



Performance Review Body Monitoring Report

Denmark - 2021

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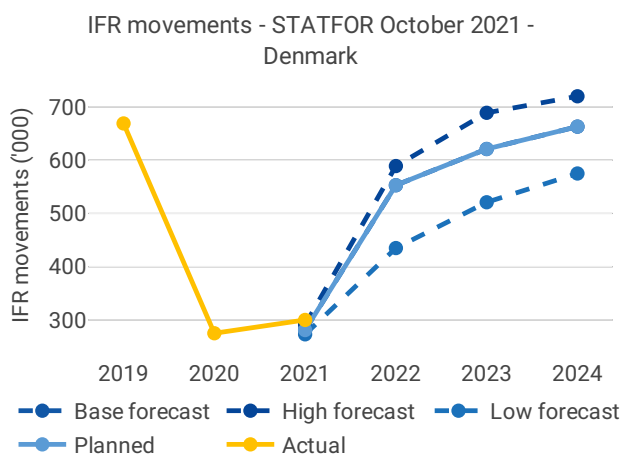
1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/770 of 13 April 2022

List of ACCs 1 Copenhagen ACC	Exchange rate (1 EUR=) 2017: 7.43692 DKK 2021: 7.43514 DKK	Main ANSP • NAVIAIR
No of airports in the scope of the performance plan: • ≥80'K 1 • <80'K 0	Share of Union-wide: • traffic (TSUs) 2021 1.2% • en route costs 2021 1.6%	Other ANSPs —
	Share en route / terminal costs 2021 80% / 20%	MET Providers • DMI
	En route charging zone(s) Denmark	
	Terminal charging zone(s) Denmark	

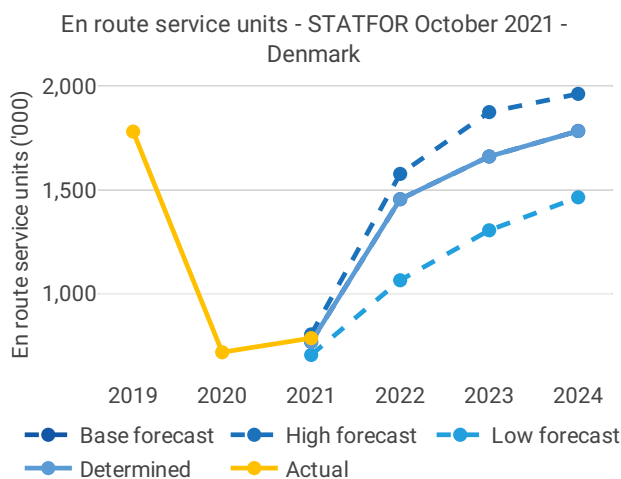
1.2 Traffic (En route traffic zone)



- Denmark recorded 300K actual IFR movements in 2021, +9.3% compared to 2020 (275K).

- Actual 2021 IFR movements were +6.9% above the plan (281K).

- Actual 2021 IFR movements represent 45% of the actual 2019 level (669K).

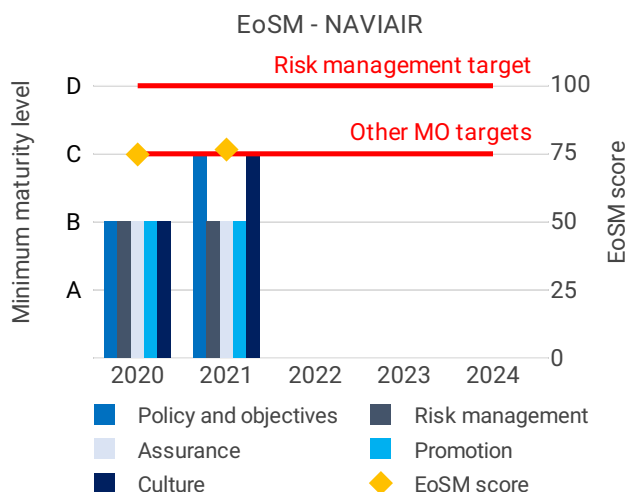


- Denmark recorded 785K actual en route service units in 2021, +10% compared to 2020 (717K).

