

Performance Review Body Monitoring Report

Sweden - 2023

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/2423 of 5 December 2022

List of ACCs 2

Malmö ACC
Stockholm ACC

Exchange rate (1 EUR=)

2017: 9.63311 SEK
2023: 11.4623 SEK

Main ANSP

• LFV

No of airports in the scope of the performance plan:

• ≥80'K 1
• <80'K 0

Share of Union-wide:

• traffic (TSUs) 2023 2.2%
• en route costs 2023 4.1%

Share en route / terminal costs 2023

92% / 8%

En route charging zone(s)

Sweden

Terminal charging zone(s)

Sweden

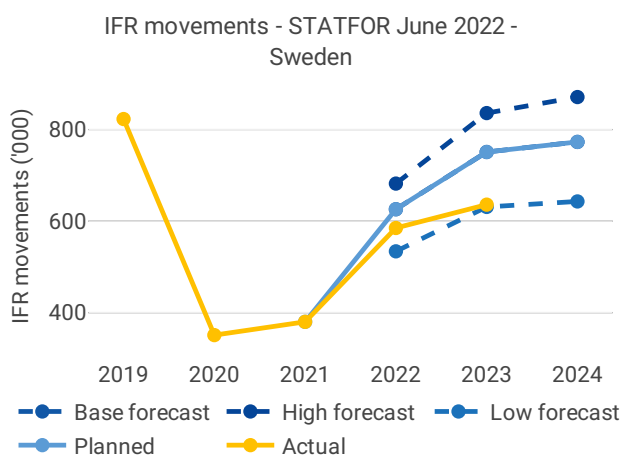
Other ANSPs

• SDATS
• ACR
• ARV - Arvidsjaur
• Swedavia

MET Providers

• SMHI

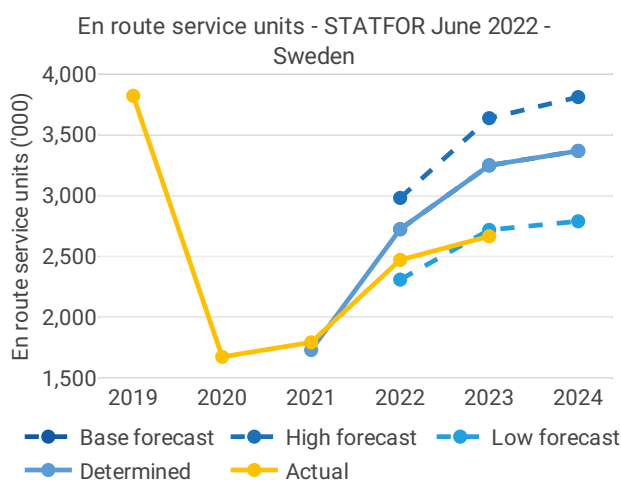
1.2 Traffic (En route traffic zone)



• Sweden recorded 636K actual IFR movements in 2023, +9% compared to 2022 (585K).

• Actual 2023 IFR movements were -15% below the plan (751K).

• Actual 2023 IFR movements represent 77% of the actual 2019 level (823K).

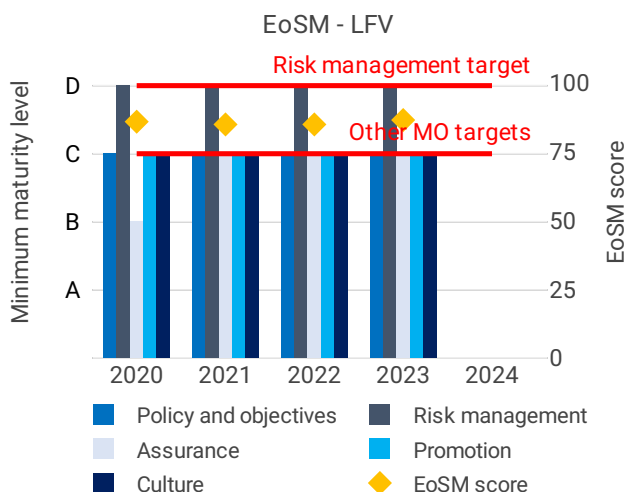


• Sweden recorded 2,666K actual en route service units in 2023, +8% compared to 2022 (2,472K).

• Actual 2023 service units were -18% below the plan (3,248K).

• Actual 2023 service units represent 70% of the actual 2019 level (3,820K).

1.3 Safety (Main ANSP)



- LFV achieved the RP3 EoSM target levels already in 2021 and has maintained the levels since then.

- SDATS has improved its performance in safety culture and consequently achieved EoSM RP 3 targets for all management objectives.

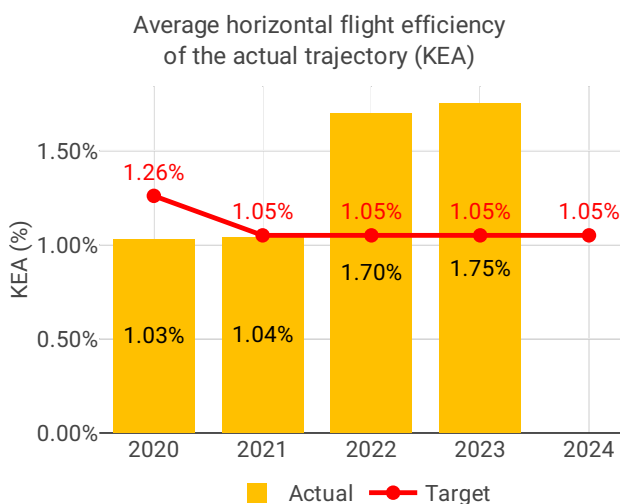
- Although ARV – Arvidsjaur and ACR implemented significant improvements over 2023, none of the other ANSPs achieved the RP3 targets for safety risk management. Both ANSPs have put in place actions necessary to achieve the targets by the end of RP3.

- In 2023, Sweden has improved its occurrence reporting providing only the occurrences with safety

impact (all occurrences were reported in previous years). Therefore, the occurrences rates for 2023 should not be compared with previous years. The rate of runway incursions remained above the Union-wide average, while the rate of separation infringements was below the Union-wide average.

- LFV do not use automated safety data recording systems.

1.4 Environment (Member State)



- Sweden achieved a KEA performance of 1.75% compared to its target of 1.05% and did not contribute positively towards achieving the Union-wide target.

- The NSA states that KEA worsened due to traffic avoiding Russian airspace (including Kaliningrad), which is causing extended trajectories.

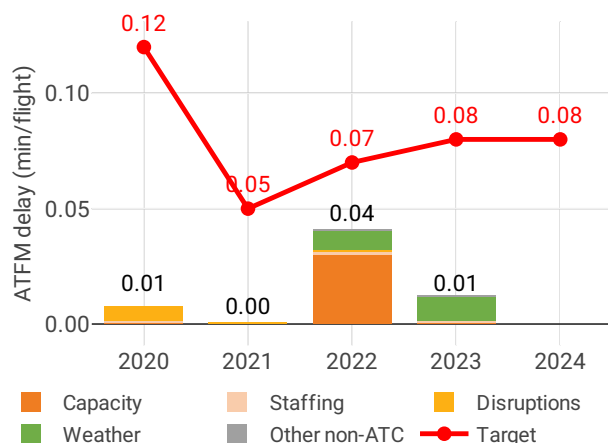
- Both SCR and KEP improved compared to 2022. Despite the KEA target being missed, the improvement in SCR shows that Sweden has improved the environmental efficiency of its airspace when accounting for impacts outside of its control.

- The share of CDO flights decreased from 52.38% to 50.21% in 2023.

- During 2023, additional time in terminal airspace increased from 0.60 to 0.79 min/flight, while additional taxi out time increased from 1.52 to 1.82 min/flight.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



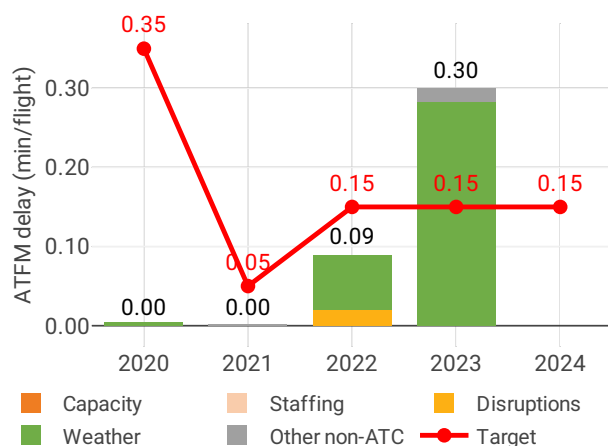
- Sweden registered 0.01 minutes of average en route ATFM delay per flight during 2023, thus achieving the local target value of 0.08. Delays in Sweden decreased by 0.03 minutes per flight year-on-year.

- Delays were highest in July, mainly due to adverse weather conditions.

- The share of delayed flights with delays longer than 15 minutes in Sweden increased by 0.1 percentage point compared to 2022 and was lower than 2019 values.

- The average number of IFR movements was 25% below 2019 levels in Sweden in 2023.

Average arrival ATFM delay per flight by delay groups



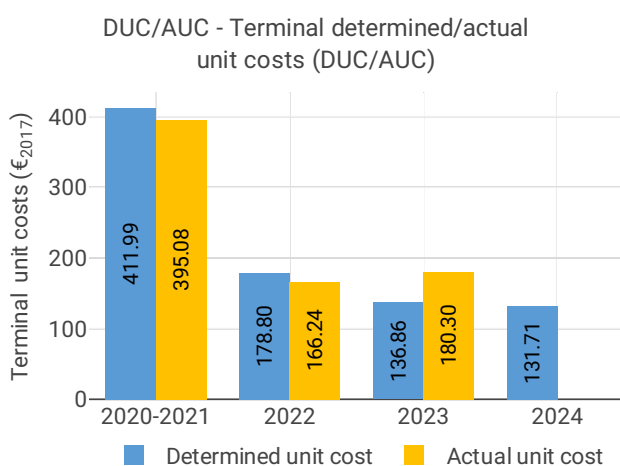
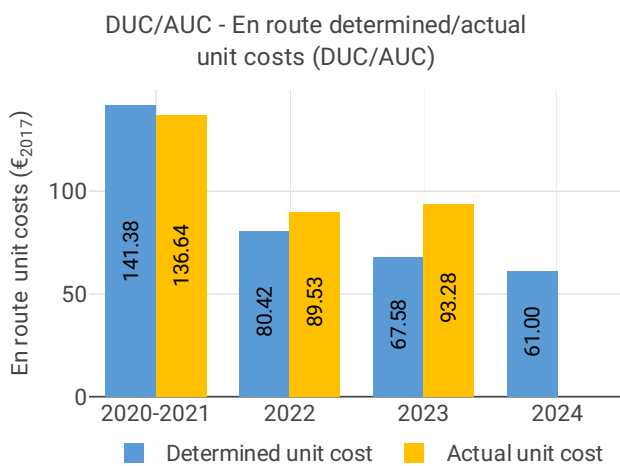
- The number of ATCOs in OPS is expected to increase by 5% by 2024, with the actual value being below the 2023 plan in Malmo by 11. The number of ATCOs in OPS is expected to increase by 8% by 2024, with the actual value being below the 2023 plan in Stockholm by 12 FTEs.

