

Performance Review Body Monitoring Report

Switzerland - 2020

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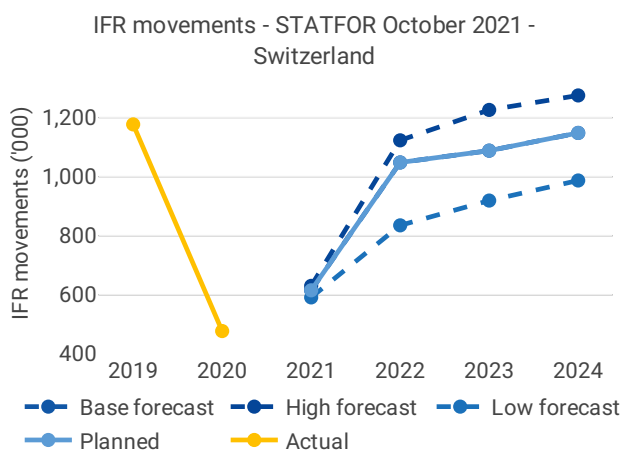
1 OVERVIEW

1.1 Contextual information

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

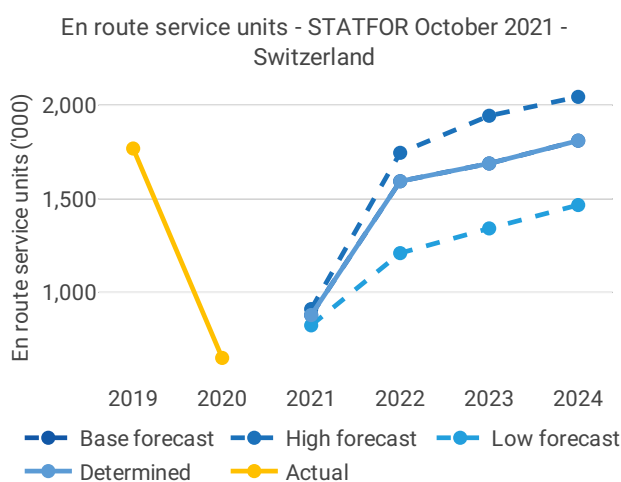
List of ACCs 2 Geneva ACC Zurich ACC	Exchange rate (1 EUR=) 2017: 1.11124 CHF 2020: 1.07001 CHF	Main ANSP • Skyguide
No of airports in the scope of the performance plan: • ≥80'K 2 • <80'K 0	Share of Union-wide: • traffic (TSUs) 2020 1.2% • en route costs 2020 2.7% Share en route / terminal costs 2020 65% / 35% En route charging zone(s) Switzerland Terminal charging zone(s) Switzerland	Other ANSPs — MET Providers • Office Fédéral de la Météorologie et de Climatologie MétéoSuisse

1.2 Traffic (En route traffic zone)



- Switzerland recorded 477K actual IFR movements in 2020, -59% compared to 2019 (1,177K).

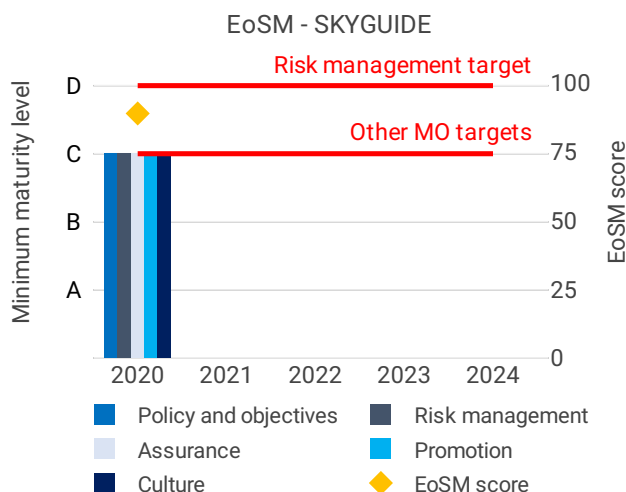
- Switzerland IFR movements reduced more than the average reduction at Union-wide level (-57%).



- Switzerland recorded 650K actual en route service units in 2020, -63% compared to 2019 (1,769K).

- Switzerland service units reduced more than the average reduction at Union-wide level (-57%).

1.3 Safety (Main ANSP)



- Skyguide achieved the RP3 EoSM targets in all management objectives except safety risk management.

- The NSA provided no information as to the measures taken to improve safety risk management, but the NSA explained that no circumstance should prevent Skyguide from achieving the target during RP3.

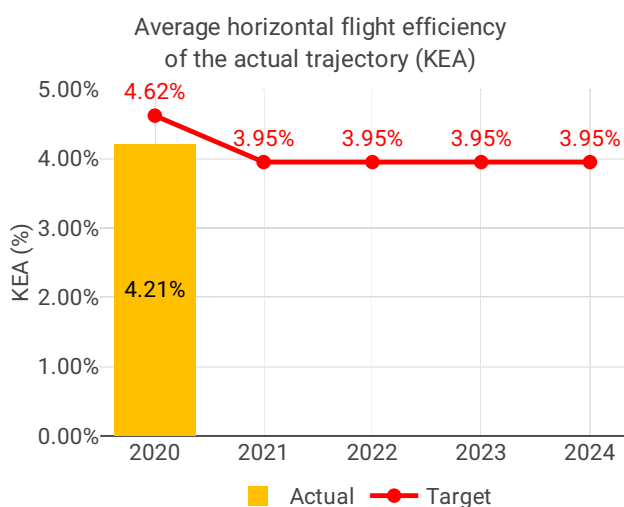
- The EoSM performance in 2020 in some of the management objectives is lower than expected based on the maturity achieved at the end of RP2. Skyguide needs to improve maturity in all three questions used to measure the maturity in the

safety risk management objective. This should be realistic to achieve during RP3.

- Switzerland recorded better performance with respect to safety occurrences with lower rates of SMIs and RIs in 2020 compared to 2019.

- Skyguide should improve its SMS by implementing automated safety data recording systems for RIs.

1.4 Environment (Member State)



- FABEC stated that half of the Union-wide RAD simplifications applied in 2020 were within FABEC airspace and that eNM measures were not needed. This helped improve the shortest constrained routes within FABEC, but was not sufficient in helping to reach the FAB-level KEA reference value (2.90%) in 2020.

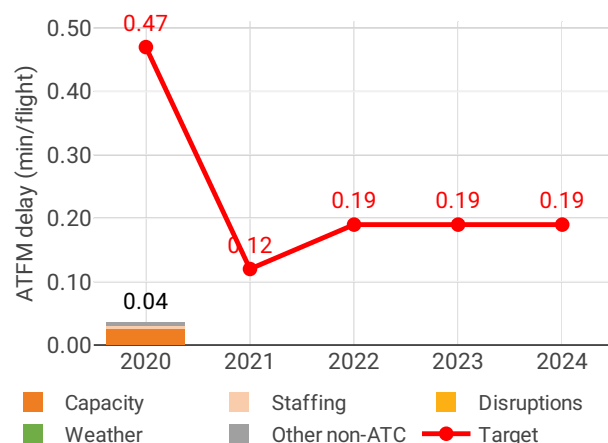
- FABEC also mentioned that KEA is proportional to delays and stated that this had an impact on the environment performance. The PRB does not agree with this as FABEC did not experience significant delays in 2020.

- Switzerland improved KEA relative to 2019 in 2020 achieving 4.21%.

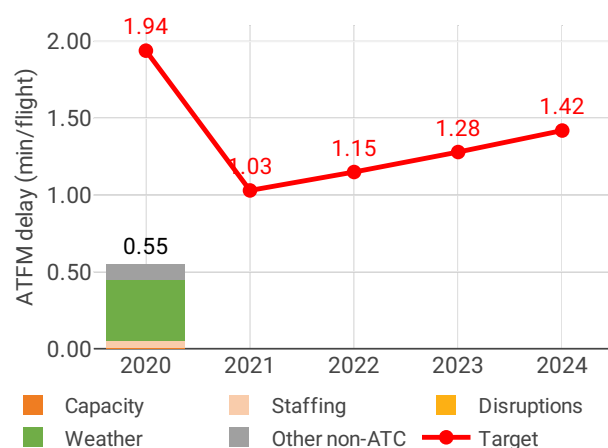
- The share of flights operating CCO/CDO at Swiss airports improved in 2020 compared to 2019, although the CDO performance still remains quite low at 20%. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 41% compared to 2019.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



- Skyguide recorded 0.04 minutes of average en route ATFM delay per flight, thus performing better than the local breakdown value of 0.12.

- Delays must be considered in the context of the traffic evolution: IFR movements in 2020 were 59% below the 2019 levels in Switzerland.

- Switzerland was the only Member State to report significant delays throughout the year in 2020 due to ATC capacity and staffing reasons. The PRB believes that with such low levels of traffic, ATC capacity and staffing issues were avoidable and recommends that capacity improvement measures are implemented before traffic recovers.

- Switzerland reported a decrease of over 6% in ATCO FTE numbers in Zurich ACC, while an almost 3% increase in Geneva ACC in 2020 compared to 2019 values.

