PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Norway - 2023

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following ESA Decision 069/22/COL of 6 April 2022

List of ACCs 3
Bodo ACC
Oslo ACC
Stavanger ACC

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

Exchange rate (1 EUR=)
2017: 9.32776 NOK
2023: 11.4099 NOK

Share of Union-wide:
- **traffic (TSUs) 2023** 1.9%
- **en route costs 2023** 1.9%

Share en route / terminal costs 2023 72% / 28%

En route charging zone(s)
Norway

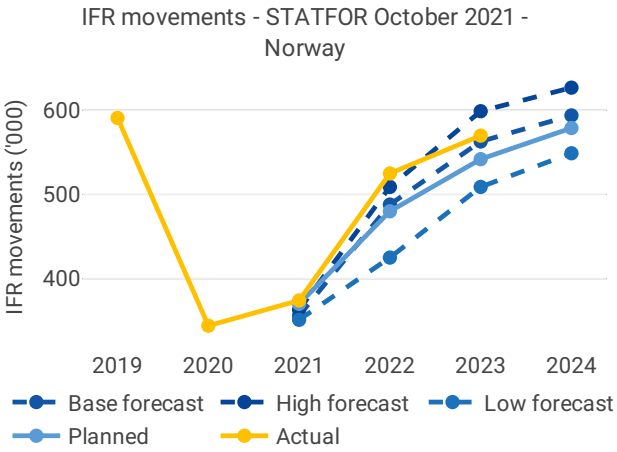
Terminal charging zone(s)
Norway

Main ANSP
- Avinor Flysikring AS (Avinor ANS)

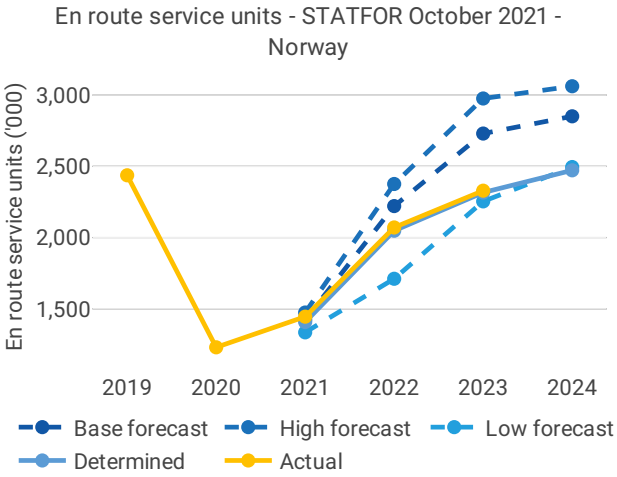
Other ANSPs
- Avinor AS
- Saerco (Kjevik ANSP)

MET Providers
- The Norwegian Meteorological Institute (MET)

1.2 Traffic (En route traffic zone)

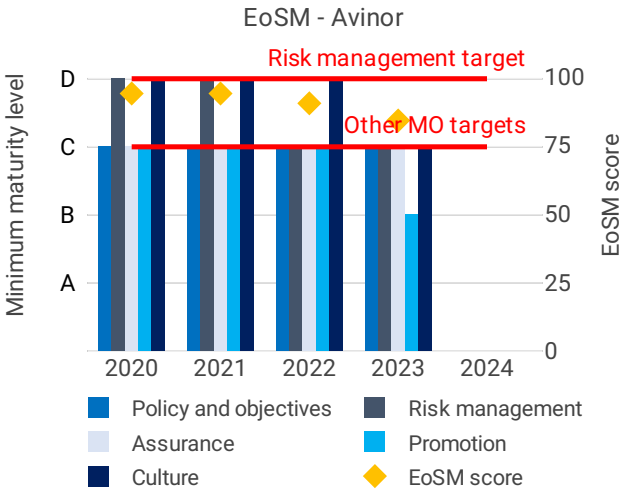


- Norway recorded 547K actual IFR movements in 2023, +4% compared to 2022 (525K).
- Actual 2023 IFR movements were +0.7% above the plan (542K).
- Actual 2023 IFR movements represent 92% of the actual 2019 level (591K).



- Norway recorded 2,329K actual en route service units in 2023, +12% compared to 2022 (2,071K).
- Actual 2023 service units were +0.5% above the plan (2,316K).
- Actual 2023 service units represent 96% of the actual 2019 level (2,437K).

1.3 Safety (Main ANSP)

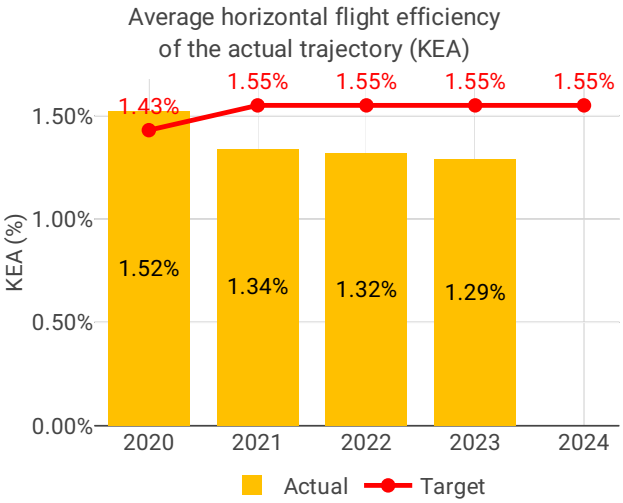


• Avinor ANS failed to maintain the previously achieved targets and degraded its performance over 2022 on safety risk management and in 2023 on safety promotion. Currently, Avinor ANS achieved RP3 EoSM targets for three management objectives while being behind the planned maturity level for safety promotion. Avinor ANS established a corrective action plan which the NSA considers could ensure they meet the RP3 target levels in 2024.

• Norway recorded a significant improvement with respect to safety occurrences with a decrease in the rate of runway incursions and rate of separation minima infringements.

• Avinor ANS do not use automated safety data recording systems.

1.4 Environment (Member State)



• Norway achieved a KEA performance of 1.29% compared to its target of 1.55% and contributed positively towards achieving the Union-wide target.

• Both KEP and SCR improved in comparison with 2022 and had similar values, meaning airlines planned the most efficient routes available.

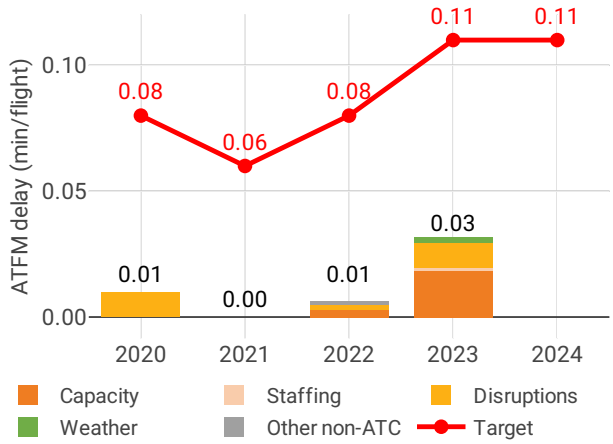
• The share of CDO flights increased marginally from 69.63% to 69.65% in 2023.

• During 2023, additional time in terminal airspace increased from 0.68 to 0.93 min/flight, while additional taxi out time increased from 3.26 to 3.79 min/flight.

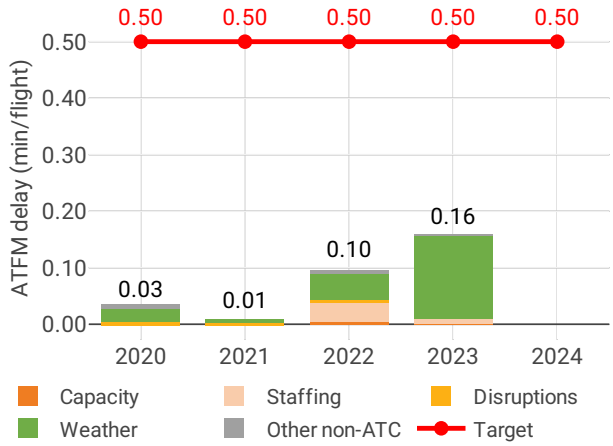
• Airport data for Bergen airport was not reported for 2023 despite being subject to monitoring as per the Regulation.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



• Norway registered 0.03 minutes of average en route ATFM delay per flight during 2023, thus achieving the local target value of 0.11. Delays in Norway increased by 0.03 minutes per flight year-on-year.

• Delays were highest during March, July and August, mainly due to ATC capacity and radar system failure.

• The share of delayed flights with delays longer than 15 minutes in Norway decreased by 2 p.p. compared to 2022 and was lower than 2019 values.

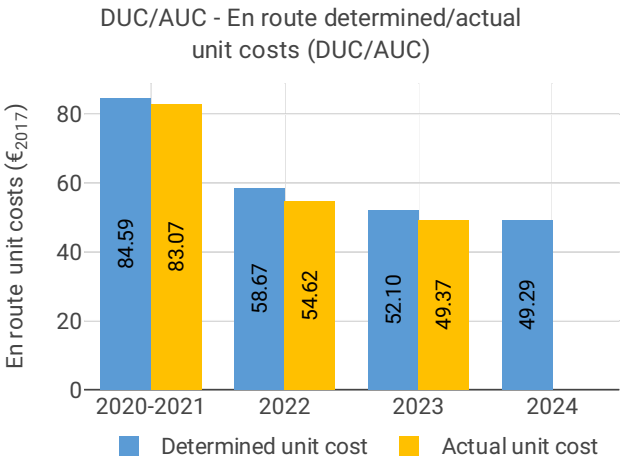
• The average number of IFR movements was 7% below 2019 levels in Norway in 2023.

