PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Sweden - 2022

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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
Malmo ACC
Stockholm ACC

No of airports in the scope of the performance plan:
- **≥80'K** 1
- **<80'K** 0

Exchange rate (1 EUR=)
2017: 9.63311 SEK
2022: 10.6237 SEK

Share of Union-wide:
- **traffic (TSUs) 2022** 2.3%
- **en route costs 2022** 3.7%

Share en route / terminal costs 2022 93% / 7%

En route charging zone(s)
Sweden

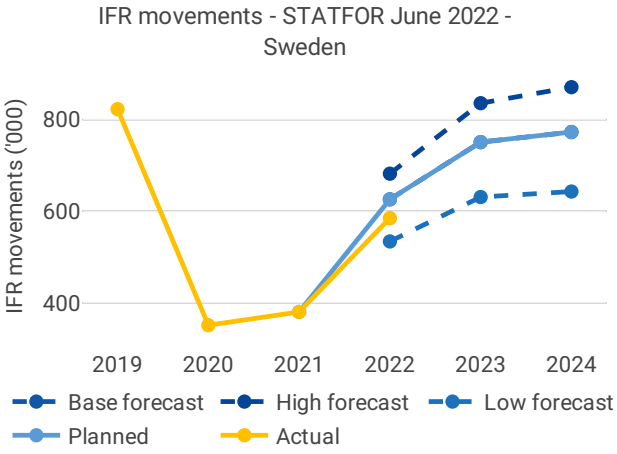
Terminal charging zone(s)
Sweden

Main ANSP
- LFV

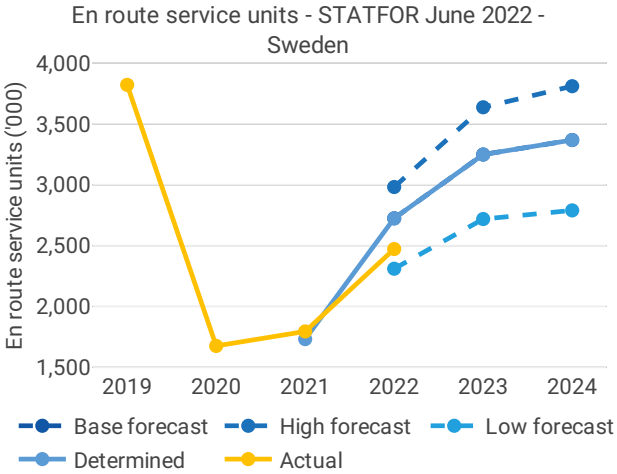
Other ANSPs
- SDATS
- ACR
- ARV - Arvidsjaur
- Swedavia

MET Providers
- SMHI

1.2 Traffic (En route traffic zone)

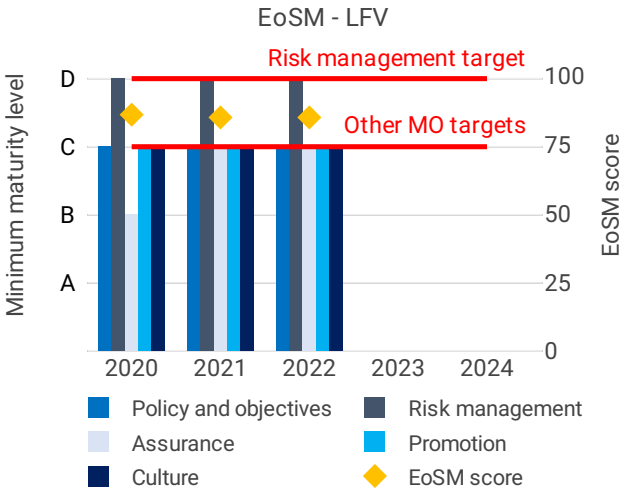


- Sweden recorded 585K actual IFR movements in 2022, +54% compared to 2021 (380K).
- Actual 2022 IFR movements were -6.6% below the plan (626K).
- Actual 2022 IFR movements represent 71% of the actual 2019 level (823K).



- Sweden recorded 2,472K actual en route service units in 2022, +38% compared to 2021 (1,795K).
- Actual 2022 service units were -9.3% below the plan (2,724K).
- Actual 2022 service units represent 65% of the actual 2019 level (3,820K).

1.3 Safety (Main ANSP)



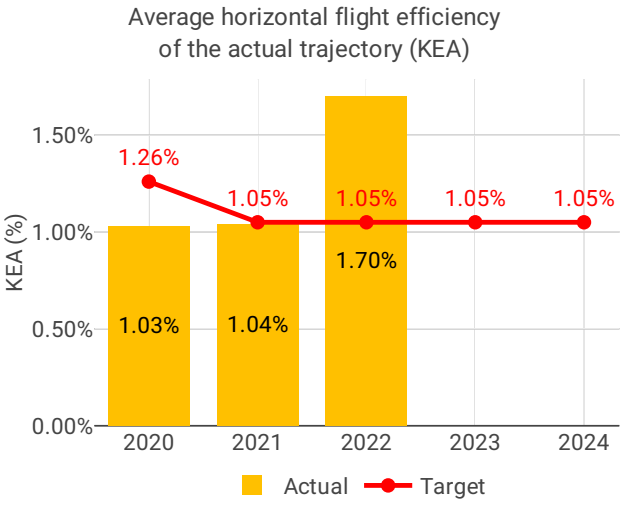
• LFV achieved the RP3 EoSM targets already in 2021 and has achieved the targets since then.

• Although improvements were implemented, none of the other ANSPs achieved the RP3 targets. SDATS and ARV – Arvidsjaur are required to improve in only one area, while ACR is required to improve in two areas. The ANSPs have put in place actions necessary to achieve the targets by the end of RP3.

• Sweden recorded stable performance with respect to safety occurrences, with similar rates of separation minima infringements and runway incursions relative to 2021. The rate for runway incursions remains above the Union-wide average. The NSA declared that they were unable to separately identify the occurrences with safety impact only.

• LFV could improve its safety management by implementing automated safety data recording systems.

1.4 Environment (Member State)



• Sweden achieved a KEA performance of 1.70% compared to its target of 1.05% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.66 p.p. compared to 2021.

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

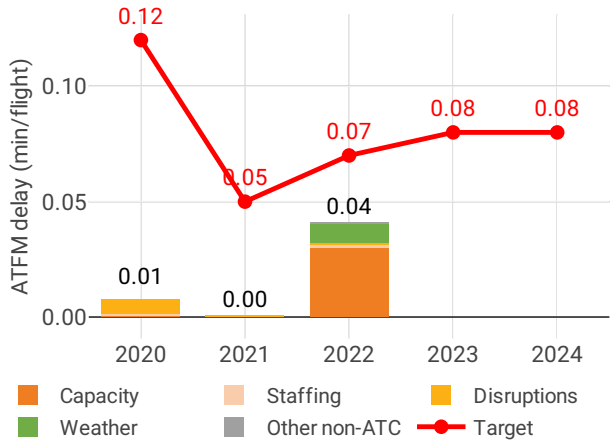
• Both SCR and KEP worsened compared to 2021 and were at the highest values in the past five years.

• The share of CDO flights increased by 9.52% compared to 2021.

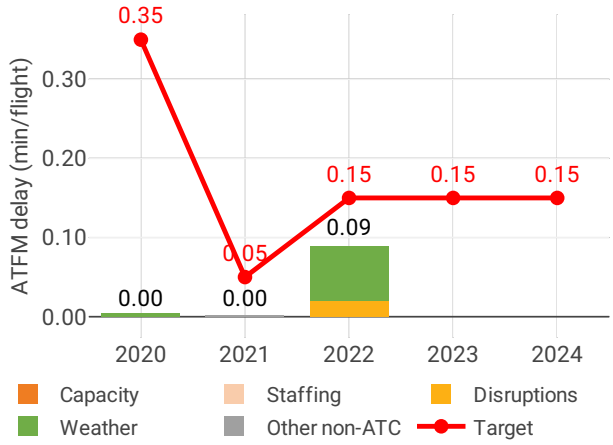
• During 2022, additional time in terminal airspace increased from 0.43 to 0.60 min/flight, while additional taxi out time increased from 0.94 to 1.52 min/flight.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



• Sweden registered 0.04 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.07.

• The average number of IFR movements was still 29% below 2019 levels in Sweden in 2022.

• An increase in the number of ATCOs in OPS is expected in both ACCs by the end of RP3. The actual 2022 values remain lower than the 2022 plan in both ACCs, due to fewer-than-planned ATCO students passing their on-the-job training.

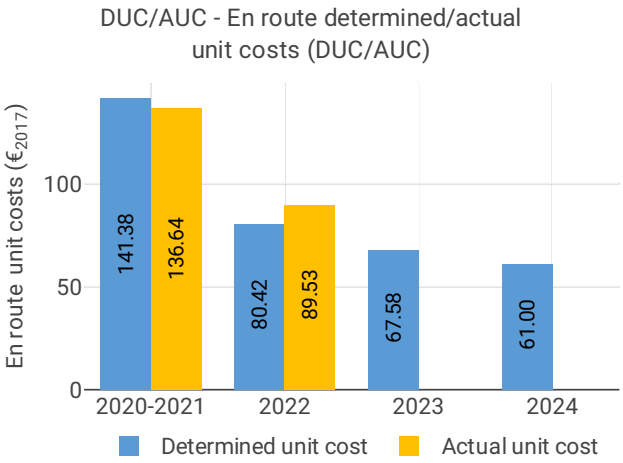
• Delays were highest in June and July, mostly due to ATC Capacity reasons.