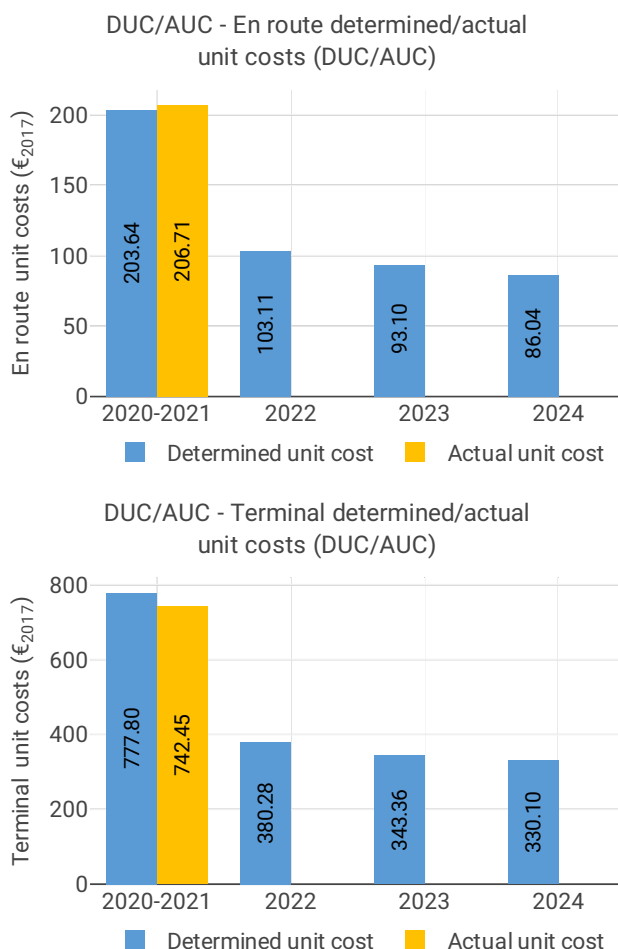
- Delays were mostly related to adverse weather conditions and ATC capacity issues.

- The share of delayed flights with delays longer than 15 minutes in Switzerland increased by 1.61 p.p. compared to 2019.

- The yearly total of sector opening hours in Geneva ACC was 21,088, showing a 34.8% decrease compared to 2019. The yearly total of sector opening hours in Zurich ACC was 21,172, showing a 40.3% decrease compared to 2019.

- Geneva ACC registered 12.89 IFR movements per one sector opening hour in 2020, being 38.9% below 2019 levels. Zurich ACC registered 15.42 IFR movements per one sector opening hour in 2020, being 33.5% below 2019 levels.

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



- Switzerland incurred the second largest decrease in service units, with 2020 actual service units (650K) being 62% lower than the actual service units in 2019 (1,708K).

- Switzerland incurred the second highest percentage increase in total costs across all Member States in 2020, with a 19 M€2017 (+13%) increase compared to 2019 actual costs. The increase is driven by 17 M€2017 higher staff costs (+17%) and 3.3 M€2017 higher other operating costs (+13%).

- Skyguide spent 47 M€2017 related to cost of investments in 2020, 8% less than planned in the 2019 draft performance plan (51 M€2017). The reduction can be explained by a decrease of cost of capital, by reason of an asset base decrease.

2 SAFETY - SWITZERLAND

2.1 PRB monitoring

- Skyguide achieved the RP3 EoSM targets in all management objectives except safety risk management.
- The NSA provided no information as to the measures taken to improve safety risk management, but the NSA explained that no circumstance should prevent Skyguide from achieving the target during RP3.
- The EoSM performance in 2020 in some of the management objectives is lower than expected based on the maturity achieved at the end of RP2. Skyguide needs to improve maturity in all three questions used to measure the maturity in the safety risk management objective. This should be realistic to achieve during RP3.
- Switzerland recorded better performance with respect to safety occurrences with lower rates of SMIs and RIs in 2020 compared to 2019.
- Skyguide should improve its SMS by implementing automated safety data recording systems for RIs.

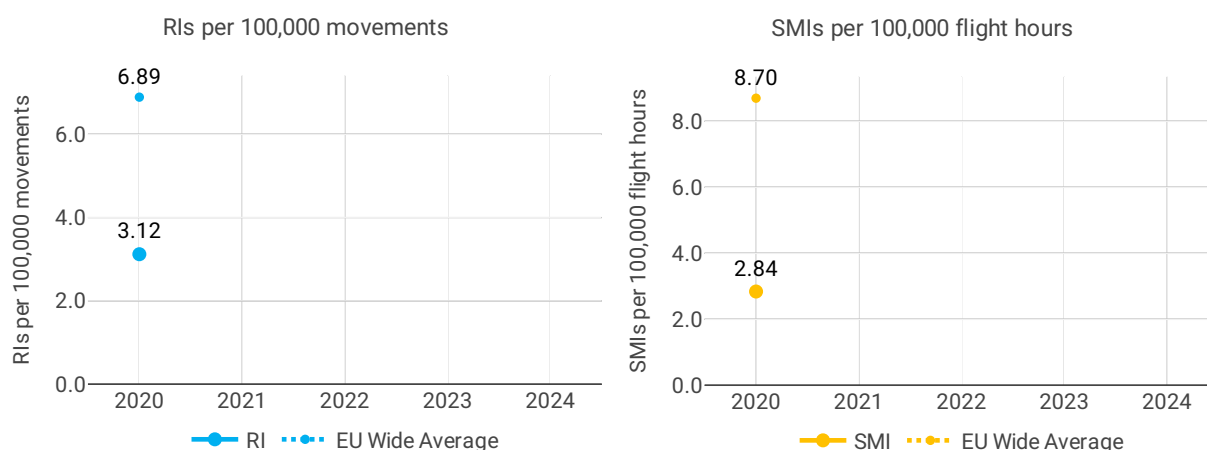
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)



Focus on EoSM

Four out of five EoSM components of the ANSP meet already the 2024 target level. Only the component “Safety Risk Management” is below 2024 target level, at level C. Improvements in safety risk management are still expected during RP3 to achieve 2024 targets.

2.3 Occurrences - Rate of runway incursions (RIs) (PI#1) & Rate of separation minima infringements (SMIs) (PI#2)



3 ENVIRONMENT - SWITZERLAND

3.1 PRB monitoring

- FABEC stated that half of the Union-wide RAD simplifications applied in 2020 were within FABEC airspace and that eNM measures were not needed. This helped improve the shortest constrained routes within FABEC, but was not sufficient in helping to reach the FAB-level KEA reference value (2.90%) in 2020.
- FABEC also mentioned that KEA is proportional to delays and stated that this had an impact on the environment performance. The PRB does not agree with this as FABEC did not experience significant delays in 2020.
- Switzerland improved KEA relative to 2019 in 2020 achieving 4.21%.

- The share of flights operating CCO/CDO at Swiss airports improved in 2020 compared to 2019, although the CDO performance still remains quite low at 20%. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 41% compared to 2019.