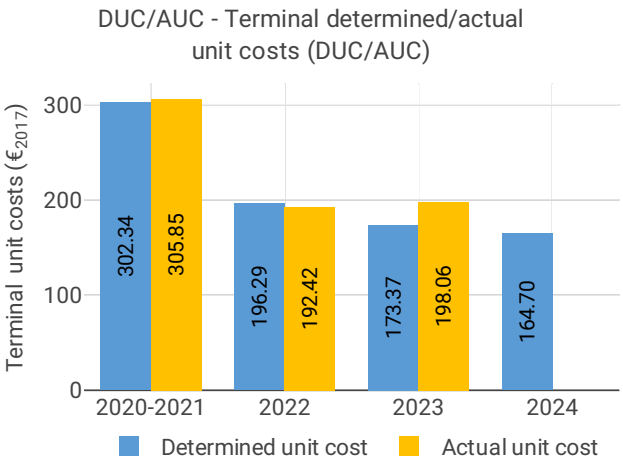
• The number of ATCOs in OPS is expected to increase by 27% by 2024, with the actual value being below the 2023 plan in Bodo by 8 FTEs. The number of ATCOs in OPS is expected to increase by 1% by 2024, with the actual value being below the 2023 plan in Oslo by 8 FTEs. The number of ATCOs in OPS is expected to increase by 7% by 2024, with the actual value meeting the 2023 plan in Stavanger FTEs.

• The yearly total of sector opening hours in Bodo ACC was 24,686, showing a 3.5% increase compared to 2022. Sector opening hours are 27.8% below 2019 levels.

• Bodo ACC registered 7.33 IFR movements per one sector opening hour in 2023, being 22.1% above 2019 levels.

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





• The en route 2023 actual unit cost of Norway was 49.37 €2017, -5.2% lower than the determined unit cost (52.10 €2017). The terminal 2023 actual unit cost was 198.06 €2017, +14% higher than the determined unit cost (173.37 €2017).

• The en route 2023 actual service units (2.33M) were slightly higher (+0.5%) than the determined service units (2.32M).

• The en route 2023 actual total costs were -5.7 M€2017 (-4.7%) lower than determined. This reduction was largely driven by lower staff costs (-8.7 M€2017, or -11%). According to the NSA, the lower staff costs were due to wage growth that did not meet expectations and an increase in project activity. With more project activity than determined, costs related to these projects, such as the time staff dedicated to developing new assets, were reclassified from staff costs to capital costs.

• Avinor ANS spent 27 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, -11% lower than determined (31 M€2017). This reduction was attributed to the reduction in actual depreciation costs compared to determined figures (-4.9 M€2017, or -35%), owing to the postponement of the new ATM system and a smaller than anticipated impact from leases.

• The en route actual unit cost incurred by users in 2023 was 50.16€ (+7.1% above the 2023 DUC), while the terminal actual unit cost incurred by users was 173.41€ (+10% above the 2023 DUC). The difference between the AUCU and the DUC in terminal charging zone is primarily attributed to the inflation mechanism (+3.1 M€).

• The en route regulatory result for Avinor amounted to +12 M€, or 11% of the 2023 revenue. This may indicate that the airspace users are charged for costs which have not materialised in 2023. The PRB will take into consideration the implementation of the RP3 performance plan when assessing the RP4 cost-efficiency targets.

2 SAFETY - NORWAY

2.1 PRB monitoring

• Avinor ANS failed to maintain the previously achieved targets and degraded its performance over 2022 on safety risk management and in 2023 on safety promotion. Currently, Avinor ANS achieved RP3 EoSM targets for three management objectives while being behind the planned maturity level for safety promotion. Avinor ANS established a corrective action plan which the NSA considers could ensure they meet the RP3 target levels in 2024.

• Norway recorded a significant improvement with respect to safety occurrences with a decrease in the rate of runway incursions and rate of separation minima infringements.

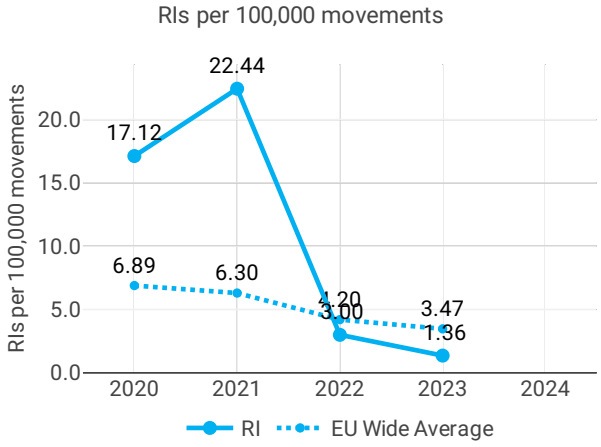
• Avinor ANS do not use automated safety data recording systems.

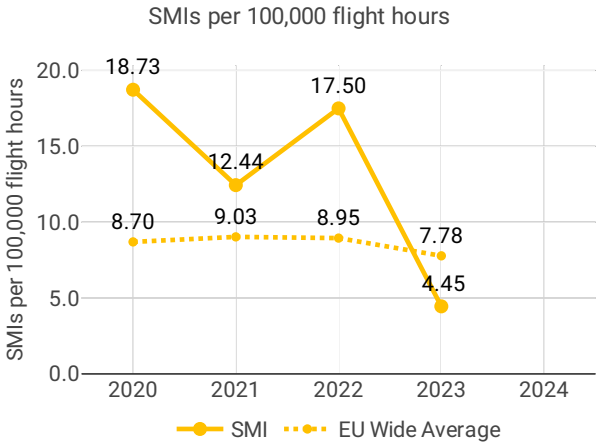
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

Focus on EoSM

Three EoSM components of the ANSP meet the RP3 target level. Over 2023 degradation was observed for one question for “Safety Promotion” reducing the maturity of the component from level C to the level B, and consequently not achieving the target for this component. Additionally, the ANSP will need to improve one question for Safety Risk Management to achieve RP3 targets.

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





3 ENVIRONMENT - NORWAY

3.1 PRB monitoring

• Norway achieved a KEA performance of 1.29% compared to its target of 1.55% and contributed positively towards achieving the Union-wide target.

• Both KEP and SCR improved in comparison with 2022 and had similar values, meaning airlines planned the most efficient routes available.

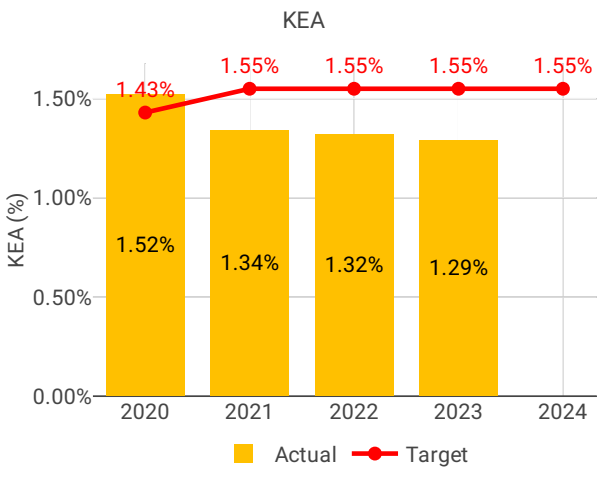
• The share of CDO flights increased marginally from 69.63% to 69.65% in 2023.

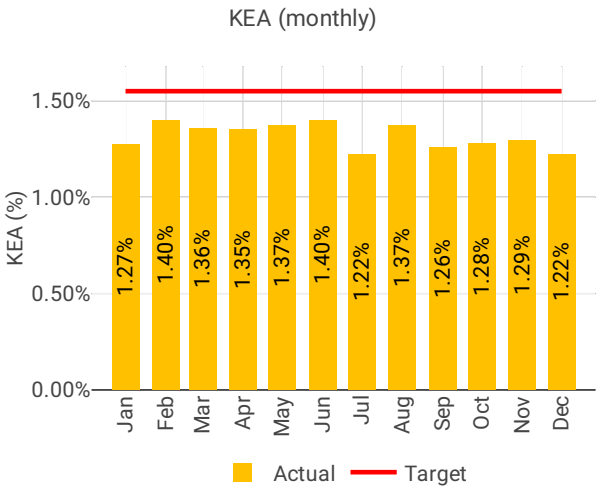
• During 2023, additional time in terminal airspace increased from 0.68 to 0.93 min/flight, while additional taxi out time increased from 3.26 to 3.79 min/flight.

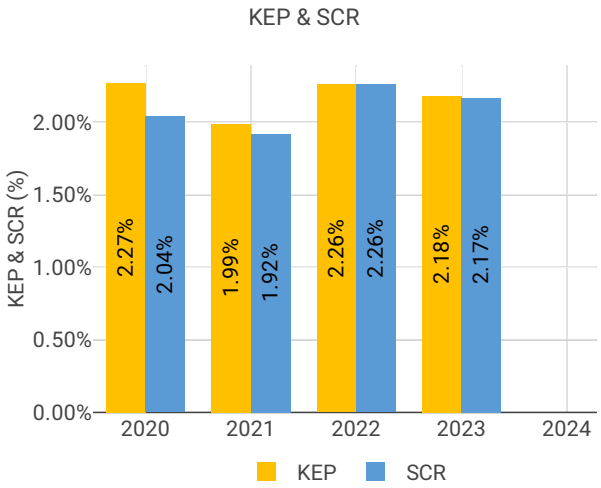
• Airport data for Bergen airport was not reported for 2023 despite being subject to monitoring as per the Regulation.

