PERFORMANCE REVIEW BOARD
of the Single European Sky

Performance Review Board Monitoring Report Switzerland - 2024

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Contents

1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2023/178 of 14 December 2022

List of ACCs 2
Geneva ACC
Zurich ACC

No of airports in the scope of the performance plan:
- **≥80'K** 2
- **<80'K** 0

Exchange rate (1 EUR=)
2017: 1.11124 CHF
2024: 0.952204 CHF

Share of Union-wide:
- **traffic (TSUs) 2024** 1.4%
- **en route costs 2024** 3.2%

Share en route / terminal costs 2024 64% / 36%

En route charging zone(s)
Switzerland

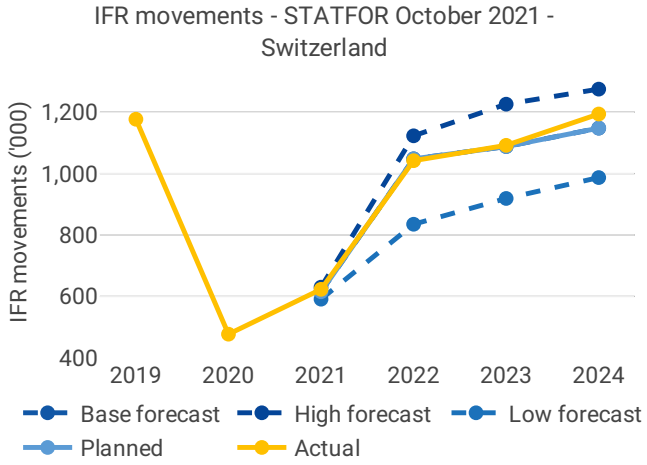
Terminal charging zone(s)
Switzerland

Main ANSP
- Skyguide

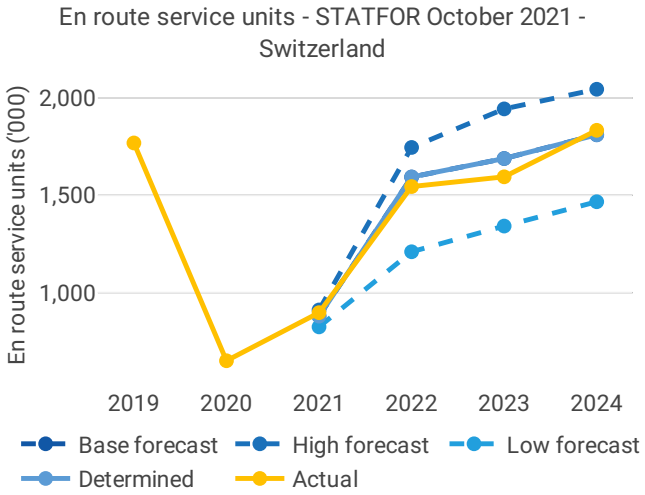
Other ANSPs
–

MET Providers
- Office Féderal de la Météorologie et de Climatologie MétéoSuisse

1.2 Traffic (En route traffic zone)

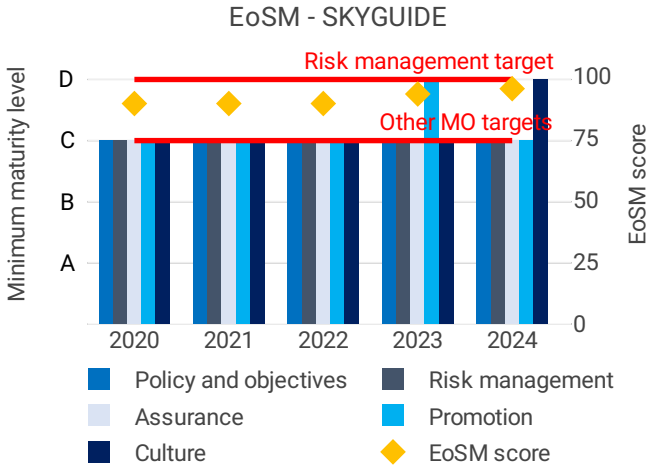


- Switzerland recorded 1,194K actual IFR movements in 2024, +9.3% compared to 2023 (1,092K).
- Actual 2024 IFR movements were +4.0% below the plan (1,148K).
- Actual 2024 IFR movements are +1.4% above the actual 2019 level (1,177K).



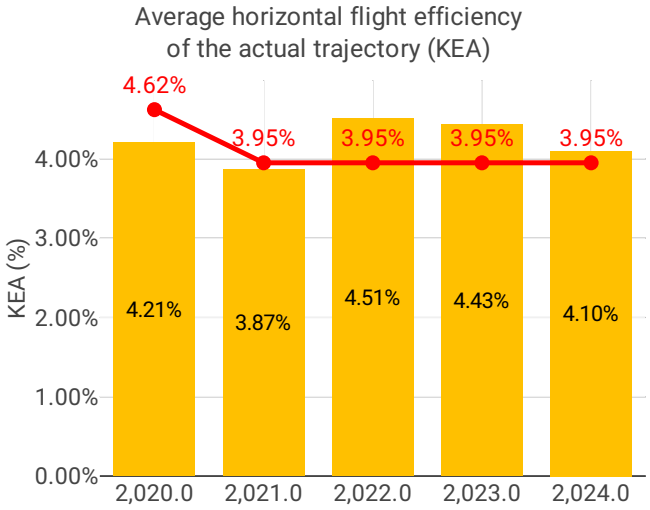
- Switzerland recorded 1,834K actual service units in 2024, +15.0% compared to 2023 (1,595K).
- Actual 2024 service units were +1.3% below the plan (1,811K).
- Actual 2024 service units are +3.7% above the actual 2019 level (1,769K).

1.3 Safety (Main ANSP)



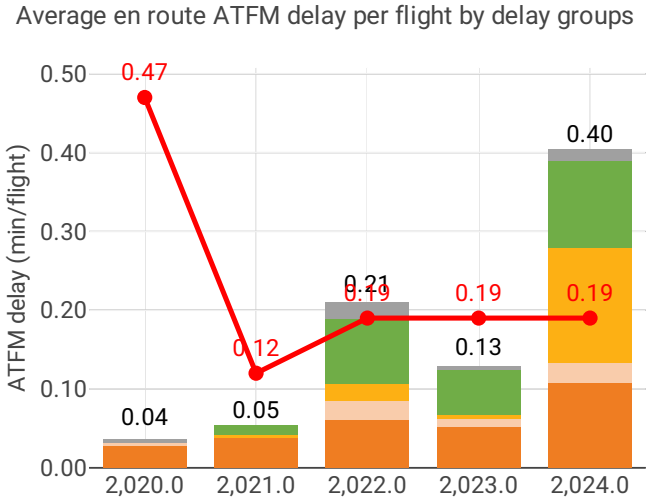
- Skyguide achieved the RP3 EoSM targets in 2024 for all other Management Objectives than Safety Risk Management. However, Skyguide did not manage to implement improvements to Safety Risk Management as planned. The NSA has cautioned that the ANSP may not be able to achieve the required performance levels and established a corrective action plan for the ANSP.
- Switzerland recorded an increase in the rates of runway incursions and separation minima infringements. Both rates are below the Union-wide averages.
- Switzerland should ensure that the ANSP implements, in a timely and cost-efficient manner, the necessary additional measures such as enhanced processes, improved allocation of resources, targeted training, and systematic reviews. Without such actions, the achievement of the RP4 targets could be jeopardised.

1.4 Environment (Member State)



- Switzerland achieved a KEA performance of 4.10% compared to its target of 3.95% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that most inefficiencies are due to the network being impacted by ATC strikes in neighbouring countries or flight planning.
- Both KEP and SCR improved in 2024 compared to 2023. Despite the KEA target being missed, KEA improved in 2024. Additionally, the improvement in SCR shows that Switzerland has enhanced the environmental efficiency of its airspace when accounting for impacts outside of its control.
- The share of CDO flights remained stable in 2024.
- Additional taxi out time increased from 2.72 to 2.89 min/flight, while additional time in terminal airspace increased marginally from 1.92 to 2.02 min/flight in 2024 compared to 2023.

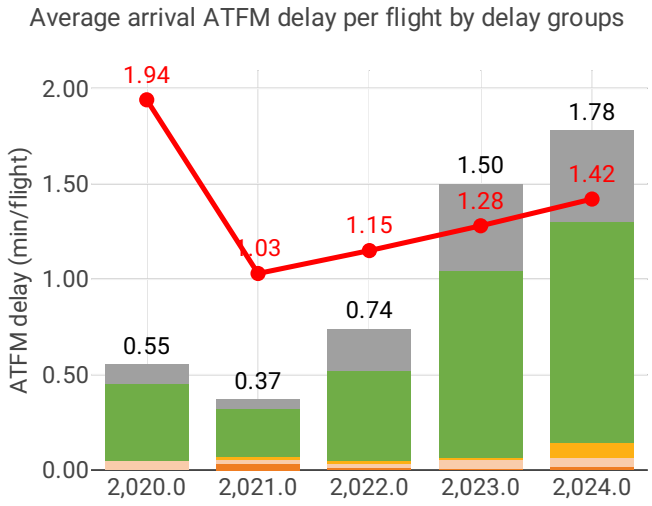
1.5 Capacity (Member State)



- Switzerland registered 0.49 minutes of average en route ATFM delay per flight during 2024, which has been adjusted to 0.40 during the post-ops adjustment process, thus not

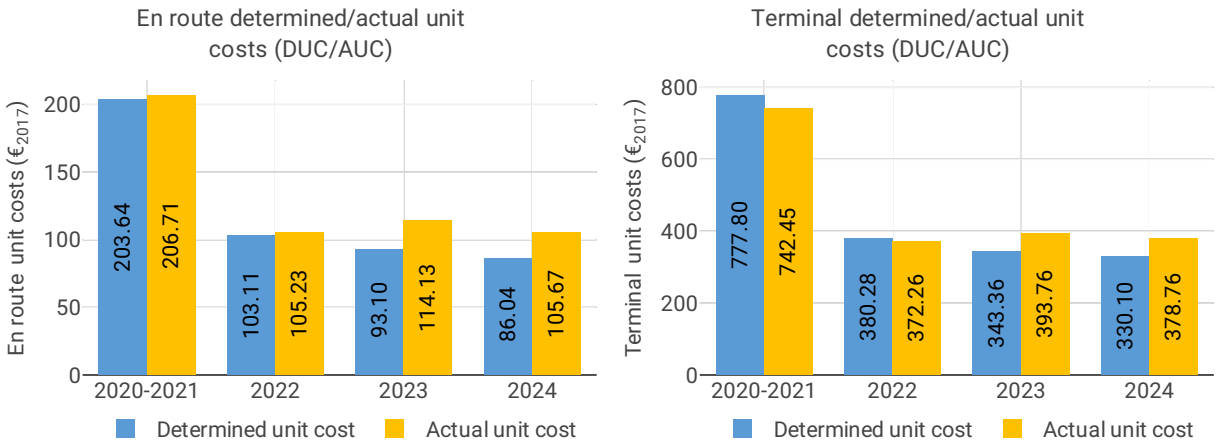
achieving the local target value of 0.19. Delays in Switzerland increased by 0.27 minutes per flight year-on-year.

- Most of the delays were generated between March and September, mainly driven by adverse weather conditions and ATC Staffing issues.
- The share of delayed flights with delays longer than 15 minutes in Switzerland decreased by 8 percentage points compared to 2023 and was lower than 2019 values.
- The average number of IFR movements was 2% above 2019 levels in Switzerland in 2024.
- The number of ATCOs in OPS is 113.2, being below the 2024 plan in Geneva by 7 FTEs. The number of ATCOs in OPS is 126.1, being over the 2024 plan in Zurich by 17 FTEs.
- The yearly total of sector opening hours in Zurich ACC was 35,633, showing a 11.1% increase compared to 2023. Sector opening hours are 0.4% above 2019 levels. The yearly total of sector opening hours in Geneva ACC was 30,477, showing a 7.9% increase compared to 2023. Sector opening hours are 5.7% below 2019 levels.
- Zurich ACC registered 23.72 IFR movements per one sector opening hour in 2024, being 2.3% above 2019 levels. Geneva ACC registered 21.9 IFR movements per one sector opening hour in 2024, being 3.9% above 2019 levels.



