Performance Plan

FABEC

Fourth Reference Period (2025-2029)

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We hereby confirm that the present performance plan is consistent with the scope of Implementing Regulation (EU) No 2019/317 pursuant to Article 1 of Regulation (EU) No 2019/317 and Article 7 of Regulation (EC) No 549/2004.

Name, title and signature of representative	
Belgium	
	(electronically signed)
France	
	(electronically signed)
Germany	
	(electronically signed)
Luxembourg	
	(electronically signed)
Netherlands	
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Switzerland	
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Additional comments	

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SECTION 3.1: SAFETY KPA

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety national performance targets

b) Justifications for the local safety performance targets

c) Main measures put in place to achieve the safety performance targets

Annexes of relevance to this section

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

3 - PERFORMANCE TARGETS AT LOCAL LEVEL

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety performance targets

	Number of Air Traffic Service Providers	7

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
skeyes	Safety policy and objectives	B	B	B	B	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	B	B	C
	Safety promotion	B	B	B	B	C
	Safety culture	B	B	C	C	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
DSNA	Safety policy and objectives	B	B	C	C	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	C	C	C
	Safety promotion	B	B	B	B	C
	Safety culture	B	C	C	C	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
DFS	Safety policy and objectives	B	B	C	C	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	C	C	C
	Safety promotion	B	C	C	C	C
	Safety culture	B	B	C	C	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
ANA LUX	Safety policy and objectives	B	B	B	B	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	B	B	C
	Safety promotion	B	B	B	C	C
	Safety culture	A	B	B	B	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
LVNL	Safety policy and objectives	C	C	C	C	C
	Safety risk management	B	B	C	C	D
	Safety assurance	B	B	B	C	C
	Safety promotion	A	C	C	C	C
	Safety culture	A	A	B	B	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
Skyguide	Safety policy and objectives	C	C	C	C	C
	Safety risk management	B	B	C	C	D
	Safety assurance	B	B	B	C	C
	Safety promotion	B	C	C	C	C
	Safety culture	B	C	C	C	C
	Additional comments					

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
MUAC	Safety policy and objectives	B	C	C	C	C
	Safety risk management	B	B	B	C	D
	Safety assurance	B	B	C	C	C
	Safety promotion	B	B	C	C	C
	Safety culture	B	C	C	C	C
	Additional comments					

b) Justifications for the local safety performance targets

DSNA:
In order to reach the D target for SRM, DSNA will have to make further efforts. To ensure that, it has been decided to balance the allocation of efforts between safety aeras and therefore propose a slower pace over RP4 for some, especially safety promotion.

DFS:
In order to determine the intermediate targets, the content of the new RP4 EoSM questionnaire was analysed with regard to the new requirements in each Management Objective. A conservative approach was followed to determine which requirements could be fully implemented in which year of the regulatory period. The achieved maturity levels will increase over the course of the regulatory period. The aim is to achieve the target by the end of the regulatory period at the latest.

ANA LUX:
As ANA has already struggled in Rp3 to achieve the EOSM targets as we were suffering from understaffing and workload issues on the Safety side. This is in the process of being solved, which along with the resolution of EOSM related Corrective Action Plans should enable us to further improve our EOSM scores in the coming years. We are proposing this conservative intermediate targets approach to ensure that we are able to develop and implement them in a sustainable way which is realistic and achievable.

LVNL:
Initial analysis, using the newly proposed questionnaire, indicated the levels as shown in 2025. From there, a cautious and somewhat conservative approach to improvement is suggested to maintain the current level or improve the level, over the years up to and including 2029.
Specifically, for each area:
safety policy: this is considered to be fine as it is. There is no need for a higher level
Safety risk management: we believe LVNL has an excellent safety risk management implementation. Some elements of the questionnaire are contentious to achieve a higher level. As such, we choose to remain on the conservative side and only achieve level D at the last year to avoid incurring unnecessary costs in the leading years.
Safety Assurance: no particular observations.
Safety promotion: Of note is a jump from level A to C after the first year, with a relatively minor improvement in the area of demonstration of staff's competence levels to conduct their obligation under the SMS.
Safety Culture: LVNL has traditionally sought other ways than a company wide safety culture survey to enhance the working culture for safety. A cautious and conservative approach is chosen to achieve the required level C in 2029.

Skyguide:
Skyguide is committed to improve the effectiveness of its SMS, hence of safety. For that purpose, Skyguide seeks to achieve a level D in safety risk management, however it is considered as very challenging. At this point in time, it can't assess whether this target is achievable by the end of RP4.

** Refer to Annex O, if necessary.*

c) Main measures put in place to achieve the local safety performance targets

DFS:
Over the course of the regulatory period, the measures for achieving the local safety targets will be derived from those requirements of the EoSM questionnaire which are not yet considered to be fully met. This takes place in addition to the regular continuous improvement of the SMS, which is carried out alongside the requirements of the EoSM questionnaire.

ANA LUX:
Action plans are in place to achieve EOSM related corrective action plans, in addition, safety staff has been recruited and will be recruited in the coming years to make sure that we can work in a more proactive manner for Rp4.

LVNL:
Safety Policy: no actions necessary
Safety Risk Management: to include human factors specialist integrated in all programmes, to include safety requirements and human factor requirements in all agreements, to include track changes administratively of all hazards identified in changes, to have staff and contractors trained in risk management, to communicate importance of fatigue related risk to all operational staff.
Safety Assurance: To include or enhance a formal process to analyse trends from SMS audits, to hold safety surveys that resuls in improvements plans with specific actions, to seek weak signals in operations, to internally do a comparitive analysis of occurrence reports and to measure the effectiveness of change management.
Safety Promotion: To ensure staff are competent to conduct their obligations under the SMS.
Safety Culture: To develop a safety culture development plan, to hold regular safety culture assessments across the whole organisation according to the requirements that follow from the questionnaire and to provide Just Culture continuation training.

Skyguide:
RP4 safety targets will be part of the updated safety strategy of Skyguide in order to ensure that the required work is adequately prioritized.

** Refer to Annex O, if necessary.*

SECTION 3.2: ENVIRONMENT KPA

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)
- a) Environment performance targets
- b) Justifications for the local environment performance targets
- c) Main measures put in place to achieve the environment performance targets

Annexes of relevance to this section

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

a) Environment performance targets

	2025	2026	2027	2028	2029
FAB reference values	2.89%	2.84%	2.81%	2.79%	2.78%

	2025	2026	2027	2028	2029
	Target	Target	Target	Target	Target
FAB targets	2.89%	2.84%	2.81%	2.79%	2.78%

	2025	2026	2027	2028	2029
Breakdown values	Value	Value	Value	Value	Value
Belgium and Luxembourg	3.50%	3.48%	3.46%	3.42%	3.40%

skeyes contribution to FABEC target

Within Skeyes airspace, reducing extra nautical miles to improve KEA is challenging as many factors are beyond the responsibility of the ANSP (e.g. MIL airspace, weather, airspace user choices). FRA is considered the largest enabler for improving KEA. However, upper airspace in Belgium (above FL245) is delegated to MUAC and is therefore out of scope for Skeyes. Additionally, as there is a 40 nm exclusion zone around the departing/arriving airport for the KEA indicator, it leaves only little room to influence/improve the KEA indicator within airspace controlled by Skeyes. A WG was established to in Nov 2020 to discuss the implementation of F35 aircraft in Belgian/skeyes airspace under the auspice of the FUA Level 1 authorities. It is expected that this will impact, amongst others, horizontal flight efficiency.

Measures skeyes has implemented to contribute to the KEA target are:
- Establishing (with DEF and MUAC) a CIV-MIL AMC, co-located at skeyes premises, which aims at optimising the airspace management between CIV and MIL
- Improved FUA at Belgian level - together with DEF and MUAC
- Environmental action plan by skeyes, in which the main pillar is addressing flight efficiency

MUAC contribution to FABEC target

MUAC has or is in the process of implementing measures during RP4 which will improve KEA performance. Several initiatives with the aim of enhancing airspace design/improving FUA have been taken. Such as the cooperation with DSNA for the implementation of FRA with Reims ACC East (Feb. 2024) and ACC West (2025), the availability of shorter routes inbound to AMS (UY473) and outbound from Gatwick (UL10/15), the continuation of a trial in the Netherlands (Booking-based AUP), continuous enhancements to airspace design (COBRA Germany, MAASERATI Germany and the Netherlands), and implementation of cross border FRA with DFS (Nov. 2023).

Other improvements include the support of XMAN developments at a European Level, re-routeing proposals offered by MUAC to Airspace Users using the ATM portal, cooperation with DFS, DLH and DLR for the extension of CDO towards EDDF from MUAC airspace, and further developments of features linked to the use of ADS-C.

France	2.87%	2.83%	2.79%	2.76%	2.75%

DSNA contribution to FABEC target

Implementation of 4F systems has generated additional strain on the units, preventing large optimization plans for the DSNA route network. That absence of redesign project impacts the expected figures related to DSNA environmental capabilities for 2025 and 2026 limiting the benefits to FRA implementation.

A major redesign project of the upper airspace will be initiated in 2025, with expected benefits from 2026, the bulk of the benefits being accrued from 2027 onwards consistent with the use of the airspace management capabilities enabled by the new 4F system.