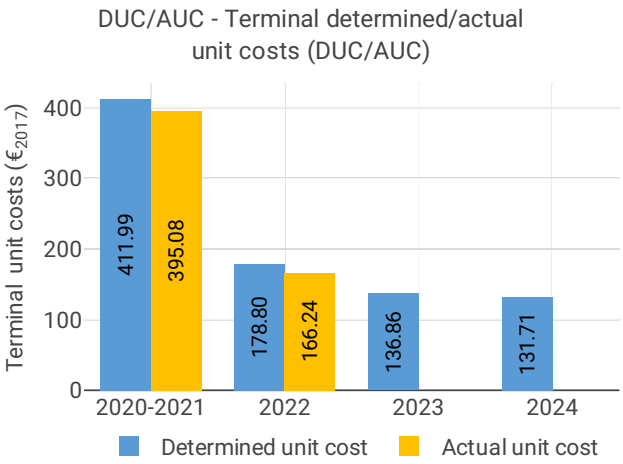
• The share of delayed flights with delays longer than 15 minutes in Sweden increased by 29.63 p.p. compared to 2021 and was lower than 2019 values.

• The yearly total of sector opening hours in Stockholm ACC was 29,123 in 2022, showing an 18.8% increase compared to 2021. Sector opening hours are 34.2% below 2019 levels. The yearly total of sector opening hours in Malmo ACC was 52,565 in 2022, showing a 17.8% increase compared to 2021. Sector opening hours are 8.6% below 2019 levels.

• Stockholm ACC registered 9.74 IFR movements per one sector opening hour in 2022, being 5.1% over 2019 levels. Malmo ACC registered 7.94 IFR movements per one sector opening hour in 2022, being 21.1% below 2019 levels.

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





• The en route 2022 actual unit cost of Sweden was 89.61 €2017, 11% higher than the determined unit cost (80.42 €2017). The terminal 2022 actual unit cost was 166.24 €2017, 7.0% lower than the determined unit cost (178.80 €2017).

• The en route 2022 actual service units (2,472K) were 9.3% lower than the determined service units (2,724K).

• The en route 2022 actual total costs were slightly higher than determined (+2.5 M€2017, or +1.1%). The decrease in staff cost due to lower pension costs (-8.9 M€2017, or -6.6%) was partly offset by increases in all of the other cost categories.

• The NSA explained that the significant increase in cost of capital (+5.0 M€2017, or +59%) was due to higher inflation rates than planned increasing the valuation of the pension debt.

• LFV spent 27 M€2017 in 2022 related to costs of investments, 30% higher than determined (21 M€2017). The NSA explained that it was mainly due to a write-down of the investment project Top-Sky and a higher than planned value of pension debts that was used to finance investments.

• These significant differences in investment costs amount to 5.5 M€ in nominal terms, which Sweden intended to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.

• The en route actual unit cost incurred by users in 2022 was 84.22€, while the terminal actual unit cost incurred by users was 180.34€.

2 SAFETY - SWEDEN

2.1 PRB monitoring

• LFV achieved the RP3 EoSM targets already in 2021 and has achieved the targets since then.

• Although improvements were implemented, none of the other ANSPs achieved the RP3 targets. SDATS and ARV – Arvidsjaur are required to improve in only one area, while ACR is required to improve in two areas. The ANSPs have put in place actions necessary to achieve the targets by the end of RP3.

• Sweden recorded stable performance with respect to safety occurrences, with similar rates of separation minima infringements and runway incursions relative to 2021. The rate for runway incursions remains above the Union-wide average. The NSA declared that they were unable to separately identify the occurrences with safety impact only.

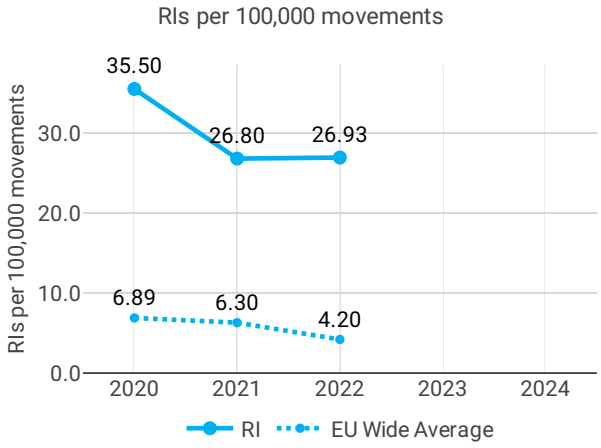
• LFV could improve its safety management by implementing automated safety data recording systems.

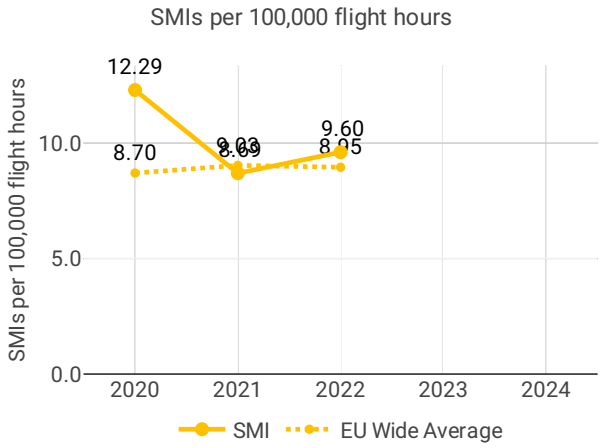
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

Focus on EoSM

LFV: All five EoSM components of LFV meet the RP3 target level. The level was maintained compared with 2021. ACR: Three out of five EoSM components of ACR meet already the 2024 target level. Improvements in the other two components, namely "Safety Culture", "Safety Risk Management" are still expected during RP3 to achieve 2024 targets. SDATS: Four out of five EoSM components of SDATS meet already the 2024 target level. Improvements in "Safety Culture" are still expected during RP3 to achieve 2024 targets. 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 1.70% compared to its target of 1.05% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.66 p.p. compared to 2021.

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

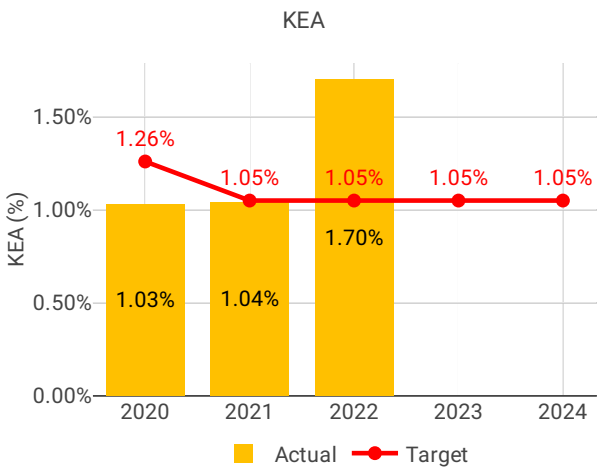
• Both SCR and KEP worsened compared to 2021 and were at the highest values in the past five years.

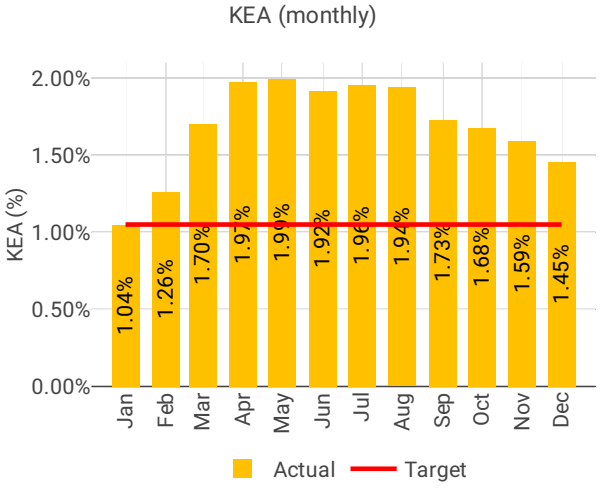
• The share of CDO flights increased by 9.52% compared to 2021.