- Switzerland registered an average airport arrival ATFM delay of 1.78 minutes per flight in 2024, thus not achieving the local target of 1.42 minutes.
- Compared to 2023, average arrival ATFM delays in Switzerland were 19% higher in 2024, while the number of IFR arrivals increased by 5%.
- The main drivers of delays were weather, accounting for 65% of delays, and other, non-ATC related causes, responsible for 27%.

1.6 Cost-efficiency (En route/Terminal charging zone(s))



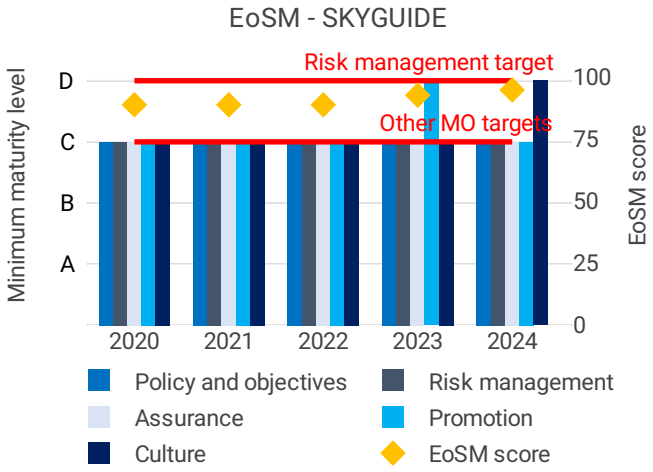
- The en route 2024 actual unit cost of Switzerland was 105.67€2017, +23% higher than the determined unit cost (86.04€2017). The terminal 2024 actual unit cost was 378.76€2017, +15% higher than the determined unit cost (330.10€2017).
- The en route 2024 actual service units of Switzerland (1.8M) were +1.2% higher than the determined service units (1.8M).
- The en route 2024 actual total costs were +38M€2017 (+24%) higher than the determined. This is mainly driven by Skyguide other operating costs (+20M€2017, or +96%), and staff costs (+8.9M€2017, or +8.1%). For both cost categories, the NSA explained that additional resources were needed to address technical incidents. In addition, Skyguide costs include +7.5M€2017 related to the impact of a change in the capitalisation rule, which was included as a negative exceptional item in the determined costs (so as to be excluded from the amounts charged to airspace users), but has not been deducted from the actual costs, as it is reported as being actually incurred.
- Skyguide spent 37M€2017in 2024 related to costs of investments for both en route and terminal charging zones, -6.7% lower than determined (40M€2017), mainly due to lower depreciation costs than planned.
- The en route actual unit cost incurred by users in 2024 was 106.23€ (+3.0% higher than the 2024 DUC), while the terminal actual unit cost incurred by users in 2024 was 392.69€ (-0.7% lower than the 2024 DUC).
- The en route regulatory result for Skyguide amounted to -44M€. The loss is mainly attributable to the cost risk sharing mechanism, in particular the negative difference between actual and determined costs to be borne by the ANSP.

2 SAFETY - SWITZERLAND

2.1 PRB monitoring

- Skyguide achieved the RP3 EoSM targets in 2024 for all other Management Objectives than Safety Risk Management. However, Skyguide did not manage to implement improvements to Safety Risk Management as planned. The NSA has cautioned that the ANSP may not be able to achieve the required performance levels and established a corrective action plan for the ANSP.
- Switzerland recorded an increase in the rates of runway incursions and separation minima infringements. Both rates are below the Union-wide averages.
- Switzerland should ensure that the ANSP implements, in a timely and cost-efficient manner, the necessary additional measures such as enhanced processes, improved allocation of resources, targeted training, and systematic reviews. Without such actions, the achievement of the RP4 targets could be jeopardised.

2.2 Effectiveness of Safety Management (EoSM) (KPI#1)



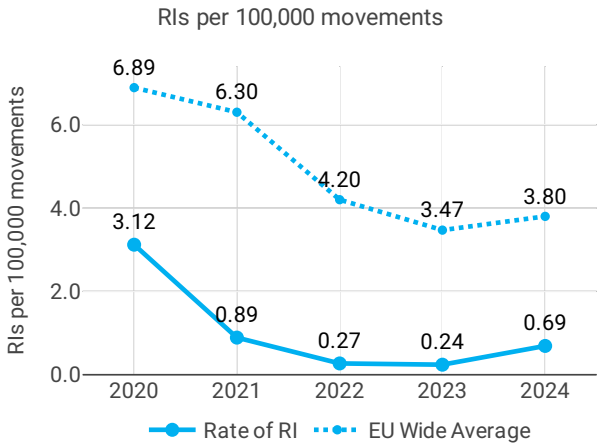
Focus on EoSM

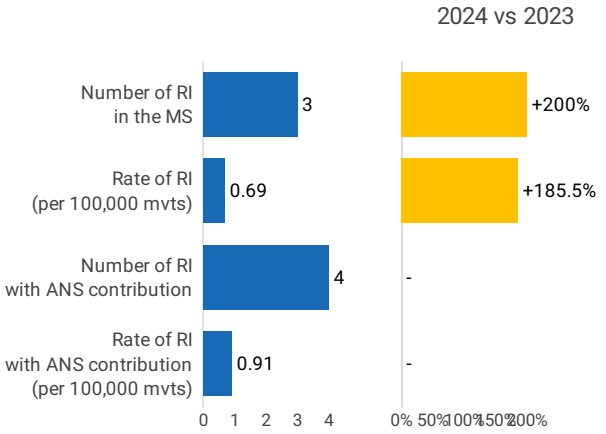
Four out of five EoSM components of the ANSP meet the RP3 target level. Only the component "Safety Risk Management" is below 2024 target level, requiring improvement of a single question. Over 2024," Safety Culture" was improved enabling this area to reach the target level D.

Skyguide began RP3 with all five Management Objectives being at maturity level C, hence being required to improve Safety Risk Management by one maturity level over RP3 to achieve all RP3 targets. The planned increase in maturity in 2023 was not reached and Safety Risk Management remained at maturity level C in 2024. Only one of the three questions under the Management Objective remains to be improved in one aspect of the question. A corrective action plan is in place by which the issue should be resolved by mid-2025.

2.3 Safety occurrences

2.3.1 Rate of runway incursions (RIs) (PI#1)





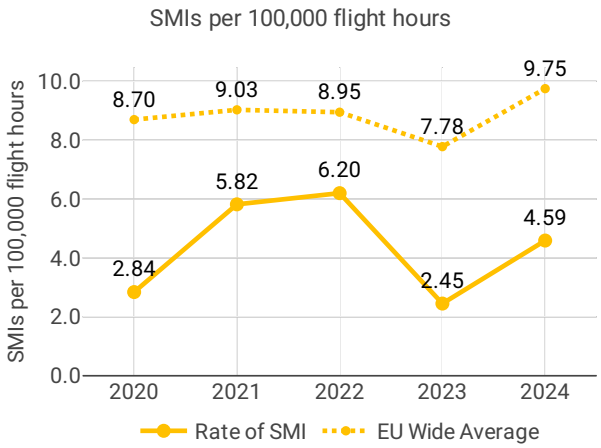
Rate of RIs per 100,000 airport movements - Switzerland				
#	Airport name	APT movements	Number of RI	Rate RI per 100,000
1	Zürich	258,182	1	0.39
2	Geneva	179,335	3	1.67

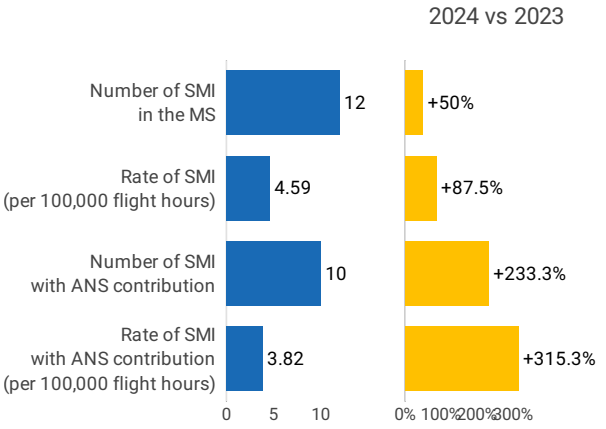
Focus on runway incursions

Switzerland recorded a downward trend in the rate of RIs reported at the Member State level since the start of RP3, with an increase in the rate between 2023 and 2024. The rate at the Member State level remains well below the Union-wide average. The rate of RIs with ANS contribution shows the same picture as at the Member State level.

There is no global plan to reduce RI by Skyguide. Occurrences are analysed and discussed on a case-to-case basis, and depending on the contributing factors, corrective actions can be initiated.

2.3.2 Rate of separation minima infringements (SMIs) (PI#2)





Rate of SMI with ANS contribution per 100,000 flight hours											
		Flight hours					Number of SMIs				
#	ANSP	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	SKYGUIDE	150,242	137,471	318,606	325,987	261,650	0	2	5	3	10

		Rate of SMI per 100,000 flight hours					% variation in rate of SMIs				
#	ANSP	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	SKYGUIDE	0	6	2	1	4		0%	-73%	-41%	+315%

Focus on separation minima

The rate of SMIs at the Member State level has remained below the Union-wide average throughout RP3. The rate has been fluctuating over RP3, increasing in the beginning, then falling, only to increase again in 2024. The increase in the rate of SMIs with ANS contribution has been more significant (+300%), with the number of occurrences increasing from 3 to 10.

There is no global plan to reduce SMI by Skyguide Occurrences are analysed and discussed on a case-to-case basis, and depending on the contributing factors, corrective actions can be initiated.

2.3.3 Quality of occurences reporting

The number of occurrences reported at the Member State level seems consistent with the occurrences reported at the ANSP level for SMIs and RIs.

2.4 Use of automated safety data recording system (ASDRS) (PI#3)

Use of automated safety data recording system - 2024	
For RIs	For SMIs
✗	✓

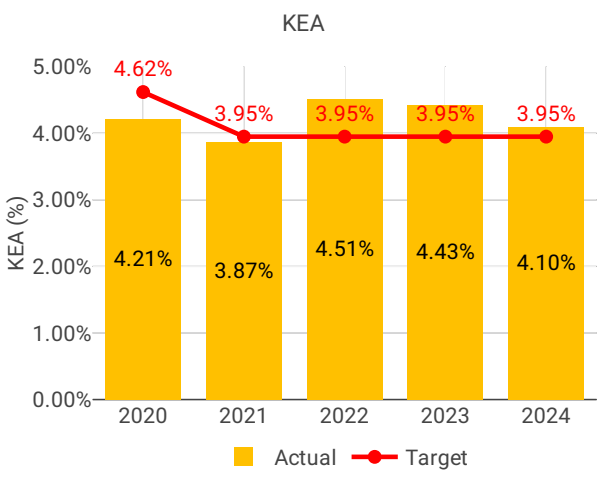
3 ENVIRONMENT - SWITZERLAND

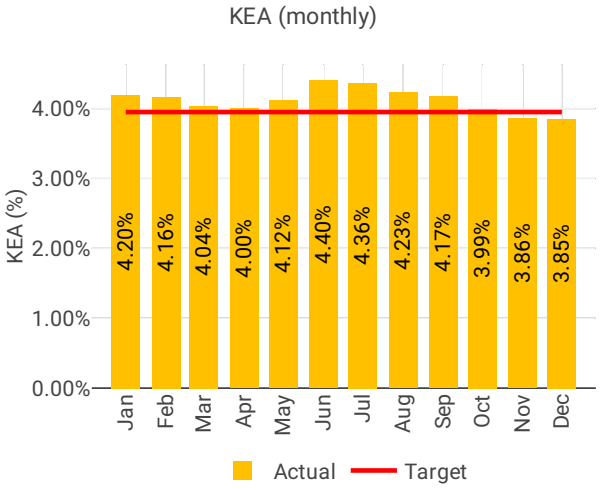
3.1 PRB monitoring

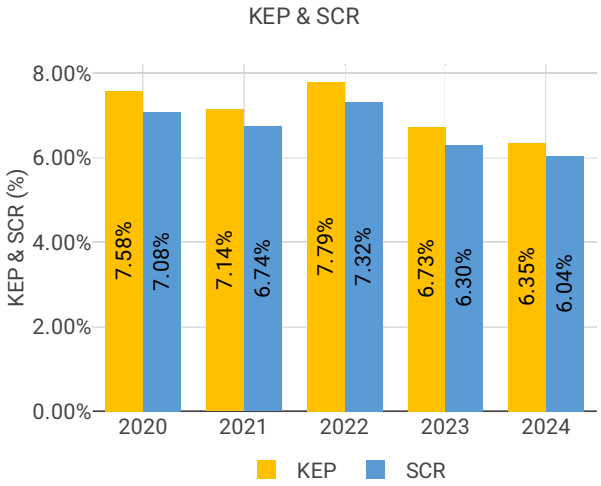
- Switzerland achieved a KEA performance of 4.10% compared to its target of 3.95% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that most inefficiencies are due to the network being impacted by ATC strikes in neighbouring countries or flight planning.
- Both KEP and SCR improved in 2024 compared to 2023. Despite the KEA target being missed, KEA improved in 2024. Additionally, the improvement in SCR shows that Switzerland has enhanced the environmental efficiency of its airspace when accounting for impacts outside of its control.
- The share of CDO flights remained stable in 2024.
- Additional taxi out time increased from 2.72 to 2.89 min/flight, while additional time in terminal airspace increased marginally from 1.92 to 2.02 min/flight in 2024 compared to 2023.