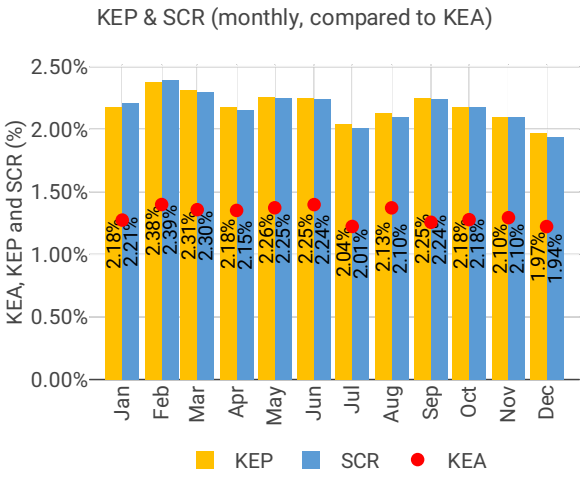
3.2 En route performance

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)



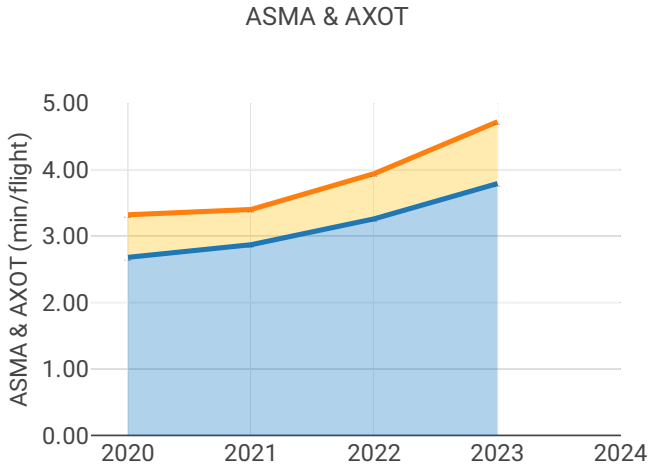


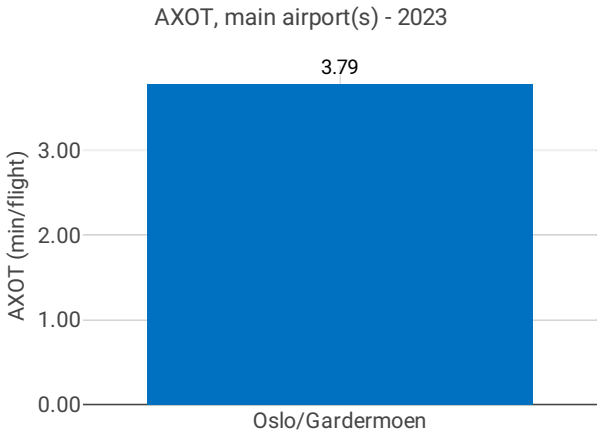


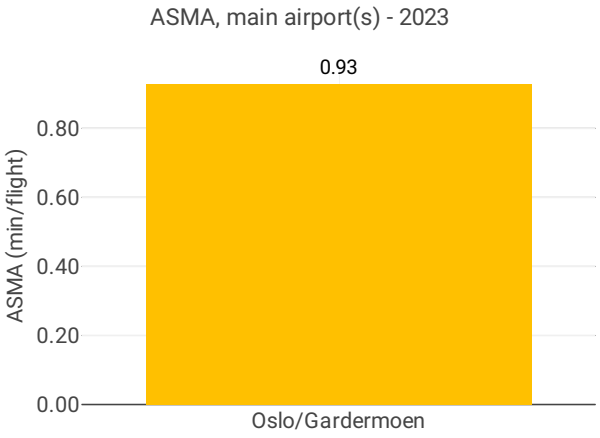


3.3 Terminal performance

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







Focus on ASMA & AXOT

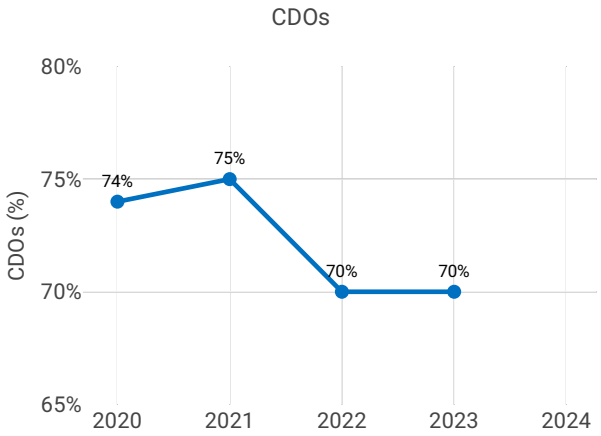
AXOT

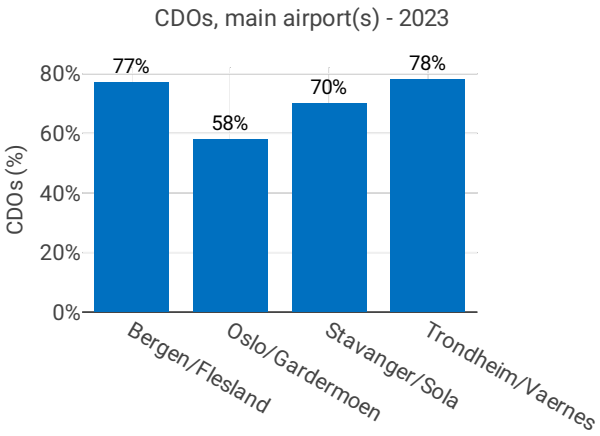
The additional taxi-out times at Oslo increased again in 2023 (ENGM; 2019: 3.92 min/dep.; 2020: 2.68 min/dep.; 2021: 2.87 min/dep.; 2022: 3.26 min/dep.; 2022: 3.79 min/dep.) and are getting closer to the pre-pandemic value, but remain well below the SES average of 2.81 min/dep.

ASMA

Additional ASMA times at Oslo increased in 2023 (ENGM; 2019: 1.03 min/arr.; 2020: 0.64 min/arr.; 2021: 0.53 min/arr.; 2022: 0.68 min/arr.; 2023: 0.93 min/arr.) but remain below the pre-pandemic values and the SES average of 1.16 min/arr.

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





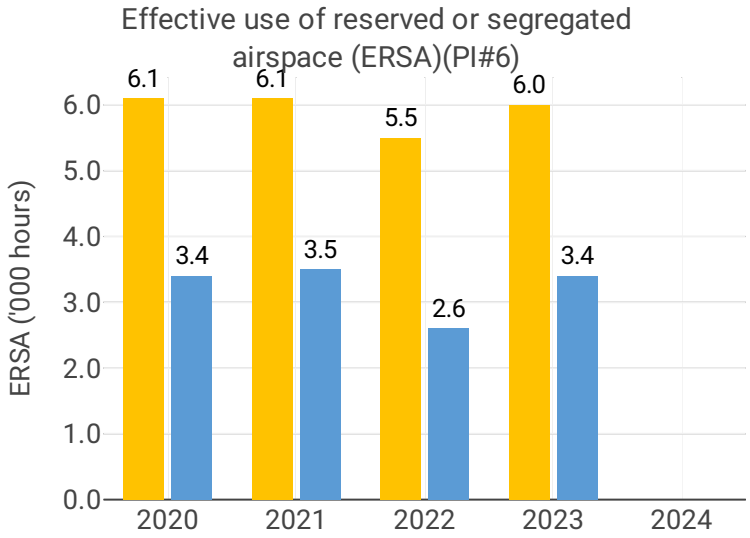
Focus CDOs

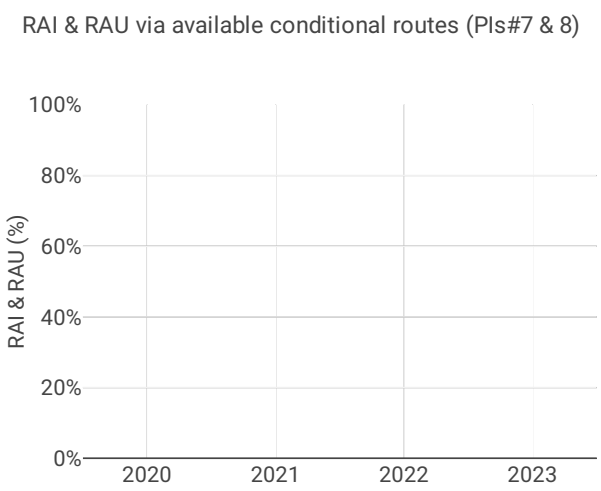
The shares of CDO flights have stayed similar to the 2022 values. The value for Trondheim has increased by 1.3 percentage points to 77.6%. All airports still have very high shares of CDO flights with all airports having more than double the overall RP3 value in 2023 (28.8%).