Improvements and initiatives planned in RP4 are as follows:
- Optimization of the RAD measures conducted as a management of airspace activity in the context of FRA implementation
- FRA implementation in Nov. 2025 in Marseille, Reims, and Paris ACC.
- FRA implementation in Nov. 2026 in Brest and Paris ACC.
- Optimisation of FRA cell in Reims in 2027.
- Cross border FRA with Switzerland, MUAC and DFS slotted for the time frame envisaged.
- Implementation of FRA like direct trajectories in the non-FRA airspace in Brest ACC airspace
- Implementation of Night direct trajectories
- Enhanced coordination with airspace users to enhance use of optimised trajectories
- Optimization of arrival trajectories implemented to support CDO implementation in regional airports (LFLL, LFMN, LFML, LFBO, LFMT, LFML, LFBO, LFRS, LFSB, LFST, ...
- Implementation of PBN trajectories in ORLY in 2025 and CDG between 2026 and 2028
- Optimized transfer coordination in the context of 4F implementation (reducing level offs, optimised climb profiles, ...)

Germany	2.62%	2.57%	2.55%	2.54%	2.53%

DFS contribution to FABEC target

Achieving the KEA targets, bearing in mind that further traffic growth, increased volatility of aviation post COVID, and individual airspace user's behaviour and preferences all have an impact on HFE will be ambitious. The KEA values achieved during the low traffic period during the covid crisis demonstrated an asymptotic limit that can hardly be exceeded even with reasonable capacity buffers. Analysing the overall environment performance only parts of DFS' achievements result in better KEA values, since KEA is a „network efficiency indicator" but less a "pure" ANSP environment indicator. Direct overflights continue to grow faster than short-haul traffic, which is more inefficient on the HFE side. The capacity development, which already could be improved in 2023, will continue.

The implementation of FRA in Europe and specifically in Germany continuously delivers improvements in route optimisations. It includes the arrangements on cross border connections with adjacent airspaces. Over the past few years DFS has implemented/is in the process of implementing the following measures:

- Cross Border FRA with Sweden and Denmark implemented in 2017.
- Night-Cross border FRA with Austria and Switzerland implemented in 2022.
- Cross border FRA with Maastricht UAC implemented in Nov. 2023.
- Cross border FRA with Poland and Czech Republic to be implemented when a system enabling trajectory-based flight plan data processing (ICAS or similar) is operational.
- FRA in Langen FIR and Bremen FIR is also dependent on a system enabling trajectory-based flight plan data processing (ICAS or similar).
- RAD optimisation is ongoing with updates at every AIRAC cycle.
- Route network optimisation is linked to the ongoing PBN transition and implementation.

MUAC contribution to FABEC target

MUAC has or is in the process of implementing measures during RP4 which will improve KEA performance. Several initiatives with the aim of enhancing airspace design/improving FUA have been taken. Such as the cooperation with DSNA for the implementation of FRA with Reims ACC East (Feb. 2024) and ACC West (2025), the availability of shorter routes inbound to AMS (UY473) and outbound from Gatwick (UL10/15), the continuation of a trial in the Netherlands (Booking-based AUP), continuous enhancements to airspace design (COBRA Germany, MAASERATI Germany and the Netherlands), and implementation of cross border FRA with DFS (Nov. 2023).

Other improvements include the support of XMAN developments at a European Level, re-routeing proposals offered by MUAC to Airspace Users using the ATM portal, cooperation with DFS, DLH and DLR for the extension of CDO towards EDDF from MUAC airspace, and further developments of features linked to the use of ADS-C.

Netherlands	2.92%	2.90%	2.88%	2.86%	2.84%

LVNL contribution to FABEC target

The LVNL targets are based on historic performance with a margin on top to reflect the effect of external factors on the LVNL performance, that LVNL cannot or only marginally influence. This concerns amongst others the route choices of airspace users, the availability of temporary reserved areas and actions of neighbouring ANSPs. The implementation of ICAS, which is expected in 2026 will likely reduce KEA performance in 2026 and 2027 as capacity restrictions due to the testing, training, and implementation will most likely lead to additional vectoring and holdings. When ICAS is implemented LVNL is hoping to improve KEA performance in 2028 and 2029.

Initiatives and improvements planned in RP4 are:
- Implementation RECAT-EU and TBS at Amsterdam-Schiphol in 2023.
- Use of LARA for advanced FUA, making temporary reserved areas available for civil traffic.
- Implementation of Extended AMAN, reducing the need for vectoring and holding in ACC sectors to absorb delays, reducing the additional flight distance and time.

MUAC contribution to FABEC target

MUAC has or is in the process of implementing measures during RP4 which will improve KEA performance. Several initiatives with the aim of enhancing airspace design/improving FUA have been taken. Such as the cooperation with DSNA for the implementation of FRA with Reims ACC East (Feb. 2024) and ACC West (2025), the availability of shorter routes inbound to AMS (UY473) and outbound from Gatwick (UL10/15), the continuation of a trial in the Netherlands (Booking-based AUP), continuous enhancements to airspace design (COBRA Germany, MAASERATI Germany and the Netherlands), and implementation of cross border FRA with DFS (Nov. 2023).

Other improvements include the support of XMAN developments at a European Level, re-routeing proposals offered by MUAC to Airspace Users using the ATM portal, cooperation with DFS, DLH and DLR for the extension of CDO towards EDDF from MUAC airspace, and further developments of features linked to the use of ADS-C.

Switzerland	4.34%	4.31%	4.28%	4.23%	4.18%

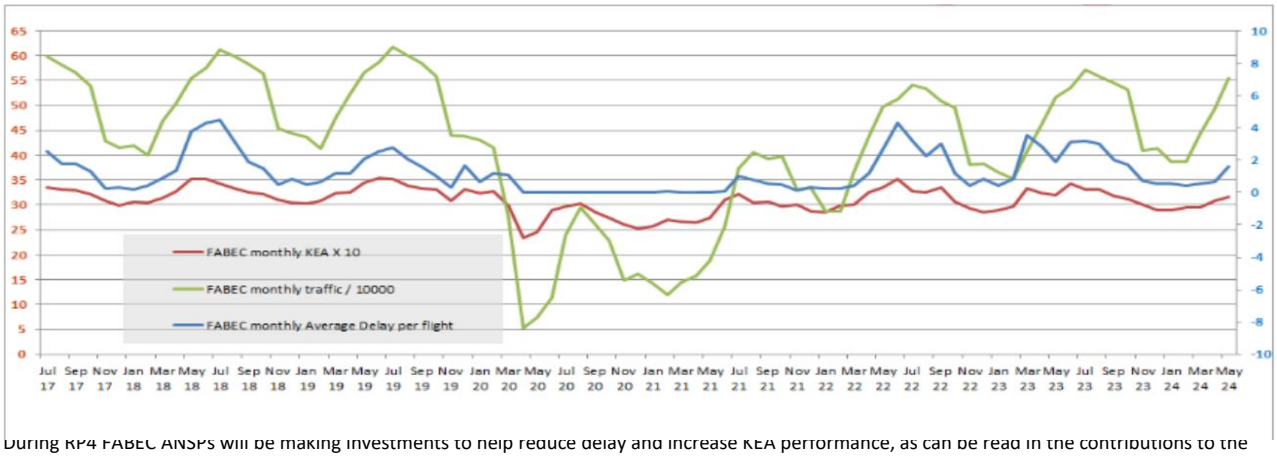
Skyguide contribution to FABEC target

RP4 targets should be ambitious but achievable. Maintaining the 2024 performance throughout RP4 will be challenging given the negative impact of traffic growth on flight efficiency and the lack of major airspace redesign projects during RP4 to significantly address this.

Skyguide has/is in the process of implementing the following measures:
- ATFCM/ASM CDM procedures for Airspace Request Levels 2 and 3
- FRA cross-border additional improvements
- Flexible Letter of Agreement
- FABEC RAD harmonization
- Civil – Military ASM system deployment

b) Justifications for the local environment performance targets

FABEC is planning on reaching the FABEC KEA reference values for set for RP4. However, FABEC would like to underline uncertainties of the achievement as the KEA indicator is closely linked to delay. In RP3 and before the KEA values and delay performance have shown similar trends, when delays increase, KEA inefficiency increases. The current envisaged growth in traffic and interrelated delays make achieving the FABEC reference values set for RP4 ambitious. However, FABEC believes that sticking to the reference values is still the right way forward. Therefore, although it will be difficult to achieve the KEA targets for RP4 we will still set this target as it is important to set ambitious environmental targets.



During RP4 FABEC ANSPs will be making investments to help reduce delay and increase KEA performance, as can be read in the contributions to the FABEC targets. However, achieving the targets will still be challenging due to the following three main reasons:

Free Route Airspace

The main optimization measures such as the introduction of FRA and city-pair optimizations are to a large extent already completed, and a gradual implementation of FRA in lower airspace is not yet foreseeable in its impact. Meanwhile, improvements related to FRA and FUA are not reflected in the KEA indicator, as it cannot measure the implementation of FRA or FUA within a single airspace. Despite long experience with FRA implementation, airspace users often do not make use of the optimized trajectories that are made available to them. In some cases airspace users file trajectories including 10, up to 20% additional unnecessary mileage (unnecessary being defined as obviously superfluous, unrelated to external factors).

Network indicator

KEA is negatively impacted by both 'local' and 'interface' inefficiencies and is not a "pure" ANSP environment indicator. The 'local' inefficiency reflects the inefficiency within a given airspace, whereas the 'interface' inefficiency is primarily dominated by the previous airspace. The smaller the airspace, the more the 'interface inefficiencies' dominate KEA, and potentially give the wrong image regarding the 'local' inefficiency. Studies (e.g. PRB) have shown that the interface efficiencies (-> beyond control of the state) are substantially larger than the local inefficiencies within national airspace. The actual route (KEA) is based on the planned route (flight plan). Therefore, airspace user selections play a role too. E.g. airspace users aiming to reduce route charges might take the shortest possible route (in a state with a high unit rate) even when this highly negatively impacts (the interface component of) the KEA indicator. Other factors which are out of control of the ANSPs are route choices by airspace users, and the availability of temporary reserved areas.