- The yearly total of sector opening hours in Stockholm ACC was 30,311, showing a 4% increase compared to 2022. Sector opening hours are 31.5% below 2019 levels. The yearly total of sector opening hours in Malmo ACC was 55,333, showing an 5.3% increase compared to 2022. Sector opening hours

are 3.7% below 2019 levels.

- Malmo ACC registered 8.08 IFR movements per one sector opening hour in 2023, being 19.7% below 2019 levels. Stockholm ACC registered 10.09 IFR movements per one sector opening hour in 2023, being 8.8% above 2019 levels.

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



- The en route 2023 actual unit cost of Sweden was 93.28 €2017, +38% higher than the determined unit cost (67.58 €2017). The terminal 2023 actual unit cost was 180.30 €2017, +32% higher than the determined unit cost (136.86 €2017).

- The en route 2023 actual service units (2.7M) were -18% lower than the determined service units (3.2M), mainly due to shifted traffic flows caused by the Russia's war of aggression against Ukraine.

- The en route 2023 actual total costs were higher than determined (+29 M€2017, or +13%). The difference was mainly driven by LFV staff cost (+25 M€2017, or +22%) and cost of capital (+3.6 M€2017, or +86%). The gap in staff costs is largely due to higher pension costs, indexed to inflation, which increased more than anticipated. Additionally, higher-than-planned salary increases following salary negotiations effective from October 2023 also contributed to the overall cost increase. According to the NSA, the cost of capital reflects the impact of high inflation on the valuation of pension debt, which is being used for financing instead of loans. The PRB highlights that the difference in en route pension costs for LFV (+30 M€2017, or +77%), intended to be claimed as cost exempt from

the cost-sharing mechanism, could lead to double counting with the inflation adjustment and with the significantly higher valuation of the pension plan in the cost of capital (+2 M€2017, or +134%). Consequently, the PRB recommends that the NSA re-evaluates the reported adjustments for both en route and terminal in compliance with the Regulation.

- LFV spent 21 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, +12% higher than determined (19 M€2017). The primary factor behind this difference was a significant overspend in the cost of capital related to the cost of new and existing investments (+1.9 M€2017, or +65%). This gap was mainly due to the growth in average interest rates, which increased from 1.84% to 4.68%.

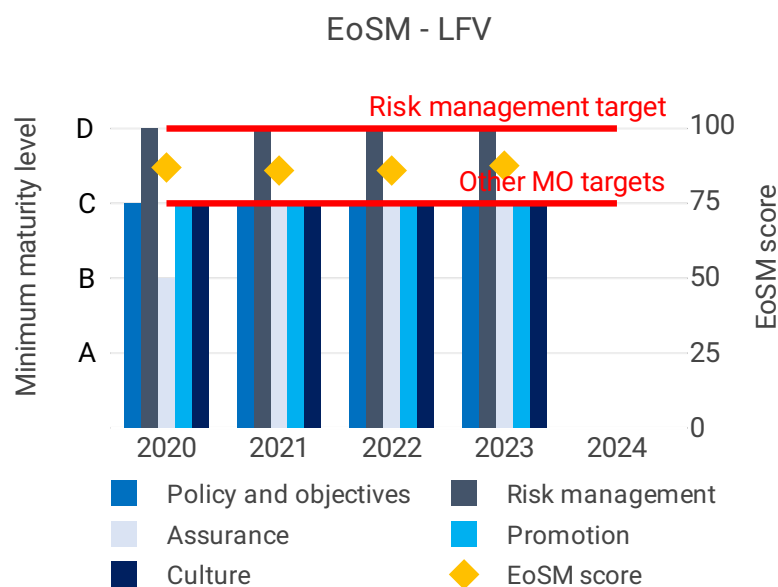
- The en route actual unit cost incurred by users in 2023 was 91.17€ (+44% above the 2023 DUC), while the terminal actual unit cost incurred by users was 181.26€ (+38% above the 2023 DUC). The difference between the AUCU and the DUC is strongly affected by the difference between the determined and actual SUs.

2 SAFETY - SWEDEN

2.1 PRB monitoring

- LFV achieved the RP3 EoSM target levels already in 2021 and has maintained the levels since then.
- SDATS has improved its performance in safety culture and consequently achieved EoSM RP 3 targets for all management objectives.
- Although ARV – Arvidsjaur and ACR implemented significant improvements over 2023, none of the other ANSPs achieved the RP3 targets for safety risk management. Both ANSPs have put in place actions necessary to achieve the targets by the end of RP3.
- In 2023, Sweden has improved its occurrence reporting providing only the occurrences with safety impact (all occurrences were reported in previous years). Therefore, the occurrences rates for 2023 should not be compared with previous years. The rate of runway incursions remained above the Union-wide average, while the rate of separation infringements was below the Union-wide average.
- LFV do not use automated safety data recording systems.

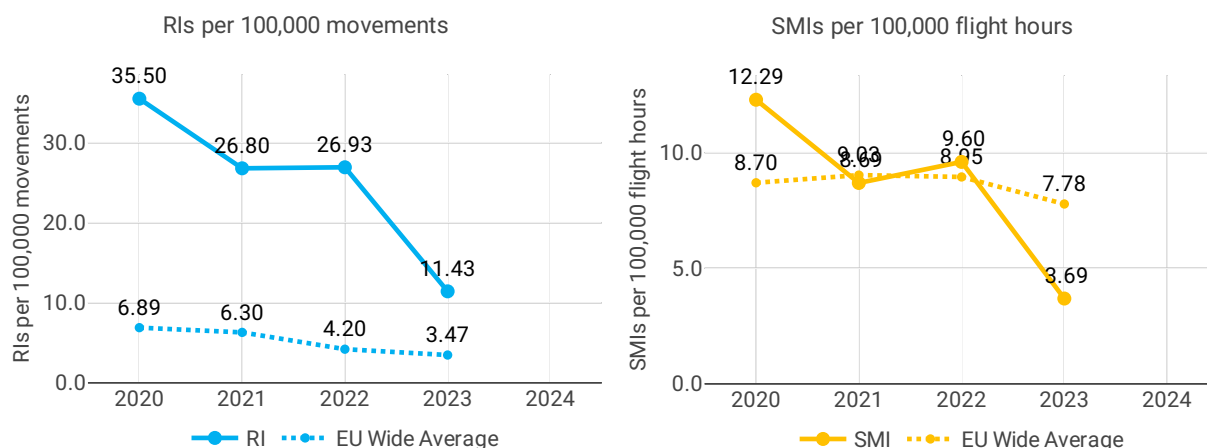
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)



Focus on EoSM

LFV: All five EoSM components of LFV meet the RP3 target level. The level was maintained compared with 2022. ACR: Four out of five EoSM components of ACR meet already the RP3 target level. Improvements for “Safety Risk Management” component are still expected during RP3 to achieve 2024 targets. SDATS: All five EoSM components of SDATS meet already the 2024 target level. AFAB: Four out of five EoSM components of AFAB meet already the 2024 target level. 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)