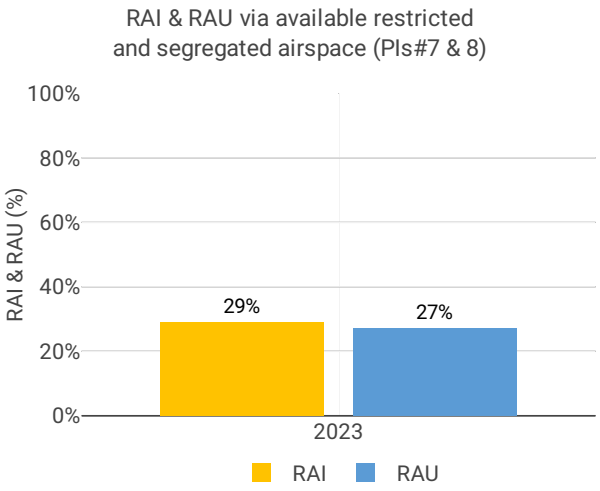
Airport level

	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
Bergen/Flesland	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80%	80%	77%	77%	NA
Oslo/Gardermoen	2.68	2.87	3.26	3.79	NA	0.64	0.53	0.68	0.93	NA	62%	64%	58%	58%	NA
Stavanger/Sola	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	76%	74%	71%	70%	NA
Trondheim/Vaernes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77%	79%	76%	78%	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

LARA has been implemented and Civil/Military Airspace Committee maintain a continued focus on the effectiveness of the booking procedures.

Military - related measures implemented or planned to improve capacity

The AMC procedure has been revised establishing new and larger areas in southern Norway with a design that is optimized to cater to civilian traffic flows. The civil/military airspace continually work on optimizing the airspace structure to minimize the impact of military air operations on civilian air traffic. LARA has been deployed to both civil and military users and further integration into the ATM system is ongoing.

Initiatives implemented or planned to improve PI#6

Ratio in 2023 approx. at same level as previous years in RP3.

Initiatives implemented or planned to improve PI#7

No data available.

Initiatives implemented or planned to improve PI#8

No data available.

4 CAPACITY - NORWAY

4.1 PRB monitoring

• Norway registered 0.03 minutes of average en route ATFM delay per flight during 2023, thus achieving the local target value of 0.11. Delays in Norway increased by 0.03 minutes per flight year-on-year.

• Delays were highest during March, July and August, mainly due to ATC capacity and radar system failure.

• The share of delayed flights with delays longer than 15 minutes in Norway decreased by 2 p.p. compared to 2022 and was lower than 2019 values.

• The average number of IFR movements was 7% below 2019 levels in Norway in 2023.

• The number of ATCOs in OPS is expected to increase by 27% by 2024, with the actual value being below the 2023 plan in Bodo by 8 FTEs. The number of ATCOs in OPS is expected to increase by 1% by 2024, with the actual value being below the 2023 plan in Oslo by 8 FTEs. The number of ATCOs in OPS is expected to increase by 7% by 2024, with the actual value meeting the 2023 plan in Stavanger FTEs.

• The yearly total of sector opening hours in Bodo ACC was 24,686, showing a 3.5% increase compared to 2022. Sector opening hours are 27.8% below 2019 levels.

• Bodo ACC registered 7.33 IFR movements per one sector opening hour in 2023, being 22.1% above 2019 levels.

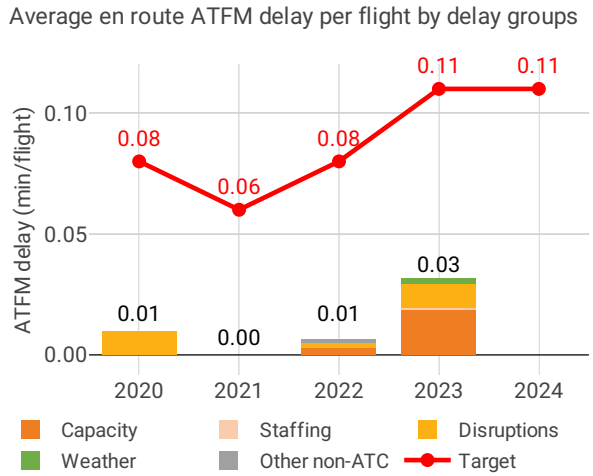
• Norway registered an average airport arrival ATFM delay of 0.16 minutes per flight in 2023, achieving the local target of 0.50 minutes.

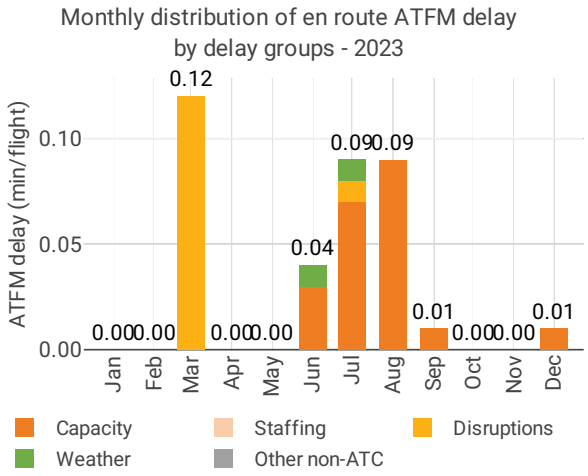
• Compared to 2022, average arrival ATFM delays in Norway were 65% higher in 2023, while the number of IFR arrivals increased by 2%.

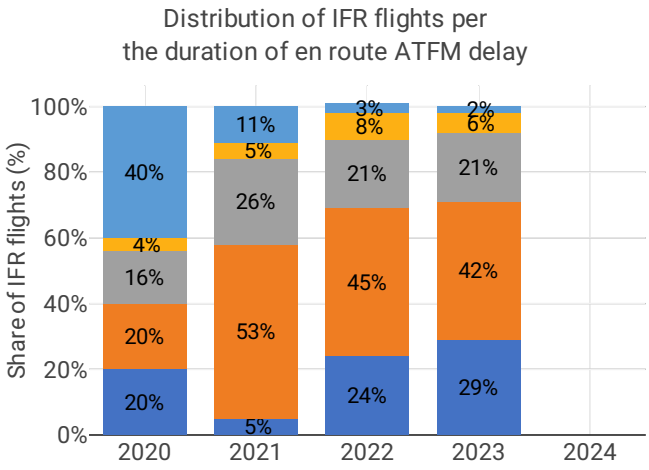
• The main reason for delays was weather, accounting for 94% of delays.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Norway experienced an increase in traffic from 529k flights in 2022, with marginal delay (3k minutes), to 529k flights in 2023 with 17k minutes of en-route ATFM delay.
For reference in 2019, Norway handled 595k flights with <2k minutes of en-route ATFM delays.

NSA's assessment of capacity performance

En Route:
No specific capacity issues in 2023, actual traffic in (service units) was 0,5% above the level set in the PP. The actual en-route atfm delay per flight of 0,03 min./flt. (all causes included) was significant below the national target set to 0,08 min./flt. Actual performance is so far in RP3 better than set in the rev. PP.

Monitoring process for capacity performance

No remarks

Capacity planning

Norway has been developing ATC capacity over years, and is in position to provide more capacity than the national reference values. Based on consultation meetings with the airspace users and Avinor ANS, the en route delay is set to between 0,08 min./flt and 0,11 min./flt. in RP3.
Avinor ANS has over the last years been increasing capacity, in order to being able to shift to new technology without major operational consequences for the airspace users.

Application of Corrective Measures for Capacity (if applicable)

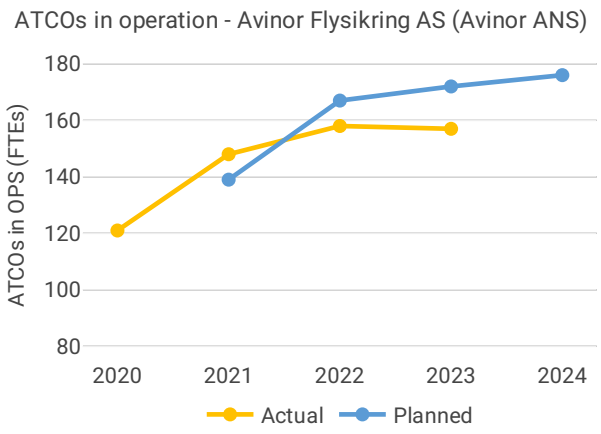
Not applicable.

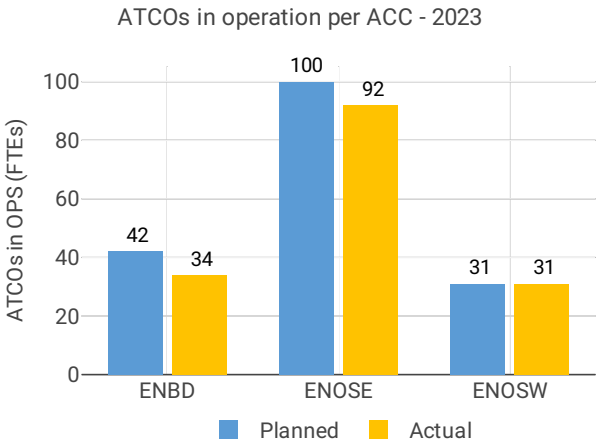
Additional Information Related to Russia's War of Aggression Against Ukraine Initially there was some drop in overflights, which have recovered since. In general en route capacity has not been affected.