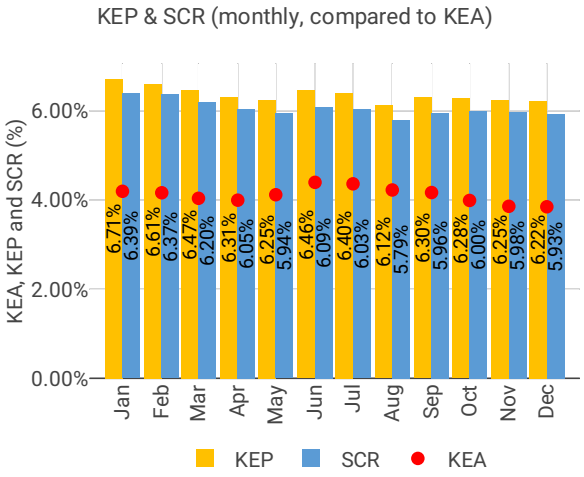
3.2 En route performance

3.2.1 Horizontal flight efficiency of the actual trajectory (KEA) (KPI#1), of the last filed flight plan (KEP) (PI#1) & shortest constrained route (SCR) (PI#2)



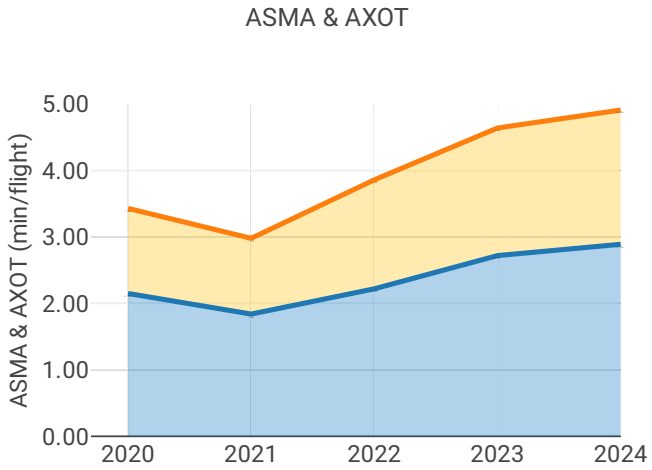


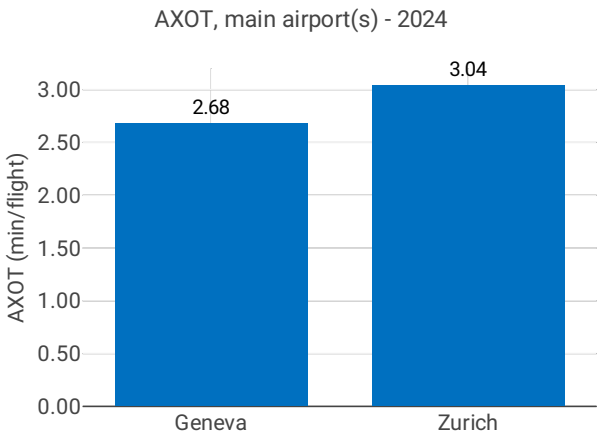


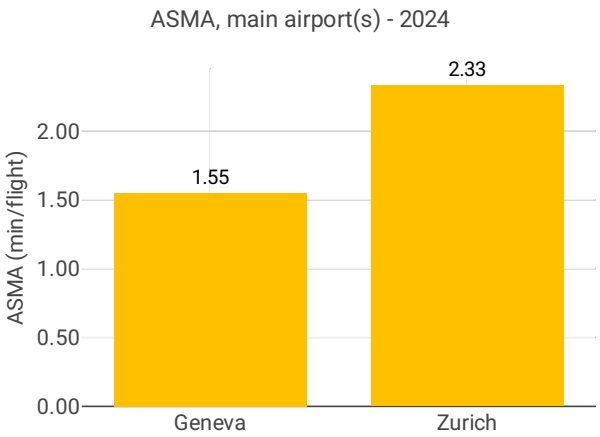


3.3 Terminal performance

3.3.1 Additional taxi-out time (AXOT) (PI#3) & Arrival Sequencing and Metering Area (ASMA) time (PI#4)







Focus on ASMA & AXOT

AXOT

Additional taxi-out times at both Swiss airports increased in 2023. In particular Zurich (LSZH; 2019: 3.65 min/dep; 2020: 2.23 min/dep.; 2021: 1,93 min/dep.; 2022: 2.49 min/dep.; 2023: 2.94 min/dep.; 2024: 3.04 min/dep.) exceeded the SES average of 2.91 min/dep.

According to the Swiss monitoring report: *Ground efficiency has suffered from increased traffic in the summer of 2024.*

Further improvements will result from the use of :

1/ the CP1 Airport Operation Plan, although it should be noted that taxi-out time is dependent on weather conditions, particularly if de-icing is required.

2/ the deployment of new DARTS (LSZH only) where various ground efficiency elements are expected.

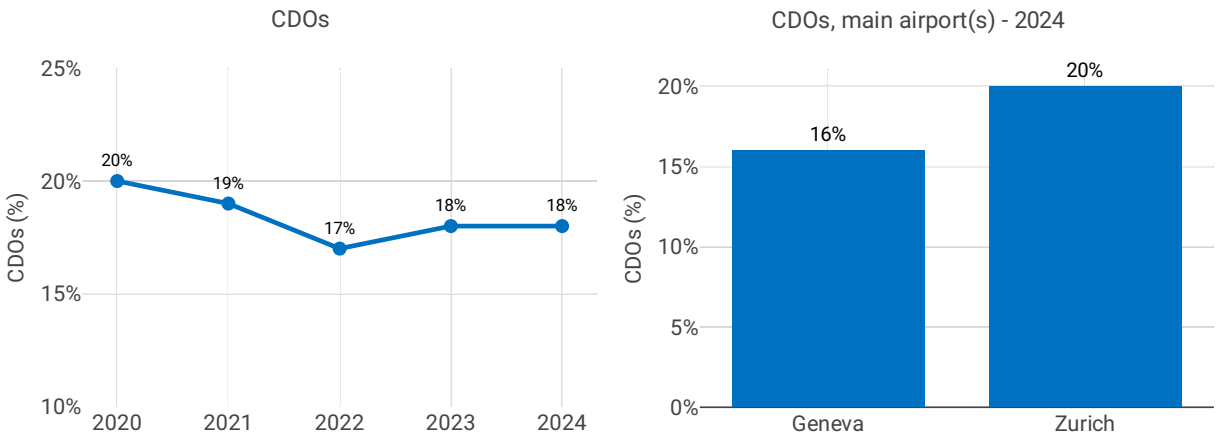
ASMA

Additional times in the terminal area slightly increased at both airports. Zurich (LSZH; 2019: 2.91 min/arr.; 2020: 1.28 min/arr.; 2021: 1.29 min/arr.; 2022: 1.84 min/arr; 2023: 2.27 min/arr; 2024: 2.33 min/arr) observed the second highest additional ASMA times among the SES monitored airports in 2024, even if its performance was still better than in 2019.

According to the Swiss monitoring report: *Efficiency within the last 40NM (additional time in descent flight phase) around LSZH and LSGG decreased in 2024 due to traffic increase.*

In LSZH, XMAN, AOP (thanks to the TTA used through the TTMS tool implemented by Zurich Airport) and Leading Optimised Runway Delivery (LORD) projects should help improving performance. In LSGG, the deployment of an AMAN and LORD should help improve the performance.

3.3.2 Share of arrivals applying continuous descent operations (CDOs) (PI#5)



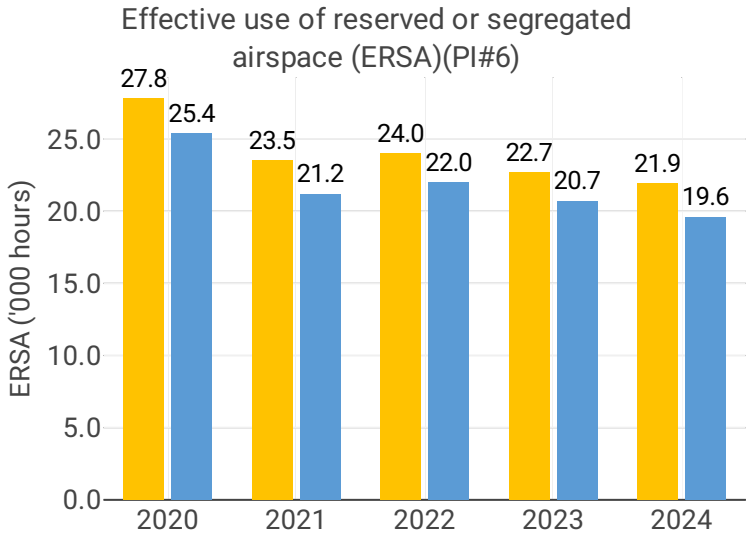
Focus CDOs

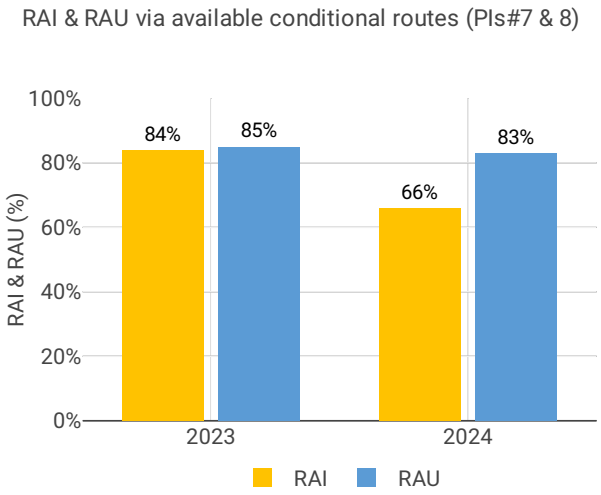
The share of CDO flights remained stable with respect to 2023 but the values are still below the overall RP3 value in 2024 (29.3%).