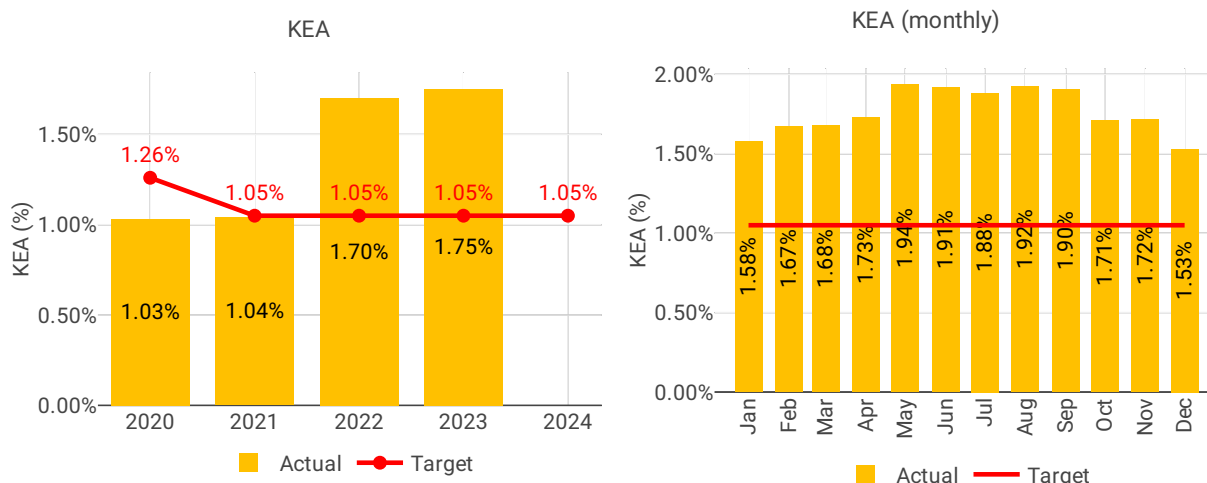
3 ENVIRONMENT - SWEDEN

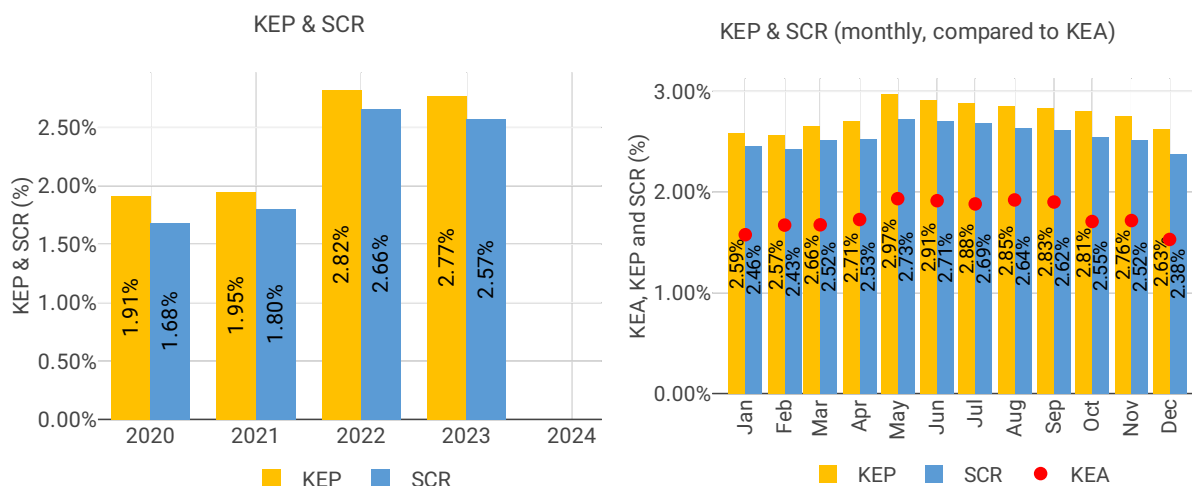
3.1 PRB monitoring

- Sweden achieved a KEA performance of 1.75% compared to its target of 1.05% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that KEA worsened due to traffic avoiding Russian airspace (including Kaliningrad), which is causing extended trajectories.
- Both SCR and KEP improved compared to 2022. Despite the KEA target being missed, the improvement in SCR shows that Sweden has improved the environmental efficiency of its airspace when accounting for impacts outside of its control.
- The share of CDO flights decreased from 52.38% to 50.21% in 2023.
- During 2023, additional time in terminal airspace increased from 0.60 to 0.79 min/flight, while additional taxi out time increased from 1.52 to 1.82 min/flight.

3.2 En route performance

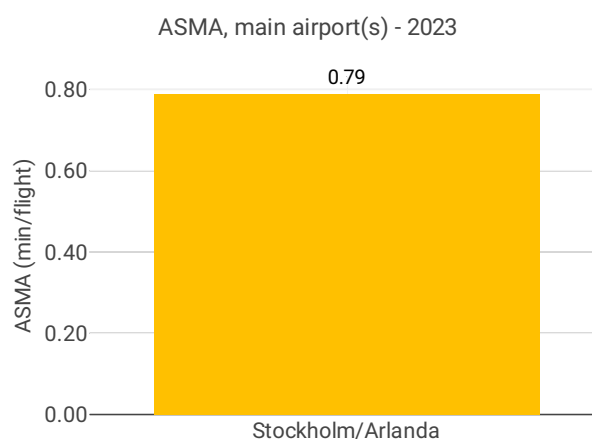
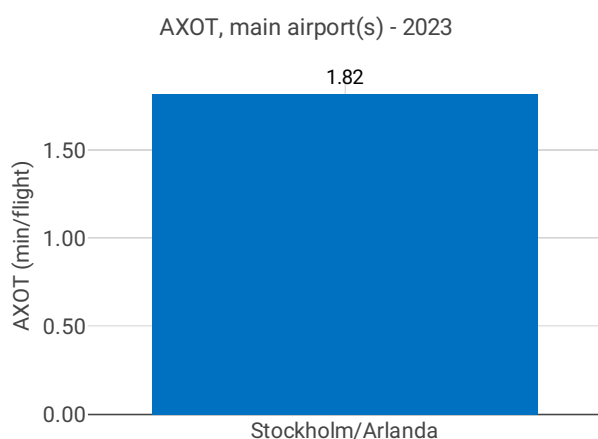
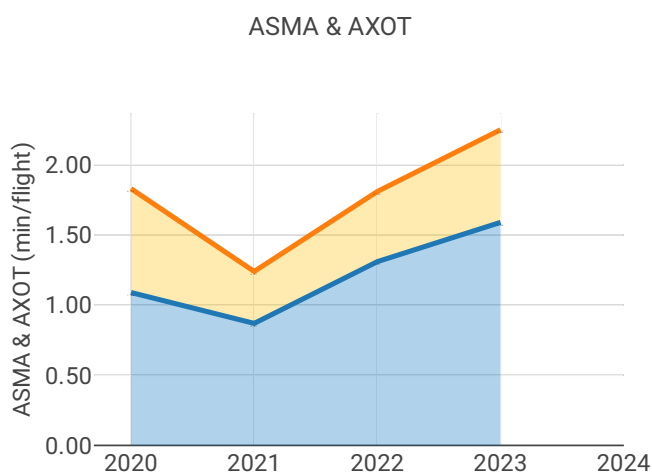
3.2.1 Horizontal flight efficiency of the actual trajectory (KEA) (KPI#1), of the last filed flight plan (KEP) (PI#1) & shortest constrained route (SCR) (PI#2)





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 additional taxi-out times at Stockholm increased once again in 2023 (ESSA; 2019: 2.05 min/dep.; 2020: 1.3 min/dep.; 2021: 0.94 min/dep.; 2022: 1.52 min/dep.; 2023: 1.82 min/dep.)

According to the Swedish monitoring report: *Arlanda is planned to start A-CDM validation with NMOC/EUROCONTROL by the end of this year. By this meaning; we will then start optimize the push back sequence with a pre-departure sequencer (PDS) with inputs based on local constrains at the airport*

(departure rate/runway maintenance etc).*The PDS will allocate a TSAT (Target Start Up Time) to every flight and hence reduce queuing and taxiway congestion.

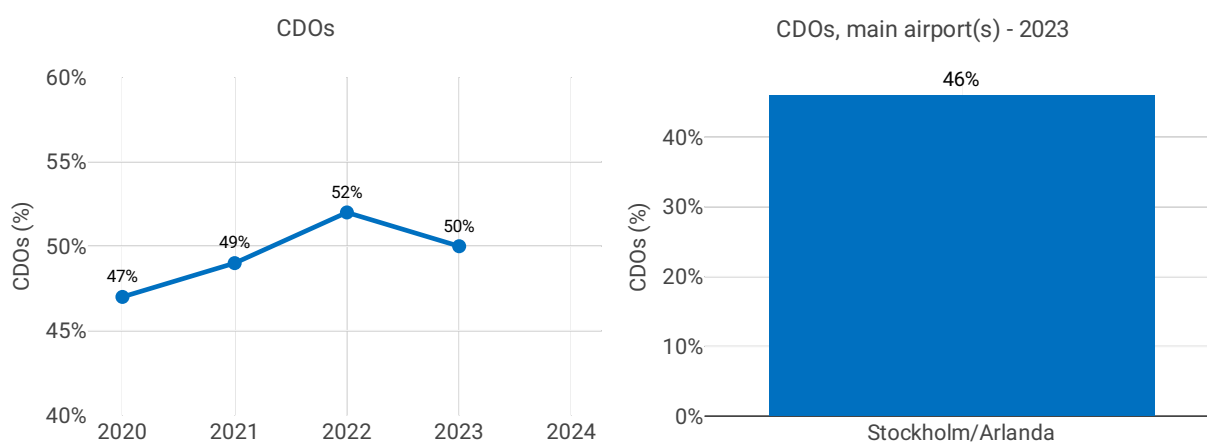
Regarding the performance aspects, these are monitored, at least, once a year through the AMR process.

ASMA

As observed for the additional taxi-out times, the additional time in the terminal area at Stockholm Arlanda increased once again in 2023 (ESSA; 2019: 1.15 min/arr.; 2020: 0.83 min/arr.; 2021: 0.43 min/arr.; 2022: 0.6 min/arr.; 2023: 0.79 min/arr.)

According to the Swedish monitoring report: *LFV and Swedavia is conducting the Swea project with the aim of modernizing traffic flows in the Stockholm area. This will result in a major redesign of traffic flows in Stockholm TMA and adjacent ACC sectors. The redesign is planned to be implemented in the fall of 2026. Parallel approaches (Established on RNP-AR + ILS) will be implemented during the spring of 2025.*

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



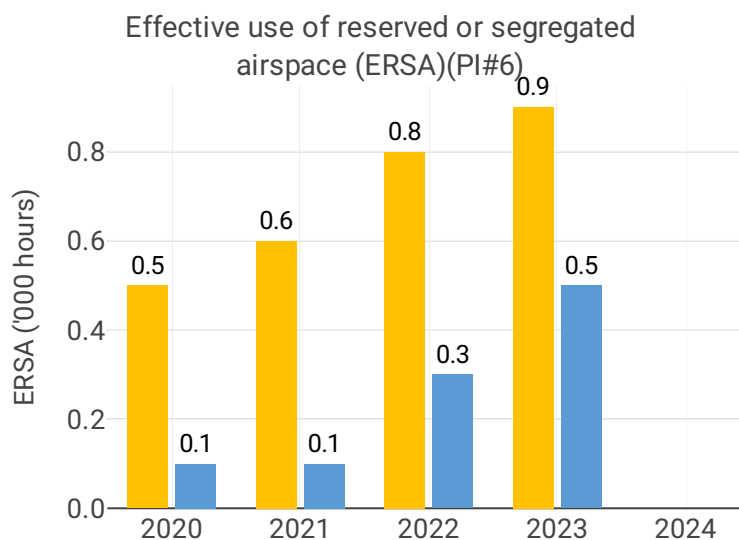
Focus CDOs

The share of CDO flights at Stockholm (ESSA) decreased from 48.3% to 45.8% in 2023 which is still above the overall RP3 value in 2023 (28.8%). According to the Swedish monitoring report: *Implementation of additional RNP-AR approaches is increasing predictability for arriving traffic and hence improving vertical efficiency. In the spring of 2025 parallel approaches (Established on RNP-AR + ILS) is planned for implementation. This will hopefully improve both horizontal and vertical flight efficiency.*