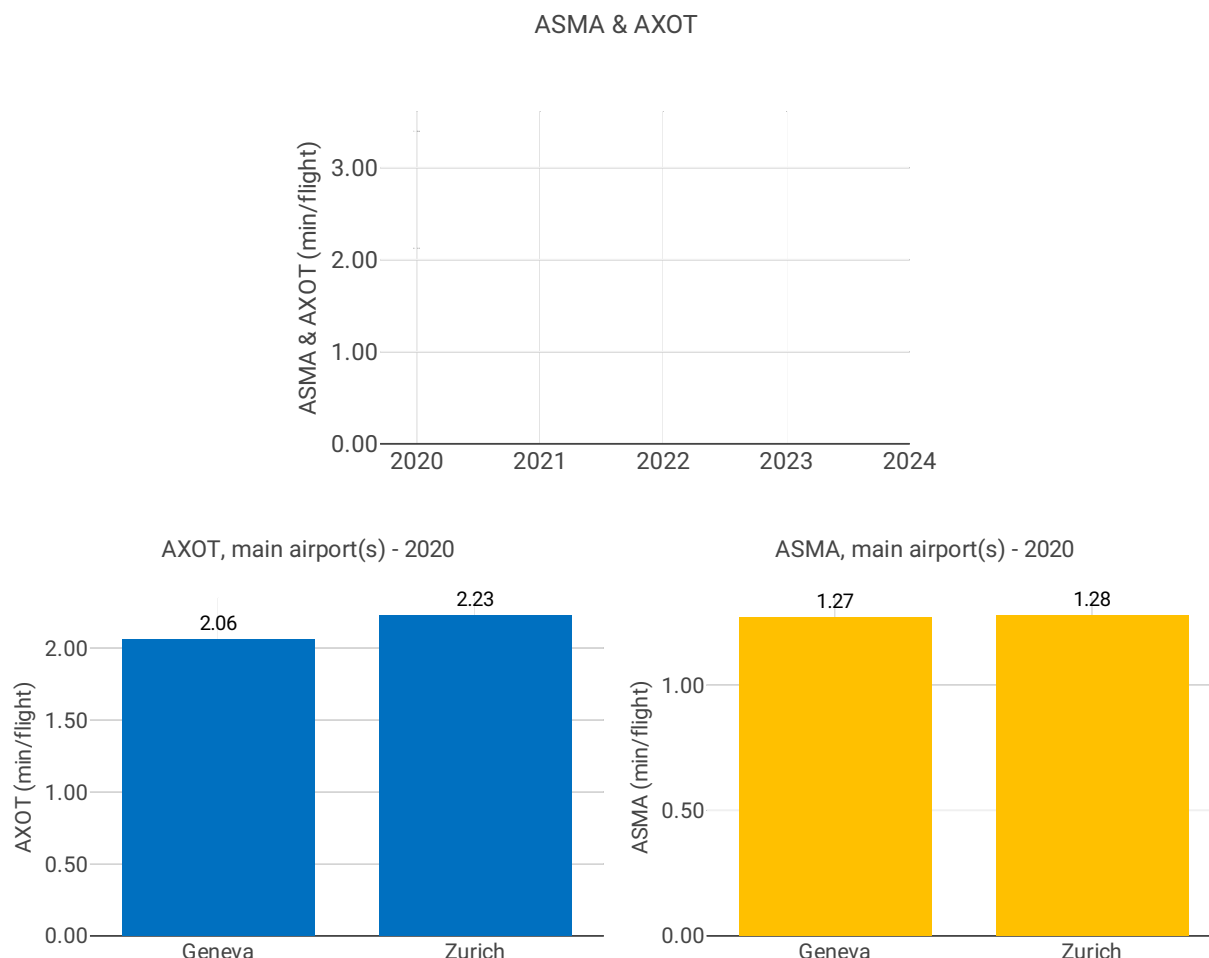
3.2 En route performance

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

The lower traffic as of the month of April had a clear impact on the additional taxi-out times at Swiss airports.

Geneva (LSGG; 2019: 2.94 min/dep.; 2020: 2.06 min/dep.) averaged zero or nearly zero additional taxi-out times in April, May and June, and remain around 1 min/dep. the rest of the year.

Zurich (LSZH; 2019: 3.65 min/dep.; 2020: 2.23 min/dep.) averaged 1 min/dep. from April until November, resulting in an annual reduction of 39% with respect to the previous year.

According to FABEC's monitoring report, 18'200 tons of CO₂ associated with the additional taxi-out times could be saved at Zurich in 2020.

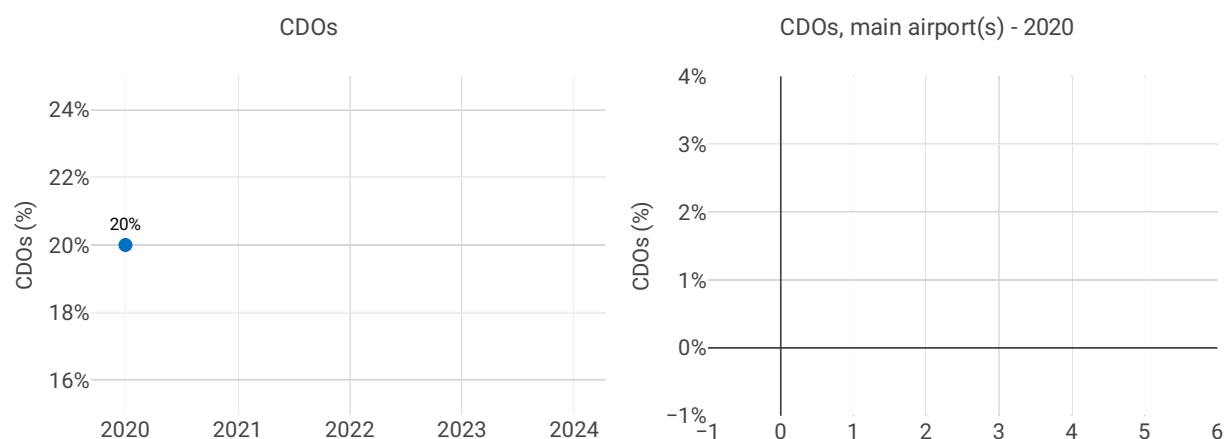
ASMA

Additional times in the terminal area showed an even bigger interdependence with the level of traffic, starting the year around 2.5 min/arr. for both airports, then plummeting to zero between the months of April and July, and then remained well below 1 min/arr. for the rest of the year.

At annual level Zurich (LSZH; 2019: 2.91 min/arr.; 2020: 1.28 min/arr.) shows an impressive 56% reduction, and Geneva (LSGG; 2019: 1.78 min/arr.; 2020: 1.27 min/arr.) a 29% decrease in the additional ASMA times.

According to FABEC's monitoring report, 47'900 tons of CO₂ associated with the additional ASMA times could be saved at Zurich in 2020.

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



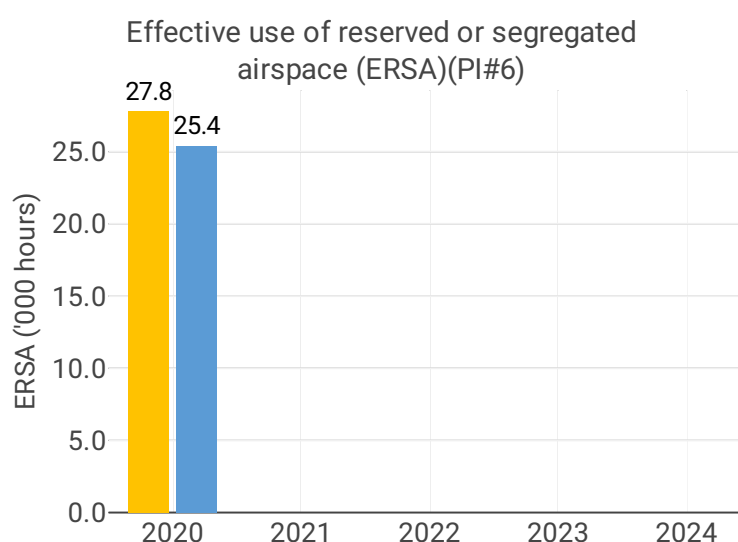
Focus CDOs

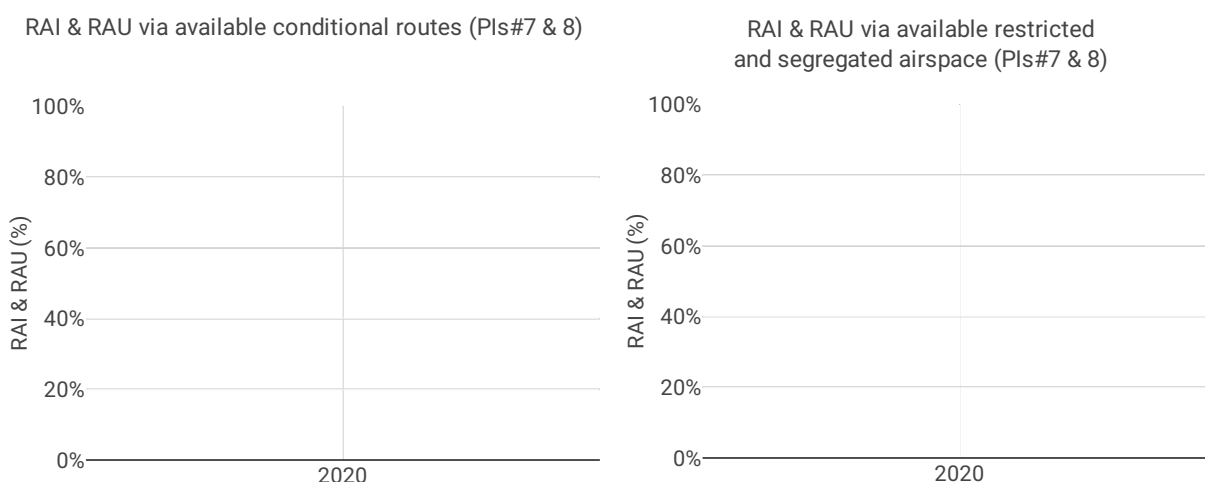
Geneva and Zurich both have around 20% of CDO flights which is below the overall RP3 value in 2020 (32.5%).