Peak periods

It should be noted that increased traffic figures with increased occurrence of peak periods traditionally negatively impact KEA performance. This is mainly due to vectors being used more regularly, generating unplanned route extension, as can be seen in the graph above. While this factor should be limited by ongoing efforts to ensure flight plan adherence, it is not integrated in the current figures as the impact has yet to be demonstrated.

In summary, the actual KEA values achieved during the low traffic periods of COVID are unlikely to be exceeded, especially with increasing traffic volumes, making further improvements unrealistic, even with reasonable capacity buffers. Maintaining the 2024 KEA performance throughout RP4 will be challenging given the negative impact of traffic growth on flight efficiency and the lack of major airspace redesign projects during RP4 to significantly address this. Additionally, factors beyond ANSP control, such as increasing military exercises, unpredictable weather, and the KEA indicator's limitations as a network efficiency indicator, means that achieving this target for FABEC would be a significant success.

** Refer to Annex P, if necessary.*

c) Main measures put in place to achieve the local environment performance targets

See above; a full list of projects improving horizontal flight efficiency within FABEC including additional information might be found in the ERNIP Part 2 (https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-2).

** Refer to Annex P, if necessary.*

SECTION 3.3: CAPACITY KPA

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight
- a) National capacity performance targets
- b) Justifications for the local en route capacity performance targets
- c) Main measures put in place to achieve the local en route capacity performance targets

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight
- a) National capacity performance targets
- b) Justifications for the local terminal capacity performance targets, including contribution to the improvement of the European ATM network performance
- c) Main measures put in place to achieve the local terminal capacity performance targets

Terminal Belgium
Terminal France
Terminal Germany
Terminal Luxembourg
Terminal Netherlands
Terminal Switzerland

3.3.3 - ATCO planning
- a) ATCOs in the scope of the performance plan
- b) ATCO planning at ACC level
- c) ATCO training

skeyes
DSNA
DFS
LVNL
Skyguide
MUAC

Annexes of relevance to this section

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

a) National capacity performance targets

	2025	2026	2027	2028	2029
FAB reference values	0.63	0.50	0.43	0.36	0.36

	2025	2026	2027	2028	2029
	Target	Target	Target	Target	Target
FAB targets	0.63	0.50	0.43	0.36	0.36

	2025	2026	2027	2028	2029
ANSP contribution to FAB targets	Value	Value	Value	Value	Value
skeyes	0.22	0.17	0.16	0.12	0.12

skeyes contribution to FAB targets

Local contribution is in line with the reference values and should be met thanks to the measures described in the following sections and to the maximum level of ATCO recruitment and training over RP4 (ATCO reinforcement plan).

DSNA	0.44	0.35	0.28	0.24	0.24

DSNA contribution to FAB targets

Local contribution is in line with the reference values and should be met thanks to the measures described in the following sections and to the ambitious ATCO planning for recruitment and training over RP4. 2025 and 2026 achievements could be temporarily impacted by additional delays due to the training needs and transition plans to implement the 4-FLIGHT ATM system in the last remaining ACCs (Brest & Bordeaux) after Reims, Marseille and Paris implementation during RP3.

DFS	0.39	0.32	0.29	0.23	0.23

DFS contribution to FAB targets

Local contribution is in line with the reference values. DFS is committed to those values and in order to reach them will take all reasonably possible measures within the bounds of what is economically justifiable. Measures are described in the following sections, including an ambitious recruitment plan and extension of training capacities . ICAS implementation is expected to have a positive impact on capacity provision on the beginning of RP4.

LVNL	0.16	0.12	0.10	0.10	0.10

LVNL contribution to FAB targets

Local contribution is in line with the reference values and should be met thanks to the measures described in the following sections. 2026 and 2027 achivements could be temporarily impacted by additional delays due to the training needs and transition plan to implement the ICAS system.

Skyguide	0.36	0.27	0.23	0.20	0.20

Skyguide contribution to FAB targets

Local contribution is in line with the reference values and should be met thanks to the measures described in the following sections. RP4 en route capacity achievement will be impacted by theVirtual Center initiatives implementation over RP4.

MUAC	0.31	0.26	0.23	0.19	0.19

MUAC contribution to FAB targets

Local contribution is in line with the reference values and should be met thanks to the measures described in the following sections.

b) Justifications for the local en route capacity performance targets

Capacity targets for 2025 to 2029 are consistent with the reference values set by NM.

RP3 Staffing and capacity issues have been addressed through progressive implementation of new ATM system, more flexible rostering schemes and additional recruitments initiated in RP3 in order to support ongoing traffic recovery while increasing productivity and capacity in RP4.

However, in the RP4 context, meeting these targets will remain challenging. The new ATM system implementation, which is one of the main level to enhance capacity provision in FABEC ACCs, planned during RP4 could require temporary reductions of available capacity for training, validation, safety and related transition plan for commissioning purposes (see FABEC ANSPs measures described here under). Some delays could be generated during these phases and regulation, or rerouting plans, could be needed and will be coordinated with NM and adjacent ANSPs.

Implementing such ambitious targets, traffic evolution (traffic increase at a higher speed than expected but also structure of traffic flows and impact of peak hours and volatility) will have a key impact on actual cahievements and higher than expected traffic, even locally, could create unforeseen bottlenecks. It is still expected that, In the next years, despite extensive efforts, some FABEC ACCs could still be facing an imbalance between traffic and capacity or staffing issues. Additional measures enabling capacity to match the demand will be implemented during or till end RP4 if required.

In addition, new Environmental measures to enhance horizontal and vertical flight efficiency at local and regional scale might somehow challenge and counterbalance some capacity improvements leading to trade-offs to be found, keeping in mind that Safety will always be the most prevailing criteria.

Other uncertainties must also be considered, such as the delayed implementation of ATCO hiring plans, the success conversion rates of ab-initio, the relatively high number of upcoming retirements, the outcomes of new local social agreements.

** Refer to Annex Q, if necessary.*

c) Main measures put in place to achieve the local en route capacity performance targets

Full set of detailed measures implemented by FABEC and contributing to local capacity improvements will be listed in the European Network Operations Plan 2024-2029 edition and updated accordingly.

The main measures providing capacity enhancement planned to be implemented by the FABEC ANSPs to achieve the FABEC en route capacity targets are described here under at ANSP level.

Skeyes

With the exception of 2022, skeyes has achieved the ambitious targets set for RP3 thanks to an intensive policy of recruiting and training of new air traffic controllers (ATCO reinforcement plan) with a volume of traffic below the 2019 levels. skeyes has the ambition to keep providing an optimal capacity performance to airspace users. Nevertheless, the number of air traffic controllers retiring or taking early retirement will remain high in RP4 due to an unfavourable age pyramid. Resources will remain stretch with an expected slightly positive net staffing situation in a context of traffic growth and ATM system modernization.

The main capacity measures to be implemented by skeyes in order to meet the required capacity are the following :

- On the human resource side, the ATCO reinforcement plan aims at keeping ATCO recruitment and training at full pace during the whole RP4 period in order to ensure required capacity levels to be provided and be prepared to cope with the upcoming massive retirement wave .

- Regarding FUA and ATFCM procedures, Skeyes keeps mplementing enhanced Civ/Mil ASM procedures and an Improved use of the route network as a result of FUA enhancement.

- On the technical side the new ATM system (ATM Modernization) is planned to be implemented in 2028 and the impact of related training and transition plan will affect 2027 and 2028 capacity achievements.

DSNA

The main RP4 capacity measures to be implemented by skeyes in order to improve capacity provision, addressing capacity and staffing concerns to meet the capacity targets are relating to:

- On the human resource side, a large recruitment / training plan has been launched (up to 160 new ATCO per year some years) and ATCO in OPS will increase during RP4 to address both remaining ACC staffing issues and upcoming retirement wave in RP5 (+120 ATCO in OPS at DSNA ACCs end of RP4 compared to the lowest point in 2022). A multi-year distribution and site asssignment scheme and mobility plan has been defined for centers under staffing pressure (Reims & Paris ACC for example) and ATCO training will be enhanced while its duration should also be optimized and reduced.

- A new social agreement signed in May 2024 will enable new working arangements and more efficient ATCO work organization and better control of CWP activitie and flexible rostering at French ACC during RP4.

- A territorial footprint reorganization will also been implemented, including transfer of flight information services to two dedicated FICs (Flight Information Centre) which will allow less airspace transfer from ACC to APP, freeing up en-route capacity. New tools will be introduced to rationalize capacity management processes: strategic capacity setting, optimized daily capacity profile, ATCO break optimization tool etc. The lower airspace is progressively restructured: sectors dealing with flights between flight levels 115 and 195 are gradually transferred to APP.

- A new law on ATC industrial action management has been introduced in 2024 and should result in less strikes with a lower impact in RP4 (saving up to 1 000 000 minutes delays per year compared to RP3).

- On the technical side, the new 4-FLIGHT ATM system will be fully implemented at Paris ACC beginning of 2025 and at Brest & Bordeaux ACC winter 2025/2026. New updated version of this system will be implemented during RP4 to harmonize the system, add more functionnalities and comply with CP1 regulation, enabling further capacity gain (up to 20/30 % capacity gain at peak hours when 4-FLIGHT is implemented in an ACC). However, it should be noted that training, validation and safe commissioning of these systems will require ad-hoc transition plan to be coordinated with NM and that could have a temporary impcat on capacity achievements and introduce some delays.