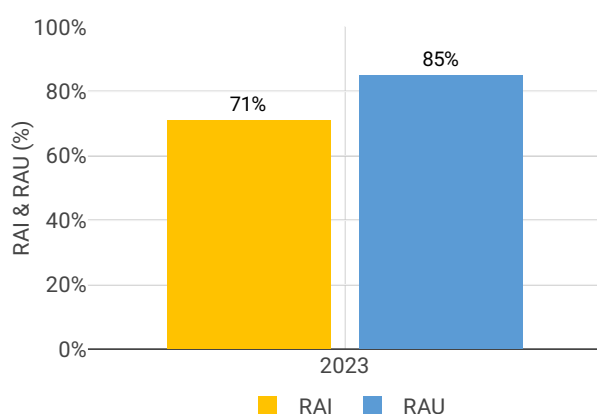
Airport level

Airport Name	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
Stockholm/Arlanda	1.30	0.94	1.52	1.82	NA	0.83	0.43	0.60	0.79	NA	NA	44%	48%	46%	NA

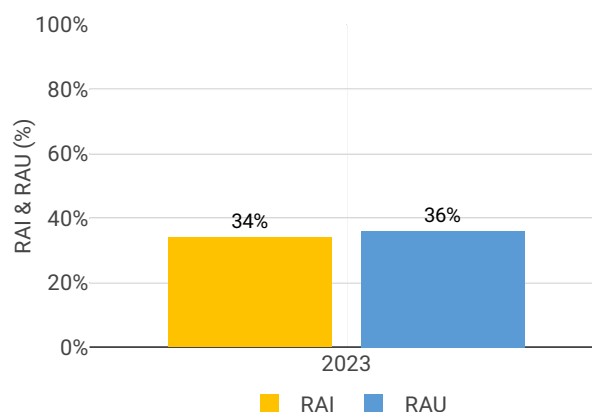
3.4 Civil-Military dimension



RAI & RAU via available conditional routes (PIs#7 & 8)



RAI & RAU via available restricted and segregated airspace (PIs#7 & 8)



Focus on Civil-Military dimension

Update on Military dimension of the plan

The application of the A-FUA concept in Sweden is slightly different compared to the application in other countries due to the fact that Sweden uses PCA (Prior Coordination Area). Swedish PCAs are not defined in CACD hence PCAs will not be allocated via the AUP/UUP process. AMC Sweden has the possibility to cluster adjacent PCAs to maximize the utilisation of the airspace for the civilian and military airspace users. Therefore ATC can coordinate the passage of flights (in most cases) through active PCAs in order to achieve a more environment friendly routing of the traffic. With this methodology the environmental impact from the military dimension is very small compared to if flights always had to fly around the active area.

Military - related measures implemented or planned to improve capacity

As the capacity performance of 2023 is only 0.01 minutes delay/flight the reporting on this part is kept short. More information can be provided upon request. The military dimension has not had an impact on the capacity KPA. However the military activity is continuously increasing which affects workload on ASM level 2 and level 3.

A project is underway to realize the SWIM/ARES requirements of the CP 1 regulation with the aim of simplifying and digitizing the workflows for activation and deactivation of areas in segregated airspace. This will have a positive effect in decreasing workload in ASM level 2 and level 3.

Initiatives implemented or planned to improve PI#6

The report sent in to ASM Level 1 from LFV gives the expression that there is an ambition to implement digital tools and aids to facilitate a better record keeping function regarding the usage of reserved or segregated airspace. The NSA intends to continue to demand relevant information and statistics to be able to monitor the different PI's efficiently, but also to improve the coordination and cooperation between the NSA and the ANSP (LFV) in this regard.

Initiatives implemented or planned to improve PI#7

LFV does not currently have measurement methods established to be able to produce a basis for the requested reporting. A Work will be initiated to be able to report this next time.

Initiatives implemented or planned to improve PI#8

No data available.

4 CAPACITY - SWEDEN

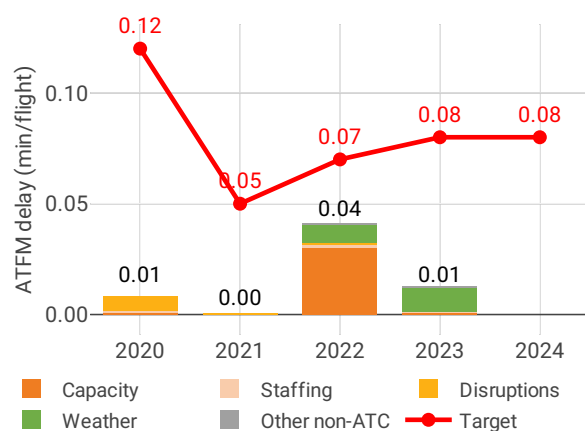
4.1 PRB monitoring

- Sweden registered 0.01 minutes of average en route ATFM delay per flight during 2023, thus achieving the local target value of 0.08. Delays in Sweden decreased by 0.03 minutes per flight year-on-year.
- Delays were highest in July, mainly due to adverse weather conditions.
- The share of delayed flights with delays longer than 15 minutes in Sweden increased by 0.1 percentage point compared to 2022 and was lower than 2019 values.
- The average number of IFR movements was 25% below 2019 levels in Sweden in 2023.
- The number of ATCOs in OPS is expected to increase by 5% by 2024, with the actual value being below the 2023 plan in Malmo by 11. The number of ATCOs in OPS is expected to increase by 8% by 2024, with the actual value being below the 2023 plan in Stockholm by 12 FTEs.
- The yearly total of sector opening hours in Stockholm ACC was 30,311, showing a 4% increase compared to 2022. Sector opening hours are 31.5% below 2019 levels. The yearly total of sector opening hours in Malmo ACC was 55,333, showing an 5.3% increase compared to 2022. Sector opening hours are 3.7% below 2019 levels.
- Malmo ACC registered 8.08 IFR movements per one sector opening hour in 2023, being 19.7% below 2019 levels. Stockholm ACC registered 10.09 IFR movements per one sector opening hour in 2023, being 8.8% above 2019 levels.
- Sweden registered an average airport arrival ATFM delay of 0.30 minutes per flight in 2023, thus not achieving the local target of 0.15 minutes.
- Compared to 2022, average arrival ATFM delays in Sweden were 238% higher in 2023, while the number of IFR arrivals increased by 11%.
- The main reason for delays was weather, accounting for 95% of delays, and other causes, responsible for 5%.

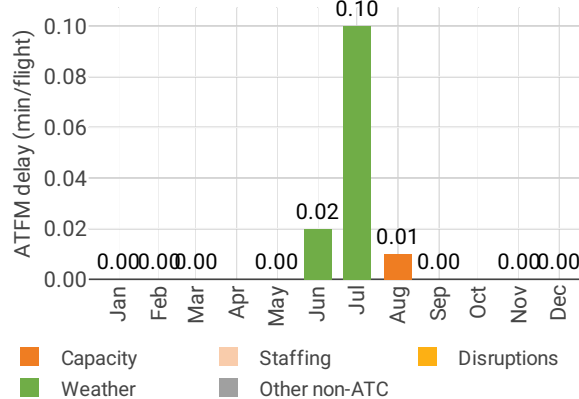
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)

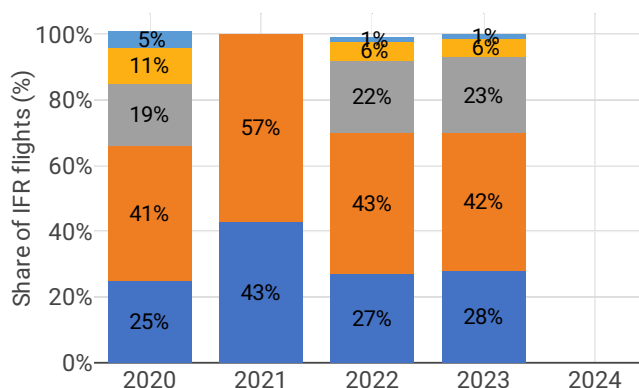
Average en route ATFM delay per flight by delay groups



Monthly distribution of en route ATFM delay by delay groups - 2023



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

From an operational point of view the war in Ukraine had of course continued to impact where Sweden lost a lot of the overflights. This is now a structural problem and poses great challenges in the upcoming performance planning of RP4.

Capacity has not constituted a problem. ANSPs has adapted the new flight patterns in a very efficient manner.

Monitoring process for capacity performance

SE NSA monitors through the yearly AMR process, and through the ANS performance portal. In depth analysis are carried out when considered relevant, and especially in the process of Reference period planning.

Capacity planning

Capacity planning is well in line with the need. Recall that traffic is approx 10 percent lower than plan.

Application of Corrective Measures for Capacity (if applicable)

There is less overflying traffic in general but new patterns and more overflying traffic in southeast Baltic due to Kaliningrad closure.

There were certain capacity issues related to new traffic patterns, but no impact on Sweden's ability to meet the targets.