- Actual 2021 service units were +2.3% above the plan (767K).

- Actual 2021 service units represent 44% of the actual 2019 level (1,781K).

1.3 Safety (Main ANSP)



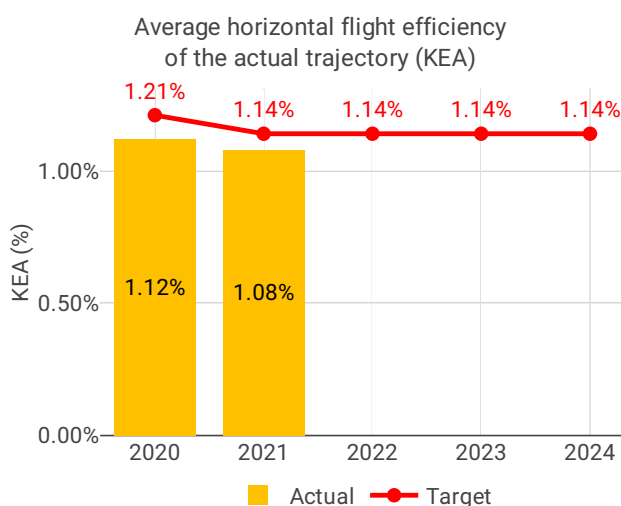
- NAVIAIR did not achieve the targets for the EoSM for three safety management objectives, but it has improved the performance in two management objectives in advance to the performance plan. The NSA monitors continuously safety performance through its oversight function.

- Denmark recorded a decrease of the rate of separation minima infringements (SMIs) per flight hour relative to 2020. The rate of runway incursions per movement increased in 2021. Both rates are below the Union-wide average rates.

- NAVIAIR should improve its safety management by implementing automated safety data recording

systems.

1.4 Environment (Member State)



- Denmark achieved a KEA performance of 1.08% compared to its target of 1.14% and contributed positively to achieving the Union-wide target. These are the best levels of performance since 2017.

- The NSA states that KEA is the result of low traffic levels, and it is not anticipated to remain this low as traffic rises to previous levels.

- KEP continues to improve in 2021, while SCR is at the worst levels since 2021.

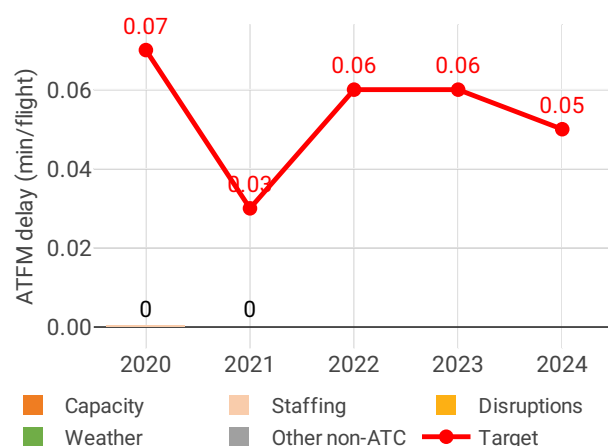
- FRA is implemented in the airspace above FL285 but reasons for the SCR deterioration are not mentioned.

- Share of CDO flights remain at similar levels to 2020.

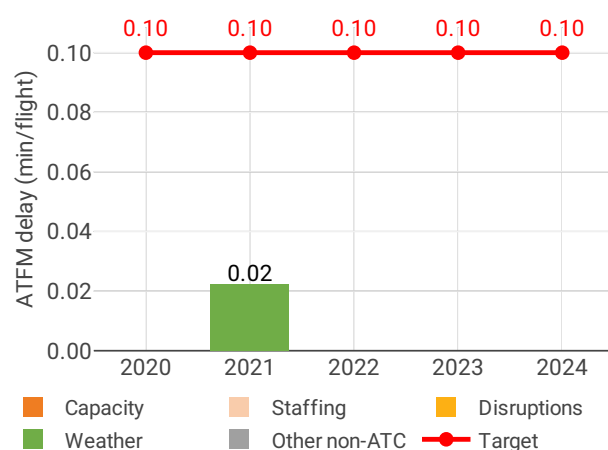
- Additional time in terminal airspace was reduced by 42% in comparison with 2020, however, additional taxi out time increased by 9%.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



- Denmark registered zero minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.03.