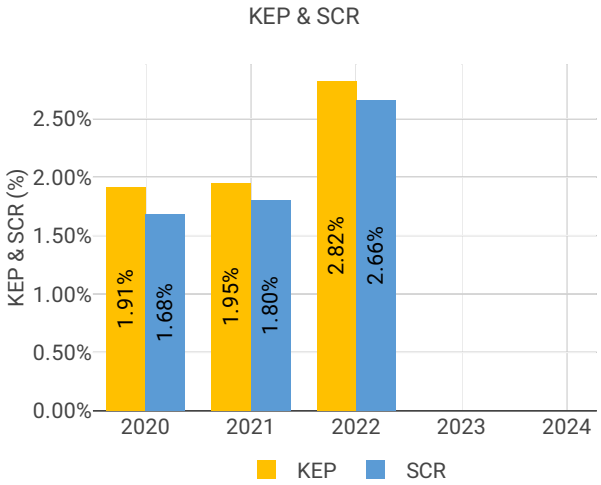
• During 2022, additional time in terminal airspace increased from 0.43 to 0.60 min/flight, while additional taxi out time increased from 0.94 to 1.52 min/flight.

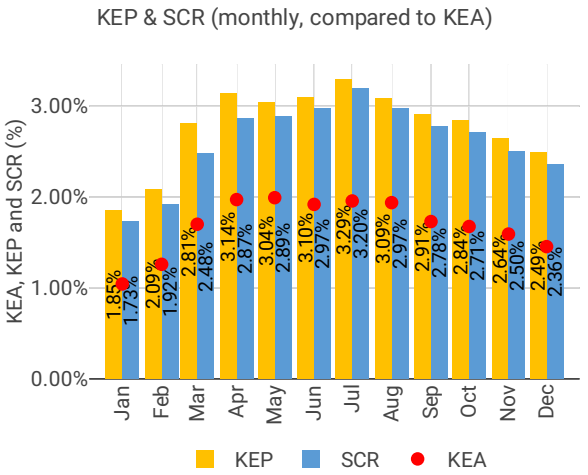
3.2 En route performance

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)



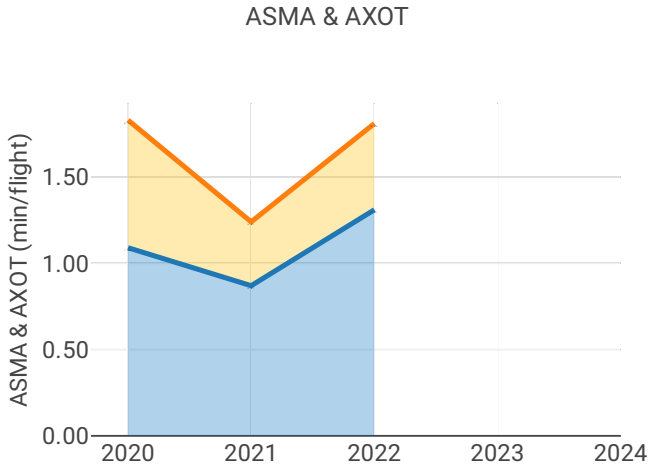


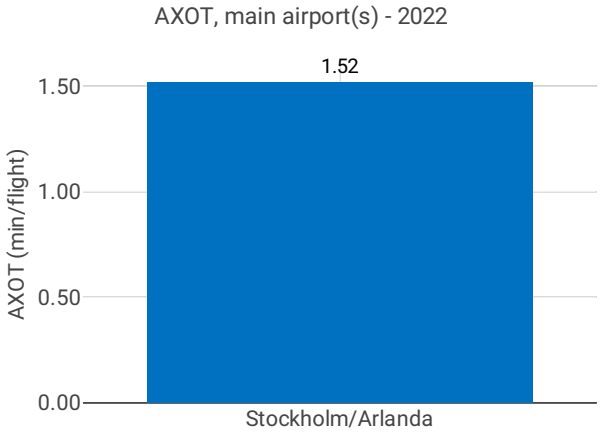


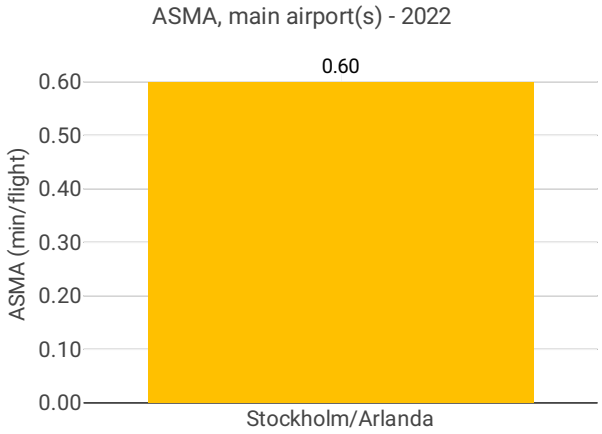


3.3 Terminal performance

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







Focus on ASMA & AXOT

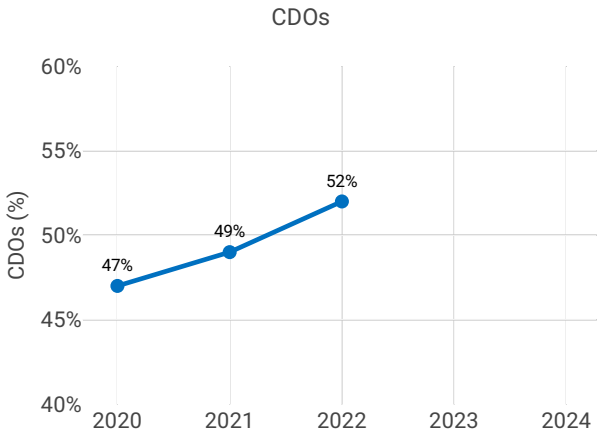
AXOT

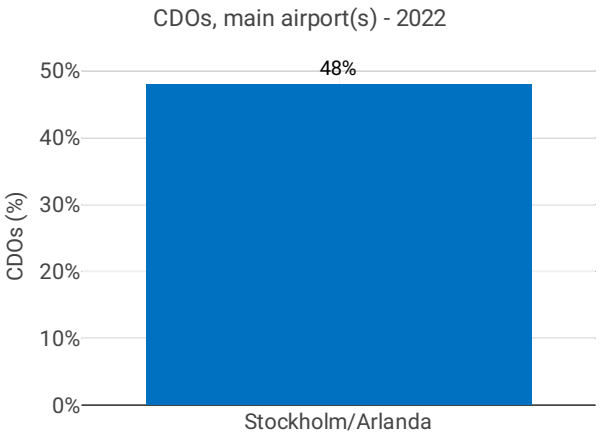
The additional taxi-out times at Stockholm increased by 62% in 2022 (ESSA; 2019: 2.05 min/dep.; 2020: 1.3 min/dep.; 2021: 0.94 min/dep.; 2022: 1.52 min/dep.)
According to the Swedish monitoring report: *Due to technical difficulties, we have temporarily shut down our departure sequencing tool in the A-CDM process, and for this reason we´ve had increased taxi-out times. Above all, this is clearly visible during peak hours when there is a risk of queues on the taxiway. There is an ongoing work to get our departure sequencing tool up and running again, which will further on result in reduced taxi- out times.*

ASMA

The additional time in the terminal area at Stockholm Arlanda was low and very stable around 1.2 min/arr during RP2. The traffic reduction led to an improvement in performance in 2020 and even further in 2021 and 2022 (ESSA; 2019: 1.15 min/arr.; 2020: 0.83 min/arr.; 2021: 0.43 min/arr.; 2021: 0.6 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 adjecent ACC sectors. First part of the redesign is planned to be implemented in the fall of 2025. Parallel approaches (Established on RNP-AR + ILS) will be implemented nov 2024.*

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





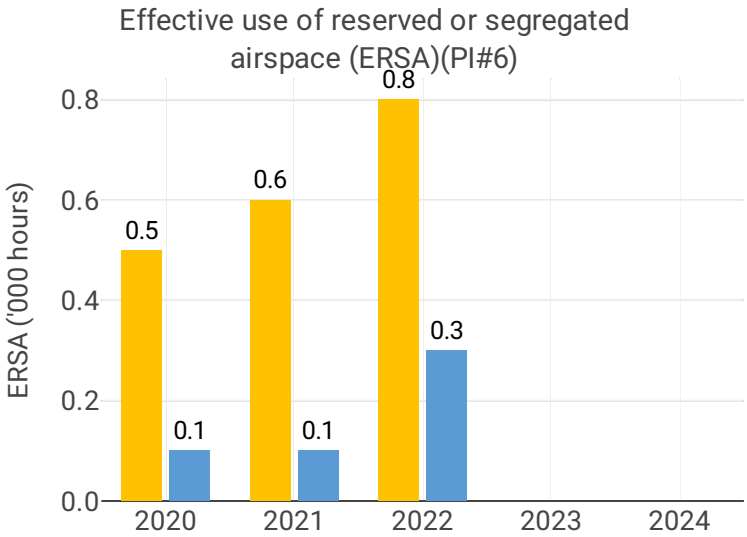
Focus CDOs

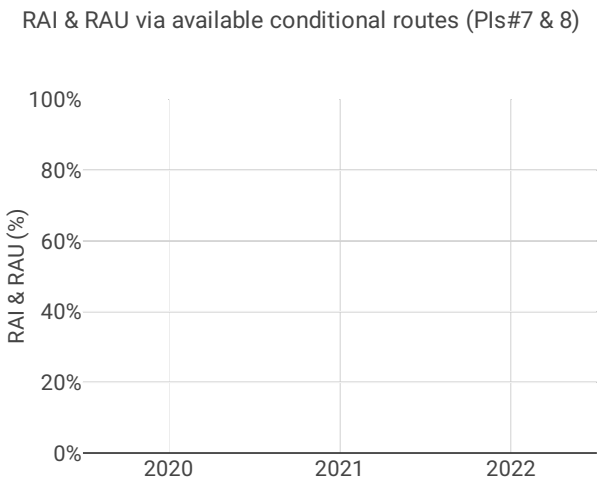
The share of CDO flights at Stockholm (ESSA) increased from 44.1% to 48.3% in 2022 which is above the overall RP3 value in 2022 (29.0%).
The monthly values increased in the beginning of 2022 and decreased almost continuously during the rest of the year.According to the Swedish monitoring report: *Implementation of additional RNP-AR approaches is increasing predictability for arriving traffic and hence improving vertical efficiency. In nov 2024 parallel approaches (Established on RNP-AR + ILS) is planned for implementation. This will hopefully improve both horizontal and vertical flight efficiency.*