Staffing plans needed to be adapted to new patterns

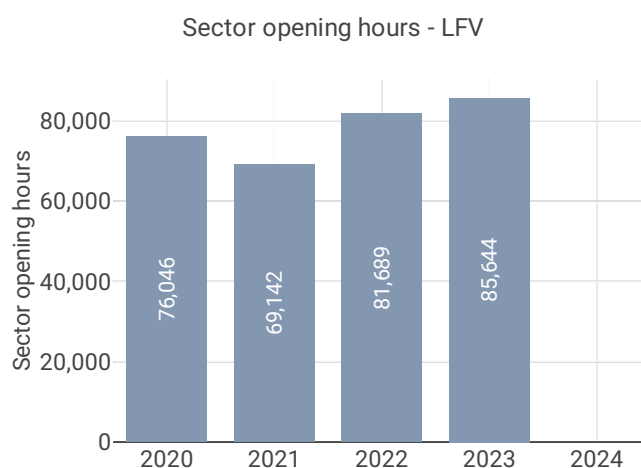
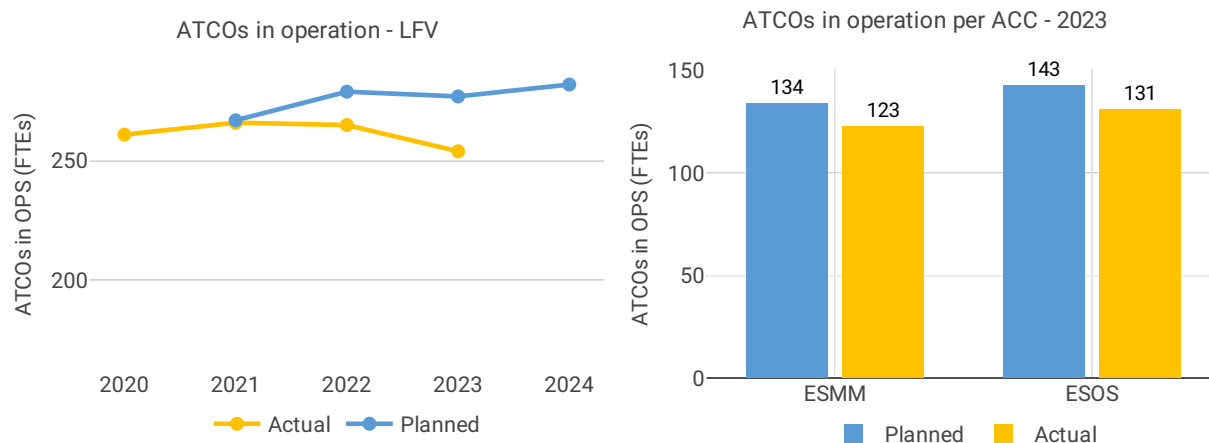
Additional Information Related to Russia's War of Aggression Against Ukraine Sweden experienced an increase in traffic from 585k flights in 2022, with 22k minutes of en route ATFM delay, to 636k flights in 2023 with just 7k minutes of en route ATFM delay.

For reference, in 2019, Sweden handled 831k flights with 35k minutes of en route ATFM delays.

En route Capacity Incentive Scheme

LFV: With an actual capacity performance of 0.01 minutes per flight, against a target of 0.08, Sweden reports that the ANSP is due a bonus of 17,180,000 SEK 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

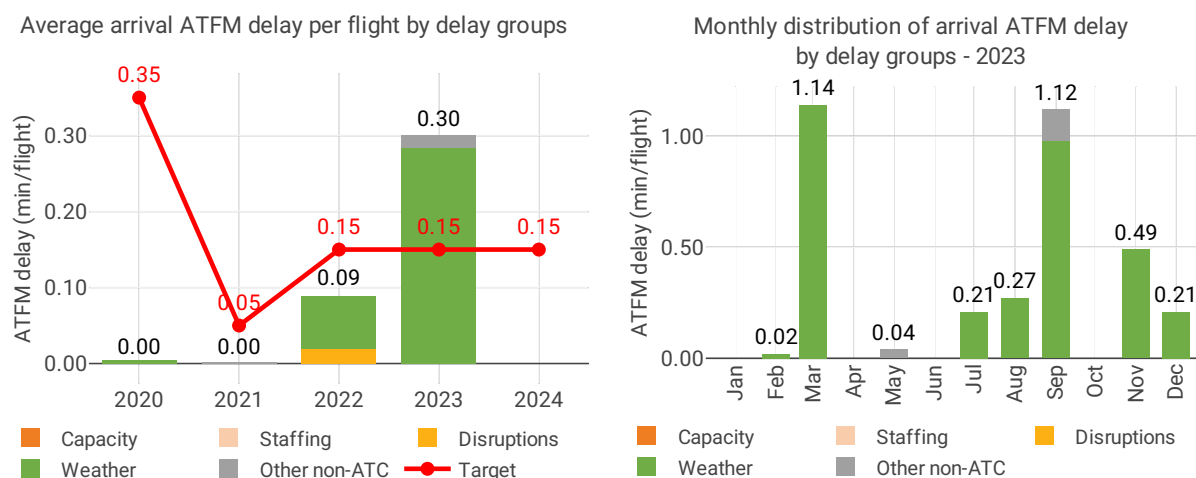


Focus on ATCOs in operations

1 ATCO student less than planned passed the OJT (On the Job Training) - 8 ATCOs resigned.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)



Focus on arrival ATFM delay

Sweden only has Stockholm (ESSA) airport subject to RP3 monitoring for which the APDF is successfully established and the monitoring of the capacity indicators can be performed.

Traffic at this airport in 2023 was still 19% lower than the 2019 levels, but showed an increase of 11% with respect to 2022.

Average arrival ATFM delay in 2023 was 0.30 min/arr, slightly higher compared to 0.09 min/arr in 2022. The national target was not met.

ATFM slot adherence remained very high at almost 98% (2023: 97.8%; 2022: 97.8%).

Average arrival ATFM delay at Stockholm in 2024 were higher than in 2022 (ESSA: 2022: 0.09 min/arr; 2023: 0.30 min/arr)

95% of these delays were attributed to Weather and 5% to Aerodrome Capacity. According to the Swedish monitoring report, there were *no delays caused by ATC during 2023, the delays were caused by adverse weather conditions.*

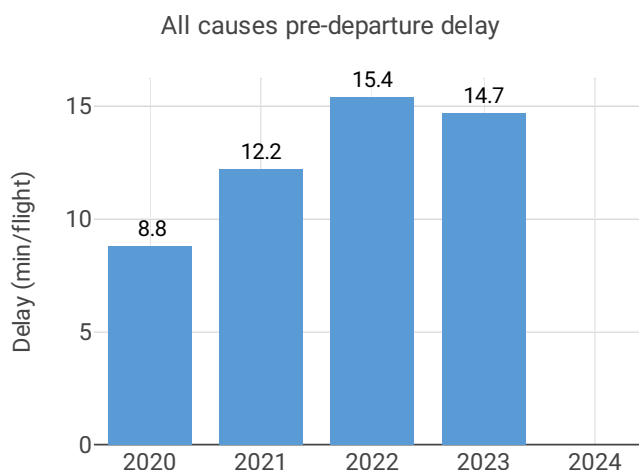
The risk of weather related capacity constraints are present also for 2024.

The NSA has no in-depth analysis to provide. The NSA is aware that weather incidents have on several occasions led to severe issues. This has to be taken into consideration when applying incentive schemes for RP4.

The Swedish performance plan sets a national target on arrival ATFM delay for 2023 of 0.15 min/arr. This target was not met with an actual performance of 0.30 min/arr.

The NSA calculates a penalty of SEK 4 113.

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
Stockholm/Arlanda	0.00	0.00	0.09	0.30	98.2%	97.9%	97.8%	97.8%

Airport name	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
	2020	2021	2022	2023	2020	2021	2022	2023
Stockholm/Arlanda	0.06	0.13	0.13	0.12	8.3	11.5	15.1	14.7

Focus on performance indicators at airport level

ATFM slot adherence

Stockholm's ATFM slot compliance in 2023 was 97.8%, same as in 2022. With regard to the 2.2% of flights that did not adhere, 0.7% was early and 1.5% was late.

ATC pre-departure delay

The calculation of the ATC pre-departure delay is based on the data provided by the airport operators through the Airport Operator Data Flow (APDF) which is properly implemented at Stockholm.

The annual value in did not changed much with respect to previous years but it is higher than before the pandemic (ESSA: 2019: 0.09 min/dep; 2021: 0.13 min/dep; 2022: 0.13 min/dep; 2023: 0.12 min/dep)

All causes pre-departure delay

The total (all causes) delay in the actual off block time at Sweden decreased slightly in 2023 (ESSA: 2020: 8.34 min/dep.; 2021: 11.48 min/dep.; 2022: 15.14 min/dep.; 2023: 14.65 min/dep.)

According to the Swedish monitoring report: *The delays were mainly caused by adverse weather conditions.*

5 COST-EFFICIENCY - SWEDEN

5.1 PRB monitoring

- The en route 2023 actual unit cost of Sweden was 93.28 €2017, +38% higher than the determined unit cost (67.58 €2017). The terminal 2023 actual unit cost was 180.30 €2017, +32% higher than the determined unit cost (136.86 €2017).
- The en route 2023 actual service units (2.7M) were -18% lower than the determined service units (3.2M), mainly due to shifted traffic flows caused by the Russia's war of aggression against Ukraine.

