table 32*

PRB has defined two ranges of unit costs targets for year 2029:

- **Upper bound target** (less ambitious), -5% reduction on 2029 ANSPs cost base, that is -4,6% **on** total costs 8,023 M€2022 (evidence 1), resulting in a **DUC 53.58€2022**
- **Lower bound target** (more ambitious), -10% reduction on 2029 ANSPs cost base (evidence 2- IFR movements), that is **-9,2% on total costs** over **7,471 M €2022**, with an associated **DUC 47.49€2022.**

ENAIRE comments: There is a clear inconsistency. The same figure (8,023M€2022) should be used to calculate both upper and low ranges.

If we consider a -10% reduction on ANSPs costs using the same figure the resulting lower bound target is 50.89€2022 instead of 47.49€2022.

Upper bound 2029	
Evidence 1 – 2029 Member States submission costs	8,023M€2022
5% efficiency gain	-373M€2022
2029 Union-wide costs	7,650M€2022
2029 Service units (M)	143
2029 upper bound unit cost	**53.58€2022**

Lower bound 2029	
Evidence 2 – 2029 IFR based forecast costs	7,471M€2022
10% efficiency gain	-691M€2022
2029 Union-wide costs	6,780M€2022
2029 Service units (M)	143
2029 lower bound unit cost	**47.49€2022**

Lower bound 2029 REVISED	
Evidence 1 – 2029 Member States submission costs	8,023 M€2022
10% efficiency gain	-746 M€2022
2029 Union-wide costs	7,277M€2022
2029 Service units (M)	143
2029 lower bound unit cost	**50.89 €2022**

Table 32 - Upper and lower bound 2029 unit cost.

ENAIRE proposal: Taking into account evidence 1 (States costs submission +PRB adjustments), the proposed EU targets ***should be changed by a more realistic unit cost:***

Union-wide efficiency targets ranges – ENAIRE RP4 proposal – data in €2022

Based on Evidence 1: States data submission plus PRB adjustment-

ENAIRE proposal	2024 baseline value	2029 DUC Target	CAGR
Upper bound target	53.77	53.58	-0.07%
Lower bound target	53.77	50.89	-1.09%

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3. Other findings - PRB Advice on the Union-wide target ranges for RP4

3.1 Eurocontrol costs in the RP4 CEF union wide targets.

Reference; *Annex 1 of PRB Advice on the Union-wide target ranges for RP4 - Page 44/45 par 214*

> 214 (…)" ***Given that the cost inefficiency from Evidence 3 is estimated on the ANSPs costs, the percentage is applied only to a part of the cost base (i.e., NSAs and ECTL costs are not reduced).*** *Dividing the resulting cost bases by the 2029 Union-wide service units as forecast by STATFOR base scenario, the 2029-unit costs for the upper and lower bounds of the targets (…)".*

ENAIRE comments: Only ANSPs cost data are subject to inefficiency cost reductions, there is no justification for not including all costs, such as Eurocontrol costs as part of the EU CEF targets proposal.

Eurocontrol and NSAs costs represent around **7.5% of total costs submitted for RP4**, with an **increase of 13%, in year 2029 in respect of 2024** reported costs **(+2,5% CAGR for RP4**) but **no pressure is put on Eurocontrol costs.**

ENAIRE proposal: Eurocontrol's cost base should also be included as part of the objective on cost efficiency for RP4.

3.2 Academic study on cost efficiency

Analysing the data model sample of the Academic Study the following aspects should be considered:

A. The set of data considered **is not homogeneous** due to the quite distinctive characteristics of reference periods 1 and 2:

- **RP1 (2012-2014)**; ANSPs designed the performance plan in 2011 considering an optimistic evolution on traffic and increasing ATCOs number staff and investment but the 2012 global financial crisis led to a decrease on the expected traffic. As a result, there was a clear inefficiency in costs in this period.
- **RP2 (2015-2019);** ANSPs designed the performance plan in 2014 considering an optimistic but progressive evolution on traffic and planning ATCOs number staff and investment accordingly. However, years 2018 and 2019 marked records of traffic increase, what resulted in high-cost efficiency gains.