According to FABEC's monitoring report: *Total level-off flight time in descent flight phase has reduced from 454k minutes in 2019 to 116k minutes in 2020 which represents 52.100 tons of CO2 saved.*

Airport Name	Airport level														
	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Geneva	2.06	NA	NA	NA	NA	1.27	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zurich	2.23	NA	NA	NA	NA	1.28	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.4 Civil-Military dimension





Focus on Civil-Military dimension

Update on Military dimension of the plan

No data available

Military - related measures implemented or planned to improve environment and capacity

No data available

Initiatives implemented or planned to improve PI#6

No data available

Initiatives implemented or planned to improve PI#7

No data available

Initiatives implemented or planned to improve PI#8

No data available

4 CAPACITY - SWITZERLAND

4.1 PRB monitoring

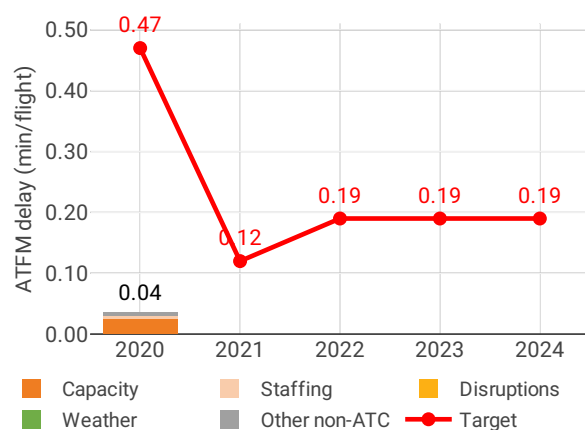
- Skyguide recorded 0.04 minutes of average en route ATFM delay per flight, thus performing better than the local breakdown value of 0.12.
- Delays must be considered in the context of the traffic evolution: IFR movements in 2020 were 59% below the 2019 levels in Switzerland.
- Switzerland was the only Member State to report significant delays throughout the year in 2020 due to ATC capacity and staffing reasons. The PRB believes that with such low levels of traffic, ATC capacity and staffing issues were avoidable and recommends that capacity improvement measures are implemented before traffic recovers.
- Switzerland reported a decrease of over 6% in ATCO FTE numbers in Zurich ACC, while an almost 3% increase in Geneva ACC in 2020 compared to 2019 values.
- Delays were mostly related to adverse weather conditions and ATC capacity issues.
- The share of delayed flights with delays longer than 15 minutes in Switzerland increased by 1.61 p.p. compared to 2019.
- The yearly total of sector opening hours in Geneva ACC was 21,088, showing a 34.8% decrease compared to 2019. The yearly total of sector opening hours in Zurich ACC was 21,172, showing a 40.3% decrease compared to 2019.

- Geneva ACC registered 12.89 IFR movements per one sector opening hour in 2020, being 38.9% below 2019 levels. Zurich ACC registered 15.42 IFR movements per one sector opening hour in 2020, being 33.5% below 2019 levels.

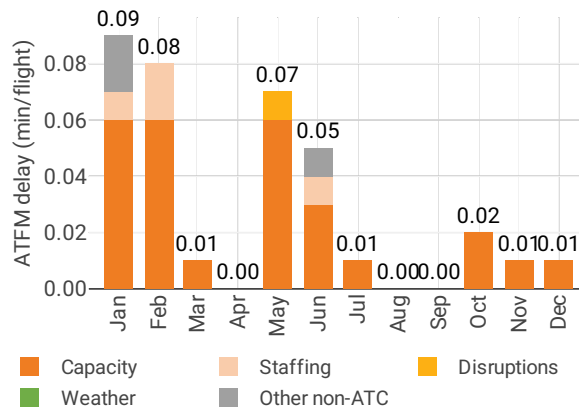
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)

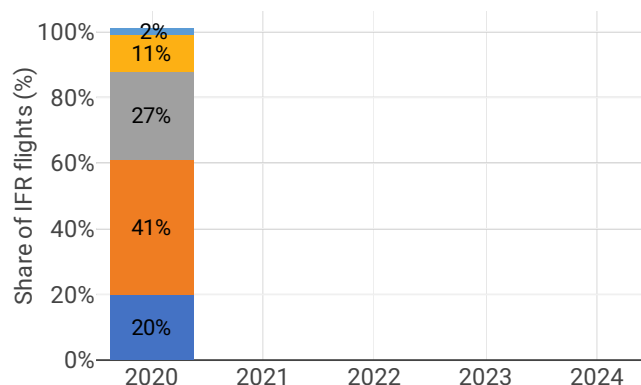
Average en route ATFM delay per flight by delay groups



Monthly distribution of en route ATFM delay by delay groups - 2020



Distribution of IFR flights per the duration of en route ATFM delay



Focus on en route ATFM delay

Summary of capacity performance

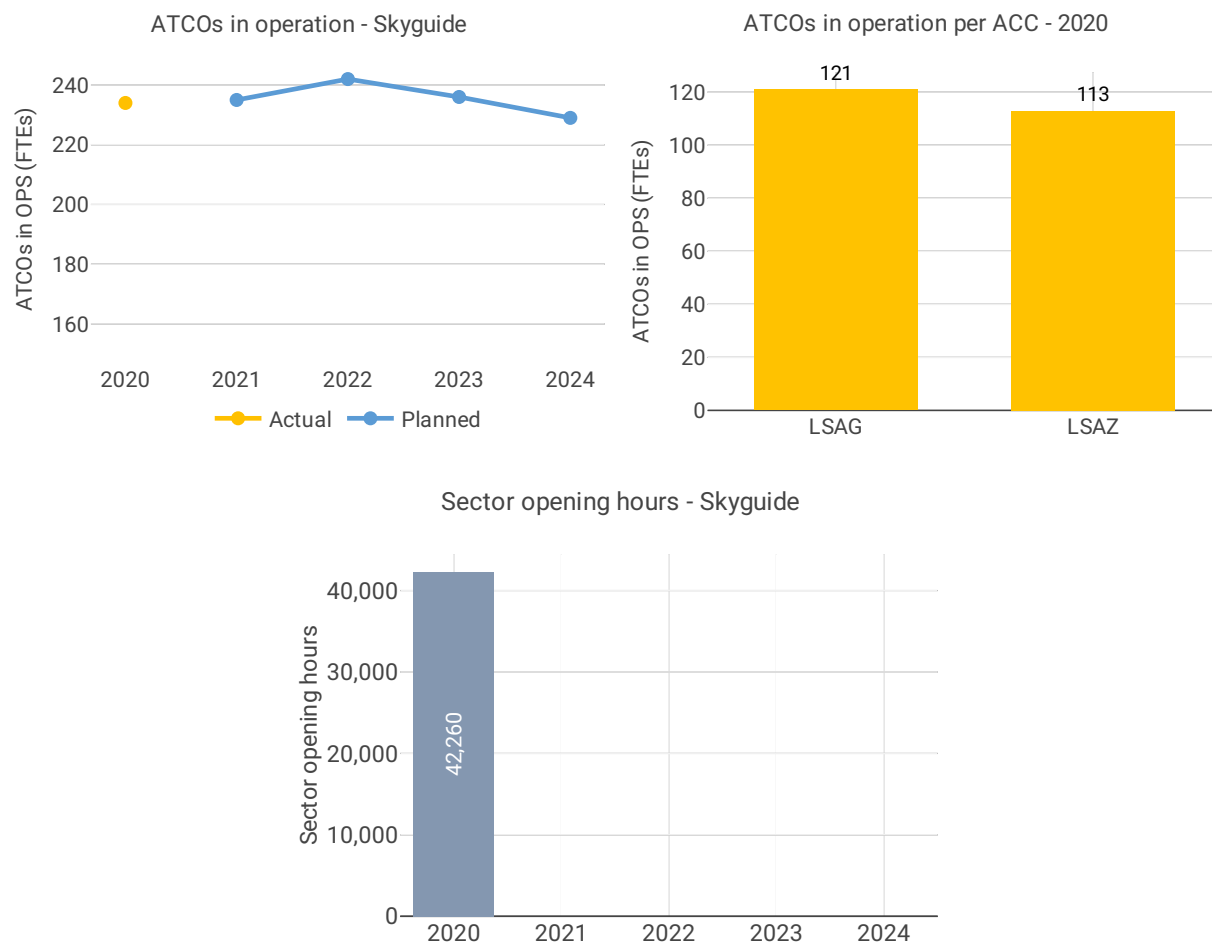
NSA's assessment of capacity performance

Monitoring process for capacity performance

Capacity planning

Application of Corrective Measures for Capacity (if applicable)

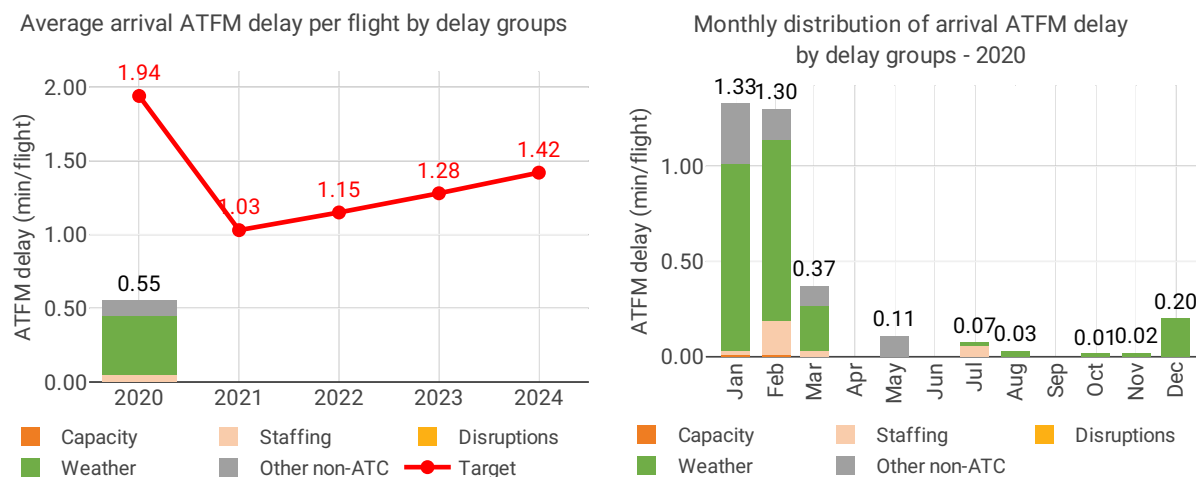
4.2.2 Other indicators



Focus on ATCOs in operations

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 2020 decreased by 61% at Zurich (LSZH) compared to 2019, and by 56% at Geneva (LSGG). This drastic drop in traffic had an impact on the ATFM regulations, with almost zero arrival ATFM delay since the month of April 2020.