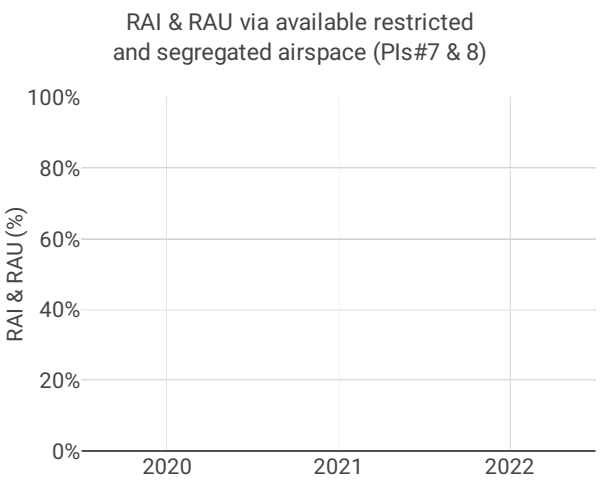
Airport level

	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
Airport Name	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Stockholm/Arlanda	1.30	0.94	1.52	NA	NA	0.83	0.43	0.60	NA	NA	NA	44%	48%	NA	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

FUA has been implemented in Sweden since 1978, before the concept was defined on European level and the benefit is already achieved, therefore its limitations to environmental factors are small. Sweden have an implemented extended FUA with the content that not limit the capacity.

Military - related measures implemented or planned to improve 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 - SWEDEN

4.1 PRB monitoring

• Sweden registered 0.04 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.07.

• The average number of IFR movements was still 29% below 2019 levels in Sweden in 2022.

• An increase in the number of ATCOs in OPS is expected in both ACCs by the end of RP3. The actual 2022 values remain lower than the 2022 plan in both ACCs, due to fewer-than-planned ATCO students passing their on-the-job training.

• Delays were highest in June and July, mostly due to ATC Capacity reasons.

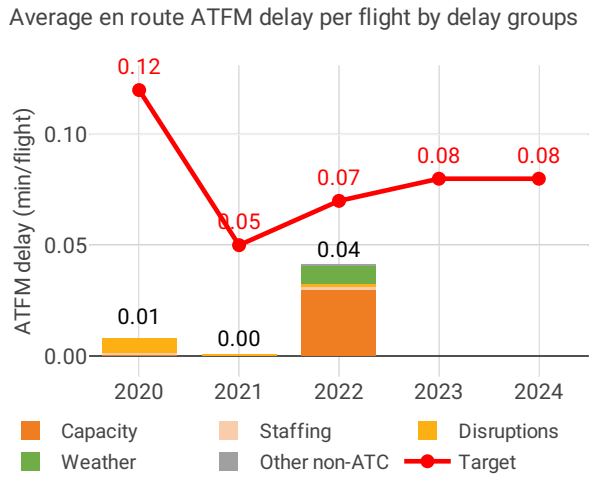
• The share of delayed flights with delays longer than 15 minutes in Sweden increased by 29.63 p.p. compared to 2021 and was lower than 2019 values.

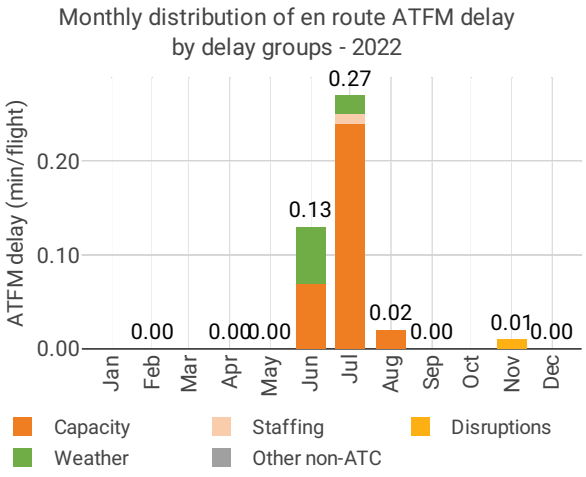
• The yearly total of sector opening hours in Stockholm ACC was 29,123 in 2022, showing an 18.8% increase compared to 2021. Sector opening hours are 34.2% below 2019 levels. The yearly total of sector opening hours in Malmo ACC was 52,565 in 2022, showing a 17.8% increase compared to 2021. Sector opening hours are 8.6% below 2019 levels.

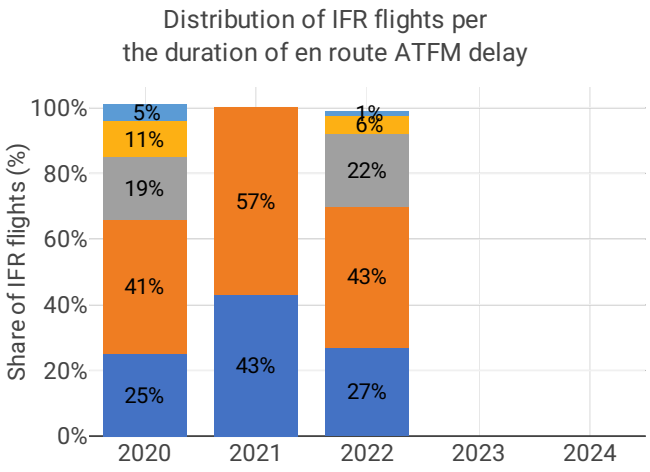
• Stockholm ACC registered 9.74 IFR movements per one sector opening hour in 2022, being 5.1% over 2019 levels. Malmo ACC registered 7.94 IFR movements per one sector opening hour in 2022, being 21.1% below 2019 levels.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Sweden experienced an increase in traffic from 380k flights in 2021, with practically zero ATFM delay, to 585k flights in 2022, with 22k minutes of en route ATFM delay.
Traffic levels were still substantially below the 823k flights in 2019.

NSA's assessment of capacity performance

From an operational point of view the war in Ukraine had of course had an important impact where Sweden lost a lot of the overflights (-29% compared to 2019).
Lower levels of traffic have of course contributed to capacity targets being met. However, new flying paths have hindered an even better result.

Monitoring process for capacity performance

Continuous overview during the year to see if there are any anticipated deviations from targets. Contact with provider on the topic if necessary

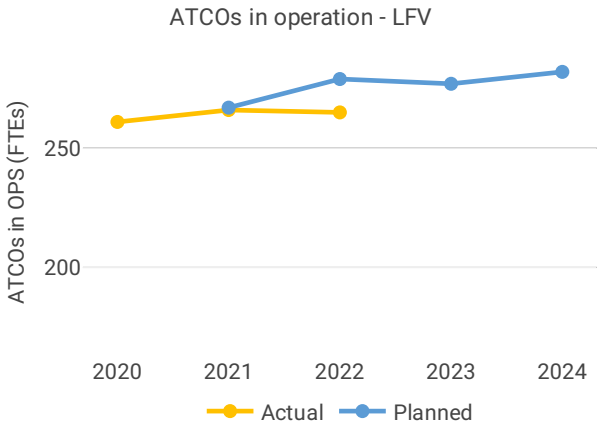
Capacity planning

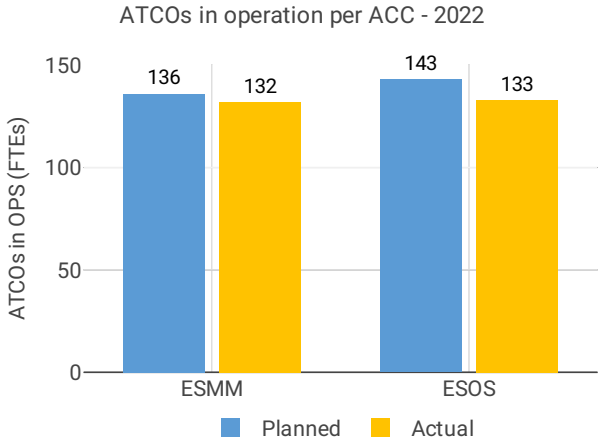
There are no indications that there needs to be any measures addressed to be consistent or better than the target.
ANSP is concerned that a higher traffic level than expected in LFV and STATFOR forecasts could result in a shortage of ATCOs.