DFS

All mature planned measures with potential impact on capacity are included in the NOP and hence in the NM delay forecast.

ATCO training stays priority Nr. 1 for DFS.

Additional measures which are not yet included in the plan to further reduce delays are planned:
- Establishment of functional improvements in the ATS systems (in particular iCAS)
- Changing the system architecture in order to be able to introduce new functional improvements more quickly and flexibly
- Intensifying the use of complexity management tools
- Validation of sector capacities in each ACC at regular intervals
- Better balancing of vertical traffic distribution by introducing new separation areas in upper airspace
- In all DFS ACCs airspace optimisation measures with potential capacity benefits are under development .

LVNL

The plan to meet the capacity target is twofold:

- Regarding human resources and ATCO planning, LVNL will pursue the continuous recruitment and improve training to maintain levels of ATCOs, while many will retire in the coming years. Additionally, activities are planned to eliminate the bow-wave effect of COVID-19 in operational training, when on-the-job training for ab initio was limited due to low traffic demand. Both will help in maintaining capacity while traffic recovers to pre-COVID levels.

- At technical level, over RP4, LVNL will implement several capacity benefiting projects, such as Extended AMAN, AOP-NOP information sharing and LARA for advanced FUA. Additionally, the implementation of a new DMAN, planned in 2025, is expected to improve the use of available capacity. Implementing a three lane principle for all systems (main, back-up and last resort) is expected to result in less delays due to system failures.

Nevertheless, in 2026 and 2027, the planned implementation of a new ATM system (iCAS) could result in temporary delays due to capacity restrictions during the training, testing and.

Skyguide

At the core of Europe, in a very dense and complex environment, Skyguide need to be ambitious, innovative and therefore need to invest massively in new technologies. Therefore, RP4 will be a new investment period, in order to deliver more capacity and cost-efficiency in the long term. Among the main planned initiatives, the development programme is built on the following main capacity measures:

- on the technical side, skyguide plans to deploy the following Virtual Centre initiatives: NRH completion in 2022-2025 in Geneva, enhancement of CPDLC HMI in 2024-2025, ADST (Conflict Detection tools extract, first new radar HMI platform, clearance & trajectory from skyserver, RHMI-1 new Radar HMI prototyping, trajectory prediction industrializaton) in 2024-2029, CPDLC network update in 2025-2028, 4D trajectory in 2026-2027, One Swiss-wide flexible airspace in 2028-2031.

- In the ATFCM area, skyguide plans to implement the following Virtual Centre initiatives: Roster Optimization in 2024-2025, CAPMAN solution in 2023-2026, Complexity management in the en-route area in 2026, Flexible LoA in 2026-2027, Tactical Regulation Simulation in 2026-2027

area in 2026, Flexible LUA in 2026-2027, Tactical Regulation Simulation in 2026-2027.

- In the FUA area, the CIV-MIL ASM system deployment in 2024-2029 and the Variable Profile Area in 2028-2029.

- On the human resource side, training capabilities are planned to be used 100%; a heavy wave of retirement, coupled with early retirements and a new collective labour agreement will lead to a very tense situation on the staff planning. A new initiative to enhance the training success rate and extending the retirement age will mitigate these challenges.

Over the period 2025-2029, the capacity achievements and delays will naturally be highly dependent on traffic evolution. If this traffic recovery follows very recent traffic trends (with 2 digits traffic increase in our two UAC units), situation will be extremely tense in the most congested sectors. However, when applying the base scenario STATFOR forecast, taking into consideration the implementation of the Virtual Center concept, and provided Skyguide will be able to harvest the investments already made for the CPDLC technology then delays should be reduced towards end of RP4 and en route capacity targets met.

MUAC

In order to meet the capacity targets, one of the objective over RP4 will be to address the situation in the Brussels sectors, an over-demand at elementary sector level : in 2019, network measures (Summer RADs) were in place to redistribute traffic from the the Brussels sectors into the DECO sectors; due to the changed network situation, this is no longer possible in 2024 and it is to be expected that this situation (of limited off-load possibilities) will remain in RP4. In addition, the Ukrainian war and ensuing airspace closures have led to a shift of traffic from the DECO sectors into the Brussels sectors. This situation is also expected to remain (as also confirmed by the STATFOR forecasts). It is therefore to be expected that MUAC delay in 2024 will be above the target. Subsequent year-on-year traffic growth is predicted to be limited.

Such a situation can therefore not be solved with staffing measures but by implementing system improvements at MUAC centre to increase capacity at elementary sector level. Planned improvements during RP4 include:

- dynamic sector capacities during the day
- dynamic RAD to optimize routings in function of demand
- use of ATM-P to optimize demand distribution across MUAC airspace
- further FUA improvements
- close collaboration with DFS Karlsruhe for optimized inter-ANSP procedures and system sharing

FABEC level

On the top of individual ANSPs, at FABEC level coordination, additional coordinated actions are taken; for example:
- Joint ANSP & States Work Program: this FABEC program aims to organize and enhance coordination and efficiency between Air Navigation Service Providers and states to improve air traffic management and operational performance.
- Extended Arrival Management (XMAN): XMAN focuses on optimizing arrival sequences and managing arrival traffic flows at airports to reduce TMA delays and improve overall fuel/emission efficiency.
- FABEC New Generation Fighter Task Force (NGF): The TF ensures requirements and impacts of the latest generation of fighters on operations are considered for overall capacity provision.
- Free Route Airspace (FRA): FRA aims to provide aircraft operators with the flexibility to plan and fly the most efficient and direct routes within designated airspace, reducing fuel consumption and emissions.
- Operational Excellence Benchmark Capacity Planning: This initiative seeks to develop and implement practices to optimize capacity planning and operational excellence in air traffic management.
- Airspace/Route-Optimization: many small improvements are planned and coordinated at cross-border interfaces.

In addition, during RP4, an ad-hoc FABEC throughput indicator will be monitored in order to complement the current KPI and address the effective capacity delivery at ACC, ANSP and FABEC level. This PI is described in Annex XXX

** Refer to Annex Q, if necessary.*

3.3.3 - ATCO planning and training

skeyes

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	87	92	97	99	101	99	96
	APP	34	40	46	44	46	43	44
	TWR	98	106	107	108	108	110	113
Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)		170.8	189.6	200.3	201.6	206.0	202.1	201.8
Number of ATCO on other duties (year-end FTEs) employed by the ANSP		14.8	13.8	13.3	13.3	13.3	13.3	13.3

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Brussels (EBBU ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	7	7	7	7	4	6	5
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	4	2	2	5	2	8	8
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	86.8	91.8	97.0	99.0	101.0	99.4	96.4

Additional comments
It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves. Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees. The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE. Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations. It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values. The ATCO reinforcement plan will be used to replace air traffic controllers who have reached the end of their careers and to increase the number of controllers during the system modernization (extra-resources needed for training and shadowing sessions). The slight increase at the end of RP4 is justified by the increase in traffic, which will require a fifth sector to be opened more frequently during peak periods in order to achieve the target of 0.12 min delay per flight by 2029.

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		49	30	30	30	30	30	30
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		16	14	14	14	14	14	14
Number ATCO trainees at year end.		61.86	52	48	47	47	47	47

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.
During RP4, skeyes plans to recruit 30 air traffic controllers each year (in 3 batches), including 20 for the ACC and 10 for the control towers. In terms of planning, 40% success rate is applied for each ACC batch and 60% success rate is applied for each tower ATCO batch. These success rates are higher than current success rates and should be achieved through a “success rate action plan” and through a review of the training organisation.

3.3.3 - ATCO planning and training

DSNA

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	1263	1279	1299	1333	1357	1369	1362
	APP	1314	1317	1335	1334	1345	1352	1350
	TWR	320	320	320	320	320	320	320
Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)		2382	2407	2448	2481	2513	2530	2521
Number of ATCO on other duties (year-end FTEs) employed by the ANSP		409	409	409	409	409	409	409

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Bordeaux (LFBB ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	13	13	14	16	18	22	22
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	19	9	6	5	7	15	28
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	228	232	240	251	262	269	263

	Actual	Forecast	Planned				
Brest (LFRRACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	8	7	6	9	12	21	24
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	21	6	4	5	6	8	15
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	245	246	248	252	258	271	280

	Actual	Forecast	Planned				
Marseille (LFMM ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	9	12	7	18	12	14	18
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	5	13	11	12	14	15	25
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	327	326	322	328	326	325	318

	Actual	Forecast	Planned				
Paris (LFFF ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	30	25	25	25	25	25	25
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	6	22	20	20	23	25	34
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	254	257	262	267	269	269	260

	Actual	Forecast	Planned				
Reims (LFEE ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	24	24	24	24	24	11	22
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	12	15	15	16	17	18	16
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	209	218	227	235	242	235	241

Additional comments
It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves. Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees. The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE. Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations. It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values.

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		90	170	192	202	202	164	166
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		158	171	175	201	225	233	233
Number ATCO trainees at year end.		563	534	533	550	551	528	459

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.
The training process is organized as follows : - 2 years for the initial training, - 3 years at the unit training (with an objectif to come to 2 years unit training in 2027). The DSNA average failure rate is around 8%.