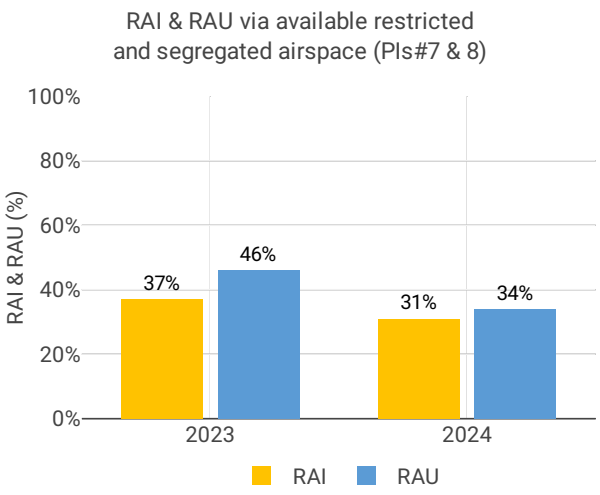
According to the Swiss monitoring report: *Vertical flight efficiency from Top of Descent remained stable in 2024 despite traffic increase. CDOs can be flown only when traffic is reduced. Skyguide was audited in 2023, 2024 and 2025 by CANSO for CCO/CDO practices in ZRH and GVA as part of its GreenATM accreditation. Room for improvement is identified and corrective actions will be taken. Skyguide continues to work with the airlines to improve the CCO/CDO rate. The OMASI trial with Swiss, aimed at implementing dynamic RAD on the border between France and Switzerland, OMASI waypoint, and thus enabling CDO from Top of Descent, was completed in March 2024. It shows impressive results and post-trial analysis will determine whether it can be continued. It is expected to save 252 tonnes of CO2. Projects are planned to implement an AMAN in Geneva and optimize the Extended-AMAN (XMAN) in Zurich. The AMAN plays a critical role in ensuring that CDO can be executed effectively. By optimizing traffic flow, coordinating arrivals, and minimizing disruptions, AMAN enhances the ability of aircraft to maintain a smooth, uninterrupted descent. Furthermore, in LSZH, LADY (Lean AMAN Development Yielder) will improve the inbound trajectory calculation, thus allowing the ATCOs to deliver a highly reliable "miles to touchdown" information to the pilots, which in turn will allow them to optimise their descents and contribute to our CDO objectives. To further optimise CCO/CDO, a project based on new controller tools (including AMAN) and airspace design is planned*

Airport level															
	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
Airport	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Geneva	2.06	1.71	1.88	2.40	2.68	1.27	0.95	1.37	1.43	1.55	19%	19%	17%	17%	16%
Zurich	2.23	1.93	2.49	2.94	3.04	1.28	1.29	1.84	2.27	2.33	21%	20%	18%	19%	20%

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

For obvious flight safety reasons, military activities must be segregated from civil flows which has an impact on both horizontal (HFE) and vertical flight efficiency (VFE). Because ASM manageable areas form an integral part of the nominal system, military airspace reservations shall be considered as part of the performance baseline rather than a key factor degrading environmental KPIs.

As a result of implementation of the FUA concept the impact of military activities using Restricted Airspace -RSA on civil performance is highly minored when associated with an efficient ASM process:

- At strategic level (HLAPB) by designing areas in accordance with A-FUA concept (MVPA/VGA structures), especially for congested airspaces.
- At pre-tactical level (AMC), by managing these areas in a dynamic way, with an associated level 2 CDM process, validated by HLAPB.
- At tactical level (ACC/Regional Military Control Centre) by activating/deactivating areas as close as possible to actual use and allowing crossing or direct routes when possible (in accordance with TRA status), with an associated level 3 CDM process validated by HLAPB.
- At each level, HLAPB, AMC or ACC/Regional Military Control Centre, a key factor of efficiency is a trust-driven civil-military cooperation. As a counterpart, AOs and CFSPs must be reactive and take efficiently into account available or released airspaces. At last, ANSP have also to adapt the route network to create more DCTs within military areas.

Finally, local circumstances (e.g. constrained airspace, proximity of international hubs, etc….) as well as a large number of military missions that differ from one State to another must be taken into account. Therefore, airspace needs (e.g. airspace requirements for the 5th generation fighters) and related ASM procedures of the States differ and standardized objectives cannot be defined.

Military - related measures implemented or planned to improve capacity

FABEC States are working on mid-term improvements regarding implementation of ASM level 1, 2, and 3 procedures. Some local initiatives regarding ASM/ATFCM convergence, like the traffic Light Scheme concept in France are promoted at FABEC level, as well as at ECAC level in the EUROCONTROL OEP framework.

Initiatives implemented or planned to improve PI#6

Remark: The Rolling UUP and Procedure 3 were introduced in Switzerland on 01.01.2016.

Monitoring of effectiveness: Since introduction of Rolling UUP and Procedure 3 in 2016, the PI#6 ratio improved and remained high and stable over years implying more reliable flight planning possibilities by AUs across Swiss airspace.

Ongoing national civil-military initiatives: Additional improvements are foreseen at the mid/long term such as introduction of VPA, improved CDM-ATFCM, improved civ-mil ASM Tools, etc. that shall give even more direct routing options to the Airspace Users. In addition, CH NSA is in the process of defining specific national PIs and/or "Use cases" in order to better assess (and improve, if necessary) the effectiveness of national FUA processes.

Initiatives implemented or planned to improve PI#7

Remark: In the figures provided by Eurocontrol (PRISMIL) until 2021 (included), there was no way of knowing whether the flights that filed through the available RSA are indeed a subset of the flights that could have filed through the available RSA. This correction is now available and has been computed retroactively for all years.

Ongoing national civil-military initiatives: Promoting a more proactive flight planning process (considering the last published airspace status) by the Airspace Users. Additional improvements are foreseen at the mid/long term such as introduction of VPA, improved CDM-ATFCM, improved civ-mil ASM Tools, etc. that shall give even more direct routing options to the Airspace Users.

Monitoring of effectiveness: Military mission planning remained stable at a high level over years implying more reliable flight planning by AUs across Swiss airspace. CH NSA is in the process of defining specific national PIs and/or "Use cases" in order to better assess (and improve, if necessary) the effectiveness of national FUA processes.

Initiatives implemented or planned to improve PI#8

Remark: In the figures provided by Eurocontrol (PRISMIL) until 2021 (included), there was no way of knowing whether the flights that filed through the available RSA are indeed a subset of the flights that could have filed through the available RSA. This correction is now available and has been computed retroactively for all years.

Ongoing national civil-military initiatives: Promoting a more proactive flight planning process (considering the last published airspace status) by the Airspace Users. Additional improvements are foreseen at the mid/long term such as introduction of VPA, improved CDM-ATFCM, improved civ-mil ASM Tools, etc. that shall give even more direct routing options to the Airspace Users.

Monitoring of effectiveness: Military mission planning remained stable at a high level over years implying more reliable flight planning by AUs across Swiss airspace. CH NSA is in the

process of defining specific national PIs and/or “Use cases” in order to better assess (and improve, if necessary) the effectiveness of national FUA processes.

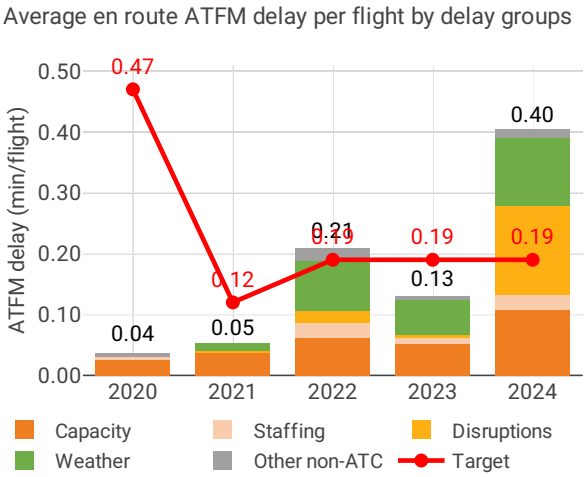
4 CAPACITY - SWITZERLAND

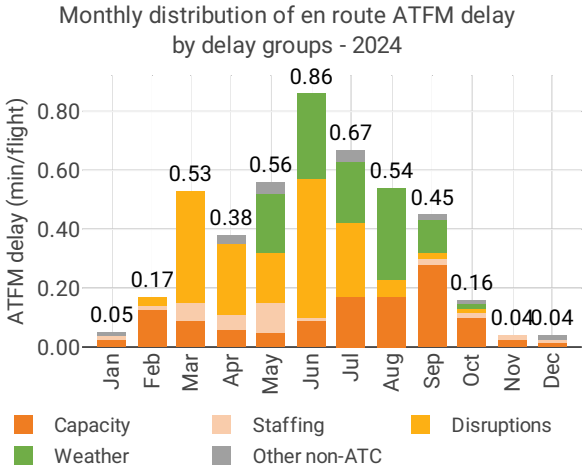
4.1 PRB monitoring

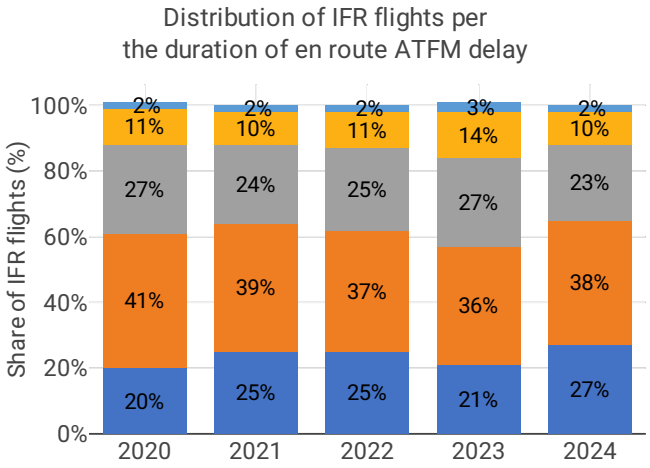
- Switzerland registered 0.49 minutes of average en route ATFM delay per flight during 2024, which has been adjusted to 0.40 during the post-ops adjustment process, thus not achieving the local target value of 0.19. Delays in Switzerland increased by 0.27 minutes per flight year-on-year.
- Most of the delays were generated between March and September, mainly driven by adverse weather conditions and ATC Staffing issues.
- The share of delayed flights with delays longer than 15 minutes in Switzerland decreased by 8 percentage points compared to 2023 and was lower than 2019 values.
- The average number of IFR movements was 2% above 2019 levels in Switzerland in 2024.
- The number of ATCOs in OPS is 113.2, being below the 2024 plan in Geneva by 7 FTEs. The number of ATCOs in OPS is 126.1, being over the 2024 plan in Zurich by 17 FTEs.
- The yearly total of sector opening hours in Zurich ACC was 35,633, showing a 11.1% increase compared to 2023. Sector opening hours are 0.4% above 2019 levels. The yearly total of sector opening hours in Geneva ACC was 30,477, showing a 7.9% increase compared to 2023. Sector opening hours are 5.7% below 2019 levels.
- Zurich ACC registered 23.72 IFR movements per one sector opening hour in 2024, being 2.3% above 2019 levels. Geneva ACC registered 21.9 IFR movements per one sector opening hour in 2024, being 3.9% above 2019 levels.
- Switzerland registered an average airport arrival ATFM delay of 1.78 minutes per flight in 2024, thus not achieving the local target of 1.42 minutes.
- Compared to 2023, average arrival ATFM delays in Switzerland were 19% higher in 2024, while the number of IFR arrivals increased by 5%.
- The main drivers of delays were weather, accounting for 65% of delays, and other, non-ATC related causes, responsible for 27%.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Switzerland experienced an increase in traffic from 1 092k flights in 2023 with 155k minutes of en route ATFM delay, to 1 184k flights with 549k minutes of en route ATFM delay.

There were an additional 41k minutes of delay originating in Switzerland that were re-attributed to DFS via the NM post operations delay attribution process, according to the NMB agreement for eNM/S24 measures, to ameliorate capacity shortfalls in Karlsruhe UAC.

NSA's assessment of capacity performance

In 2024, Skyguide didn't achieve its en-route capacity target (0.19 min/flt). Total ATFM delay per flight was 0.40 min/flt, 0.21 min/flt above the target. The delay in 2024 was mainly caused by an unexpected increase of traffic, well above 2019 levels (IFR transit flights +4% vs. 2019 in July, +7% in August, +6 % in September) and a total IFR traffic evolution reaching +2% (2024 vs. 2019). Main causes of delay were 'Equipment (ATC)' (33%), 'Weather' (30%) and 'ATC-Capacity' (28%).