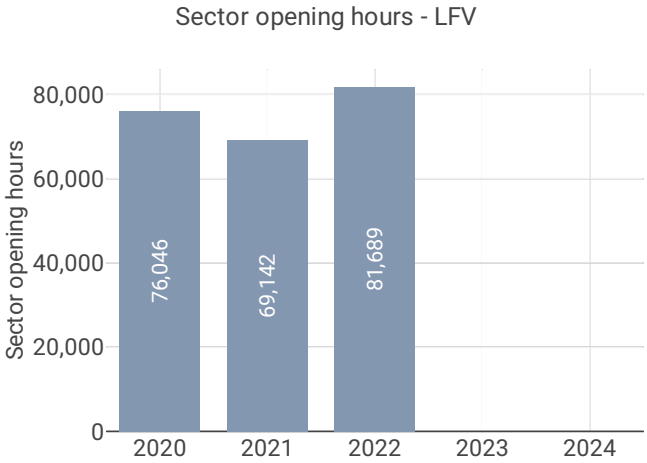
Application of Corrective Measures for Capacity (if applicable)

Additional Information Related to Russia's War of Aggression Against Ukraine More overflying traffic in southeast Baltic Sea last summer (June-Aug) due to closure of Kaliningrad airspace caused capacity shortage in some sectors at Malmö ATCC. Apr. 17000 min delay. Code ATC capacity.
To mitigate this situation, the ANSP ensured that more ATCO staff were on duty during the summer.

4.2.2 Other indicators





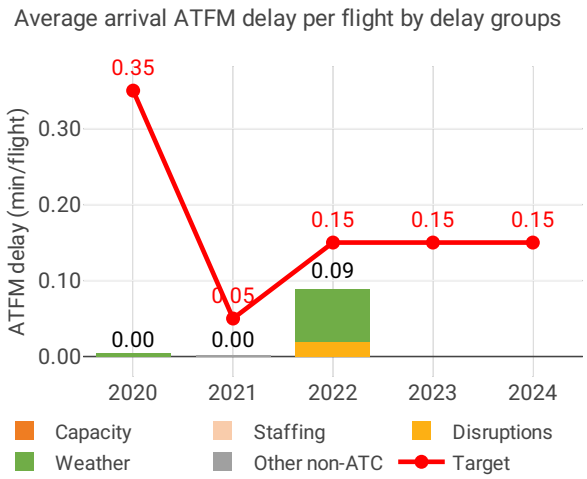


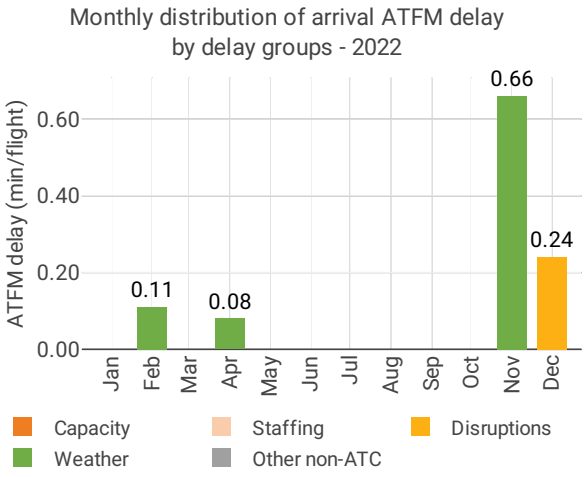
Focus on ATCOs in operations

Fewer ATCO Students than planned passed their OJT (On the Job Training).
4 ATCOs retired in advance (2022 instead of planned 2023).
6 ATCOs left En Route for other appointments within LFV or to work for other ANS providers.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





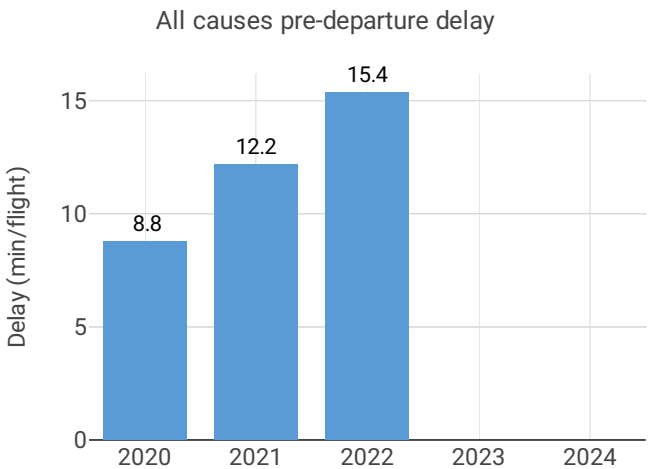
Focus on arrival ATFM delay

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 2022 was still 27% lower than the 2019 levels, but showed an increase of 87% with respect to 2021.
Average arrival ATFM delay in 2022 was 0.09 min/arr, slightly higher compared to 0 min/arr in 2021.
ATFM slot adherence remained very high at almost 98% (2022: 97.8%; 2021: 97.9%).

Average arrival ATFM delay at Stockholm in 2022 is for the first time in RP3 above zero, although still very low (ESSA: 2022: 0.09 min/arr)
78% of these delays were attributed to Weather (mostly in November) and ATC Equipment issues (December)3. Arrival ATFM Delay – National TargetThe national target on arrival ATFM delay in 2022 was met.

Stockholm's ATFM slot compliance was 97.8%, slightly worse than the performance in 2020 (97.9%). With regard to the 2.2% of flights that did not adhere, 0.5% was early and 1.7% was late. The Swedish monitoring report adds: *The ATC provider LFV reports the actual performance which is monitored by the NSA. There is no present risk at the awareness of the NSA that there will be a violation to EU 255/2010.*

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	2020	2021	2022	2023
Stockholm/Arlanda	0.00	0.00	0.09	NA	98.2%	97.9%	97.8%	NA%

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

Focus on performance indicators at airport level

ATFM slot adherence

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 quality of the airport data reported by ESSA has improved after the COVID crisis and it is possible to calculate this indicator.
At Stockholm the annual value in 2022 has not changed with respect to previous year but it is higher than before the pandemic (ESSA: 2019: 0.09 min/dep; 2021: 0.13 min/dep; 2022: 0.13 min/dep)

ATC pre-departure delay

The total (all causes) delay in the actual off block time at Sweden increased in 2022 (ESSA: 2020: 8.34 min/dep.; 2021: 11.48 min/dep.; 2022: 15.14 min/dep.), with the highest delays observed in June-July and December.
According to the Swedish monitoring report: *It should be noted that performance for 2020/2021 was affected of the very low traffic levels.*

All causes pre-departure delay

No data available: airport operator data flow not established, or more than two months of missing / non-validated data

5 COST-EFFIENCY - SWEDEN

5.1 PRB monitoring

• The en route 2022 actual unit cost of Sweden was 89.61 €2017, 11% higher than the determined unit cost (80.42 €2017). The terminal 2022 actual unit cost was 166.24 €2017, 7.0% lower than the determined unit cost (178.80 €2017).

• The en route 2022 actual service units (2,472K) were 9.3% lower than the determined service units (2,724K).

• The en route 2022 actual total costs were slightly higher than determined (+2.5 M€2017, or +1.1%). The decrease in staff cost due to lower pension costs (-8.9 M€2017, or -6.6%) was partly offset by increases in all of the other cost categories.

• The NSA explained that the significant increase in cost of capital (+5.0 M€2017, or +59%) was due to higher inflation rates than planned increasing the valuation of the pension debt.

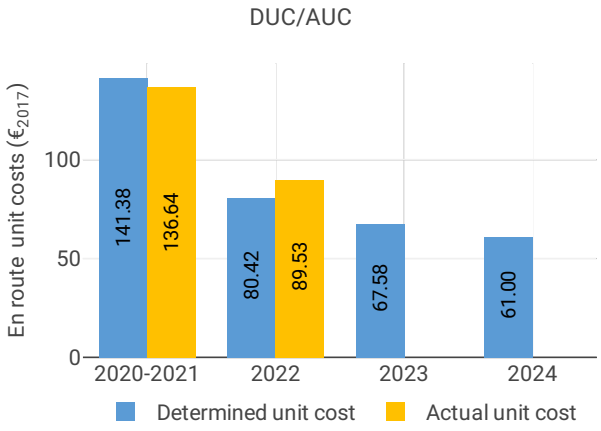
• LFV spent 27 M€2017 in 2022 related to costs of investments, 30% higher than determined (21 M€2017). The NSA explained that it was mainly due to a write-down of the investment project TopSky and a higher than planned value of pension debts that was used to finance investments.