3.3.3 - ATCO planning and training

DFS

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	1212	1193	1217	1231	1267	1296	1324
	APP							
	TWR	374	393	422	435	445	446	449

Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)	1265	1269	1299	1335	1383	1446	1514

Number of ATCO on other duties (year-end FTEs) employed by the ANSP	53	76	81	104	116	150	190

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Bremen (EDWW ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)		5	18	20	18	6	8
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)		8	12	9	11	9	14
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	196	193	199	210	217	214	208

	Actual	Forecast	Planned				
Karlsruhe (EDUU UAC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)		11	37	26	26	27	32
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)		15	17	20	16	11	17
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	414	410	430	436	446	462	477

	Actual	Forecast	Planned				
Langen (EDGG ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)		8	30	22	25	29	28
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)		16	26	22	16	20	17
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	363	355	359	359	368	377	388

	Actual	Forecast	Planned				
Munich (EDMM ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)		6	3	8	14	15	15
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)		10	9	11	4	8	7
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	239	235	229	226	236	243	251

Additional comments
A. FABEC general comment It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves. Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees. The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE. Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations. It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values. B. DFS specific comment 1. Column D “Actual 2023” reflects the actual situation end June 2024 while column E “forecast 2024” reflects the expectation for year end 2024, in order to give the most accurate possible picture of the situation and the basis for our RP4 planning. 2. Within DFS there are no ATCOs specifically dedicated to approach services. In the past, the decision to integrate approach services in the Centre units has been made consciously and was connected to relevant economic benefits. Since then, based on the German airspace and licensing structure, operational and economic considerations, DFS does not have pure approach units . Even in Frankfurt and Munich where approach sector families are existing, only a part of the ATCO-activities of these sectors are approach-only. 3. The number of ATCOs planned to stop working in the OPS room consists of an expectation of people finishing their operational career and of an approximation of unplanned leaves. 4. The number of ATCOs planned to be operational differs from the provided figures above as follows, if also ATCOs expected to be inoperational or operational again for training purposes (bigger system changes) are included, describing the most accurate expectation on the ATCOs operational in OPS. BREMEN: 2024: 194 / 2025: 187 / 2026: 197 / 2027: 181 / 2028: 197 / 2029: 204 // KARLSRUHE: 2024: 410 / 2025: 434 / 2026: 439 / 2027: 455 / 2028: 444 / 2029: 459 // LANGEN: 2024: 362 / 2025: 376 / 2026: 376 / 2027: 377 / 2028: 390 / 2029: 392 // MUNICH 2024: 229 / 2025: 218 / 2026: 218 / 2027: 222 / 2028: 231 / 2029: 238 Since "ATCOs planned to stop working" is the sum of planned and unplanned leaves with planned leaves always counted as full FTE (from financial FTE/Headcount) it is possible, that the operationally deducted FTE are lower than 1 full FTE (part-time-employment). Necessarily, figures below can show differentiations to the table privided above in both directions.

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		130	136	136	144	144	144	144
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		97	106	106	112	112	112	112
Number ATCO trainees at year end.		384	400	400	406	406	406	406

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.
“Entering the training program” describes the number of ATCO-trainees starting at the academy. “ATCOs completing the training program” are those finishing their respective unit training at the ATC branches with different lengths in training dependent on sector group or center added to the institutional training. The average success-rate in DFS is appr. 90% at the academy (IT – initial training) and varies in between 60%-90% dependent on the respective sector-family or tower-branch (UT – unit training).

3.3.3 - ATCO planning and training

LVNL

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	80	82	81	82	82	84	85
	APP	74	75	76	77	77	77	76
	TWR	68	69	71	71	71	71	70
Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)		125	127	128	129	129	130	130
Number of ATCO on other duties (year-end FTEs) employed by the ANSP		29	30	30	30	30	30	31

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Amsterdam (EHAA ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	4						
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	6						
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	80	82	81	82	82	84	85

Additional comments
"It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. *There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves.* *Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees.* *The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE.* *Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations.* *It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values."*

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		31	27	27	27	27	27	27
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		10	9	15	16	16	16	16
Number ATCO trainees at year end.		59	60	62	66	70	73	73

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.
The trainees that are selected will start with the initial training, starting with the basic theory and the APS rating. After obtaining the APS rating, the trainees will be allocated between ACC and TWR/APP positions, based on a 4-week program. Depending on the allocation, the trainee will continue the initial training with either the ACS- or ADI-rating. Afterwards the Unit training will start. For every sub rating (mostly two) within the unit training, the training consists of: 1) a simulation part and 2) an on-the-job training part. Between both sub ratings most of the times the trainee works independently for a few months.

3.3.3 - ATCO planning and training

Skyguide

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	239.1	242.6	238.8	238.8	237	242.5	238.8
	APP							
	2 TWR/APP	124.3	125.2	127	128.9	128.9	132.9	131.2

Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)	239.1	242.6	238.8	238.8	237	242.5	238.8

Number of ATCO on other duties (year-end FTEs) employed by the ANSP	69.0	69.9	69.5	69.9	69.5	71.3	70.3

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Geneva (LSAG ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	4	4	5.5	6	4.5	4.5	4.5
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	10	5	2	7	4	5.8	1.9
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	106.5	105.5	109	108	108.5	107.2	109.8

	Actual	Forecast	Planned				
Zurich (LSAZ ACC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)	7	5	0	9.5	4.5	5.5	5.5
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)	0	0	8.75	4.5	2.8	4.65	7.75
Number of ATCOs in OPS planned to be operational at year-end (FTEs)	123	128	119.25	124.25	125.95	126.8	124.55

Additional comments
It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves. Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees. The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE. Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations. It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values.

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		23	27	30	20	20	20	20
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		11	9	5.5	15.5	9	10	10
Number ATCO trainees at year end.		36	51	64	60	62	63	69

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.
The training process is split into 2 main stages: the basic training which lasts around 1 year and the on the job training that lasts around 2 years and a half. During the second stage, 2 endorsements have to be acquired by any ATCO. The number of trainees that need to be allocated to a given unit is defined before the launch of the basic training. The success rate for the entire cycle of the 2 stages varies between 35% and 55%. Another possibility is to organize a conversion training which consists of contracting foreign ATCOs. This type of training lasts usually around 1 year and the success rate is around 65% to 80%. In the inputs for the item c), we have reported all the trainees for the 2 ACCs These tables are now based on the operational view whereas for RP3, we provided figures based on the financial view.

3.3.3 - ATCO planning and training

MUAC

a) ATCOs in the scope of the performance plan

ATCOs in the scope of the performance plan		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of ATCO in OPS (year-end FTEs) employed by the ANSP (for services within the scope of the performance plan)	ACC	294	296	307	302	305	305	306
	APP	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWR	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Number of ATCOs in OPS (year-end FTEs) allocated to the en route cost base(s)							

Number of ATCO on other duties (year-end FTEs) employed by the ANSP							

b) ATCO planning at ACC level

	Actual	Forecast	Planned				
Maastricht (EDYY UAC)	2023	2024	2025	2026	2027	2028	2029
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)							
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)							
Number of ATCOs in OPS planned to be operational at year-end (FTEs)		0	0	0	0	0	0

Additional comments
It is well understood that ATCO hiring and assignment is one of the major driver for current capacity and staffing issues solving. Nevertheless, FABEC considers that they cannot be considered as a commitment due to the high level of uncertainties related to such ATCO recruitment plans management. These figures, even when provided on annual basis, can only be regarded as snapshot information, i.e. a situation at one point in time which does not guarantee a realistic view throughout the entire duration of RP4: technically the ATCO planning is and will always be subject to change. In addition, for ANSPs having more than one national ACC, ATCO hiring plan are managed at ANSP level but changes in traffic volumes or flows and volatility or local human ressources factors can influence the assignment to different ACCs and the details of the planned evolution of ATCO numbers can also be socially sensitive. There are many factors with a high level of uncertainty that have an impact on the ATCO planning: first of all there are classical uncertainty factors of general staff planning like the actual rate of retirement, the absence rate of employees, as well as maternity and parent leave. Moreover, ATCOs mobility has become a severe issue recently, leading to high rate of unforeseen leaves. Another factor which cannot be significantly mitigated further impacting the availability of ATCOs is the number of suitable applicants, the failure rate of the theoretical training at the academies and the success rate during the on-the-job training phases of trainees. The final retirement age is set by law, but ANSPs can only assume a certain amount of people opting out/in. It is common culture now that companies offer varying working hours to enable employees to adjust their work to different phases of their life. Again, ANSPs can only assume a certain amount of people opting in/out. On top of all that, future social agreements will significantly determine the ATCO availability per person and by that the total available FTE. Any benchmarking should also consider that the demographic situation can also evolve and might require to hire to an extent not aligned to the traffic demand. FTE refers to a different amount of working time per year/ANSP and are not harmonised among ANSPs but are subject to national laws and labour regulations. It should also be noted that some social agreements regarding numbers of additional ATCO to be recruited during RP4 and working conditions (salaries, extra hours, rostering) could be renegociated after the submission of this FABEC performance plan. Outcomes of such negotiations will have an impact on those values.

c) ATCO Training

ATCO trainees of the ANSP		Actual	Forecast	Planned				
		2023	2024	2025	2026	2027	2028	2029
Number of trainees planned to enter the training program(s) during the year.		22	20	20	20	20	20	20
Number of trainees expected to complete the training program(s) during the year based on statistical estimates.		9	14	15	14	13	14	16
Number ATCO trainees at year end.								

Description of the training process, including details on the average failure rate and the process used to allocate newly qualified ATCOs between ACC, APP and TWR positions.