Slot adherence was well above 90% for both airports.

The national average arrival ATFM delay at the two Swiss airports in 2020 was 0.55 min/arr, significantly lower compared with 1.61 min/arr in 2019 (-66%).

The massive traffic drop due to the COVID-19 pandemic outbreak in Europe as from March 2020 (-59% for the whole year for Skyguide) has reduced the 2020 March - December traffic to a very low level (from -46% in March down to -93% in April).

Almost all delays took place in the first trimester at both airports.

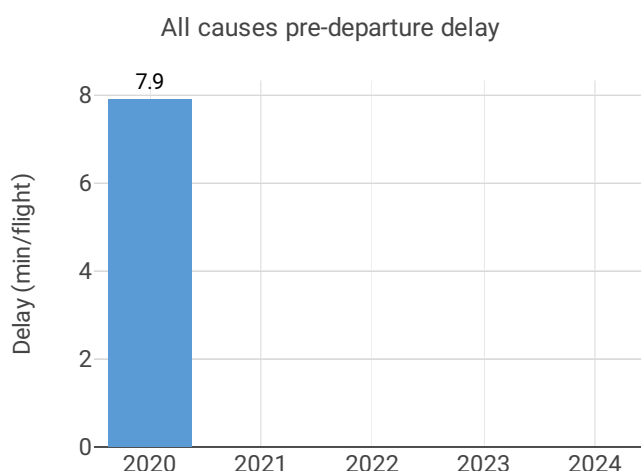
At Zurich (LSZH: 2019: 1.99 min/arr.; 2020: 0.60 min/arr.) 77% of these delays were attributed to weather and 15% to aerodrome capacity issues. At Geneva (LSGG: 2019: 1.04 min/arr.; 2020: 0.49 min/arr.) 65% of the delays were due to weather, 17% to aerodrome capacity and another 17% to ATC staffing issues.

The rest of the year there were minor punctual delays due to weather and staffing.

The provisional national target on arrival ATFM delay in 2020 was met.

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.

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



Airport level

Airport name	Avg arrival ATFM delay (KPI#2)				Slot adherence (PI#1)			
	2020	2021	2022	2023	2020	2021	2022	2023
Geneva	0.49	NA	NA	NA	94.7%	NA%	NA%	NA%
Zurich	0.60	NA	NA	NA	94.4%	NA%	NA%	NA%

Airport name	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
	2020	2021	2022	2023	2020	2021	2022	2023
Geneva	0.24	NA	NA	NA	8.5	NA	NA	NA
Zurich	0.48	NA	NA	NA	7.5	NA	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, the share of regulated departures from Zurich and Geneva virtually disappeared as of April. The annual figures are therefore driven by the performance in the first trimester. These airports showed adherence just below 95% and the national average was 94.6%. With regard to the 5.4% of flights that did not adhere, 3.9% was early and 1.5% was late.

ATC pre-departure delay

Zurich is the only Swiss airport where this indicator can be calculated. The performance has notably improved with respect to the previous year (LSZH; 2019: 1.63 min/dep.; 2020: 0.52 min/dep.)

The share of unidentified delay reported by Geneva in 2020 has been above 40% every month since April 2020 due to the special traffic composition since then. Geneva had proper reporting before the pandemic.

All causes pre-departure delay

The total (all causes) delay in the actual off block time at Geneva and Zurich in 2020 was 8.46 min/dep. and 7.55 min/dep respectively. The higher delays per flight were observed in the first trimester of the year and then in December there was again an increase at both airports.

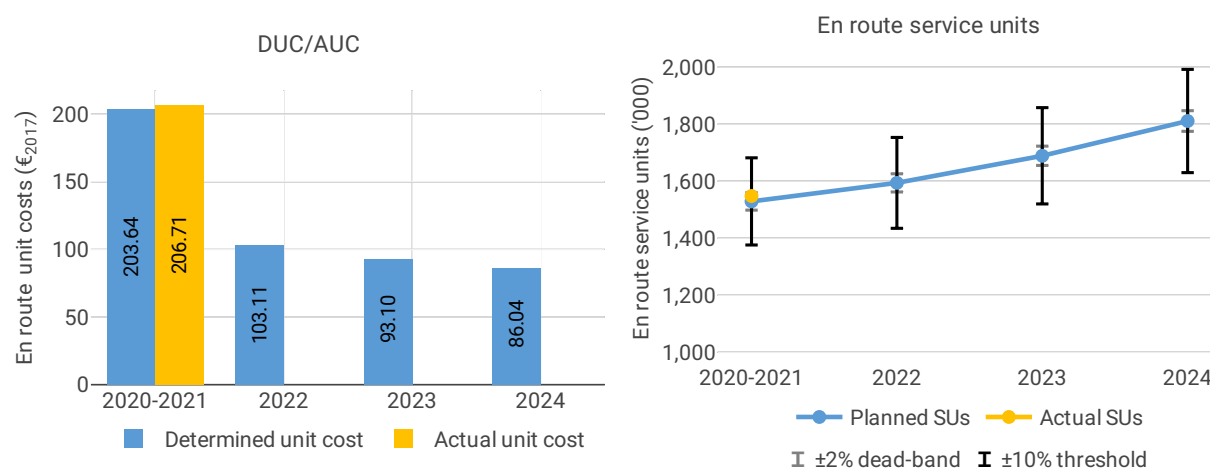
5 COST-EFFICIENCY - SWITZERLAND

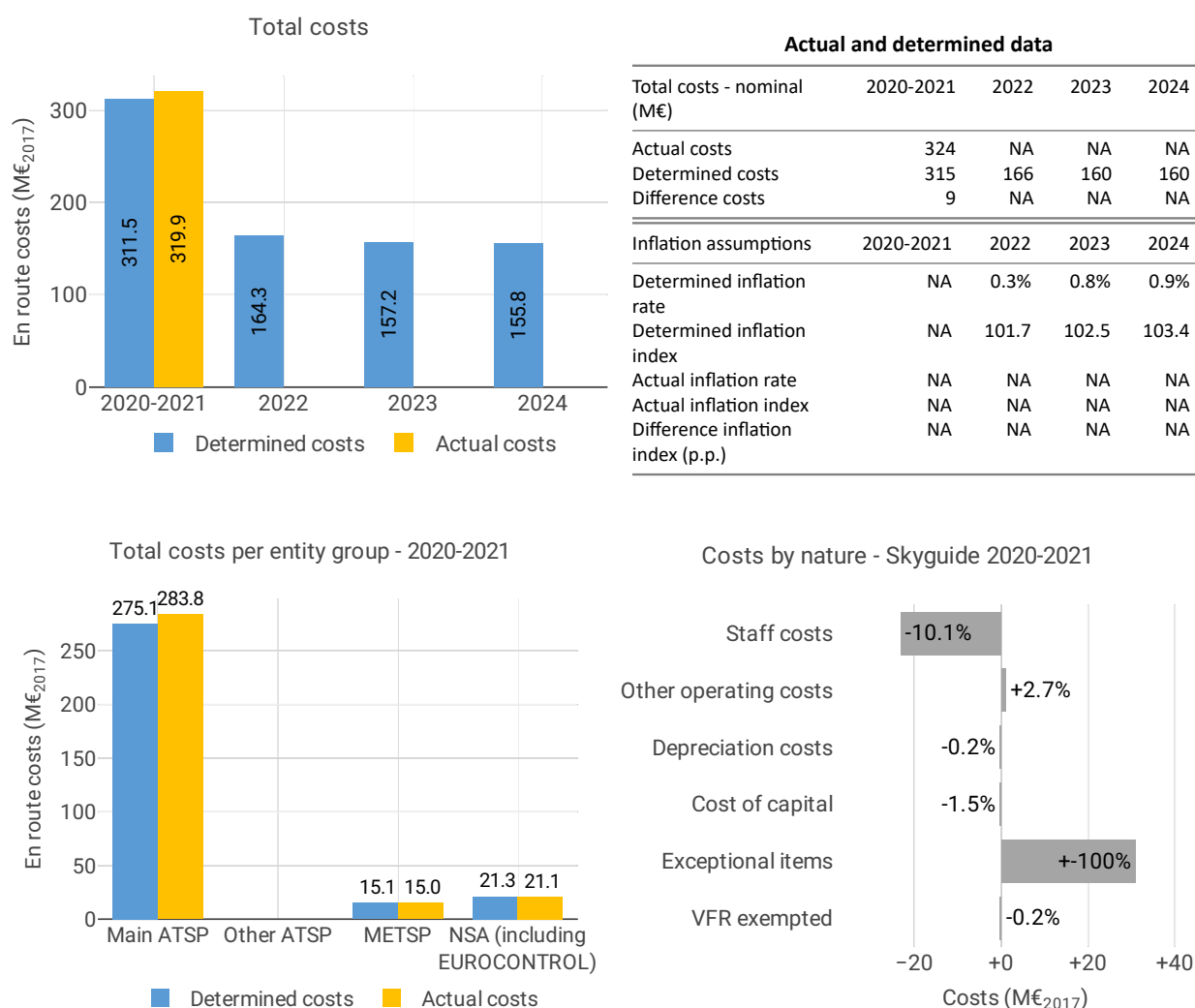
5.1 PRB monitoring

- Switzerland incurred the second largest decrease in service units, with 2020 actual service units (650K) being 62% lower than the actual service units in 2019 (1,708K).
- Switzerland incurred the second highest percentage increase in total costs across all Member States in 2020, with a 19 M€2017 (+13%) increase compared to 2019 actual costs. The increase is driven by 17 M€2017 higher staff costs (+17%) and 3.3 M€2017 higher other operating costs (+13%).
- Skyguide spent 47 M€2017 related to cost of investments in 2020, 8% less than planned in the 2019 draft performance plan (51 M€2017). The reduction can be explained by a decrease of cost of capital, by reason of an asset base decrease.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the en route AUC was +1.5% (or +3.41 CHF2017, +3.07€2017) higher than the planned DUC. This results from the combination of slightly higher than planned TSUs (+1.2%) and higher than planned en-route costs in real terms in a greater proportion (+2.7%, or +9.4 MCHF2017, +8.5 M€2017).