B. Assumptions are taken into account to analyse ANSPs cost efficiency in an environment of delay and cero delay on traffic.
No comparison on cost efficiency can be made since an ANSP without traffic delays has an extremely low cost to cope with additional traffic, however an ANSP that is facing traffic delays with little spare capacity has a bigger cost effort and operative and infrastructure limitations.

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In conclusion, the data set is not homogeneous, and this can be demonstrated if we take a look at the same RP3 academic study carried out in 2018 with 2012-2017 set data and where the so called "inefficiency in costs" was around 40%, showing ranges of inefficiency in ANSPs costs very divergent (16% inefficiency vs 40%).

The analysis is completely theoretical, therefore its translation to the real institutional, economic, operational, or other specific factors affecting ANSPs performance results, could be of almost impossible practical application. On top of that, the study does not take into account that the major amount of ANSPs costs correspond to ATCOs staff with very specific skills and long training, unlike what happens in other regulated sectors so the margin on "inefficiency reduction costs" is an overly simplistic approach.

4. ENAIRE proposal on RP4 Union wide cost efficiency target ranges

In order to set achievable and realistic cost efficiency targets for RP4, ENAIRE proposes that only data from "Evidence 1" should be considered, since it takes into account latest available data submitted by States in June 2023, and possible mistakes or missing data have been adjusted by the PRB. These data are mature enough and there's no reason to do any further adjustments.

Taking into account the PRB proposal of reducing 2029 ANS costs relative to "ANSP cost inefficiency" by -5% and -10% together, but taking Evidence 1 data as a base, would translate in a more realistic and achievable target. That is:

- **2024 starting point,** based on 2024 cost base "Evidence 1", i.e. 6,959M€$_{2022}$ resulting in an estimated unit cost of **53.77€$_{2022}$ unit cost**
- **2029 target ranges:** reduction on 2029 base cost Evidence 1 (8,023M
  - **upper bound ~ 53.58€2022 unit cost (-0.07% CAGR)**
  - **lower bound ~ 50.89€2022 (-1.09% CAGR)** .

The following table summarizes ENAIRE RP4 Union wide cost efficiency target ranges:

Union-wide efficiency targets ranges – ENAIRE RP4 proposal – data in €2022

Based on Evidence 1: States data submission plus PRB adjustment-

ENAIRE proposal	2024 baseline value	2029 DUC Target	CAGR
Upper bound target	53.77	53.58	-0.07%
Lower bound target	53.77	50.89	-1.09%

ENAIRE

Detail calculations:

✓ **2024 Baseline value unit cost: 53.77€2022 (Member States submission and PRB adjustment)**

	2024 Costs (M€2022)	2024 Service units (M)	2024 Unit cost (€2022)
Evidence 1 – Member States submission	6,959	129	53.77

✓ **2029-unit costs ranges:**

- Upper bound target (less ambitious), -5% reduction on 2029 ANSPs cost base, -4,6% on 2029 total costs 8,023 M€2022 (evidence 1), resulting in a DUC 53.58€2022
- Lower bound target (more ambitious), -10% reduction on 2029 ANSPs cost base, -9,2% on total costs 8,023 M€2022 (evidence 1), with an associated DUC 50,89 €2022.

Proposed Upper bound 2029	
Evidence 1 – 2029 Member States submission costs	8,023 M€2022
5% efficiency gain	-373M€2022
2029 Union-wide costs	7,650M€2022
2029 Service units (M)	143
2029 lower bound unit cost	53.58 €2022

Proposed Lower bound 2029	
Evidence 1 – 2029 Member States submission costs	8,023 M€2022
10% efficiency gain	-746 M€2022
2029 Union-wide costs	7,277M€2022
2029 Service units (M)	143
2029 lower bound unit cost	50.89 €2022