Monitoring process for capacity performance

The monitoring for en-route capacity performance is carried out under the auspices of the FABEC Financial and Performance Committee (FPC), counterpart of the European Commission at the States side, consulting and reporting to FABEC Council as appropriate.

On a monthly basis and through the AFG/PMG (ANSP FABEC Group / Performance Management Group) the ANSPs collectively submit a report to the FPC, based on PRU available data, consolidated and analysed, on their joint progress in achieving the national target set and reference or indicative values and on the results and analysis of the en- route capacity achievement.

In case the national target set and/or the annual/reference values are threatened not to be met, AFG/PMG is asked to propose to FPC possible corrective measures which the ANSPs determine fit to react to the weaker performance at national and/or ACC level, in order to remedy the situation.

The FPC analyses the reports, assesses the actions considered by the ANSPs together with the necessity of appropriate measures to be taken by the States or the NSAs and makes an advice to the proposals, made by the AFG/PMG, to the FABEC Council for such appropriate measures, after consultation with the AFG/PMG. The potential corrective measures take into account the seriousness of the risk of not meeting the targets set and/or the annual/reference values. The FPC is also responsible for the management of the Capacity KPA financial incentive schemes. This monitoring process is described in the FABEC FPC States Performance Process description, regularly updated.

The Swiss NSA has periodical meetings with its ANSPs. - The Swiss NSA is regularly provided with various reports, analysis and data such as FABEC monthly capacity reports (including Skyguide data), Skyguide reports, PRU dahboards which enable to closely monitor the performance evolution.

Capacity planning

In 2024, Skyguide didn't achieve its en-route ATFM delay per flight target.

IFR Transit Traffic increased by 14.4% in 2024 vs. 2023 in Geneva UAC and by 13.2% in Zurich UAC. This increase of traffic was far beyond the expected traffic increase and had a major impact on en-route ATFM delays. These levels were significantly above 2019 levels (IFR transit flights +4% vs. 2019 in July, +7% in August, +6 % in September) and a total IFR traffic evolution reaching +2% (2024 vs. 2019). Main causes of delay were 'Equipment (ATC)' (33%), 'Weather' (30%) and 'ATC-Capacity' (28%).

In 2024, Skyguide decided to decrease its sector capacity between March and June by 20%, then 10% for safety and resilience purpose. Once confidence in systems was regained, sectors capacity was reset to nominal values, however during the second half of the year, even though system landscape was much more stable, delays could not be recovered due to the strong increase in traffic and heavy impact of the adverse weather conditions on Skyguide en-route performance.

Application of Corrective Measures for Capacity (if applicable)

3 main factors led to observe a performance target that was not achieved:

1. the exceptional increase in traffic

2. the adverse weather conditions which represented 29% of the ATFM delay
3. the instable technical environment

Traffic increase is not in hands of the ANSP, the adverse weather conditions neither, so, the NSA recommended to work on the system resilience and robustness. System Resilience and Robustness / Switzerland - Dedicate time (i.e.: 1 year) to stabilising our technical landscape. Among others, this includes: reduction of our technical debt, reduction of the technical bugs, architectural improvements. The intention is to create a more reliable environment, through increased stability and future-proof technological landscape. - implemented in 2024.

During the ongoing calendar year, sector capacity is planned to be increased in both ACCs. A live trial should be launched to better address the adverse weather conditions and the associated sector capacity reduction: a new meteo forecast per sector should allow for taking more efficient decisions and hence, decrease delays. Through the change management process implemented in Switzerland, the NSA will be notified when the change will occur.

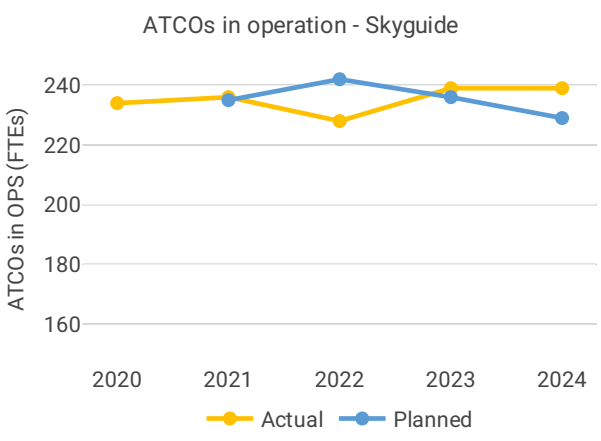
The NOP delay forecast for Skyguide in 2025 is 0.35 min/flt whereas the target is 0.36 min/flt. Therefore, there is no significant risk of not achieving the capacity target in 2025.

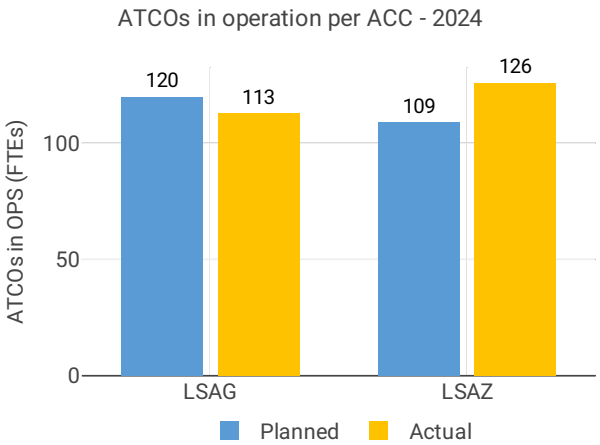
En route Capacity Incentive Scheme

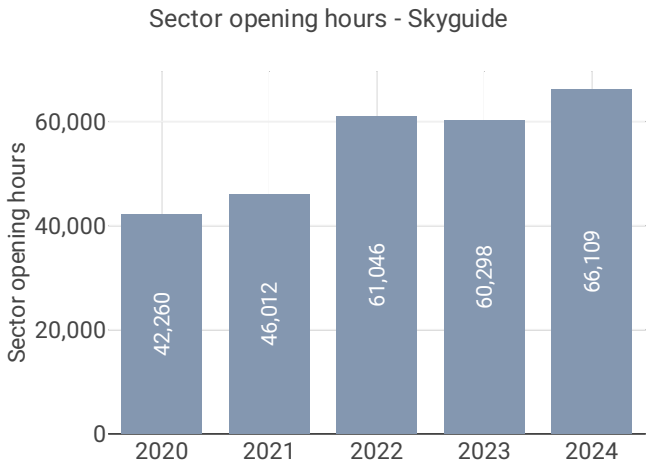
Skyguide: The incentive scheme is based only on delays attributed to C,R,S,T,M & P delay codes. The CRSTMP target was set at 0.13 minutes per flight and the actual performance is reported as 0.29 minutes per flight (CRSTMP only). This results in the ANSP receiving a penalty of CHF 776 976

In accordance with Article 3(3)(a) of Implementing Regulation (EU) 2020/1627: The incentive scheme shall cover only the calendar years 2022 to 2024.

4.2.2 Other indicators





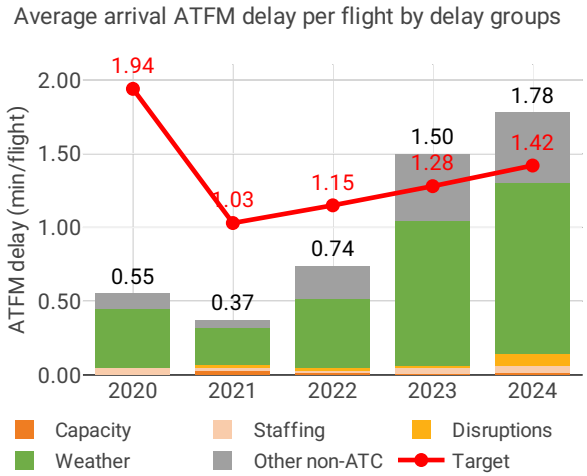


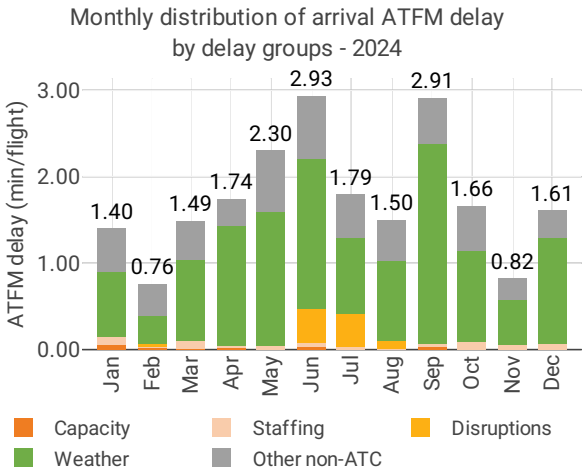
Focus on ATCOs in operations

As stated in the Performance Plan submitted last year, the way we count ATCOs has changed and therefore, figures of 2024 and previous years are not directly comparable (operational view in 2024 vs. financial view). As per 2025, figures will represent only the operational view.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





Focus on arrival ATFM delay

Switzerland identifies its two main airports Zurich (LSZH) and Geneva (LSGG) as subject to RP3 monitoring. Both airports have a fully implemented data flow that allows the proper monitoring of the pre-departure delays. Traffic in 2024 at these two airports was still 4% lower than in 2019, but 5% higher than in 2023. Average arrival ATFM delays in 2024 was 1.78 min/arr, compared to 1.5 min/arr in 2023. The national target was not met. ATFM slot adherence was very similar to the previous year (2023: 95.7%; 2024: 95.5%).

ATFM delays at both Swiss airports increased in 2024, and they are considerably higher in Zurich (LSZH: 2019: 1.99 min/arr.; 2020: 0.60 min/arr.; 2021: 0.51 min/arr.; 2022: 0.93

min/arr.; 2023: 2.12 min/arr.; 2024: 2.38 min/arr.) 65% of these delays at Swiss airports were attributed to weather and 22% to aerodrome capacity issues.

According to the Swiss monitoring report: *In 2024, delays were due to 'Weather' (65%), 'Aerodrome Capacity' (22%), 'Equipment (ATC)' (5%), 'Environment' (4%), 'Staffing' (3%), 'ATC-Capacity' (1%) and 'Special Event' (1% - Ski Worldcup in Crans-Montana and Summit on Peace in Ukraine). Skyguide didn't achieve neither the total arrival ATFM delay per flight nor the CRSTMP arrival ATFM delay per flight. 'Weather' and 'Aerodrome Capacity' are the main drivers for not meeting the target for the total arrival ATFM delay per flight whereas Equipment (ATC)' is the main reason for not achieving the CRSTMP arrival ATFM delay per flight.*

**Identification and analysis by the NSA of the underlying reasons or circumstances having led to the performance target not being achieved:* 2024 was marked by a high number of technical issues (flooding in Geneva; radio frequency, FDP/Trace issues, Dep/Arr traffic system in Zurich). For safety reasons, we decided to proactively lower the capacity (-20% for the arrivals in Zurich between the 28th of June and the 11th of July), thus creating additional delay. In the second half, the system landscape was more stable, but the delays could not be recovered*.