En route service units

The difference between actual and planned TSUs (+1.2%) falls within the $\pm 2\%$ dead band. Hence the resulting additional en-route revenue is kept by the ANSPs.

En route costs by entity

Actual real en route costs are +2.7% (+8.5 M€2017) higher than planned. This is driven by the main ANSP, Skyguide (+3.2%, or +8.7 M€2017), while the actual costs of the MET service provider and the NSA/EUROCONTROL are close to the determined costs (-0.3% and -0.7%, respectively).

En route costs for the main ANSP at charging zone level

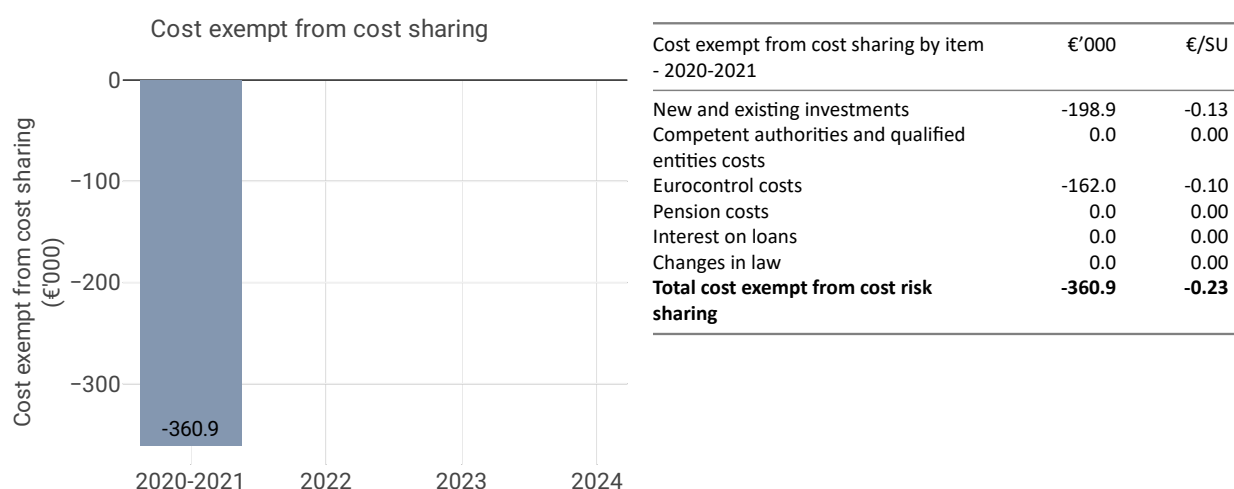
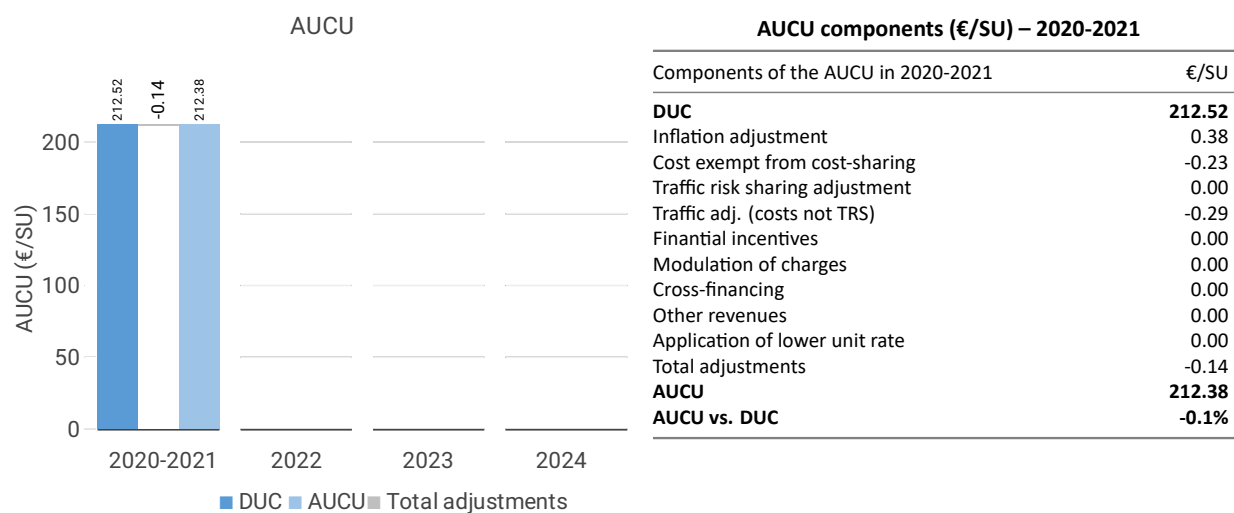
Actual en route costs in real terms are higher than planned by +3.2% overall (or +8.7 M€2017). However, the differences by nature of costs are distorted by two factors:

- The overall reported costs in each cost item are netted by the financing of the services provided by Skyguide outside the Swiss FIR;
- Skyguide's costs include significant amounts linked to the additional costs caused by the change in the capitalisation rule in 2021 (+10.2 M€2017) and to the reduced financing of delegated airspace in 2020 (+20.7 M€2017). However, in order for these amounts not to be billed to airspace users, they have also

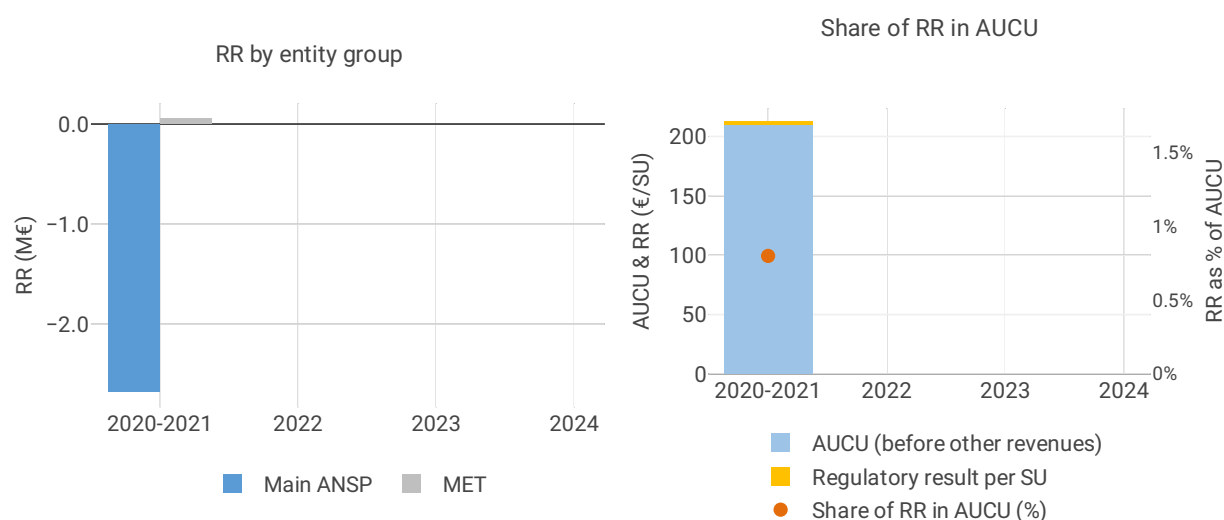
been reported as negative exceptional items in the determined costs, but not in the actual costs (-100% of negative exceptional costs, or +30.9 M€2017).