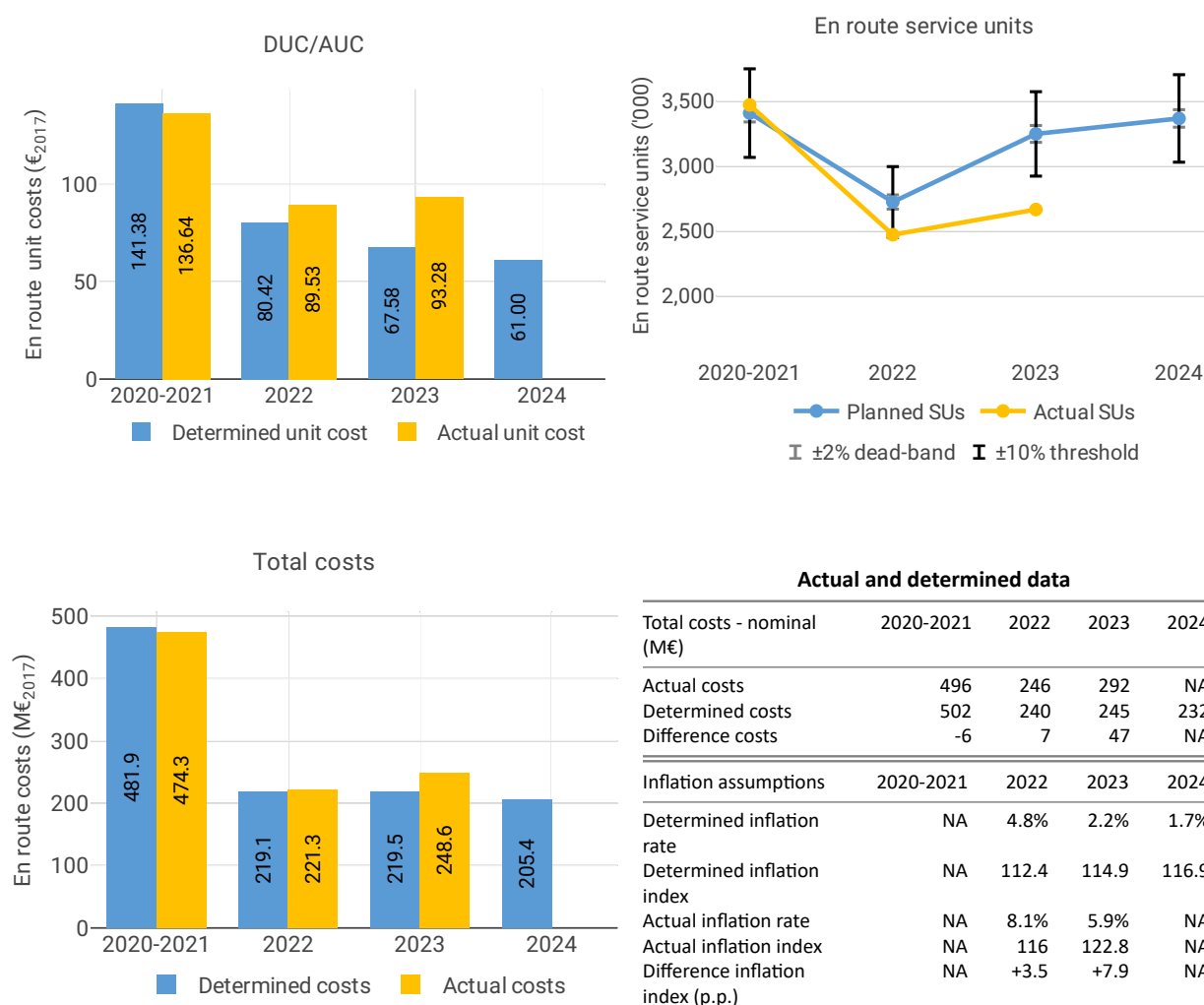
- The en route 2023 actual total costs were higher than determined (+29 M€2017, or +13%). The difference was mainly driven by LFV staff cost (+25 M€2017, or +22%) and cost of capital (+3.6 M€2017, or +86%). The gap in staff costs is largely due to higher pension costs, indexed to inflation, which increased more than anticipated. Additionally, higher-than-planned salary increases following salary negotiations effective from October 2023 also contributed to the overall cost increase. According to the NSA, the cost of capital reflects the impact of high inflation on the valuation of pension debt, which is being used for financing instead of loans. The PRB highlights that the difference in en route pension costs for LFV (+30 M€2017, or +77%), intended to be claimed as cost exempt from the cost-sharing mechanism, could lead to double counting with the inflation adjustment and with the significantly higher valuation of the pension plan in the cost of capital (+2 M€2017, or +134%). Consequently, the PRB recommends that the NSA re-evaluates the reported adjustments for both en route and terminal in compliance with the Regulation.

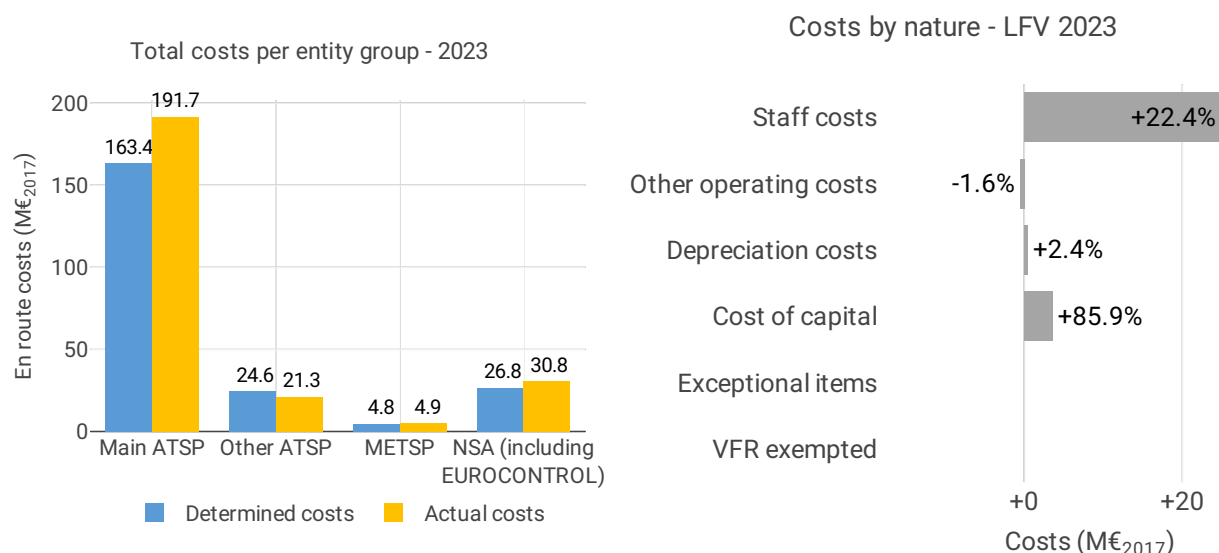
- LFV spent 21 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, +12% higher than determined (19 M€2017). The primary factor behind this difference was a significant overspend in the cost of capital related to the cost of new and existing investments (+1.9 M€2017, or +65%). This gap was mainly due to the growth in average interest rates, which increased from 1.84% to 4.68%.

- The en route actual unit cost incurred by users in 2023 was 91.17€ (+44% above the 2023 DUC), while the terminal actual unit cost incurred by users was 181.26€ (+38% above the 2023 DUC). The difference between the AUCU and the DUC is strongly affected by the difference between the determined and actual SUs.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)





Focus on unit cost

AUC vs. DUC

In 2023, the en route AUC was +38.0% (or +247.56 SEK₂₀₁₇, +25.7 €₂₀₁₇) higher than the planned DUC. This results from the combination of significantly lower than planned TSUs (-17.9%) and significantly higher than planned en route costs in real terms (+13.3%, or +280.8 MSEK₂₀₁₇, +29.1 M€₂₀₁₇). It should be noted that actual inflation index in 2023 was +7.9 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (-17.9%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en route revenues is therefore shared between the ANSPs and the airspace users.

En route costs by entity

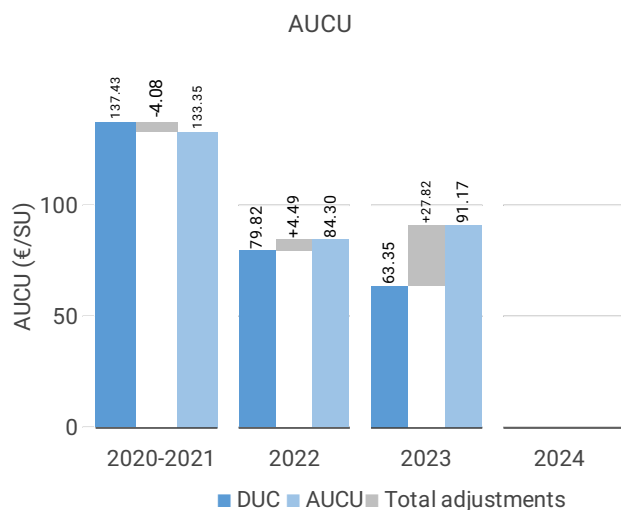
Actual real en route costs are +13.3% (+29.1 M€₂₀₁₇) higher than planned. This is the result of higher costs for the main ANSP, LFV (+17.3%, or +28.3 M€₂₀₁₇), the NSA/EUROCONTROL (+14.8%, or +4.0 M€₂₀₁₇) and the MET service provider (+2.8%, or +0.1 M€₂₀₁₇) and lower costs for the other ANSPs (ACR, ARV and SDATS, -13.3%, or -3.3 M€₂₀₁₇).

En route costs for the main ANSP at charging zone level

Significantly higher than planned en route costs in real terms for LFV in 2023 (+17.3%, or +28.3 M€₂₀₁₇) result from:

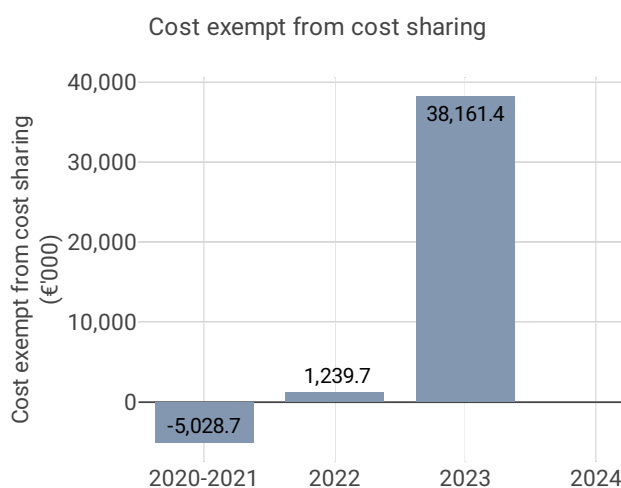
- Significantly higher staff costs (+22.4%) reflecting “higher than planned pension costs stemming from a higher indexation than anticipated” and, to a lesser extent, higher than planned salary increases following conclusion of Swedish salary agreement valid from October 2023.
- Lower other operating costs (-1.6%) in real terms, reflecting entirely the impact of the inflation index (+7.9 p.p.) since, in nominal terms, the costs are above the plan (+5.2%), which is explained by “inflation, energy prices, Swedish salary agreements and weaker Swedish krona”.
- Higher depreciation (+2.4%), and
- Significantly higher cost of capital (+85.9%), reflecting “an effect of the high inflation that affects the valuation of the pension debt (that is used for financing instead of loans)”