Recommendations to the ANSP to rectify the situation:* Launch remedial actions to stabilise the technical systems in Zurich.*

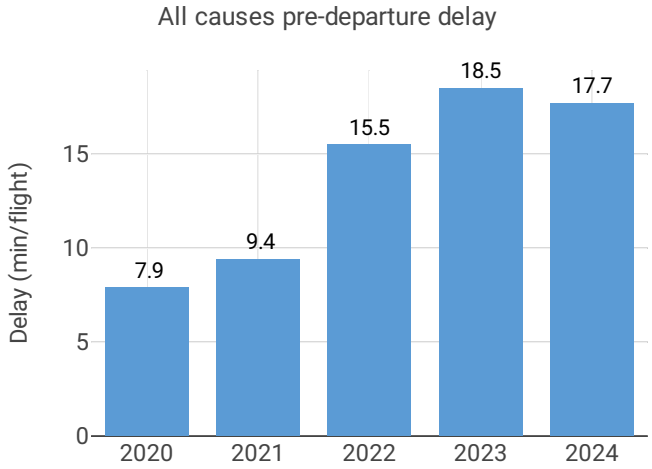
What action has the NSA taken to check/monitor the implementation of those measures and what further actions (if any) are planned during the ongoing calendar year? *Ensure skyguide have implemented a regular monitoring of the health of their systems, reported to the Executive Board, so that remedial actions can be implemented in due time.*

What has been done by the ANSP in order to address the identified performance issues? *The TMA redesign project to be implemented in March 2025 in Zurich airport is a very sensitive change. Therefore, a safety measure will be taken and the capacity will be decreased by 20% during 5 weeks. Geneva Airport Operating System (managed by Geneva Airport) will be replaced in 2025. A transition period (between 6 months to a year) will be necessary to renew the A-CDM certification with the new system. During this transition, A-CDM functionalities will not be available and working methods will be temporarily modified, leading to a decrease of the airport capacity and therefore, higher delays are expected. The certification depends on staff capacity at Eurocontrol. Together with Geneva Airport, Skyguide will ensure Eurocontrol will set the appropriate priority to the recertification process.*

What further measures does the NSA intend to undertake to remedy this situation? *Support Geneva Airport and Skyguide in their exchange with Eurocontrol to accelerate the recertification, and thus reduce the overall delays by shortening the transition period.*

The Swiss performance plan sets a national target on arrival ATFM delay for 2024 of 1.42 min/arr. This target was not met, with an actual performance of 1.78 min/arr. The incentive scheme uses modulated pivot values limited to CRSTMP delay causes. According to the Swiss monitoring report, this pivot value for CRSTMP is 0.09 min/arr in 2024 and based on the attribution of the regulation reason, the actual CRSTMP value for 2023 was 0.16 min/arr. The NSA calculates a penalty of CHF499980

4.3.2 Other terminal performance indicators (PI#1-3)



Airport level										
	Avg arrival ATFM delay (KPI#2)					Slot adherence (PI#1)				
Airport name	**2020**	**2021**	**2022**	**2023**	**2024**	**2020**	**2021**	**2022**	**2023**	**2024**
Geneva	0.49	0.19	0.48	0.59	0.89	94.7%	93.1%	94.0%	93.8%	94.2%
Zurich	0.60	0.51	0.93	2.12	2.38	94.4%	96.0%	96.7%	97.0%	96.5%

	ATC pre departure delay (PI#2)					All causes pre departure delay (PI#3)				
Airport name	**2020**	**2021**	**2022**	**2023**	**2024**	**2020**	**2021**	**2022**	**2023**	**2024**
Geneva	0.24	0.13	0.32	0.52	0.46	8.5	9.0	15.1	16.4	16.3
Zurich	0.48	0.39	0.71	1.13	1.18	7.5	9.7	15.8	19.8	18.7

Focus on performance indicators at airport level

ATFM slot adherence

On average, these airports showed a 95,5% adherence to ATFM slots, similar to the performance in previous years. With regard to the 4.5% of flights that did not adhere, 3.1% were early and 1.4% were late.

According to the Swiss monitoring report: *National level and the 2 international airports involved are above the 80% threshold of compliance and are close to 2023 achievement.*

ATC pre-departure delay

The performance at both Swiss airports in terms of ATC pre-departure delay in 2024 improved at Geneva (LSGG: 2019: 0.36 min/dep.; 2022: 0.32 min/dep.; 2023: 0.52 min/dep.; 2024: 0.46 min/dep.) and slightly deteriorated at Zurich (LSZH; 2019: 1.63 min/dep.; 2020: 0.52 min/dep.; 2021: 0.39 min/dep.; 2022: 0.71 min/dep.; 2023: 1.13 min/dep.; 2024: 1.18 min/dep.)

According to the Swiss monitoring report: *2024 actual performance is contrasted when comparing with 2023. While we observed a slight deterioration (4%) of the delays in Zurich airport even though traffic increased by 6%, Geneva airport saw an enhancement of its performance with a decrease of pre-departure delays by 11.5%. Traffic predictability and traffic volatility were 2 factors continuing to play a key role in generating delay at departure. No particular issues have been identified and no specific measures have been implemented in 2024 in relation to this PI.*

All causes pre-departure delay

The total (all causes) delay in the actual off block time at both Geneva and Zurich decreased in 2024 (LSZH: 2020: 7.55 min/dep.; 2021: 9.66 min/dep.;2022: 15.82 min/dep.; 2023: 19.85 min/dep.;2024: 18.75 min/dep. and LSGG: 2020: 8.46 min/dep.; 2021: 9.03 min/dep.; 2022: 15.12 min/dep.; 2023: 16.42 min/dep.; 2024: 16.26 min/dep.).

According to the Swiss monitoring report: *In spite of the increase of traffic at airports (+6% at LSZH and +4% at LSGG), the indicator 'average time of all cause departure delay per flight' slightly improved in 2024 compared with 2023. At ANSP level, we are not in a position to explain all delays reasons, and more particularly the non-ATFM delays.*

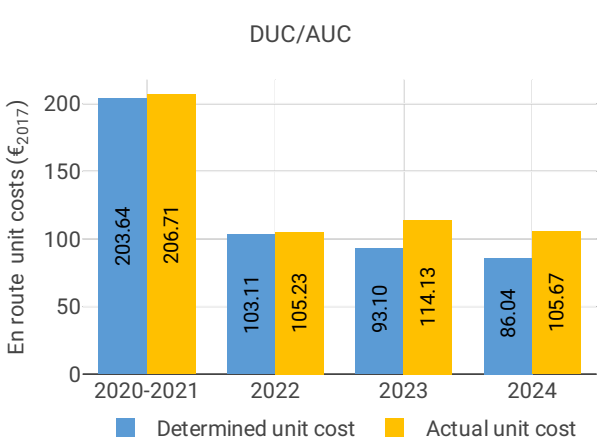
5 COST-EFFICIENCY - SWITZERLAND

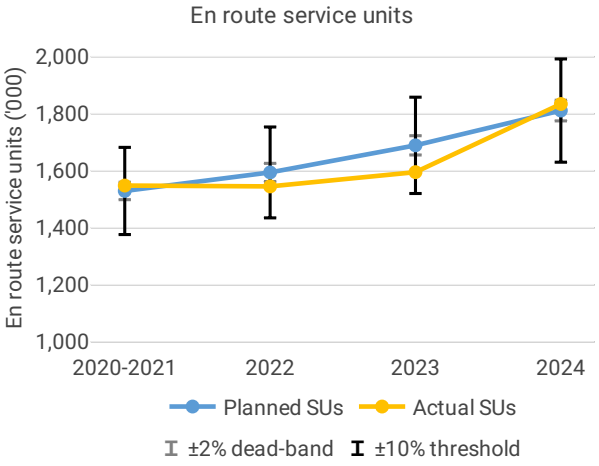
5.1 PRB monitoring

- The en route 2024 actual unit cost of Switzerland was 105.67€2017, +23% higher than the determined unit cost (86.04€2017). The terminal 2024 actual unit cost was 378.76€2017, +15% higher than the determined unit cost (330.10€2017).
- The en route 2024 actual service units of Switzerland (1.8M) were +1.2% higher than the determined service units (1.8M).
- The en route 2024 actual total costs were +38M€2017 (+24%) higher than the determined. This is mainly driven by Skyguide other operating costs (+20M€2017, or +96%), and staff costs (+8.9M€2017, or +8.1%). For both cost categories, the NSA explained that additional resources were needed to address technical incidents. In addition, Skyguide costs include +7.5M€2017 related to the impact of a change in the capitalisation rule, which was included as a negative exceptional item in the determined costs (so as to be excluded from the amounts charged to airspace users), but has not been deducted from the actual costs, as it is reported as being actually incurred.
- Skyguide spent 37M€2017in 2024 related to costs of investments for both en route and terminal charging zones, -6.7% lower than determined (40M€2017), mainly due to lower depreciation costs than planned.
- The en route actual unit cost incurred by users in 2024 was 106.23€ (+3.0% higher than the 2024 DUC), while the terminal actual unit cost incurred by users in 2024 was 392.69€ (-0.7% lower than the 2024 DUC).
- The en route regulatory result for Skyguide amounted to -44M€. The loss is mainly attributable to the cost risk sharing mechanism, in particular the negative difference between actual and determined costs to be borne by the ANSP.

5.2 En route charging zone

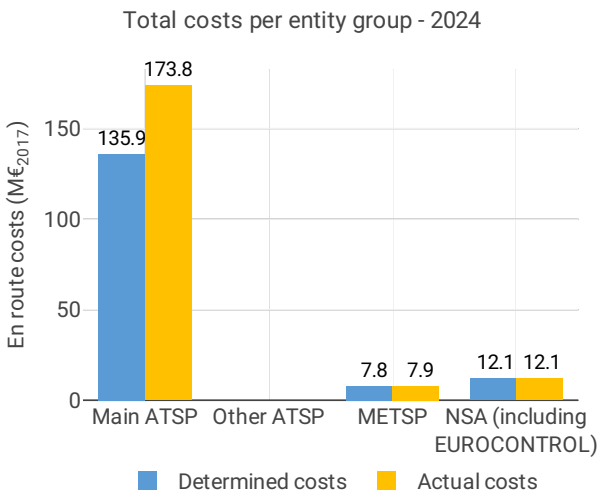
5.2.1 Unit cost (KPI#1)

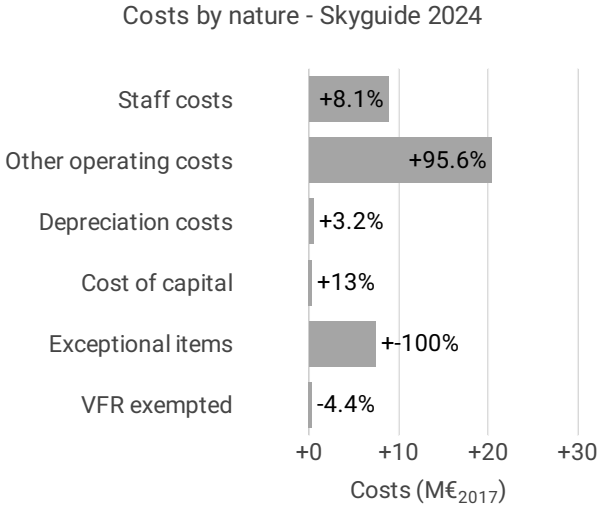




Actual and determined data				
Total costs - nominal (M€)	**2020-2021**	**2022**	**2023**	**2024**
Actual costs	324	168	192	207
Determined costs	315	166	160	160
Difference costs	9	2	32	47

Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	0.3%	0.8%	0.9%
Determined inflation index	NA	101.7	102.5	103.4
Actual inflation rate	NA	2.7%	2.3%	1.1%
Actual inflation index	NA	104.6	107	108.1
Difference inflation index (p.p.)	NA	+2.9	+4.5	+4.8





Focus on unit cost

AUC vs. DUC

In 2024, the en route AUC was +22.8% (or +21.82 CHF2017, +19.63 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned en route costs in real terms (+24.4%, or +42.2 MCHF2017, +37.9 M€2017) and higher than planned TSUs (+1.2%). It should be noted that the actual inflation index in 2024 was +4.8 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (+1.2%) falls inside the ±2% dead-band. Hence, the gain of additional en route revenues is kept by the ANSPs (see items 10 to 14).

En route costs by entity

Actual real en route costs are +24.4% (+37.9 M€2017) higher than planned. This is the result of higher costs for the main ANSP, Skyguide (+27.8%, or +37.8 M€2017) and the MET service provider (+1.3%, or +0.1 M€2017) and slightly lower costs for the NSA/EUROCONTROL (-0.02%).