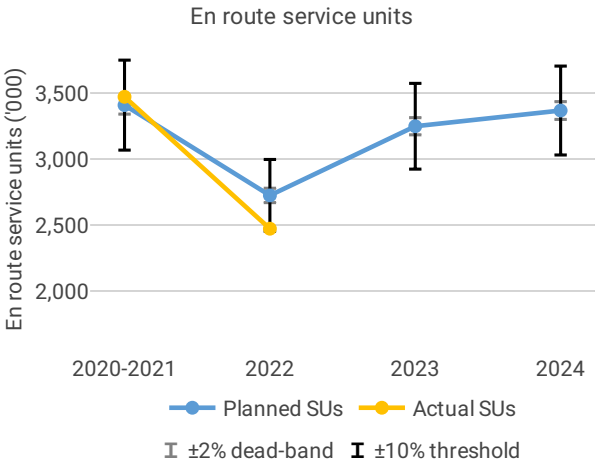
• These significant differences in investment costs amount to 5.5 M€ in nominal terms, which Sweden intended to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.

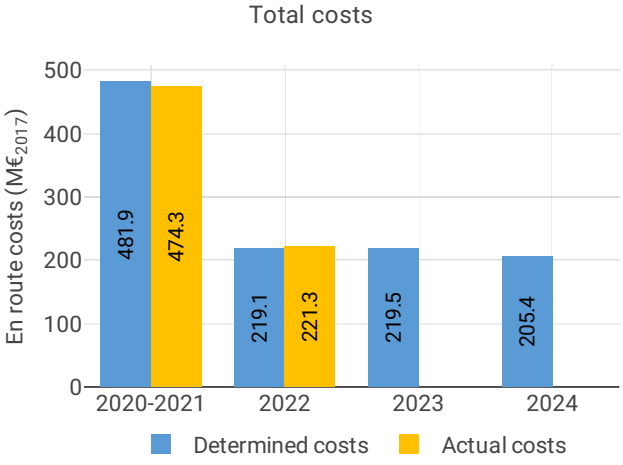
• The en route actual unit cost incurred by users in 2022 was 84.22€, while the terminal actual unit cost incurred by users was 180.34€.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

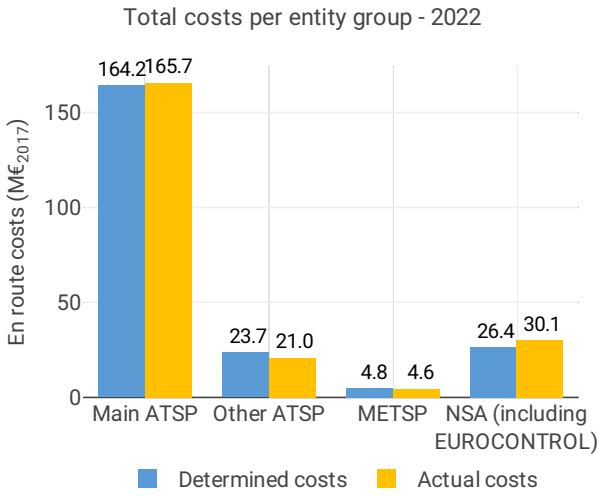


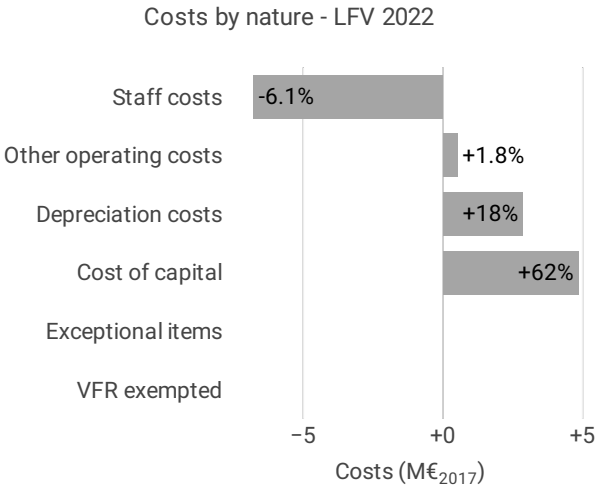




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	496	246	NA	NA
Determined costs	502	240	245	232
Difference costs	-6	7	NA	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%	NA	NA
Actual inflation index	NA	116	NA	NA
Difference inflation index (p.p.)	NA	+3.5	NA	NA





Focus on unit cost

AUC vs. DUC

In 2022, the en route AUC was +11.4% (or +88.62 SEK2017, +9.2 €2017) higher than the planned DUC. This results from the combination of significantly lower than planned TSUs (-9.3%) and higher than planned en route costs in real terms (+1.1%, or +23.8 MSEK2017, +2.5 M€2017). It should be noted that actual inflation index in 2022 was +3.5 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (-9.3%) falls outside the ±2% dead band, but does not exceed 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, with the main ANSP (LFV) bearing a loss of -6.5 M€2017.

En route costs by entity

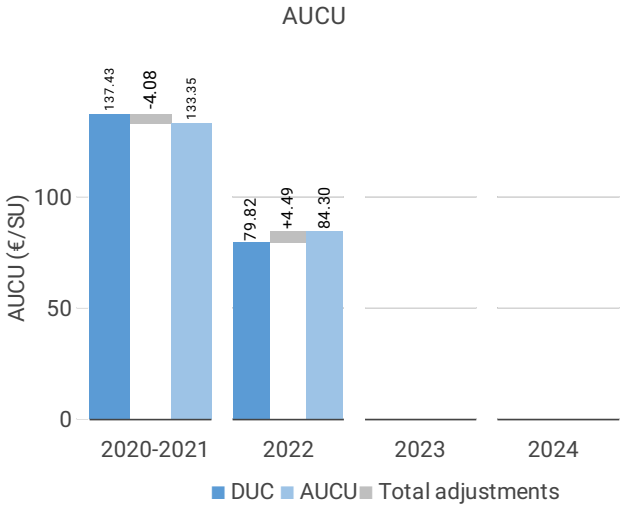
Actual real en route costs are +1.1% (+2.5 M€2017) higher than planned. This results from the combination of higher costs for the NSA/EUROCONTROL (+13.1%, or +3.5 M€2017) and the main ANSP, LFV (+1.2%, or +1.9 M€2017), and lower costs for the other ANSPs (ACR, ARV and SDATS, -11.5%, or -2.7 M€2017) and MET service provider (-3.2%, or -0.2 M€2017).

En route costs for the main ANSP at charging zone level

Higher than planned en route costs in real terms for LFV in 2022 (+1.2%, or +1.9 M€2017) result from the combination of:

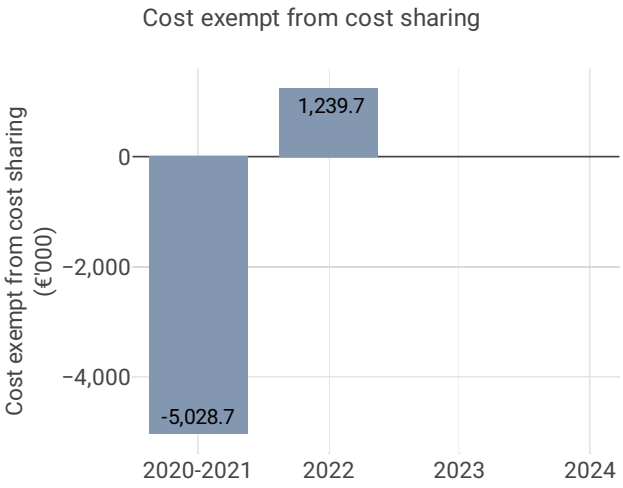
- Significantly lower staff costs (-6.1%), driven by lower than planned pension costs. In addition, *"staff costs were reduced by the revenues for staff participating in projects or other things not financed by en route charges"*;
- Higher other operating costs (+3.1%), mainly due to higher energy prices and maintenance costs;
- Significantly higher depreciation (+18.0%), resulting mainly from (i) a write down of Ett System Topsky, and (ii) RTS Swedavia, which had higher total investment and shorter depreciation time; and,
- Significantly higher cost of capital (+62.0%), *"as 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)



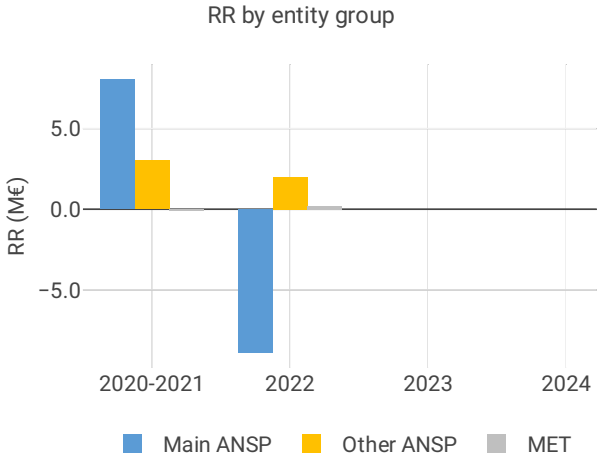
AUCU components (€/SU) – 2022

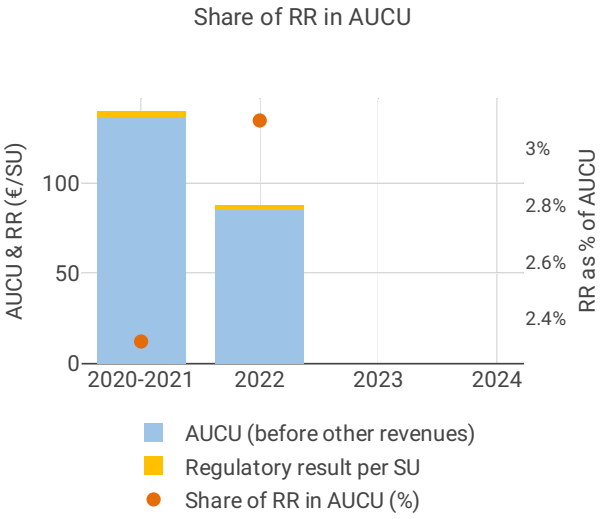
Components of the AUCU in 2022	€/SU
DUC	**79.82**
Inflation adjustment	2.16
Cost exempt from cost-sharing	0.50
Traffic risk sharing adjustment	3.84
Traffic adj. (costs not TRS)	1.14
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-3.16
Application of lower unit rate	0.00
Total adjustments	4.49
AUCU	**84.30**
AUCU vs. DUC	**+5.6%**