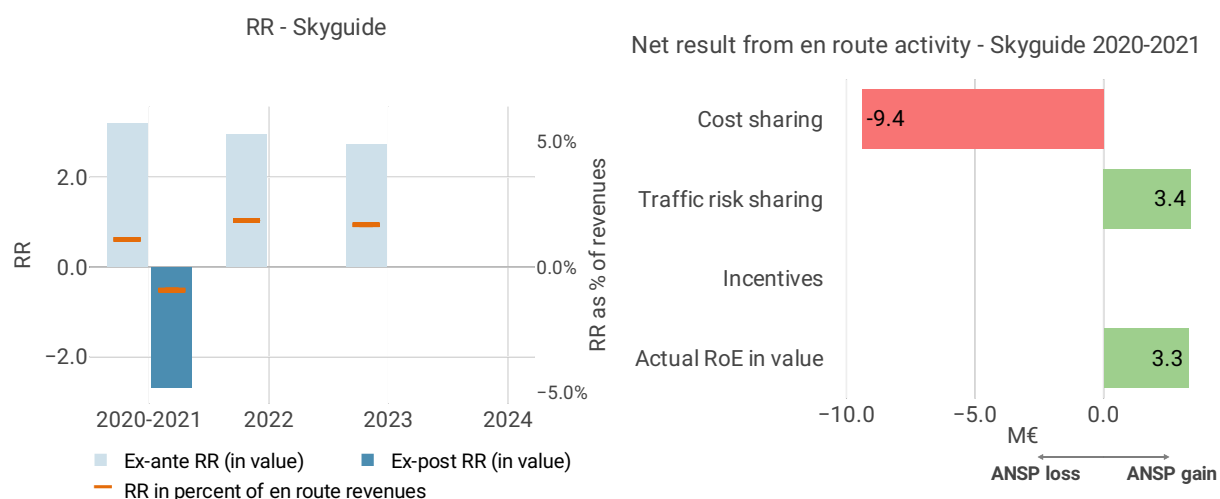
- the remaining difference in staff costs (which is overall of -23.1 M€2017 or -10.1%), is mainly due to the postponement of the “provision for ATCO retirement age”, which was contained in the 2021 determined costs.

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



5.2.3 Regulatory result (RR)





Focus on regulatory result

Skyguide net loss on activity in Switzerland en route charging zone in the combined year 2020-2021

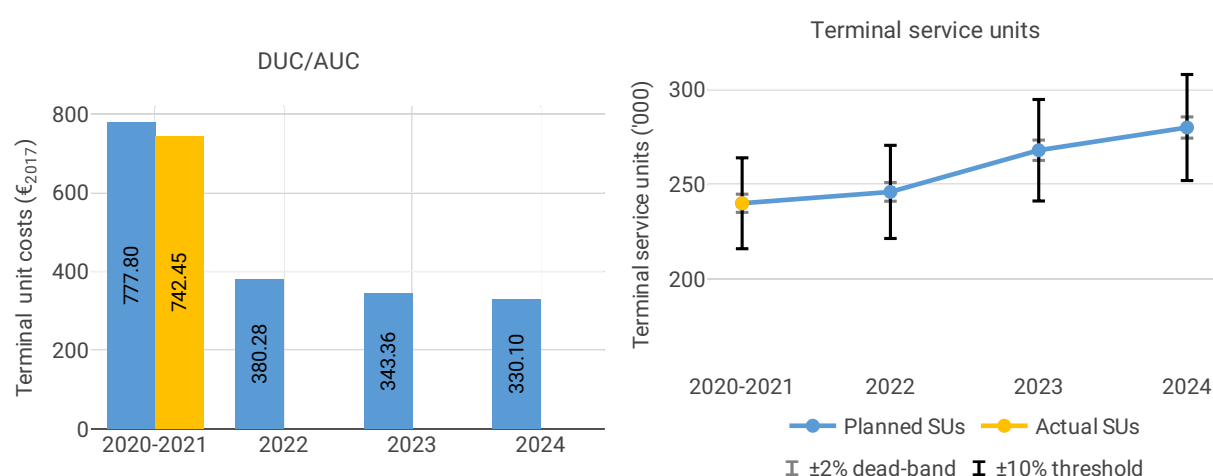
Skyguide incurred a net loss of -6.2 MCHF (-6.0 M€), resulting from a loss of -9.9 M CHF arising from the cost sharing mechanism, partially compensated by a gain of +3.7 M CHF arising from the traffic risk sharing mechanism.

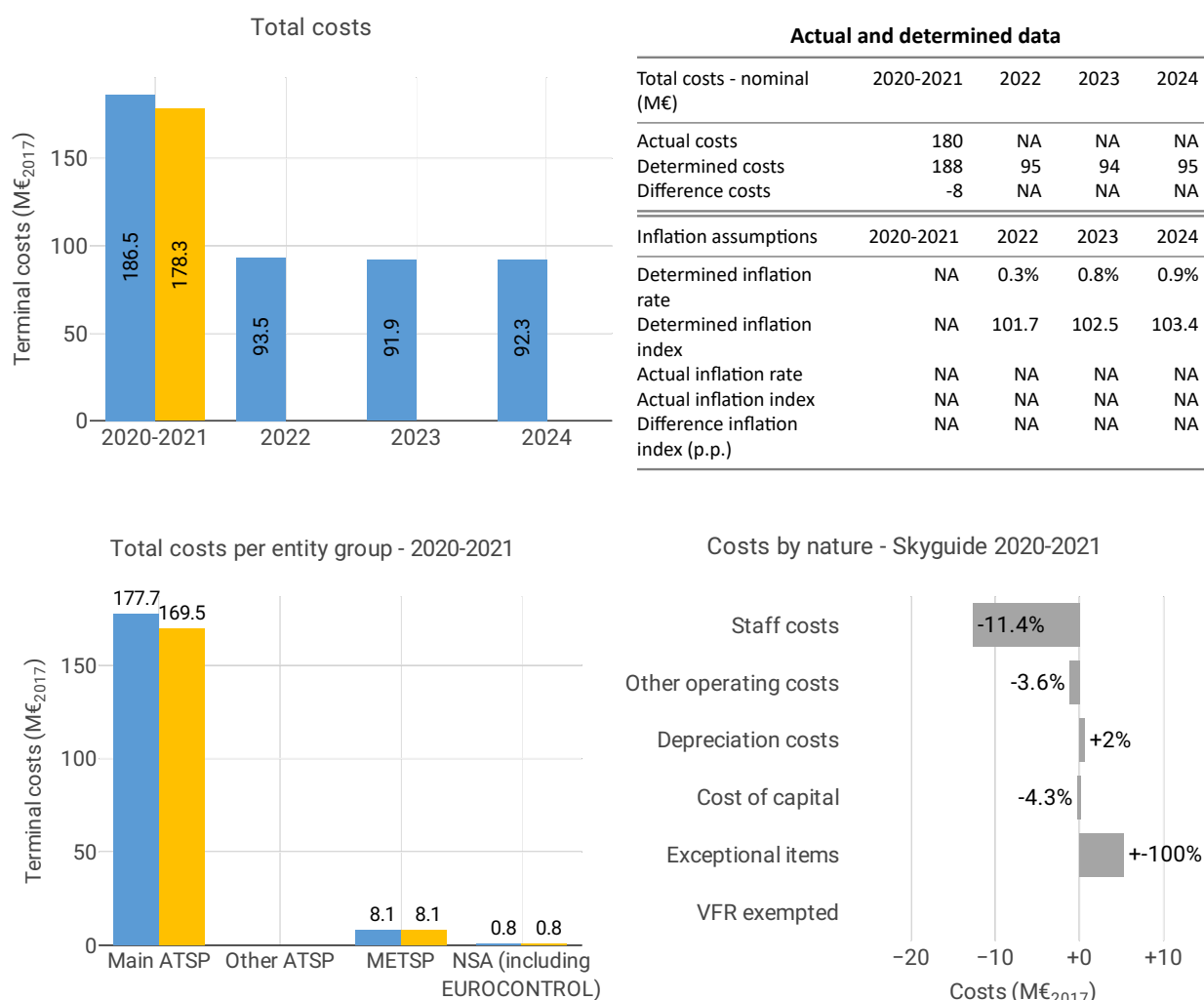
Skyguide overall regulatory results (RR) for the en route activity

Ex-post, the overall RR corresponding to the net loss from the en route activity mentioned above (-6.2 MCHF or -6.0 M€) and the RoE (+3.6 MCHF or +3.3 M€) amounts to a loss of -2.7 MCHF or -2.5 M€ (0.9% of the en route revenues). The resulting ex-post rate of return on equity is -2.4%, compared to 3.5% planned in the PP.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the terminal AUC was -4.5% (or -39.28 CHF2017, -35.35 €2017) lower than the planned DUC. This results from the combination of slightly higher than planned TNSUs (+0.2%) and lower than planned en-route costs in real terms (-4.4%, or -9.1 MCHF2017, -8.2 M€2017).

Terminal service units

The difference between actual and planned TNSUs (+0.2%) falls within the $\pm 2\%$ dead band. Hence the resulting additional terminal revenue is kept by the ANSPs.