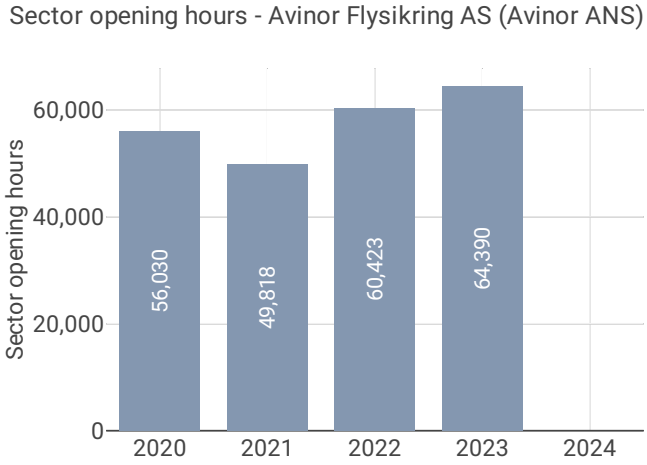
En route Capacity Incentive Scheme

Avinor Flysikring AS (Avinor ANS): The adopted incentive scheme does not foresee the payment of any bonus even though the capacity targets were 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.

4.2.2 Other indicators





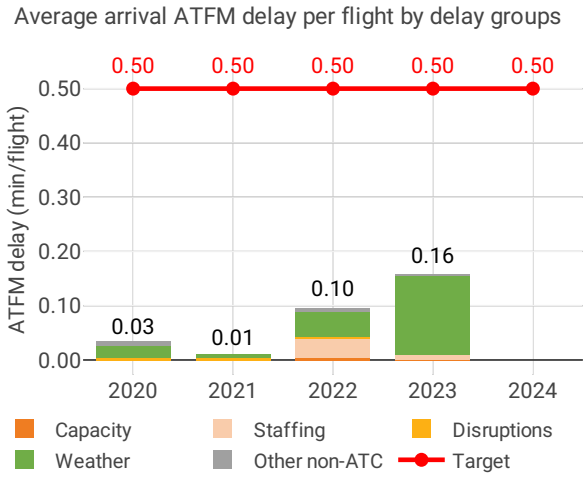


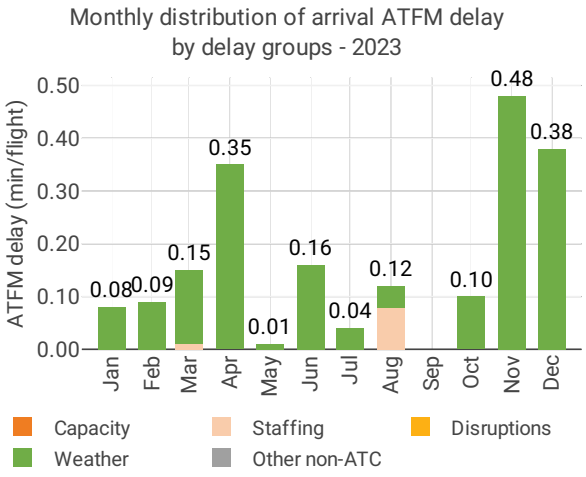
Focus on ATCOs in operations

N/A

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





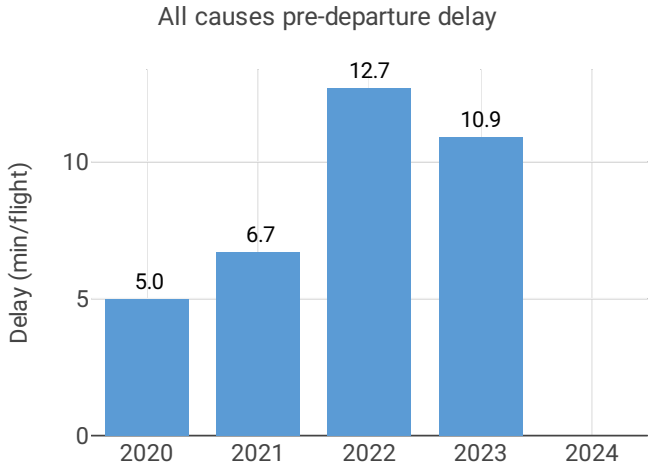
Focus on arrival ATFM delay

Norway has identified four airports as subject to RP2 monitoring. However, in accordance with IR (EU) 2019/317 and the traffic figures, only two of these airports (Oslo (EGNM) and Bergen (ENBR)) must be monitored for pre-departure delays. Oslo (A-CDM implemented) is the only Norwegian airport that has finished the full implementation of the Airport Operator Data Flow required for the monitoring of these pre-departure delays.
Regarding the APDF implementation and the calculation of the pre-departure delays at Bergen, Norway started providing data in October 2023, so the indicators should be available as of 2024.
Traffic at the ensemble of these four Norwegian airports in 2023 was still 8% lower than in 2019.
Average arrival ATFM delays in 2023 was 0.16 min/arr, compared to 0.10 min/arr in 2022. The national target was met.
ATFM slot adherence remained very high (2023: 99.2; %2022: 99.3%).

For the second year in a row, arrival ATFM delays increased at Oslo (ENGM; 2019: 0.31 min/arr; 2020: 0.05 min/arr; 2021: 0.01 min/arr; 2022: 0.17 min/arr; 2023: 0.30 min/arr) while the rest of airports registered minimum delays.
94% of the arrival ATFM delays in Norway were attributed to Weather, followed by ATC Staffing issues (6%) at Oslo.According to the Norwegian monitoring report: *The actual terminal and airport ANS ATFM arrival delay per flight of 0,16 min./flt. at a national level in 2023, significant below the national target set to 0,50 min./flt. Actual performance is so far i RP3 better than set in the PP.*
A significant part of the delays are reported in 2023 are connected to weather conditions i April (0,34). November (0,47) and in December (0,37)

Norway's performance plan sets a national target on arrival ATFM delay for 2023 of 0.50 min/arr. This target was met with an actual performance of 0.16 min/arr. The incentive scheme uses modulated pivot values limited to CRSTMP delay causes. This pivot value for CRSTMP is 0.08 min/arr in 2023. According to the attribution of the regulation reason, the actual CRSTMP value for 2023 is 0.009 min/arr.
The Norwegian Performance Plan does not establish any bonus.

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
Bergen/Flesland	0.01	0.01	0.02	0.01	98.9%	98.4%	98.7%	98.8%
Oslo/Gardermoen	0.05	0.01	0.17	0.30	98.4%	99.4%	99.4%	99.4%
Stavanger/Sola	0.03	0.01	0.03	NA	97.4%	93.2%	98.6%	98.6%
Trondheim/Vaernes	0.03	NA	0.00	NA	98.9%	98.0%	99.3%	99.0%

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Bergen/Flesland	NA	NA	NA	0.00	NA	NA	NA	9.0
Oslo/Gardermoen	0.05	0.06	0.10	0.11	5.0	6.7	12.7	11.1
Stavanger/Sola	NA	NA	NA	0.01	NA	NA	NA	8.7
Trondheim/Vaernes	NA	NA	NA	0.00	NA	NA	NA	11.0

Focus on performance indicators at airport level

ATFM slot adherence

All Norwegian airports showed adherence above 98% and the national average was 99.2%. With regard to the 0.8% of flights that did not adhere, 0.4% was early and 0.4% was late.
According to Norway's monitoring report: Adherence to *ATFM slots at national level in 2023 (99,2%) is approx. in line with previous years both in RP3 and in RP2.*
I.e. excellent performance.

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 Oslo but not implemented at Bergen. Therefore the monitoring of this indicator in Norway is limited to Oslo.
The performance at Oslo remained similar to 2022 (ENGM; 2019: 0.14 min/dep.; 2020: 0.05 min/dep.; 2021: 0.06 min/dep.; 2022: 0.10 min/dep.; 2023: 0.11 min/dep.)
According to Norway's monitoring report: *Pre-departure delay in 2023 (ENGM) increasing compared to the two previous years during the pandemic, still below the level before the pandemic (2017-2019).*
Pre-departure delay not calculated at ENBR for 2023. In October 2023 Avinor modified the data delivery to EUROCONTROL and completed the technical configuration of DANSAP to integrate Bergen airport in the monthly reporting procedure. As of 2024, the yearly value for pre-departure delay will be reported. For the months October-December 2023, there were no ATC pre-departure delay at ENBR.

All causes pre-departure delay

The calculation of the All causes 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 Oslo but not implemented at Bergen. Therefore the monitoring of this indicator in Norway is limited to Oslo.
The total (all causes) delay in the actual off block time at Oslo decreased in 2023 (ENGM: 2020: 5.01 min/dep.; 2021: 6.74 min/dep.; 2022: 12.74 min/dep.; 2023: 11.13 min/dep.) and resulted in the second lowest value among the RP3 monitored airports.
According to Norway's monitoring report: *Average time of all cause departure delay per flight in 2023 was reduced at ENGM compared to 2022 and is well below the level of delay experienced in 2019.*
Same as for ATC pre-departure delay, this indicator should be available for Bergen as of 2024.
For the months October-December 2023, average time of all cause departure delay per IFR flight at ENBR was calculated by Avinor to 8,44.

5 COST-EFFIENCY - NORWAY

5.1 PRB monitoring

• The en route 2023 actual unit cost of Norway was 49.37 €2017, -5.2% lower than the determined unit cost (52.10 €2017). The terminal 2023 actual unit cost was 198.06 €2017, +14% higher than the determined unit cost (173.37 €2017).

• The en route 2023 actual service units (2.33M) were slightly higher (+0.5%) than the determined service units (2.32M).

• The en route 2023 actual total costs were -5.7 M€2017 (-4.7%) lower than determined. This reduction was largely driven by lower staff costs (-8.7 M€2017, or -11%). According to the NSA, the lower staff costs were due to wage growth that did not meet expectations and an increase in project activity. With more project activity than determined, costs related to these projects, such as the time staff dedicated to developing new assets, were reclassified from staff costs to capital costs.