SECTION 3.5: ADDITIONAL KPIS / TARGETS

3.5 Additional KPIs / Targets

Annexes of relevance to this section

ANNEX J. OPTIONAL KPIs AND TARGETS

3.5 - Additional KPIs / Targets

Number of additional KPIs	1

Environmental management KPI	Related KPA	Environment

		2025	2026	2027	2028	2029
		Target	Target	Target	Target	Target
National level	***FABEC target***	N/A	N/A	N/A	N/A	GreenATM level 3 or equivalent level
	Description and explanation of how this additional KPI and targets support the achievement of the EU and local performance targets	This KPI goes beyond the current EU wide and local performance targets by monitoring the environmental improvements beyond the operational context which is missing from the current KEA KPI and the other environmental PIs. By setting the target of having a management KPI, FABEC aims to push its ANSPs to invest in environmentally friendly projects in an operational and non-operational environment. As the environmental KPA is the focus for RP4 we prioritise it by pushing our ANSPs towards environmental sustainability with this additional KPI.				

KPI details	
KPI description and rationale	This KPI measures both the operational and non-operational environmental performance of the FABEC ANSPs. Each ANSP is expected to acquire CANSO GreenATM accreditation level 3 (managed), an equivalent level of another environmental accreditation/certification system or an equivalent level of performance to be audited by the FABEC FPC. CANSO GreenATM measures the environmental performance of an ANSP in four categories each with different topics. The four categories are: Governance, Infrastructure & Utilities, Other, and Improved ATM. ANSPs choosing a different system are expected to provide evidence of having achieved the appropriate levels in the four topics to the FABEC FPC. For more information on CANSO GreenATM: https://canso.org/our-focus/canso-green-atm/
Formula, metric and parameters	ANSPs are expected to deliver evidence of having achieved the appropriate level of (environmental) performance in each of the following categories: Governance •Policy and plan •Environmental Management System •Environmental culture •Environmental targets Infrastructure & Utilities •Energy management •Power procurement and production •CNS Rationalisation •CNS Flight Inspection Other •Sustainable procurement •Airport/Community relations •Airspace change management •Mobility management Improved ATM •Flexible Use of Airspace (FUA) •Meteorological Information •Improved surveillance coverage •Airport – Collaborative Decision Making (A-CDM) •Surface Movement •Continuous Climb Operations (CCO) •Continuous Descent Operations (CDO) •Performance-Based Navigation (PBN) •Wake turbulence optimisation •Trajectory Optimisation •Air Traffic Flow Management •Research & Development
Data sources	Certificate of GreenATM accreditation or evidence of similar level of accreditation.

Additional comments
The proposed KPI is a management objective KPI measuring both operational and non-operational environmental performance. In order to reach the required level each FABEC ANSP shall achieve CANSO GreenATM level 3 (Managed) or an equivalent level of accreditation/certification or performance. An equivalent level shall be identified as a non ops environmental management system as well as proof of having achieved an equivalent level of operational environmental performance. Proof shall be submitted to the FABEC FPC annually for auditing purposes. If the equivalent level has been achieved it will be awarded and reported on in the Annual monitoring report of the previous year. Before the end of RP4 each ANSP shall reach at least CANSO GreenATM level 3 or an equivalent level.

SECTION 3.6: DESCRIPTION OF KPAS INTERDEPENDENCIES AND TRADE-OFFS INCLUDING THE ASSUMPTIONS USED TO ASSESS THOSE TRADE-OFFS

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

3.6.1 - Interdependencies and trade-offs between safety and other KPAs

a) With regard to the over-riding safety objectives, what pressures does your organisation experience in meeting the cost, capacity and environmental KPAs? Describe how you ensure that these pressures do not negatively impact safety within your organisation. Describe the mitigation measures that have been introduced to demonstrate that safety performance has been sustained and what monitoring has been envisaged to measure the effectiveness of those mitigations.

DSNA:
Regardless of its nature or the performance area concerned, each development and project having an impact on ATS services are subject to the change management procedure. Potential safety risks identified give rise to mitigation measures which are implemented prior to the change implementation.
Thus, any change decided to improve cost, capacity or environmental performance will be conducted accordingly to the procedure and safety risks will be evaluated and mitigated.

DFS:
To ensure that the competing KPAs do not have a negative impact on safety, the safety priority is formally regulated for all employees by DFS' highest safety directive. Assuring safety is defined as the highest objective for DFS.
An SMS has been set up as an integral part of DFS's management system to ensure and maintain high-level safety performance. This includes, for example, the reporting system, the analysis of incidents, trend monitoring, the conducting of safety audits and safety surveys and the validation of safety assessments.

LVNL:
LVNL has an established set of safety criteria set by the government that must be met at all times for changes to the operations at Schiphol airport. It is published as national law in "Beleidsregels veiligheidsnormen ATC" and can be found at https://wetten.overheid.nl/BWBR0036878/2015-07-25/0
The safety criteria are:
(1)quantitative safety risk levels, where the probability of an air traffic control (ATC) related accident does not exceed 3x10-7 accidents per flight;
(2)recognized standards or codes of practice; or
(3) related to the safety performance of the existing system or a comparable system, whereby the system to which the safety performance is related is validly qualified as sufficiently safe.

The adherence to these safety criteria is demonstrated every five years with a unit safety case.

For all other operations, i.e. not at Schiphol airport, we use common risk assessment techniques to ensure operations never get below a minimum acceptable safety level.

Pressures from meeting cost, capacity and environmental KPA are ever present. Using the above principles we ensure that these pressures will not lead to unacceptable safety risks. However, they can, in specific situations, lead to a reduced safety level to accommodate environmental or capacity demands, as long as the risks in the operations are appropriately managed and maintained above a minimum acceptable level.

Monitoring of the safety level is done on a weekly basis by studying lots of safety performance parameters, holding safety surveys, following a safety management system, auditing the SMS and other processes, performing appropriate risk assessment techniques wherever needed or required. All this in a setting with proper governance and independent oversight.

b) What are the main assumptions used to assess the interdependencies between safety and other KPAs? Please provide a detailed analysis.
Describe the analysis methodology and the data that has been used to assess the interdependencies between safety and other KPAs. What indicators, in addition to those described in the Regulation, are used for monitoring during the reference period to ensure that the targets in the KPAs of capacity, environment, and cost-efficiency are not degrading safety?

DSNA:
Beyond the implementation of changes, monitoring of permanent and/or ad-hoc safety indicators is carried out on a regular basis and make it possible to identify a potential deterioration in the level of security.

DFS:
In order to be able to determine the extent of interdependencies between safety and the other KPAs, DFS continuously monitors all available information from the SMS (occurrence data, simulation data, statistics, expert judgement) and evaluates them in expert committees. Further more, risk assessments are carried out according to a certified method for all changes of the functional system, i.e. also for those intended to improve other KPAs than safety (CAP, CEF, ENV) and validated. In line with our safety policy, it has to be accepted, that the derived measures and safety requirements, are to some extent at the expense of other KPAs (e.g. costs or deadlines).

LVNL:
The main assumptions are:
1. Safety is never a given. We follow the ICAO definition of safety: the way in risks are managed to an acceptable level.
2. Safety is never a goal in itself. We are here to serve the aerospace industry. We enable aircraft flying through our airspace.
3. Other factors are always part of our service delivery, like costs, environmental damage and capacity. They are very important for us to minimise costs and damages and optimise capacity. Always in a manner that risks are managed to an acceptable level.

Indicators to assess that targets in the KPAs of of capacity, environment, and cost-efficiency are not degrading safety are multiple and of various nature. THere are
LEADING INDICATORS
Audits, safety surveys, focus groups, risk assessments, maturity scores (like EoSM).
LAGGING INDICATORS
There are hundreds of indicators we use, such as losses of separation, R/T overload, runway incursions, interception above glidepath, direction of driving of the bird controller, runway crossings, usage of taxiways, etcetera etcetera.
Many of these lagging indicators do not rely on manual reporting but are highly automated and become available in tables and graphs automatically the day after operations. We use these indicators on a per week analysis basis.

Skyguide:
The main assumption is that the environment KPA will not impact safety. On the other hand, the capacity and cost KPAs are considered as potentially having a negative impact on safety. The assumption is based on a qualitative analysis of occurrences that indicates that in the past some occurrences were linked to higher

c) Describe the organisation's philosophy for managing competing priorities between the KPAs effectively – for instance delaying programmes to manage competing demands. It is expected that the organisation uses its business risk management processes to assess the consequential risks of the organisation's competing priorities to achieve its business goals.

DSNA:
Any change is conducted according to the change management procedure.

DFS:
In order to manage the competing priorities between the KPAs, the priority of safety is formally regulated for all employees by DFS's highest safety directive. Assuring safety is defined as the highest objective for DFS. E.g. projects are only allowed to be realised once all safety requirements identified as necessary have been implemented. DFS' Safety Management is independent from line management and is obligatory to be involved in all relevant decision-making processes for plans and projects.

Skyguide:
In Skyguide Safety & Business Needs are at the center of our corporate value landscape. Both have to support each other to be successful as a company. Although safety is dealt at corporate level by an independent safety department, so-called safety domain managers are located within the lines to ensure that safety is lived in daily operations and considered in business specific strategies. In addition, safety risk management is feeding the main safety risks in the enterprise risk management so that safety and "business risks" can be compared and prioritized at executive level.

d) What trade-offs in safety have been accepted to manage resources shortfalls in realising the organisation's objectives to meet the cost, capacity and environment KPA targets? Have trade-offs restricted the release of staff for safety activities, such as safety training (ATC training excepted), safety surveys, safety audits, safety assessments, safety studies and analyses?