En route costs for the main ANSP at charging zone level

Costs in real terms for Skyguide in 2024 are significantly higher than planned (+27.8%, or +37.8 M€2017). However, the differences by nature of costs are distorted by two factors:

a) The overall reported costs in each cost item are netted by the financing of the services provided by Skyguide outside the Swiss FIR

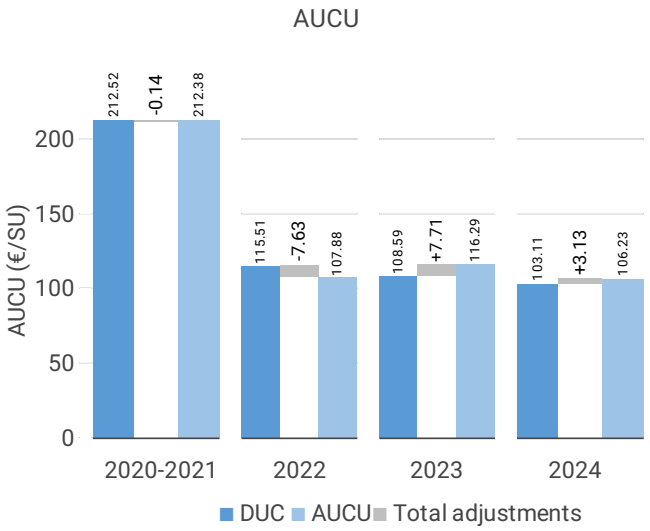
b) Skyguide's costs include significant amounts linked to the additional costs caused by the change in the capitalisation rule in 2024 (+7.5 M€2017). However, in order for this amount not to be billed to airspace users, it has also been reported as negative exceptional item in the determined costs, but not in the actual costs (-100% of negative exceptional costs, or +7.5 M€2017). Other deviations result from:

- Significantly higher staff costs (+8.1%), due to an increase in the number of FTEs to address a technical crisis and system instability resulting from previous cuts in maintenance and training,
- Significantly higher other operating costs (+95.6%), due to increased use of external resources to cope with the technical crisis and system instability described above.
- Higher depreciation (+3.2%),
- Significantly higher cost of capital (+13.0%),
- Lower deduction for VFR exempted flights (-4.4%).

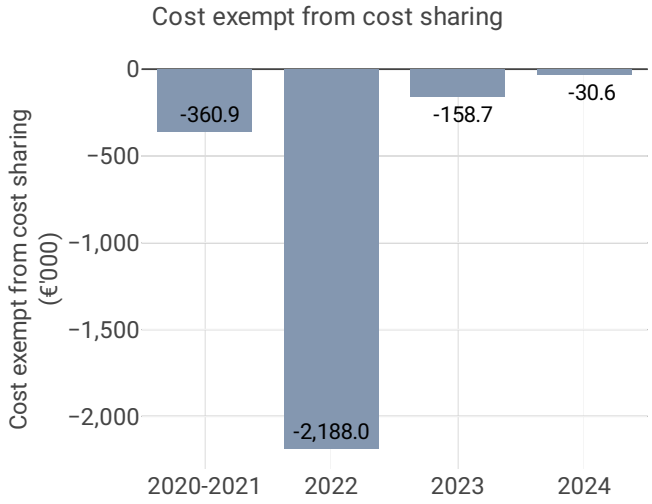
RP3 summary

When considering the whole of RP3 (2020-2024) for Switzerland en route charging zone, actual TSUs are -1.5% lower than planned, while actual costs in real terms are +8.8% higher than the determined costs (some +77.1 MCHF2017 or +69.4 M€2017). As a result, the weighted average actual unit cost over RP3 (146.26 CHF2017 or 131.62 €2017) is +10.5% higher than planned in the PP (132.35 CHF2017 or 119.1 €2017).

5.2.2 Actual unit cost incurred by the users (AUCU) (PI#1)

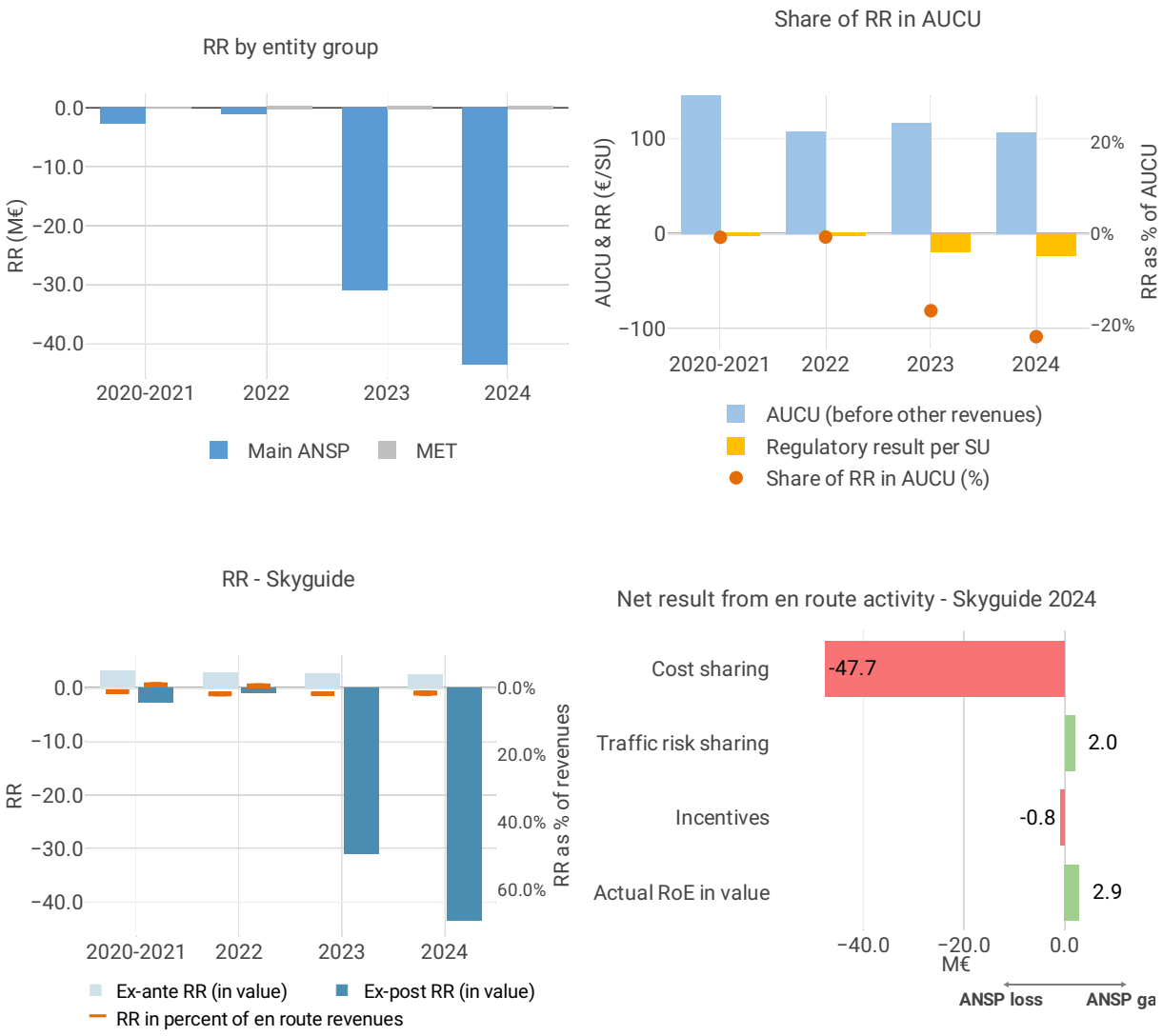


AUCU components (€/SU) – 2024	
Components of the AUCU in 2024	**€/SU**
DUC	**103.11**
Inflation adjustment	3.75
Cost exempt from cost-sharing	-0.02
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	-0.16
Finantial incentives	-0.45
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	3.13
AUCU	**106.23**
AUCU vs. DUC	**+ 3.0%**



Cost exempt from cost sharing – 2024		
Cost exempt from cost sharing by item - 2024	**€'000**	**€/SU**
New and existing investments	-27.7	-0.02
Competent authorities and qualified entities costs	-0.2	0.00
Eurocontrol costs	-2.7	0.00
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-30.6**	**-0.02**

5.2.3 Regulatory result (RR)



Focus on regulatory result

Skyguide net gain/loss on activity in the Switzerland en route charging zone in the year 2024

Skyguide reported a net loss of -44.2 MCHF, as a combination of a loss of -45.4 MCHF arising from the cost sharing mechanism, with a gain of +1.9 MCHF arising from the traffic risk sharing mechanism and a loss of -0.8 MCHF relating to financial incentives.

Skyguide overall regulatory result (RR) for the en route activity

Ex-post, the overall RR taking into account the net loss from the en route activity mentioned above (-44.2 MCHF) and the actual RoE (+2.8 MCHF) amounts to -41.4 MCHF (-25.5% of the en route revenues). The resulting ex-post rate of return on equity is -90.9%, which is lower than the 8.1% planned in the PP.

RP3 summary

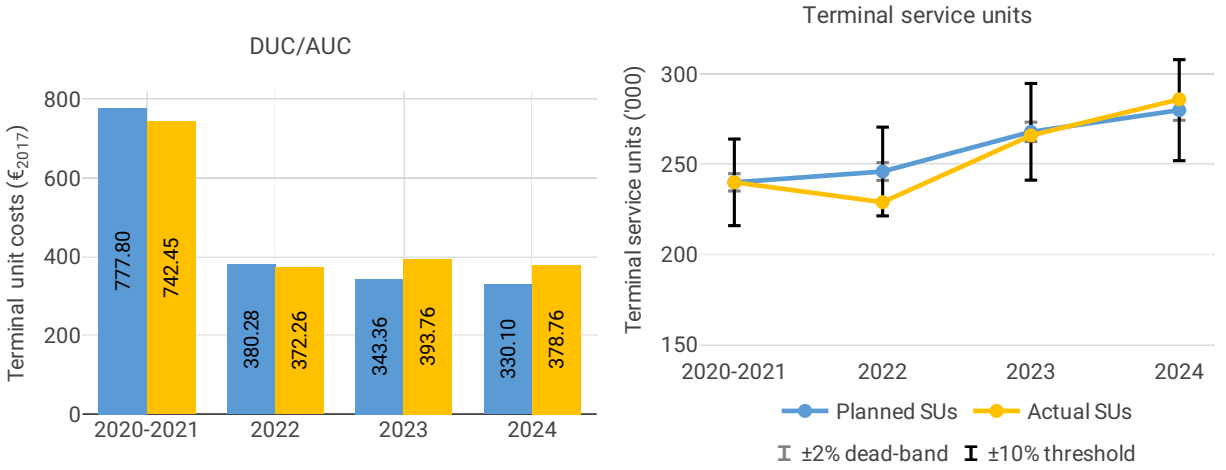
When considering the whole of RP3 (2020-2024), Skyguide generated a cumulative loss in respect of cost sharing of -84.6 MCHF, as actual total costs for RP3 were higher than planned.

The traffic risk sharing mechanism generated loss of -3.0 MCHF. Adding the actual RoE (+12.3 MCHF over RP3) leads to an overall regulatory result of -75.2 MCHF, which corresponds to an average ex-post return on equity of -29.6% (compared to 6.4% initially planned in the PP).

Note 1: Ex-post RR does not take into account the application of lower unit rates as per Art. 29.6 in 2022 (loss in revenues for Skyguide corresponds to -5.3 MCHF).