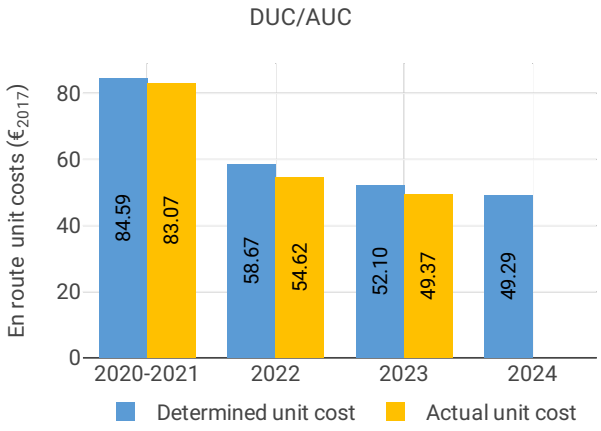
• Avinor ANS spent 27 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, -11% lower than determined (31 M€2017). This reduction was attributed to the reduction in actual depreciation costs compared to determined figures (-4.9 M€2017, or -35%), owing to the postponement of the new ATM system and a smaller than anticipated impact from leases.

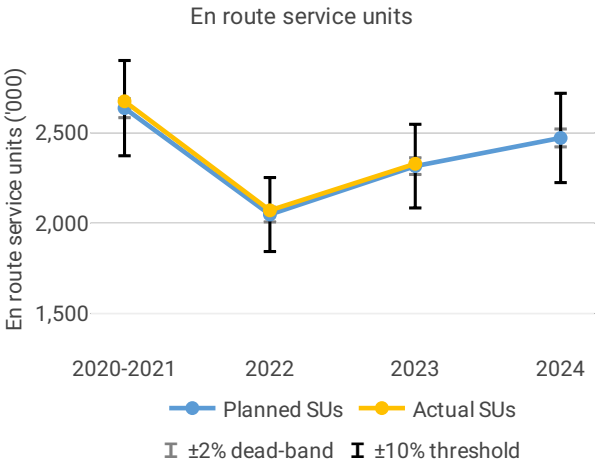
• The en route actual unit cost incurred by users in 2023 was 50.16€ (+7.1% above the 2023 DUC), while the terminal actual unit cost incurred by users was 173.41€ (+10% above the 2023 DUC). The difference between the AUCU and the DUC in terminal charging zone is primarily attributed to the inflation mechanism (+3.1 M€).

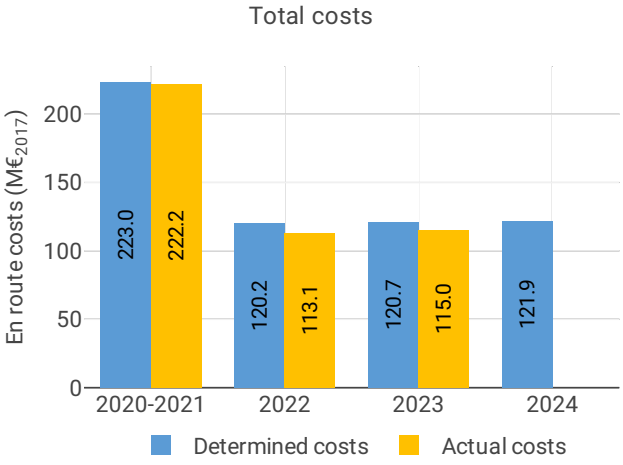
• The en route regulatory result for Avinor amounted to +12 M€, or 11% of the 2023 revenue. This may indicate that the airspace users are charged for costs which have not materialised in 2023. The PRB will take into consideration the implementation of the RP3 performance plan when assessing the RP4 cost-efficiency targets.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

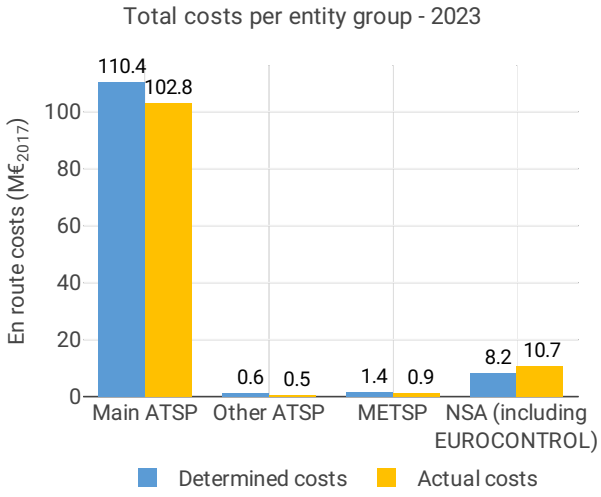


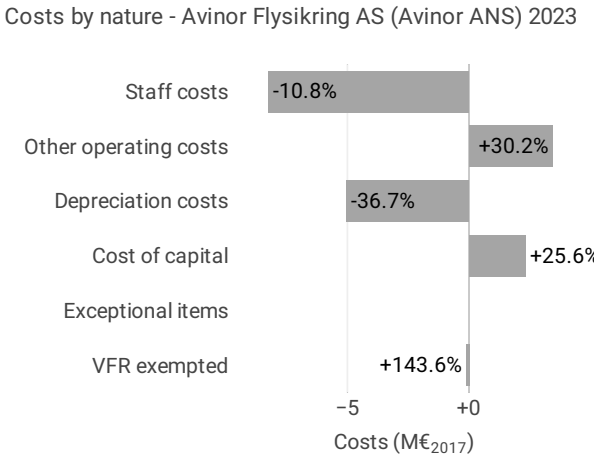




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	237	128	135	NA
Determined costs	236	130	133	136
Difference costs	1	-2	3	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	2.0%	2.0%	2.0%
Determined inflation index	NA	111.2	113.4	115.6
Actual inflation rate	NA	6.2%	5.8%	NA
Actual inflation index	NA	117.7	124.5	NA
Difference inflation index (p.p.)	NA	+6.5	+11.1	NA





Focus on unit cost

AUC vs. DUC

In 2023, the en route AUC was -5.2% (or -25.41 NOK2017, -2.72 €2017) lower than the planned DUC. This results from the combination of lower than planned en route costs in real terms (-4.7%, or -53.3 MNOK2017, -5.7 M€2017) and slightly higher than planned TSUs (+0.5%). It should be noted that actual inflation index in 2023 was +11.1 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (+0.5%) falls inside the ±2% dead band. Hence gain of additional en route revenues is fully retained by the ANSPs .

En route costs by entity

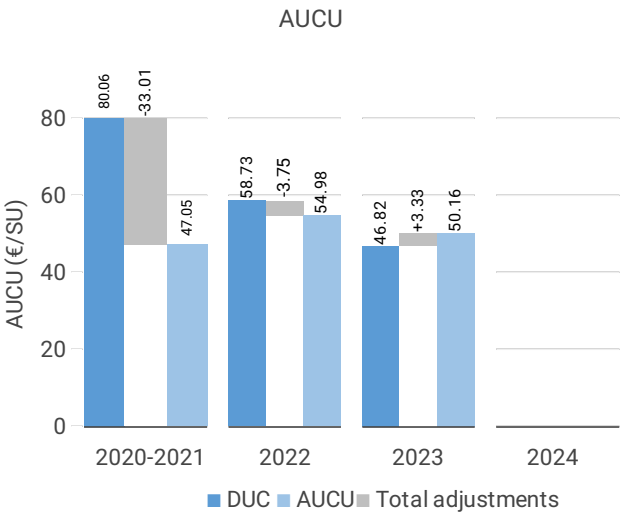
Actual real en route costs are -4.7% (-5.7 M€2017) lower than planned. This is the result of lower costs for the main ANSP, Avinor (-6.9%, or -7.6 M€2017), the MET service provider (-36.9%, or -0.5 M€2017) and the other ANSP (KJE, -14.5%, or -0.1 M€2017) and higher costs for the NSA/EUROCONTROL (+30.2%, or +2.5 M€2017).

En route costs for the main ANSP at charging zone level

Significantly lower than planned en route costs in real terms for Avinor in 2023 (-6.9%, or -7.6 M€2017), while the costs were slightly above the plan in nominal terms (+0.8%) resulting from:

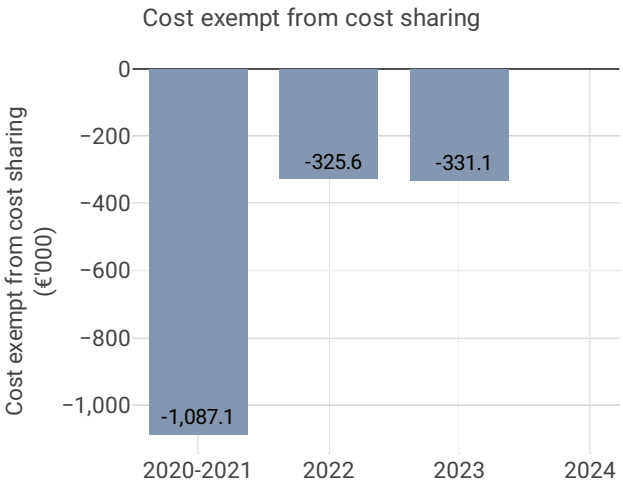
- Significantly lower staff costs (-10.8%) in real terns, while, in nominal terms costs were -2.1% below the plan, reflecting lower than planned growth in wages as well as "*increased project activity compared to plan, which moves costs from staff cost to cost of capital*";
- Significantly higher other operating costs (+30.2%), resulting from a combination of a write-off of an investment project as well as higher than planned travel costs, reversed provisions and higher than planned costs of service contracts for systems.
- Significantly lower depreciation (-36.7%), resulting from a combination of lower than planned effect of leases (IFRS16) and lower than planned depreciation of fixed assets.
- Significantly higher cost of capital (+25.6%) explained by increase in project costs related to the new ATM system as detailed above.
- Significantly higher deduction for VFR exempted flights (+143.6%).