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



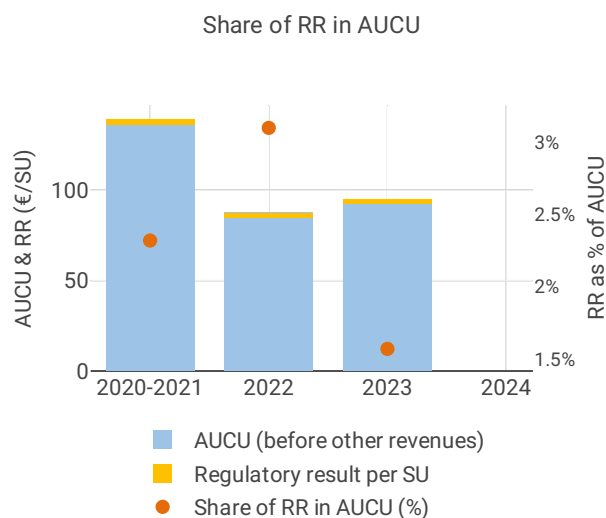
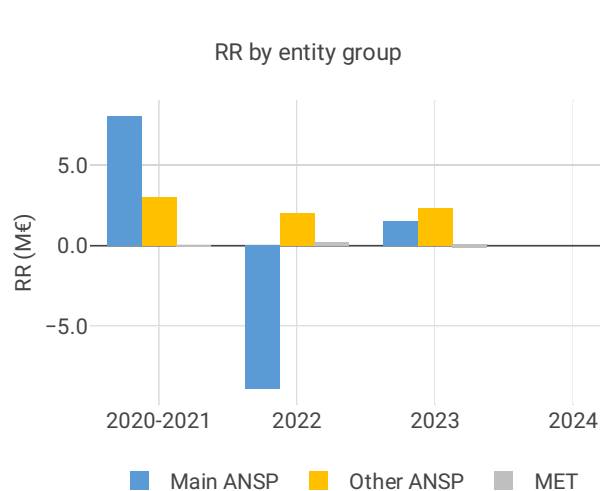
AUCU components (€/SU) – 2023

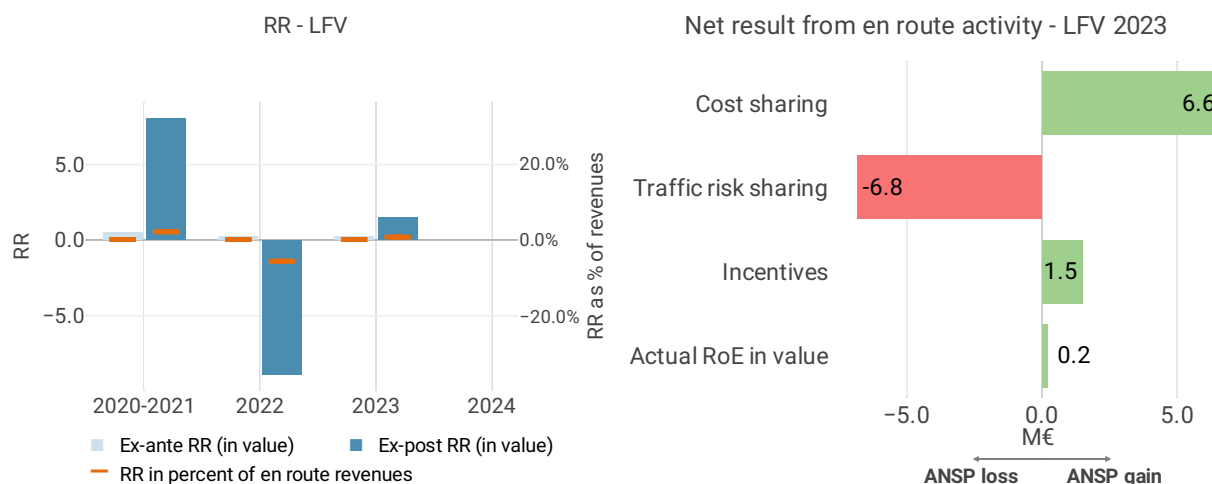
Components of the AUCU in 2023	€/SU
DUC	63.35
Inflation adjustment	4.24
Cost exempt from cost-sharing	14.32
Traffic risk sharing adjustment	8.98
Traffic adj. (costs not TRS)	1.94
Financial incentives	0.56
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-2.22
Application of lower unit rate	0.00
Total adjustments	27.82
AUCU	91.17
AUCU vs. DUC	+43.9%



Cost exempt from cost sharing by item - 2023	€'000	€/SU
New and existing investments	1,468.1	0.55
Competent authorities and qualified entities costs	990.4	0.37
Eurocontrol costs	2,340.7	0.88
Pension costs	33,189.2	12.45
Interest on loans	173.0	0.06
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	38,161.4	14.32

5.2.3 Regulatory result (RR)





Focus on regulatory result

LFV net gain on activity in the Sweden en route charging zone in the year 2023

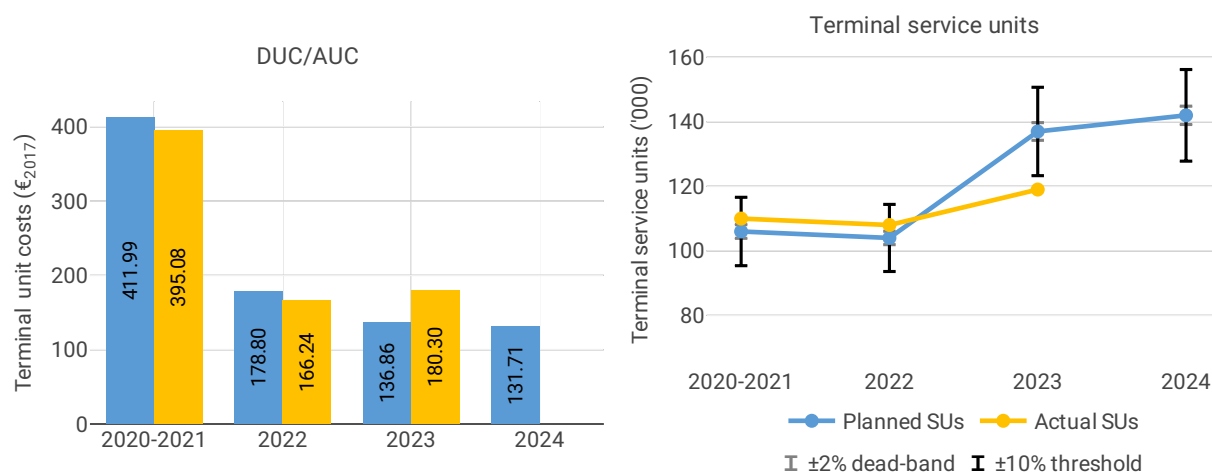
LFV reported a net gain of +15.0 MSEK, as a combination of a gain of +75.3 MSEK arising from the cost sharing mechanism, with a loss of -77.5 MSEK arising from the traffic risk sharing mechanism and a gain of +17.2 MSEK relating to financial incentives.

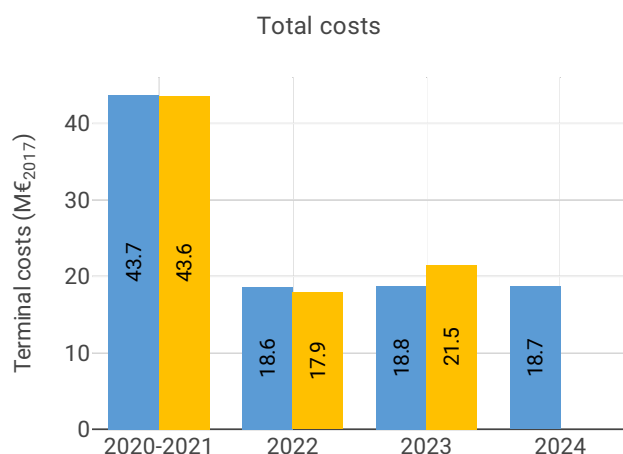
LFV overall regulatory results (RR) for the en route activity

Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+15.0 MSEK) and the actual RoE (+2.4 MSEK) amounts to +17.5 MSEK (0.8% of the en route revenues). The resulting ex-post rate of return on equity is 3.8%, which is higher than the 0.5% planned in the PP.

5.3 Terminal charging zone

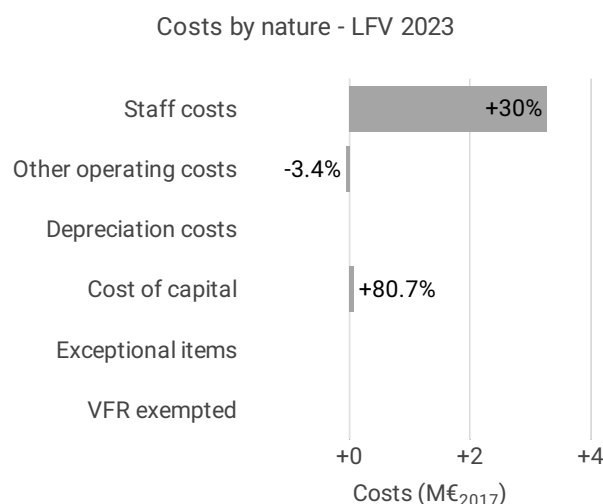
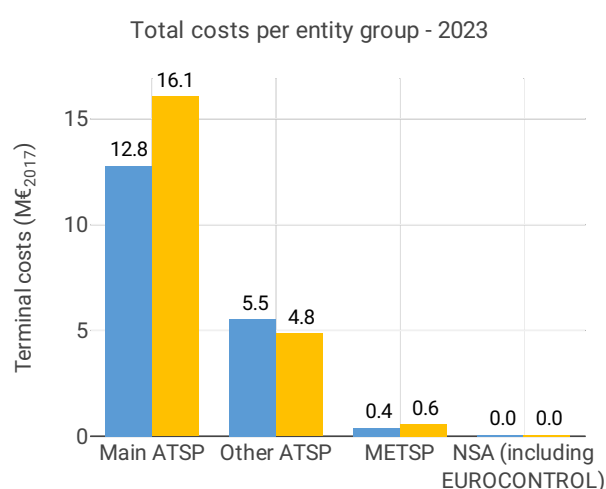
5.3.1 Unit cost (KPI#1)





Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	46	21	26	NA
Determined costs	46	21	21	22
Difference costs	0	0	5	NA
Inflation assumptions	2020-2021	2022	2023	2024
Determined inflation rate	NA	4.8%	2.2%	1.7%
Determined inflation index	NA	112.4	114.9	116.9
Actual inflation rate	NA	8.1%	5.9%	NA
Actual inflation index	NA	116	122.8	NA
Difference inflation index (p.p.)	NA	+3.5	+7.9	NA



Focus on unit cost

AUC vs. DUC

In 2023, the terminal AUC was +31.7% (or +418.42 SEK₂₀₁₇, +43.44 €₂₀₁₇) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+14.8%, or +26.8 MSEK₂₀₁₇, +2.8 M€₂₀₁₇) and significantly lower than planned TNSUs (-12.8%). It should be noted that actual inflation index in 2023 was +7.9 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (-12.8%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ANSPs and the airspace users.