DSNA:
Any change is conducted according to the change management procedure and safety risks are evaluated and mitigated prior to implementation.

DFS:
Trade-offs in safety are not accepted to manage resources shortfalls. The release of required staff for safety activities is is ensured by binding internal directives, e.g. the involvement of the necessary expertise for risk assessments. However, as no trade-offs are accepted for safety, planned deadlines cannot always be met in the event of staff shortages.

LVNL:
Not everything the organisation has planned is achievable as one would expect of course. The executive management with its management team meet on a weekly basis to decide how anomalies (delays in programmes, unexpected weather, shortage of staff) will be dealt with. These trade-offs are a part of normal business management.

Skyguide:
In case of resources shortfall for safety assessment activities, it has been accepted that only 1 ATCO per unit (instead of 2) is present. Safety workshops via visio have also been introduced to reduce travel time of ATCO. Nevertheless, if resources are missing for a safety assessment, the project is postponed until the ops resources are available again for safety assessment. Limited resources can lead to less safety surveys and monitoring activities to be conducted.

e) Has the State reviewed the ANSP financial and personnel resources that are needed to support safe ATC service provision through safety promotion, safety improvement, safety assurance and safety risk management in line with planned changes that will enable targets in other KPAs to be achieved? Please provide a detailed explanation.

DSNA:
DSAC notified during the first quarter of 2024 an off-site finding linked to the downgrading of EoSM score. A corrective action plan had been submitted to and approved by DSAC, which is closely followed up.

LVNL:
The State audits the ANSP on a regular basis with a particular focus on the Safety Management System (SMS). It is not known whether the State has reviewed this with the objective to assure that sufficient financial and personnel resources are present to carry out all SMS duties and developments. However the results of the audits prove that sufficient resources have been applied.

3.6.2 - Interdependencies and trade-offs between capacity and environment

The main following factors have to be considered at FABEC state and ANSPs levels:

Regarding France and DSNA, following the increase in traffic, FABEC's KEA indicator has stabilized due to a balance between continued strong traffic growth and the introduction of operational changes such as FRA, but this may also be linked to a change in the KEA calculation method. KEA achievements are clearly influenced by the level and volatility of traffic (the annual profile is clearly influenced by seasonality and the number of flights). ATCOs can offer more direct routes when traffic is low and they do not face capacity problems. Nevertheless, given the capacity and staffing problems encountered by DSNA in the core area, delays increased significantly during RP3, deteriorating flight efficiency. In addition, the summer NM initiatives introduced and the transition plans implemented for ATC system implementations resulted in massive reroutings impacting DSNA's flight efficiency to mitigate capacity issues. Stakeholders give priority to reducing delays, which has a cost for environmental performance. In general, it should also be noted that KEA is unanimously recognized as an indicator that does not reflect the true performance of an ANSP, since most influencing factors are outside the control of any given ANSP.

For The Netherlands and LVNL, the internal part of the en-route horizontal flight efficiency (KEA) is influenced by the amount of vectoring and airborne holding in ACC sectors to absorb delays that remain after ATFM regulation or for which ATFM regulations are not possible (e.g. sudden and unexpected reduction in capacity). The more vectoring and holding occurs, the higher the negative effect on KEA. Additionally, the external KEA performance of LVNL may be influenced by route choices of airspace users and by re-routing measures instigated by NM, both to avoid capacity bottlenecks.

During RP4, Germany and DFS will continue to put a strong focus on its efforts to reduce the existing capacity constraints. Capacity shortages especially during peak traffic times in the most constrained ACCs will therefore continue to require the activitation of RAD measures, which will affect negatively KEA. In addition, as long as the war in Ukraine continues, consideration is also needed on the effects on the south-east axes where the switch in traffic led to a further increase of complexity in the German airspace with corresponding impacting effects on Capacity and on Environment.

Regarding MUAC States, implementing measures like rerouting proposals to minimize emissions or contrail avoidance can result in longer flight paths or reduce the options available to the airspace users. While these measures reduce environmental impact, they may, therefore, lead to decreased airspace capacity due to reduced efficiency in routing and utilization of airspace. Today, MUAC actively engages with the airspace users to maximise their benefit when capacity allows. Environmental restrictions, if applied, can limit the flexibility of air traffic controllers in managing routes and flight levels. This can result in congestion and delays, particularly in complex airspace areas or during peak demand times, as controllers prioritise environmental considerations over maximising airspace capacity. Policymakers should acknowledge the trade-offs between environmental sustainability and operational considerations and provide clear guidance. While prioritising environmental goals may lead to short-term reductions in capacity, long-term benefits in terms of reduced emissions and mitigated climate impact can justify these trade-offs. Striking the right balance requires careful coordination between all stakeholders to optimise both environmental and operational outcomes. To look at the issue conversely, if environmental goals are to be prioritised then investment in capacity enhancement measures are essential in order to mitigate the operational impact on the airspace users.

Regarding Switzerland, when there is a capacity shortage, before implementing a regulation, Skyguide tries to find all solutions to avoid situation where traffic level is beyond sector capacity. Amongst these measures STAM flight level cap are applied, which have a negative impact on the vertical profile of the flight or reroutings which have a negative impact on the horizontal efficiency of the flight. RAD measures (planned for the entire period) are another mean to keep safety and capacity at optimum levels, but these have also an adverse effect on flight efficiency. In the end, the very constrained airspace in Switzerland (share between Military and Civil users) and the future needs for new fighters will probably lead to another flight efficiency loss.

In addition it should be recalled that the monthly FABEC Environment report has been demonstrating the clear correlation between flight efficiency and capacity. To break this link is possible if capacity increases significantly and no more bottleneck would be observed in the network. Then flight efficiency will be only dependent on the way the AOs file their flight plans and how flights are flown (wind, unit rate, aircraft performance, capability of the CFSP tool used, AO policy, ...).

3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

There is of course clear interdependencies between cost-efficiency and capacity as main drivers for capacity provisions are ATCO recruitment and ATC system modernization but also airspace redesign. Such measures have an impact on the ANSPs costs. The main interdependencies at FABEC ANSP levels are the following:

For France and Germany, the main measures planned by DFS and DSNA to reduce the capacity constraints are in the areas of staffing (ATCO recruiting, training and shift planning/optimising) and system improvement/replacement (e.g. iCAS Bremen, Phoenix ng, MAKAN, 4-FLIGHT at Brest and Bordeaux and 4-FLIGHT revolution program to harmonize and optimize all DSNA systems etc.), which do have a considerable effect on the cost planning in RP4 and will therefore need to be considered in the national target setting for cost efficiency.

For MUAC States, increasing airspace capacity often involves significant investment in infrastructure e.g. air traffic control systems/tools and/or in effort e.g. airspace redesign. Balancing cost-efficiency with capacity expansion requires careful consideration of where and how to allocate resources to maximise operational effectiveness while minimising costs. Considering operational Trade-offs for Cost Efficiency, cost-saving measures such as reducing staffing levels will compromise capacity by limiting the ability to handle peak traffic demand or respond effectively to unexpected events. Achieving cost-efficiency while maintaining the necessary capacity means finding the right balance between resource optimisation and operational resilience. It should be recognised that any shift in priority e.g. to increase the pressure on costs, will have lasting effects on operational capacity that can be hard to recover from if the priority pendulum swings back the other way. Regarding technology ddoption and capacity enhancement, embracing innovative technologies such as automation, data analytics, and greater integration of systems can improve cost-efficiency and/or capacity in the medium to long term. However, the transition may initially disrupt operations and will require substantial upfront investment.

For Switzerland, in order to face the heavy retirement wave and the adverse effect of the new CLA, Skyguide plans to use its training capabilities at full. This comes at a significant cost. The main driver for efficiency and capacity is the virtual center initiative: as Skyguide is one of the very first ANSP on this market, this comes as well at a significant cost.

3.6.4 - Other interdependencies and trade-offs

Other various consideration have to be considered regarding interdependancies and trade-offs:

As far as environmental performance is concerned, capacity is not the only performance area influencing KEA achievement; many other factors, some of which are outside the ANSP's responsibility, can have an impact on flight efficiency.
Key factors include

- The continued implementation of the FUA in the airspaces most affected by military activities should bring some improvement in flight efficiency. However, the current edition of ERNIP includes only a few projects focusing on FUA improvements. Moreover, the benefits of implementing FUAs will only be felt if the level of military activity/training remains unchanged in the years to come. Increased military activity has an impact on flight efficiency. Nevertheless, FABEC has set up an initiative to harmonize and implement the FUA with its ANSPs through a permanent CIV-MIL taskforce. This taskforce will also take into account the new needs of the armed forces as a result of the introduction of 5th and 6th generation aircraft.
- Weather conditions have become more extreme and unpredictable, as has their impact on air traffic (to reflect the real situation, the TMA cylinder should be extended from 40NM to 200NM, thus excluding the constraints set for arrival and departure from the calculation of en-route flight efficiency).
- Traffic structure: more overflights automatically means better HFE. However, the FABEC area contains the busiest European airports (FRA, CDG, AMS) and the London TMA in the immediate vicinity.
- Structure of the traffic: more overflights automatically means a better HFE. FABEC area, however, contains the busiest European airports (FRA, CDG, AMS), and Heathrow in close proximity.
- In contrast to the aim to minimise emissions, Airspace users are not obliged to fly the shortest route. One example of a reason why they might not do this is when longer but cheaper route is available due to different unit rates across Europe. Neither are they obliged to provide a reason for not flying the shortest route. In addition the new En Route charging calculation according to actual flown route could have an impact on Airspace users choice regarding routes, which will influence flight-efficiency in a magnitude which is still unknown.
- The NM and the ANSPs have optimized their operations with respect to rolling UUP and Level 3 Procedure, bringing more flexibility and more options for AOs to fly shorter routes. Unfortunately, the major part of AOs are not able to seize these opportunities because they file their flight plans more than 6-7 hours in advance. As a consequence, when a TRA is released only 3 hours in advance, they are not able to update their flight plans. As long as the flown track follows the flight plan trajectory, this lack of AOs' reactivity has a negative impact on flight efficiency and potentially on capacity (for instance if several flight plans are filed in a region with a capacity bottleneck whereas if these flight plans were updated, the corresponding flights would be rerouted outside this area).