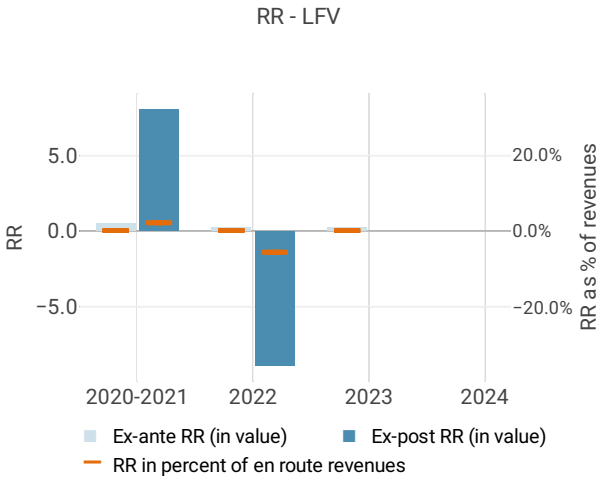


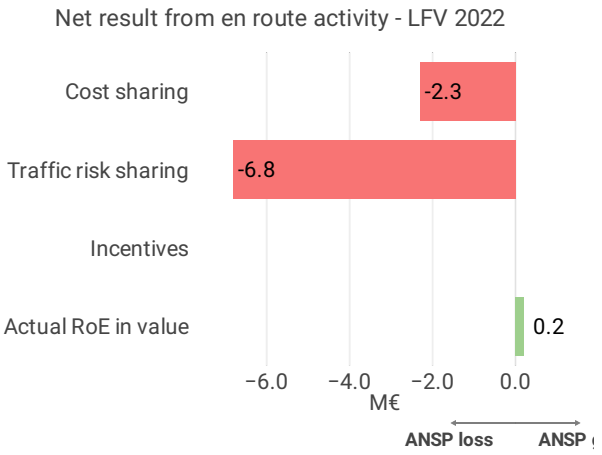
Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	626.4	0.25
Competent authorities and qualified entities costs	285.3	0.12
Eurocontrol costs	3,044.3	1.23
Pension costs	-2,761.2	-1.12
Interest on loans	44.9	0.02
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**1,239.7**	**0.50**

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 2022

LFV reported a net loss of -101.7 MSEK, as a combination of a loss of -29.3 MSEK arising from the cost sharing mechanism and a loss of -72.3 MSEK arising from the traffic risk sharing mechanism.

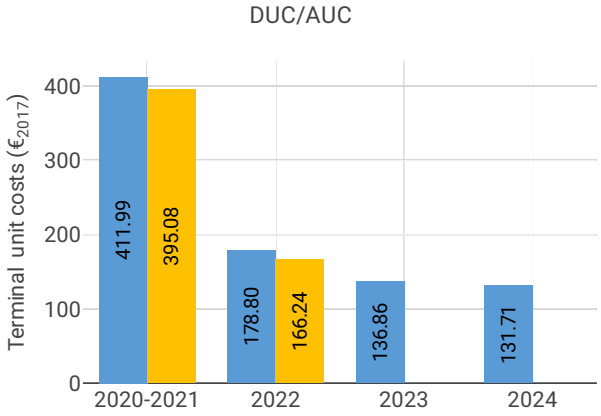
LFV overall regulatory results (RR) for the en route activity

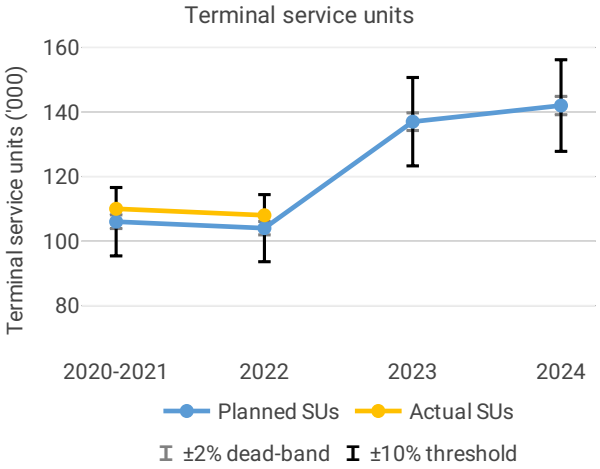
Ex-post, the overall RR taking into account the net loss from the en route activity mentioned above (-101.7 MSEK) and the actual RoE (+2.3 MSEK) corresponds to a loss of -99.4 MSEK (-5.8% of the en route revenues). The resulting ex-post rate of return on equity is -18.4%.

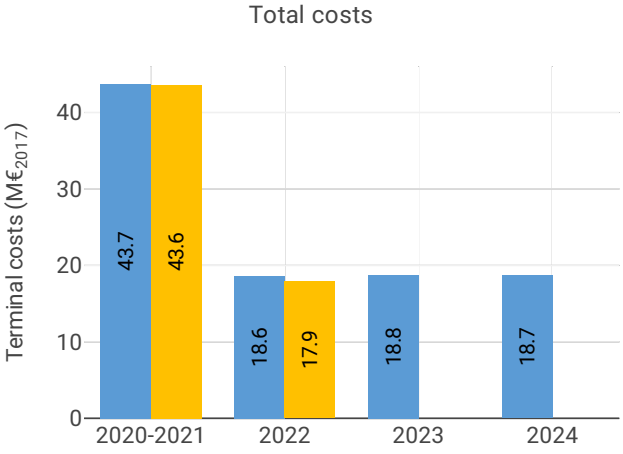
Note 1:** The analysis presented for LFV is affected by two factors:a) LFV reports a financing of asset base at the level of some 77% of debt in 2022, corresponding to its pension liabilities, which are remunerated at the inflation rate.b) Information reported in the en route reporting tables of LFV includes also the costs for CNS infrastructure owned by the airport operators.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)

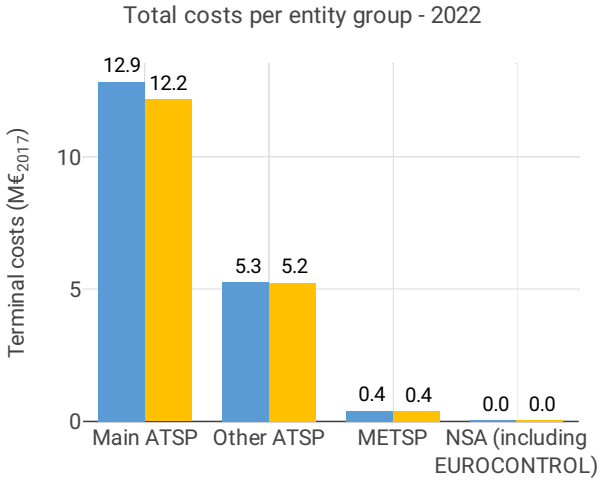


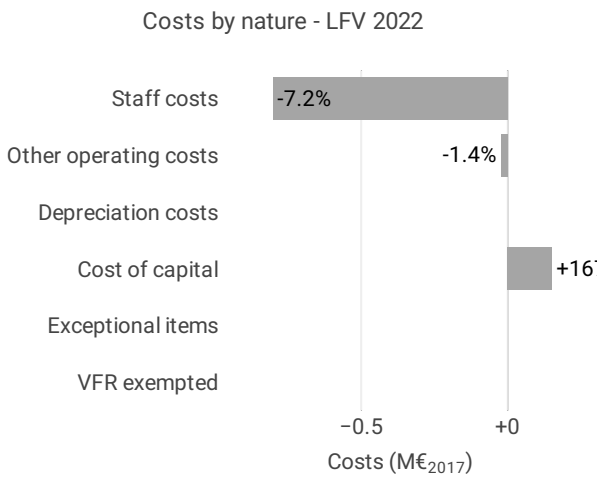




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	46	21	NA	NA
Determined costs	46	21	21	22
Difference costs	0	0	NA	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%	NA	NA
Actual inflation index	NA	116	NA	NA
Difference inflation index (p.p.)	NA	+3.5	NA	NA





Focus on unit cost

AUC vs. DUC

In 2022, the terminal AUC was -7.0% (or -120.96 SEK2017, -12.56 €2017) lower than the planned DUC. This results from the combination of lower than planned terminal costs in real terms (-3.8%, or -6.9 MSEK2017, -0.7 M€2017) and higher than planned TNSUs (+3.4%). It should be noted that actual inflation index in 2022 was +3.5 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (+3.4%) 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 ANSPs and the airspace users, with the main ANSP (LFV) retaining an amount of +0.3 M€2017.