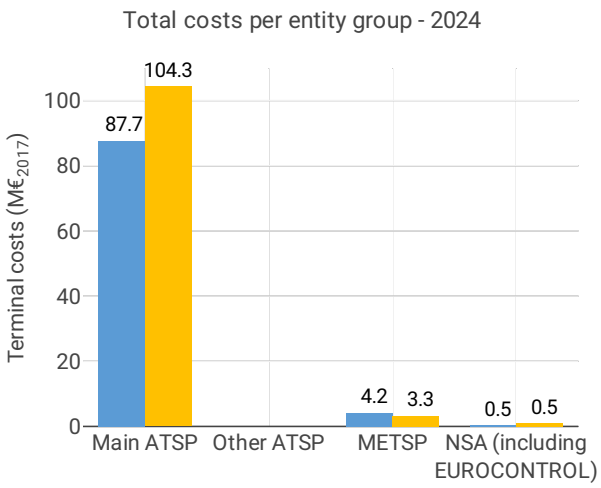
5.3 Terminal charging zone

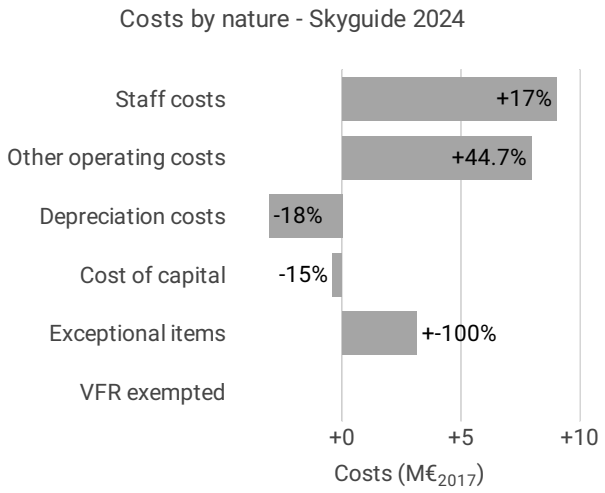
5.3.1 Unit cost (KPI#1)



Actual and determined data				
Total costs - nominal (M€)	**2020-2021**	**2022**	**2023**	**2024**
Actual costs	180	88	111	116
Determined costs	188	95	94	95
Difference costs	-8	-6	17	21

Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	0.3%	0.8%	0.9%
Determined inflation index	NA	101.7	102.5	103.4
Actual inflation rate	NA	2.7%	2.3%	1.1%
Actual inflation index	NA	104.6	107	108.1
Difference inflation index (p.p.)	NA	+2.9	+4.5	+4.8





Focus on unit cost

AUC vs. DUC

In 2024, the terminal AUC was +14.7% (or +54.07 CHF2017, +48.66 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+17.1%, or +17.6 MCHF2017, +15.8 M€2017) and higher than planned TNSUs (+2.1%). It should be noted that the actual inflation index in 2024 was +4.8 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (+2.1%) falls outside the ±2% dead-band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ANSP and the airspace users (see the main ANSP gain in Box 11).

Terminal costs by entity

Actual real terminal costs are +17.1% (+15.8 M€2017) higher than planned. This is the result of higher costs for the main ANSP, Skyguide (+19.0%, or +16.6 M€2017) and the NSA (+11.8%, or +0.1 M€2017) and lower costs for the MET service provider (-21.2%, or -0.9 M€2017).

Terminal costs for the main ANSP at charging zone level

Terminal costs in real terms for Skyguide in 2024 are significantly higher than planned (+19.0%, or +16.6 M€2017). However, the differences by nature of costs are distorted by two factors:

a) The overall reported costs in each cost item are netted by the financing of the services provided by Skyguide outside the Swiss FIR.

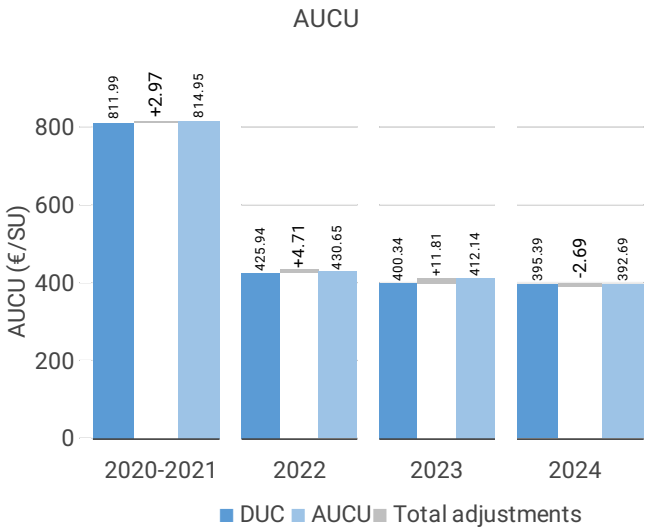
b) Skyguide's costs include significant amounts linked to the additional costs caused by the change in the capitalisation rule in 2024 (+3.1M€2017). However, in order for this amount not to be billed to airspace users, it has also been reported as negative exceptional item in the determined costs, but not in the actual costs (-100% of negative exceptional costs, or +3.1M€2017). Other deviations result from:

- Significantly higher staff costs (+17.0%), due to an increase in the number of FTEs to address a technical crisis and system instability resulting from previous cuts in maintenance and training,
- Significantly higher other operating costs (+44.7%), due to increased use of external resources to cope with the technical crisis and system instability described above,
- Significantly lower depreciation (-18.0%),
- Significantly lower cost of capital (-15.0%).

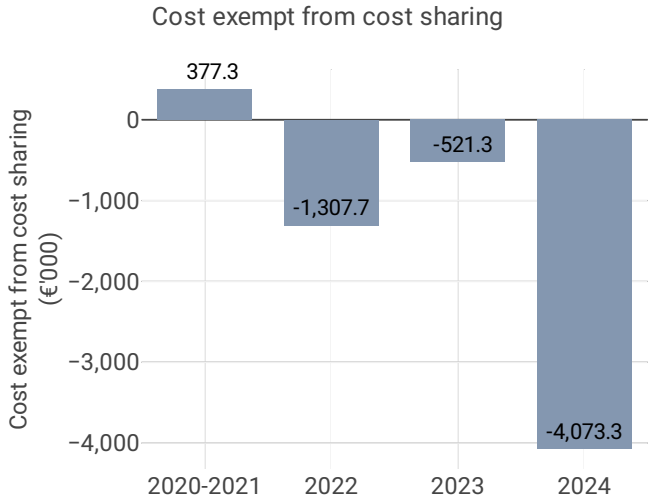
RP3 summary

When considering the whole of RP3 (2020-2024) for Switzerland terminal charging zone , actual TNSUs are -1.1% lower than planned, while actual costs in real terms are +2.7% higher than the determined costs (some +13.9 MCHF2017 or +12.5 M€2017). As a result, the weighted average actual unit cost over RP3 (518.65 CHF2017 or 466.73 €2017) is +3.9% higher than planned in the PP (499.39 CHF2017 or 449.40 €2017).

5.3.2 Actual unit cost incurred by the users (AUCU) (PI#1)

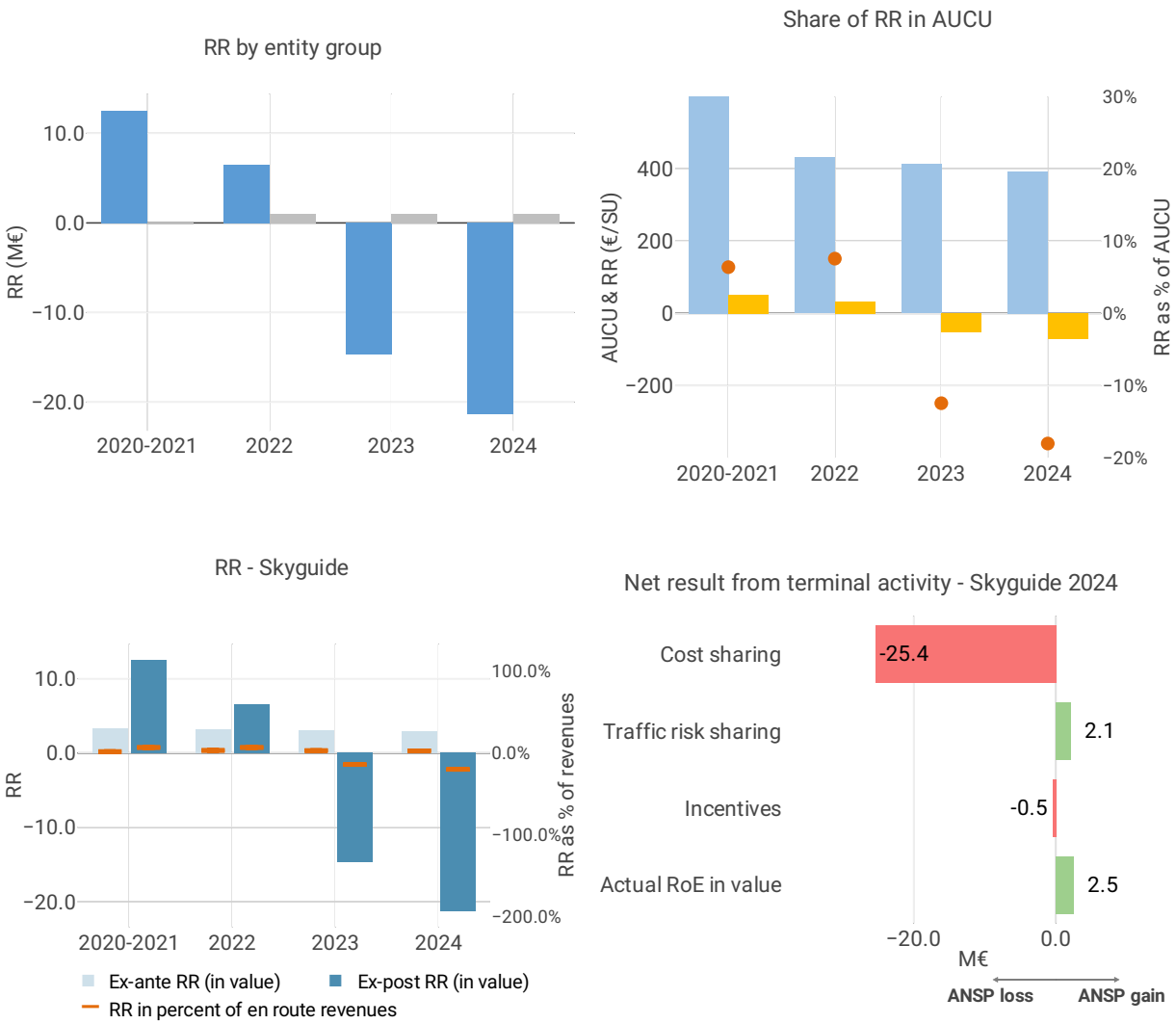


AUCU components (€/SU) – 2024	
Components of the AUCU in 2024	**€/SU**
DUC	**395.39**
Inflation adjustment	13.97
Cost exempt from cost-sharing	-14.27
Traffic risk sharing adjustment	-0.15
Traffic adj. (costs not TRS)	-0.40
Finantial incentives	-1.84
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	-2.69
AUCU	**392.69**
AUCU vs. DUC	**-0.7%**



Cost exempt from cost sharing – 2024		
Cost exempt from cost sharing by item - 2024	**€'000**	**€/SU**
New and existing investments	-4,136.3	-14.49
Competent authorities and qualified entities costs	63.0	0.22
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-4,073.3**	**-14.27**

5.3.3 Regulatory result (RR)



Focus on regulatory result

Skyguide net gain/loss on activity in the Switzerland terminal charging zone in the year 2024

Skyguide reported a net loss of -22.7 MCHF, as a combination of a loss of -24.2 MCHF arising from the cost sharing mechanism, with a gain of +2.0 MCHF arising from the traffic risk sharing mechanism and a loss of -0.5 MCHF relating to financial incentives.

Skyguide overall regulatory result (RR) for the terminal activity

Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-22.7 MCHF) and the actual RoE (+2.4 MCHF) amounts to -20.3 MCHF (-20.0% of the terminal revenues). The resulting ex-post rate of return on equity is -52.1%, which is lower than the 8.1% planned in the PP.

RP3 summary

When considering the whole of RP3 (2020-2024), Skyguide generated a cumulative loss in respect of cost sharing of -24.5 MCHF, as actual total costs for RP3 were higher than planned.

The traffic risk sharing mechanism generated loss of -1.5 MCHF. Adding the loss of -0.5 MCHF to be retained by the ATSP in respect of financial incentives and the actual RoE (+12.0 MCHF over RP3) leads to an overall regulatory result of -14.5 MCHF, which corresponds to an average ex-post return on equity of -5.8% (compared to 6.6% initially planned in the PP).

Note 2: Ex-post RR does not take into account the application of lower unit rates as per Art. 29.6 in 2022 (loss in revenues for Skyguide corresponds to -0.8 MCHF).