Terminal costs by entity

Actual real terminal costs are +14.8% (+2.8 M€₂₀₁₇) higher than planned. This is the result of higher costs for the main ANSP, LFV (+25.7%, or +3.3 M€₂₀₁₇), the MET service provider (+44.6%, or +0.2 M€₂₀₁₇) and the NSA (+0.1% M€₂₀₁₇) and lower costs for the other ANSP (SWEDAVIA, -12.3%, or -0.7 M€₂₀₁₇).

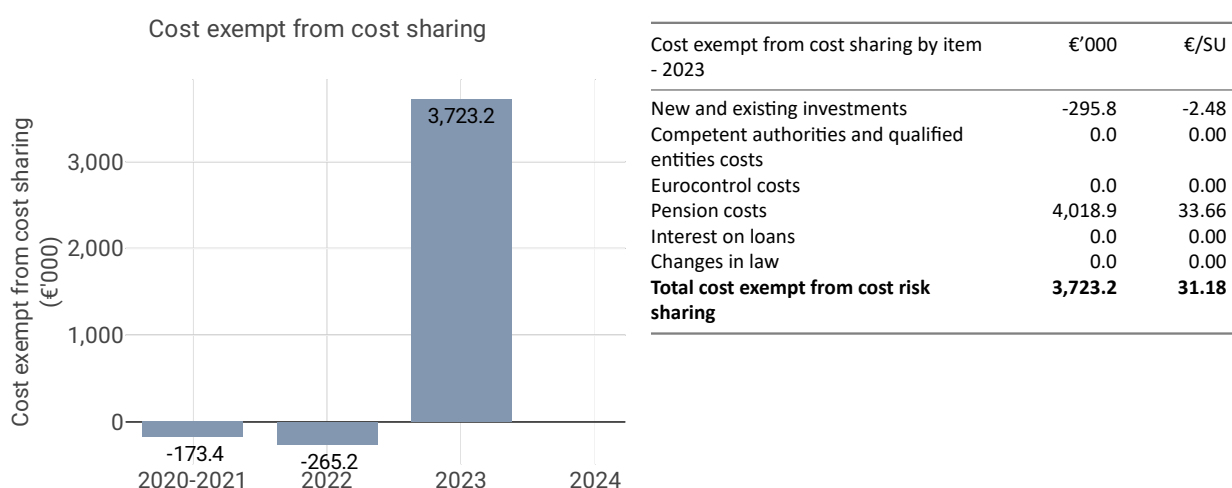
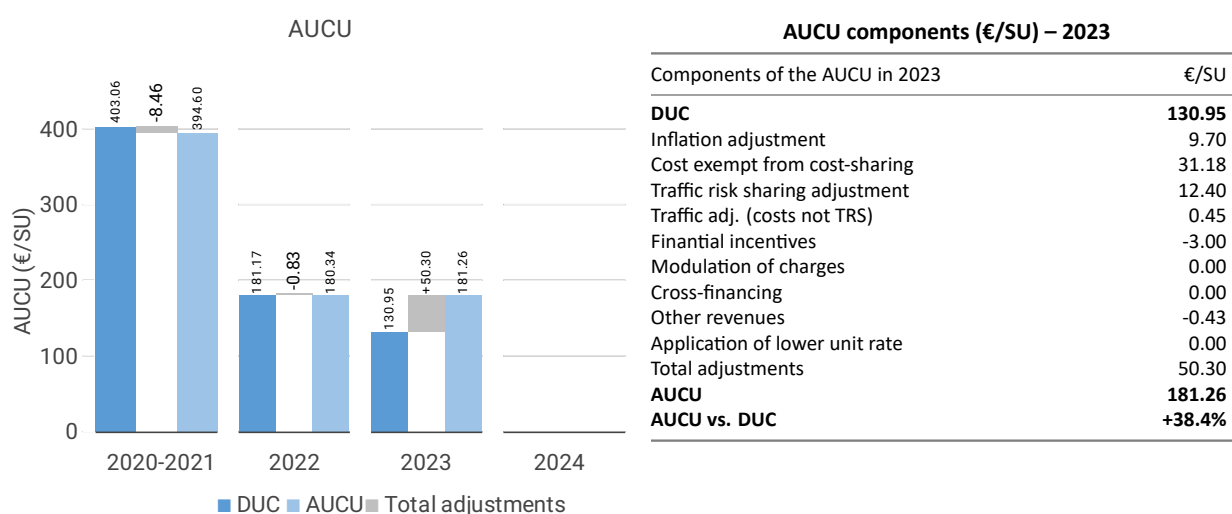
Terminal costs for the main ANSP at charging zone level

Significantly higher than planned terminal costs in real terms for LFV in 2023 (+25.7%, or +3.3 M€₂₀₁₇) result from:

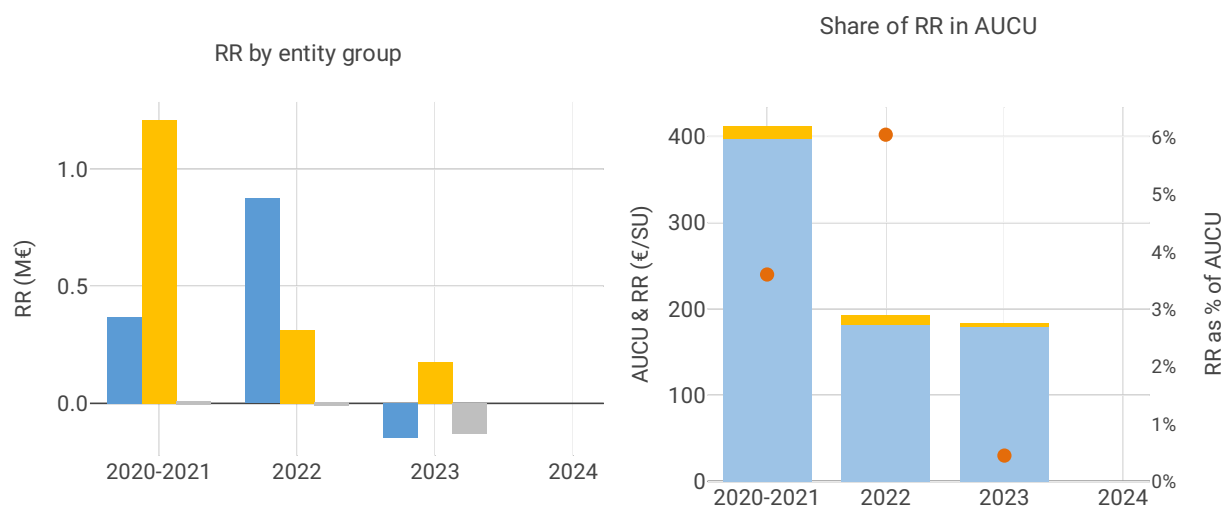
- Significantly higher staff costs (+30.0%), reflecting much higher pension costs.
- Lower other operating costs (-3.4%) in real terms, reflecting entirely the impact of the inflation index (+7.9 p.p.) since, in nominal terms, the costs are above the plan (+3.2%), which is explained by "higher inflation leading to higher costs".

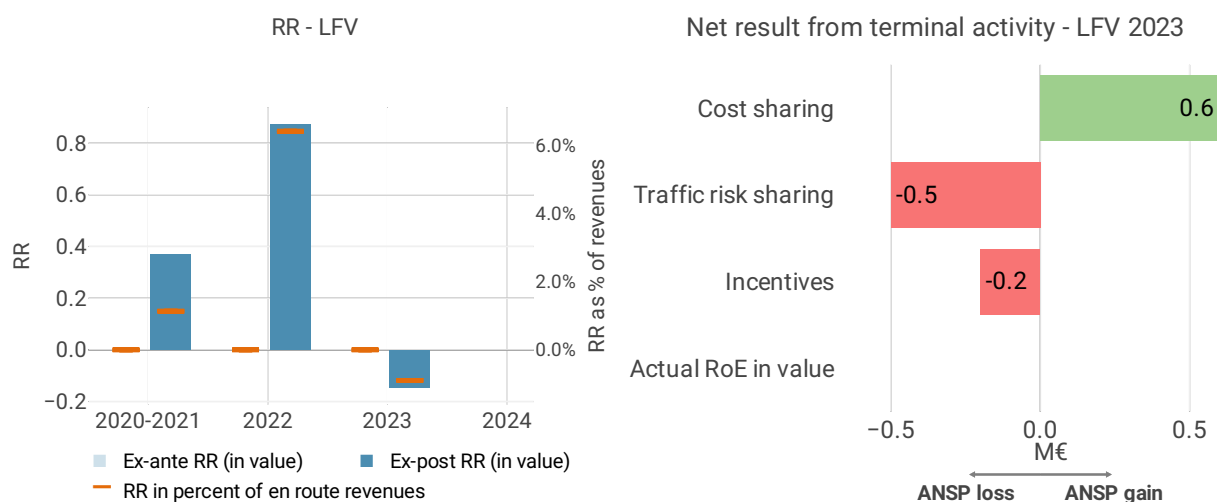
- Significantly higher cost of capital (+80.7%), which is explained by “an effect of the high inflation that affects the valuation of the pension debt (that is used for financing instead of loans)”.

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



5.3.3 Regulatory result (RR)





Focus on regulatory result

LFV net gain on activity in the Sweden terminal charging zone in the year 2023

LFV reported a net loss of -1.7 MSEK, as a combination of a gain of +7.4 MSEK arising from the cost sharing mechanism, with a loss of -6.2 MSEK arising from the traffic risk sharing mechanism and a loss of -2.9 MSEK relating to financial incentives.

LFV overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-1.7 MSEK) amounts to -1.7 MSEK (-1.2% of the terminal revenues), as the RoE for LFV has been set to zero. The resulting ex-post rate of return on equity is negative (-11.1%).

Note 1: LFV reports a financing of asset base at the level of some 78% of debt in 2023, corresponding to its pension liabilities, which are remunerated at the inflation rate.