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



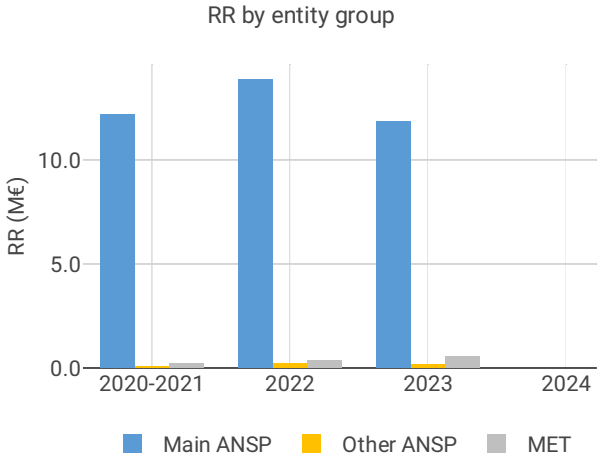
AUCU components (€/SU) – 2023

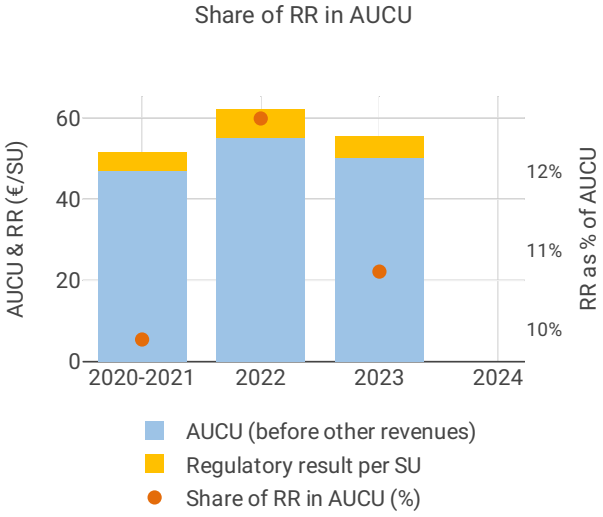
Components of the AUCU in 2023	€/SU
DUC	**46.82**
Inflation adjustment	3.49
Cost exempt from cost-sharing	-0.14
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	-0.02
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	3.33
AUCU	**50.16**
AUCU vs. DUC	**+7.1%**

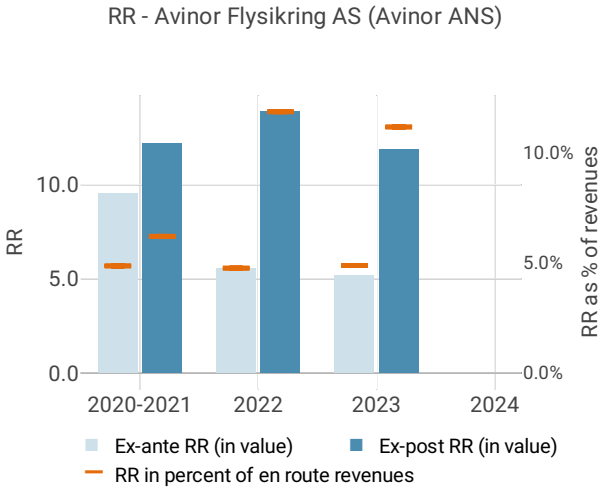


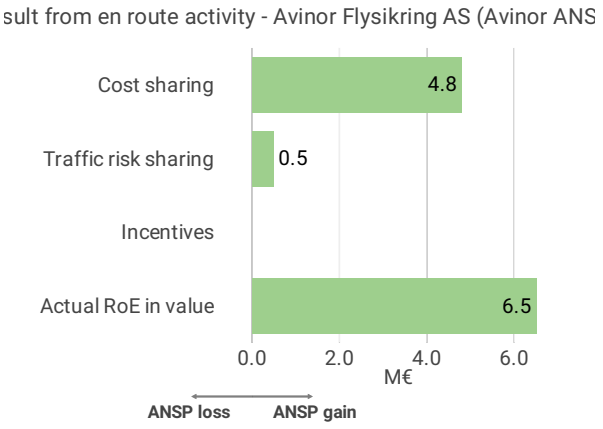
Cost exempt from cost sharing by item - 2023	€'000	€/SU
New and existing investments	-2,367.7	-1.02
Competent authorities and qualified entities costs	63.4	0.03
Eurocontrol costs	1,973.3	0.85
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-331.1**	**-0.14**

5.2.3 Regulatory result (RR)









Focus on regulatory result

Avinor net gain on activity in the Norway en route charging zone in the year 2023

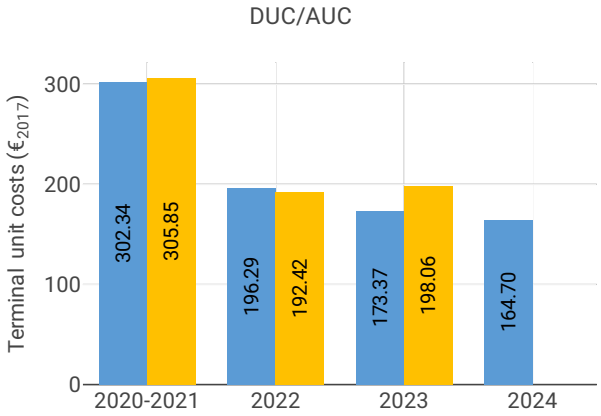
Avinor reported a net gain of +60.9 MNOK, as a combination of a gain of +54.9 MNOK arising from the cost sharing mechanism, with a gain of +6.0 MNOK arising from the traffic risk sharing mechanism.

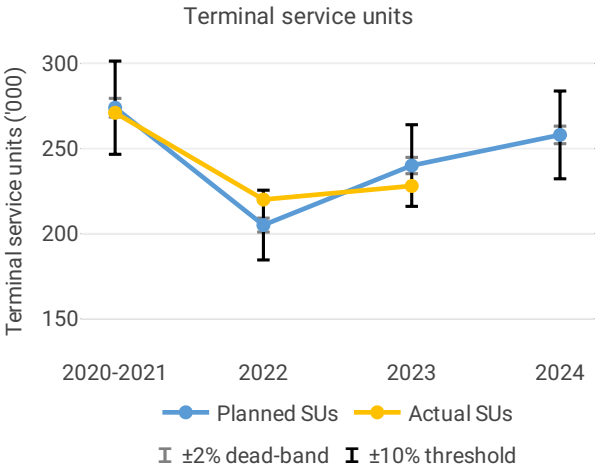
Avinor overall regulatory results (RR) for the en route activity

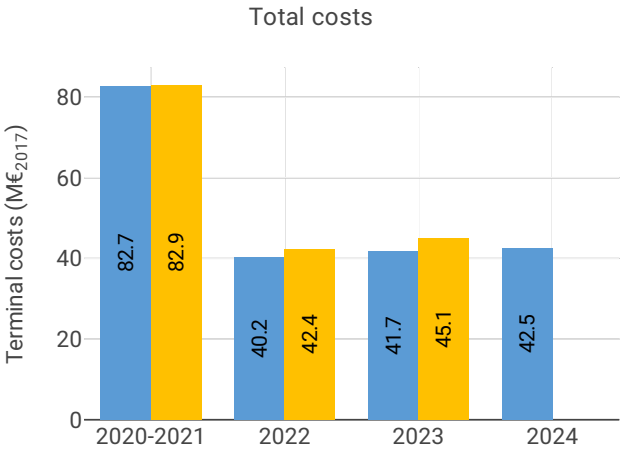
Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+60.9 MNOK) and the actual RoE (+74.3 MNOK) amounts to +135.2 MNOK (11.2% of the en route revenues). The resulting ex-post rate of return on equity is 18.6%, which is higher than the 10.2% planned in the PP..