More in general, we note that the performance scheme does not cover all KPAs and indicators that are relevant to ANS performance, and indeed to air transport as a whole. Performance areas such as security, sustainability, business continuity, etc are also important, and activities undertaken to address performance in these areas can affect performance in relation to the KPIs and targets included in this plan, e.g. improving security come at a cost. Similarly, within the KPAs of safety, capacity, environment and cost efficiency there are (both local and European) issues or priorities that require action even without target setting - compare the PIs included in the performance and charging regulation. As an example, it may be necessary to invest in detecting and/or preventing runway incursions or airspace infringements. This will also affect cost efficiency but it will not contribute to meeting any of the targets in this plan.

Consideration is needed on the effects of considerable changes in the traffic development compared to the traffice forecast. The handling of especially unexpected high traffic increase and the increase of traffic volatility, which we experience since the end of the Corona pandemic, does have effects on capacity and environment, potentially also on cost effiency.
Skyguide
The new framework for Conformity assessment, the multiple implementing rules (notably in the frame of the software developments) have a huge impact on both the costs and the deployment of the capacity initiatives (delayed).

SECTION 5: TRAFFIC RISK SHARING ARRANGEMENTS AND INCENTIVE SCHEMES

5.1 - Traffic risk sharing parameters

5.1.1 Traffic risk sharing - En route charging zones

5.1.2 Traffic risk sharing - Terminal charging zones

5.2 - Capacity incentive schemes

5.2.1 - Capacity incentive scheme - Enroute (FAB)

a) Parameters for the calculation of financial advantages or disadvantages - En route

b) Pivot values - En route

c) Modulation mechanism (if applicable)

d) Description of the incentive scheme at FAB level

5.2.1 - Capacity incentive scheme - Enroute (ANSP)

a) Parameters for the calculation of financial advantages or disadvantages - En route

5.2.2 - Capacity incentive scheme - Terminal

a) Parameters for the calculation of financial advantages or disadvantages - En route

b) Pivot values - Terminal

c) Modulation mechanism (if applicable)

Terminal Belgium
Terminal France
Terminal Germany
Terminal Luxembourg
Terminal Netherlands
Terminal Switzerland

5.3 - Optional incentives

Annexes of relevance to this section

ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING

ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES

ANNEX K. OPTIONAL INCENTIVE SCHEMES

5.1 - Traffic risk sharing

5.1.1 Traffic risk sharing - En route charging zones

Belgium-Luxembourg			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

France			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Germany			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Netherlands			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Switzerland			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

5.1.2 Traffic risk sharing - Terminal charging zones

Belgium EBBR			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

France - Zone 1			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

France - Zone 2			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Germany - TCZ			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Luxembourg - TCZ			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Netherlands - TCZ			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

Switzerland - TCZ			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2.00%	±10.0%	70.0%	5.6%	70.0%	5.6%

5.2 - Capacity incentive schemes

5.2.1 - Capacity incentive scheme - En route (FAB)

a) Parameters for the calculation of financial advantages or disadvantages - En route

En route	Expressed in	Value
Dead band Δ	fraction of min	±0.065 min
Max bonus (≤2%)	*% of DC*	0.50%
Max penalty (≥ Max bonus)	*% of DC*	0.50%

b) Pivot values - En route

Basis for the annual setting of pivot values	Modulated

c) Modulation mechanism (if applicable)

Section to be filled out only if the option for modulated pivot values has been selected under b) above.

Modulation mechanism of pivot values	B) Limited to CRSTMP delay causes

Based on the modulation mechanism(s) selected above, provide a detailed description of the principles and methodology used to modulate the pivot values

Option A) - Modulation based on unforeseen changes in traffic

1) the pivot value for the year N is **equal** to the yearly update of reference values provided by the Network Manager in the NOP	No
2) the pivot value for year N is **informed** by the yearly update early update of reference values by the Network Manager in the NOP	No

If 2) applies describe the principle and formulas on the basis of which the pivot values are calculated
n/a

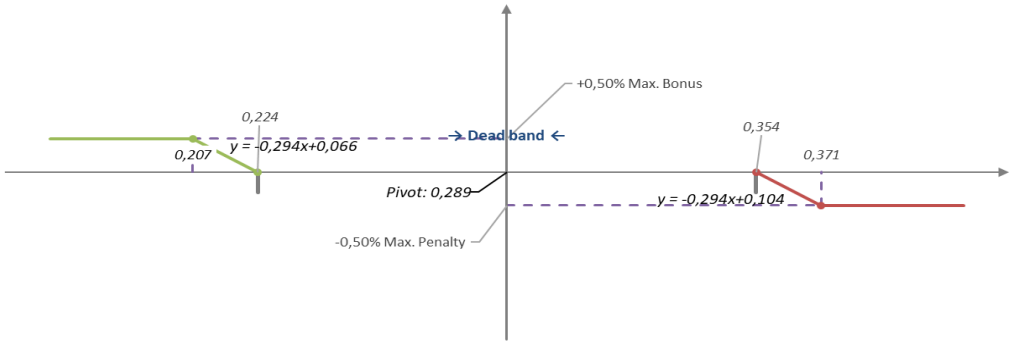
Option B) - Modulation limiting pivot values to C, R, S, T, M, P delay codes

The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual
Explanation on the methodology used to modulate the pivot values accordingly
The FABEC en route capacity incentive scheme has been established in accordance with the requirements of Commission Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky. Incentivising the performance of the ANSPs concerned can in the opinion of FABEC be only achieved by measuring delay attributable to the ANSPs themselves and their performance. Therefore, the FABEC incentive scheme is in accordance with No 1.1. (b) of Annex XIII based on the en route ATFM delay causes related to the codes C, R, S, T, M and P of the ATFCM user manual. FABEC already decided to focus on these delay causes in RP2 and RP3 since ANSPs are supposed to be responsible for them and can influence them; though the reason for respective ATFM-delay might be considered irrelevant by the airspace users, FABEC states are convinced that rewarding or penalising ANSPs for performance that is outside their influence does not incentivise good ANSP performance and might - in case of e.g. good weather - lead to windfall bonuses for ANSPs. In order to assure the correct application of the ATFM-coding, FABEC States continue to apply a post-operation procedure, namely the data validation process, checking the correct application yearly on a sample basis. Regarding the ratio of en route ATFM delay CRSTMP causes, FABEC decided to again calculate the ratio based on historic values from the FABEC ANSPs' performance. Due to the fact that RP3 years were mainly affected by covid related constraints and RP1 is considered to be too short and too far in the past, FABEC members decided that these periods are no valid computing base. Therefore, FABEC decided to again use the RP2 ratio. By using this RP2 ratio, the pivot values represent 67,2854093198613% of the FABEC capacity targets. For the individual ANSPs, the respective individual average CRSTMP-share of RP2 has been used.

Additional information in the case of the combination of A) and B)

If the modulation of pivot values is based on both options A) and B) above, provide additional information on how these two modulation mechanisms are applied in combination with each other
n/a

d) Description of the incentive scheme at FAB level

Explain how the en route incentive scheme at FAB level applies in conjunction with the local incentive scheme applicable at ANSP level
The Incentive scheme applied by FABEC is focused in a first step on FABEC performance. Therefore, a first check is conducted on wether the FABEC target is achieved or not and if this achievement is within or outside the set dead band. In a next step, if the performance achievement is outside the dead band on FAB level, the FABEC performance is used to calculate a percentage value between 0,001 and 0,5% (bonus/penalty range). In a third step will be evaluated which ANSPs did contribute to the overall FAB over-/underperformance. As an example: In the case where FABEC-wide performance was above the pivot value (meaning more delay and therefore lower performing) and outside the dead band, all ANSPs which on individual level had higher delays and therefore performed above the individual ANSPs pivot value and outside the individual dead band, will be contributors to the malus. In a last and fourth step, the percentage value calculated in Step 2 will be multiplied uniformly with the determined costs of the respective year of every individual ANSPs being contributors to the FABs over-/underachievement. The result is then the amount to be granted or charged to or from the ANSP in question. Below one can see as an example a graph of the FABEC incentive scheme for the year 2027   

5.2.1 - Capacity incentive scheme - En route (ANSP)

a) Parameters for the calculation of financial advantages or disadvantages - En route

ANSP	En route	Expressed in	Value
skeyes	Dead band Δ	fraction of min	±0.030 min
DSNA	Dead band Δ	fraction of min	±0.045 min
DFS	Dead band Δ	fraction of min	±0.065 min
LVNL	Dead band Δ	fraction of min	±0.020 min
Skyguide	Dead band Δ	fraction of min	±0.050 min
MUAC	Dead band Δ	fraction of min	±0.040 min