Terminal costs by entity

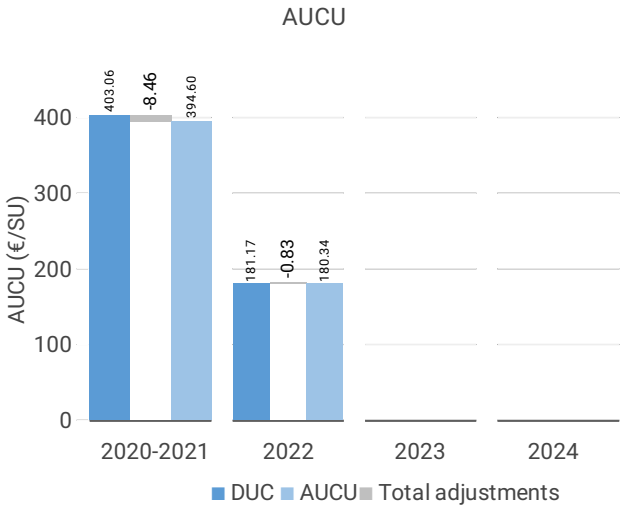
Actual real terminal costs are -3.8% (-0.7 M€2017) lower than planned. This is the result of lower costs for the main ANSP, LFV (-5.2%, or -0.7 M€2017), the other ANSP (Swedavia, -0.4%, or -0.02 M€2017) and the MET service provider (-3.6%, or -0.01 M€2017). The NSA costs are slightly higher than planned (+0.3%).

Terminal costs for the main ANSP at charging zone level

Lower than planned terminal costs in real terms for LFV in 2022 (-5.2%, or -0.7 M€2017) result from the combination of:

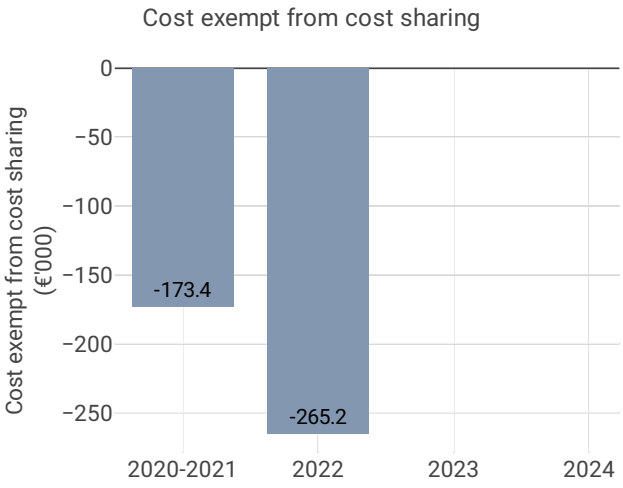
- Significantly lower staff costs (-7.2%), driven by lower than planned pension costs. In addition, *"staff costs were reduced with the revenues for staff participating in projects"*;
- Slightly lower other operating costs (-1.4%) mainly due to the inflation index impact (+3.5 p.p.) since in nominal terms other operating costs were slightly higher than planned (+1.7%); and,
- Significantly higher cost of capital (+167.8%) *"as 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)



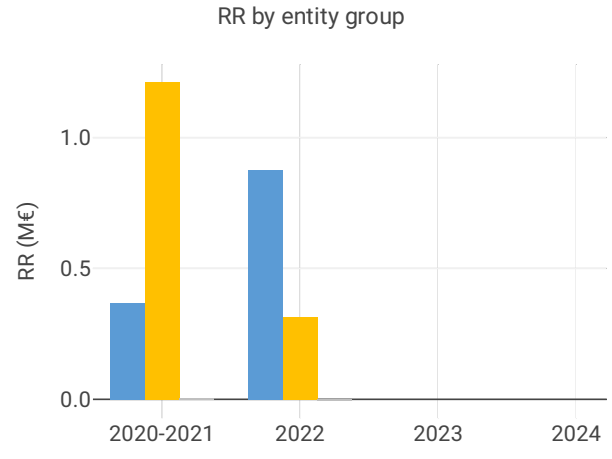
AUCU components (€/SU) – 2022

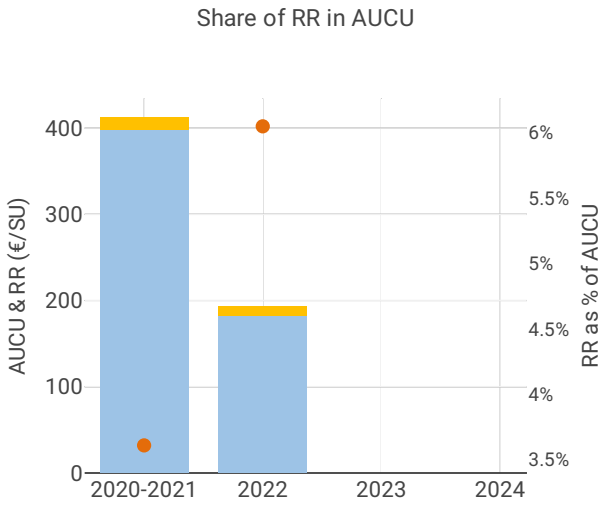
Components of the AUCU in 2022	€/SU
DUC	**181.17**
Inflation adjustment	5.24
Cost exempt from cost-sharing	-2.47
Traffic risk sharing adjustment	-1.71
Traffic adj. (costs not TRS)	-0.14
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-1.75
Application of lower unit rate	0.00
Total adjustments	-0.83
AUCU	**180.34**
AUCU vs. DUC	**-0.5%**

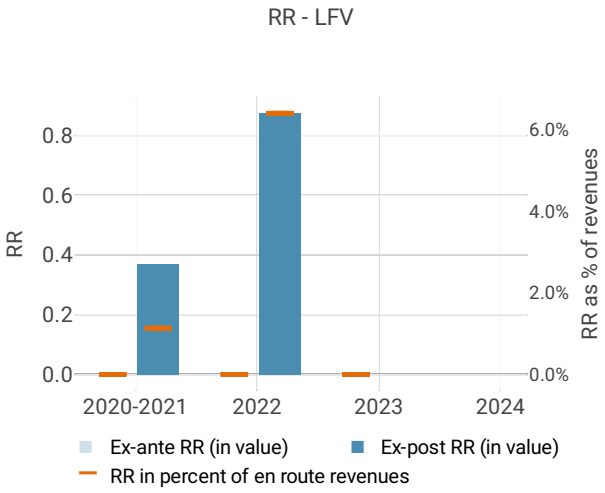


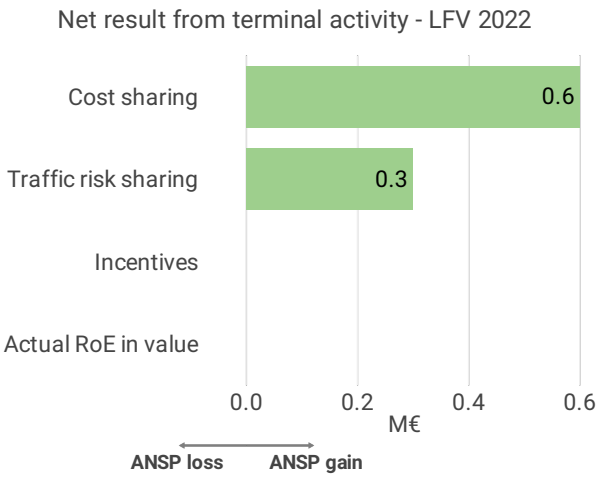
Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	-89.1	-0.83
Competent authorities and qualified entities costs	0.1	0.00
Eurocontrol costs	0.0	0.00
Pension costs	-176.2	-1.64
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-265.2**	**-2.47**

5.3.3 Regulatory result (RR)









Focus on regulatory result

LFV net gain on activity in the Sweden terminal charging zone in the year 2022

LFV reported a net gain of +9.3 MSEK, as a combination of a gain of +5.9 MSEK arising from the cost sharing mechanism and a gain of +3.4 MSEK arising from the traffic risk sharing mechanism.

LFV overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR is equal to the net gain from the terminal activity mentioned above and amounts to +9.3 MSEK (6.4% of the terminal revenues). The resulting ex-post rate of return on equity is 56.3%, which is significantly higher than the 0.0% RoE planned in the PP.

Note 1: LFV reports a financing of asset base at the level of some 78% of debt in 2022, corresponding to its pension liabilities, which are remunerated at the inflation rate.