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)

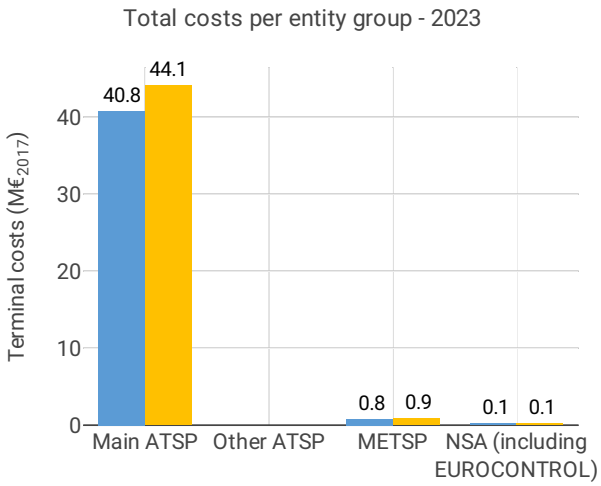


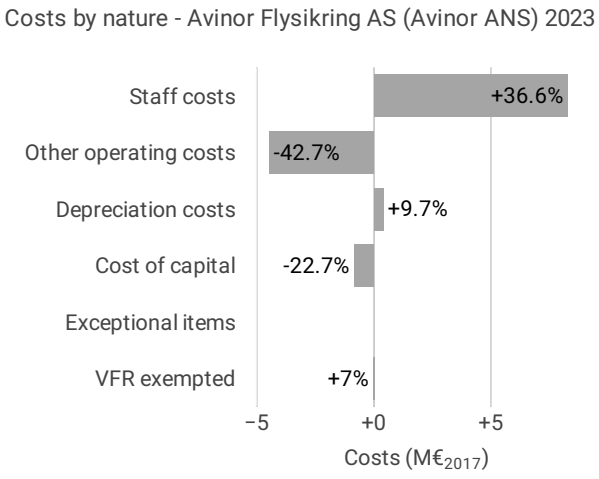




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	89	49	54	NA
Determined costs	88	44	46	48
Difference costs	1	5	8	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	2.0%	2.0%	2.0%
Determined inflation index	NA	111.2	113.4	115.6
Actual inflation rate	NA	6.2%	5.8%	NA
Actual inflation index	NA	117.7	124.5	NA
Difference inflation index (p.p.)	NA	+6.5	+11.1	NA





Focus on unit cost

AUC vs. DUC

In 2023, the terminal AUC was +14.2% (or +230.33 NOK2017, +24.69 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+8.2%, or +31.9 MNOK2017, +3.4 M€2017) and significantly lower than planned TNSUs (-5.3%). It should be noted that actual inflation index in 2023 was +11.1 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (-5.3%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ANSP and the airspace users .

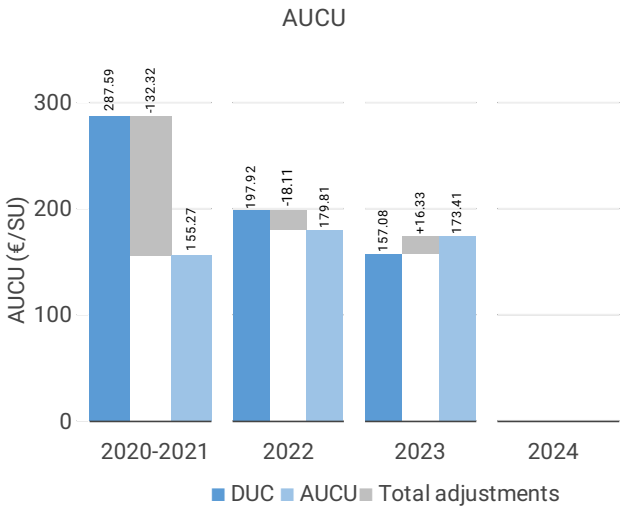
Terminal costs by entity

Actual real terminal costs are +8.2% (+3.4 M€2017) higher than planned. This is the result of higher costs for the main ANSP, Avinor (+8.2%, or +3.3 M€2017) and the MET service provider (+11.2%, or +0.1 M€2017) and lower costs for the NSA (-3.9%).

Terminal costs for the main ANSP at charging zone level

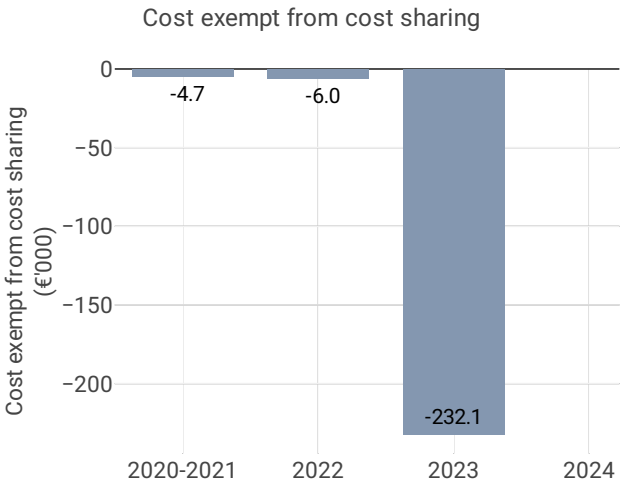
Significantly higher than planned terminal costs in real terms for Avinor in 2023 (+8.2%, or +3.3 M€2017) result from:
- Significantly higher staff costs (+36.6%), reflecting i) higher salary, pension and overtime costs and ii) a change in cost accounting methodology which "*results in an increase in staff costs and a reduction in other operating costs accordingly*".
- Significantly lower other operating costs (-42.7%), primarily resulting from the change in cost accounting methodology as detailed above.
- Significantly higher depreciation (+9.7%),
- Significantly lower cost of capital (-22.7%) explained by "*delay in projects, mainly related to the new OSL tower system*."
- Significantly higher deduction for VFR exempted flights (+7.0%).

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



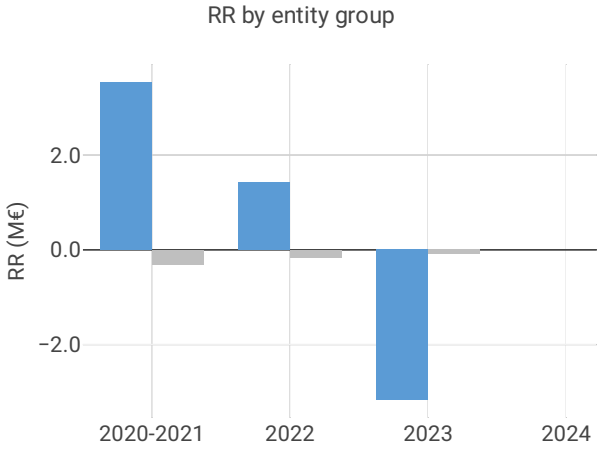
AUCU components (€/SU) – 2023

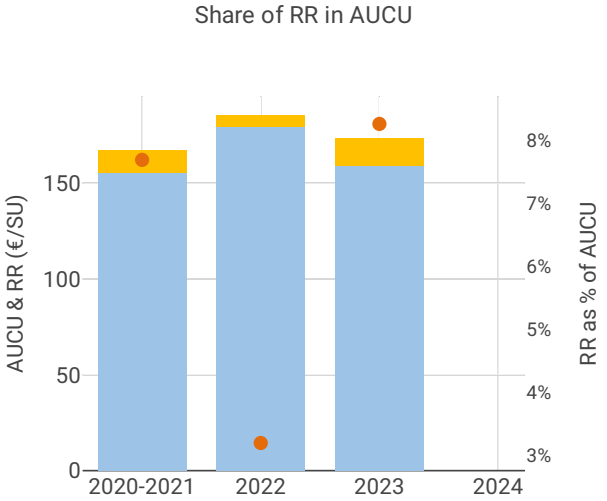
Components of the AUCU in 2023	€/SU
DUC	**157.08**
Inflation adjustment	13.44
Cost exempt from cost-sharing	-1.02
Traffic risk sharing adjustment	3.72
Traffic adj. (costs not TRS)	0.19
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	16.33
AUCU	**173.41**
AUCU vs. DUC	**+10.4%**

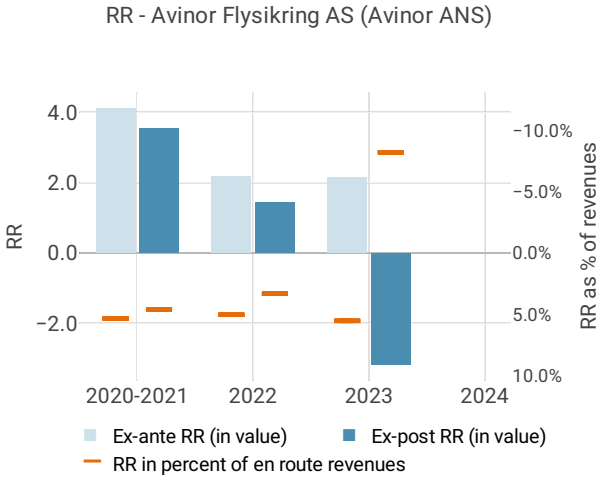


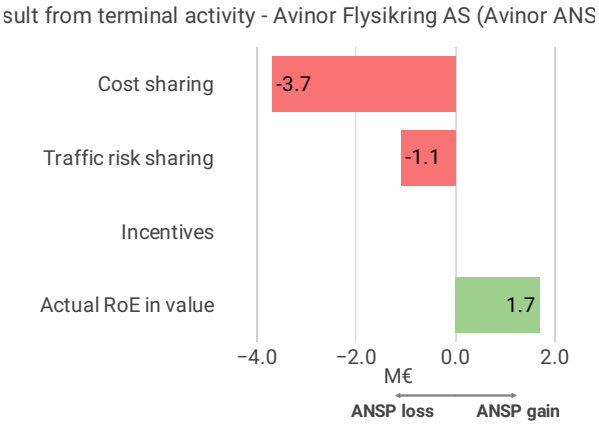
Cost exempt from cost sharing by item - 2023	€'000	€/SU
New and existing investments	-369.8	-1.62
Competent authorities and qualified entities costs	-3.0	-0.01
Eurocontrol costs	0.0	0.00
Pension costs	140.8	0.62
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-232.1**	**-1.02**

5.3.3 Regulatory result (RR)









Focus on regulatory result

Avinor net gain on activity in the Norway terminal charging zone in the year 2023

Avinor reported a net loss of -55.0 MNOK, as a combination of a loss of -42.4 MNOK arising from the cost sharing mechanism, with a loss of -12.6 MNOK arising from the traffic risk sharing mechanism.

Avinor 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 (-55.0 MNOK) and the actual RoE (+18.8 MNOK) amounts to -36.2 MNOK (8.2% of the terminal revenues). The resulting ex-post rate of return on equity is -19.6%..