Terminal costs by entity

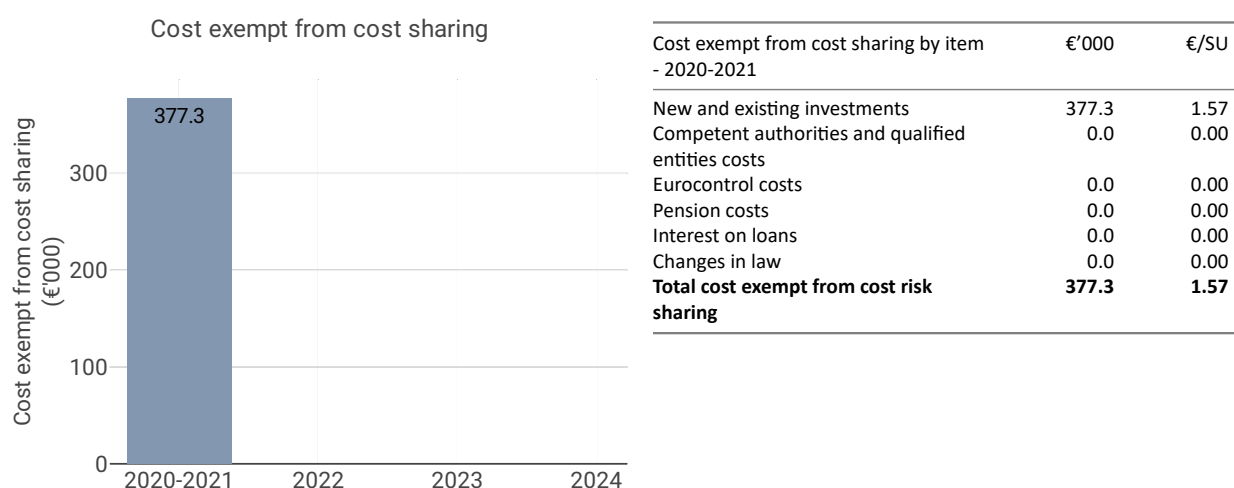
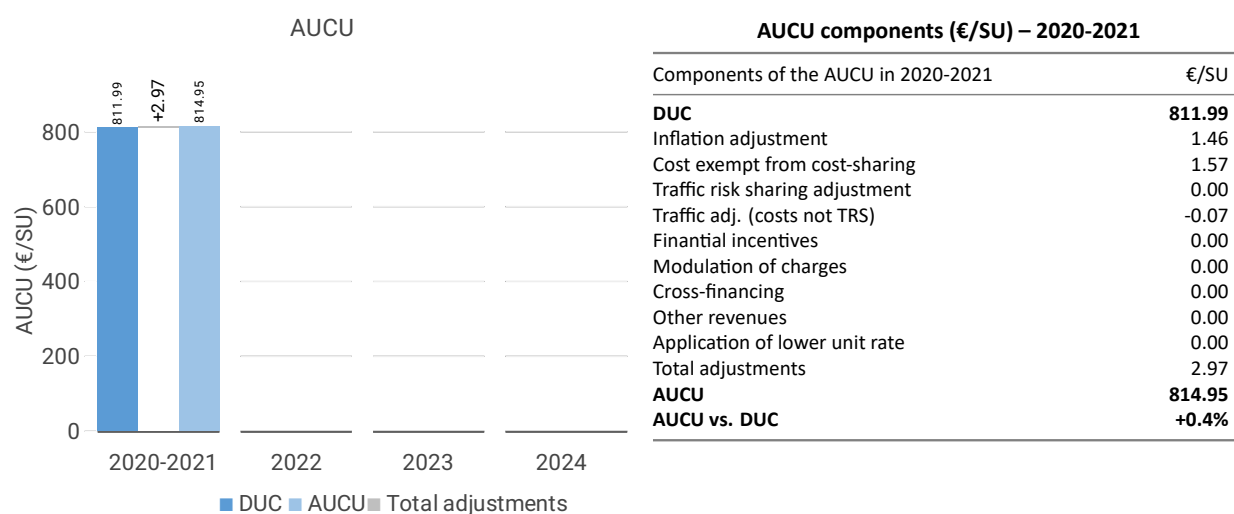
Actual real terminal costs are -4.4% (-8.2 M€2017) lower than planned. This is driven by the main ANSP, Skyguide (-4.6%, or -8.2 M€2017), while the actual costs of the MET service provider and the NSA are in line with the determined costs (-0.03% and 0.0%, respectively).

Terminal costs for the main ANSP at charging zone level

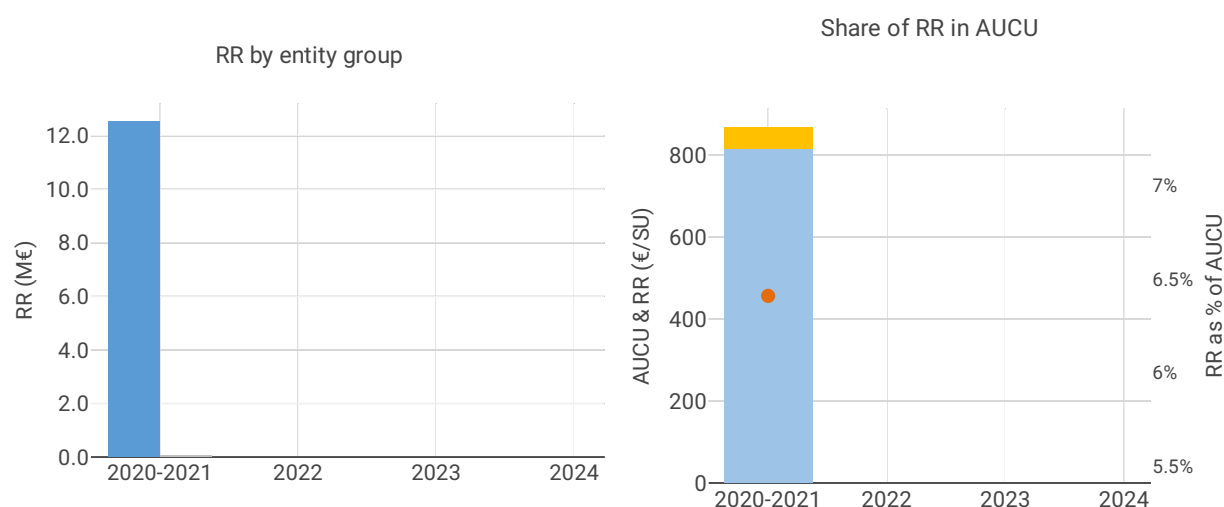
Actual terminal costs in real terms are lower than planned by -4.6% overall (or -8.2 M€2017). However, the differences by nature of costs are distorted by the presentation of the additional costs caused by the change in the capitalisation rule in 2021 (+5.3 M€2017). Indeed, in order for these amounts not to be billed to airspace users, they have also been reported as negative exceptional items in the determined costs, but not in the actual costs (-100% of negative exceptional costs, or +5.3 M€2017).

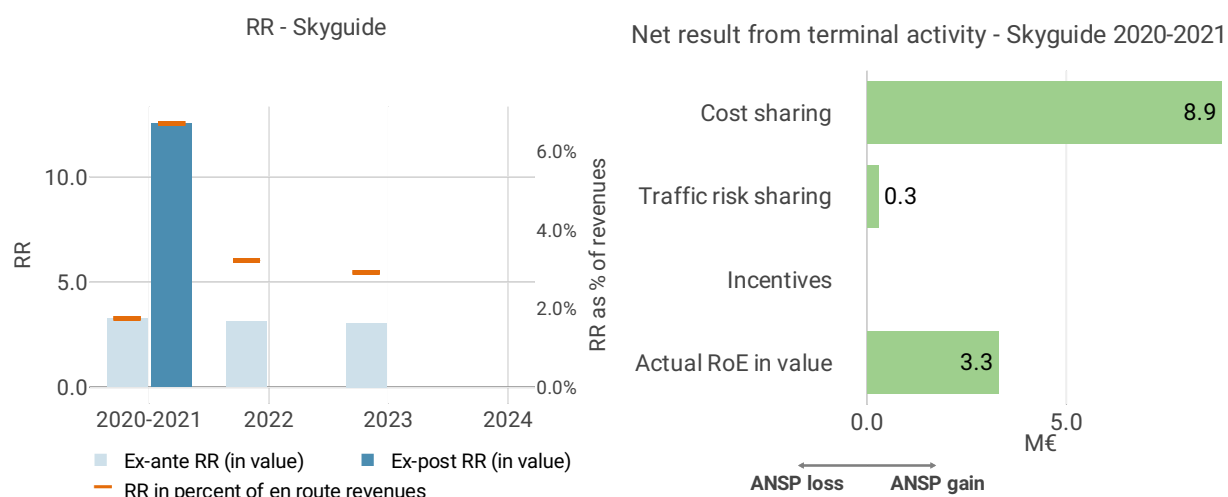
- the significant difference in staff costs (which is overall of -12.7 M€2017 or -11.4%), is mainly due to the postponement of the "provision for ATCO retirement age", which was contained in the 2021 determined costs.

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



5.3.3 Regulatory result (RR)





Focus on regulatory result

Skyguide net gain on activity in Switzerland terminal charging zone in the combined year 2020-2021

Skyguide incurred a net gain of +10.0 MCHF (+9.3 M€), combining a gain of +9.7 M CHF arising from the cost sharing mechanism and a gain of +0.3 M CHF arising from the traffic risk sharing mechanism.

Skyguide overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR corresponding to the net gain from the en route activity mentioned above (+10.0 MCHF) and the RoE (+3.5 MCHF) amounts to a gain of +13.5 MCHF (6.7% of the terminal revenues). The resulting ex-post rate of return on equity is 12.3%, compared to 3.6% planned in the PP.