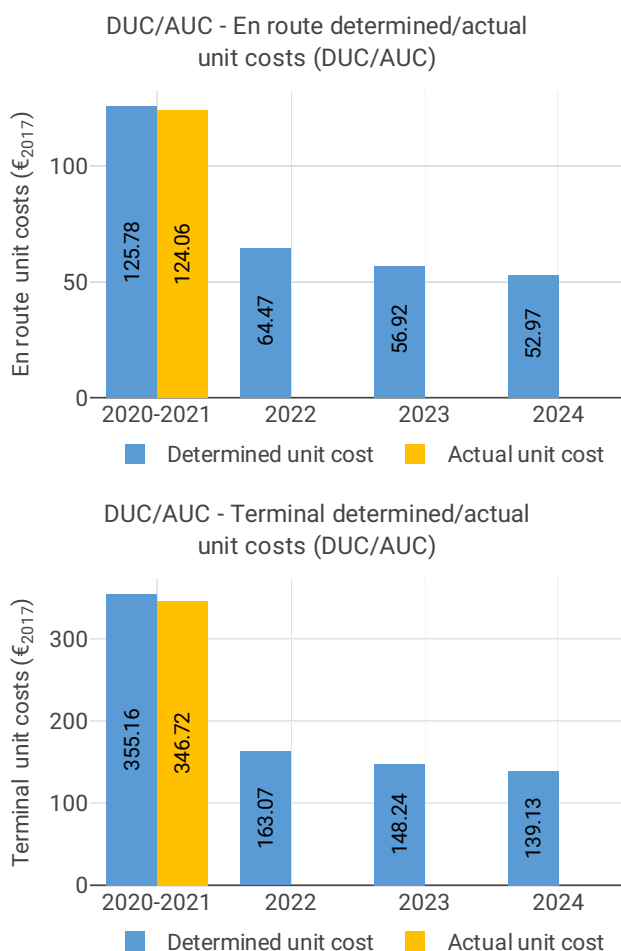
- En route ATFM delays in Denmark were also zero on average during the past years.

- Traffic recovery in Denmark has been slower than in many other Member States (also due to non-COVID-19 related issues), and 2019 traffic levels are not likely to be reached during RP3. However, a decrease in the number of ATCOs in OPS is planned by the end of RP3 which, depending on the evolution of the geopolitical situation and associated traffic demand, may require the monitoring of capacity development.

- The yearly total of sector opening hours in Copenhagen ACC was 44,692, showing a 0.3% decrease compared to 2020. Sector opening hours are unchanged from 2019 levels.

- Copenhagen ACC registered 5.81 IFR movements per one sector opening hour in 2021, being 55.0% below 2019 levels.

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



- The en route 2020/2021 actual unit cost of Denmark was 124.06 €2017, -1.4% lower than the determined unit cost (125.78 €2017). The terminal actual unit cost was 346.72 €2017, -2.4% lower than the determined unit cost (355.16 €2017).

- The en route 2021 actual service units (785K) were +2.3% higher than determined (767K).

- In 2021, despite variations within cost categories, actual total costs were in line (-0.3 M€2017, or -0.4%) with determined. Denmark had negative 2021 determined exceptional items in order to reflect the necessity of further future cost-reduction, which materialised in 2021 actual costs as a decrease in all cost categories with the only exception of staff costs.

- NAVIAIR spent 20 M€2017 in 2021 related to costs of investments, -3.3% lower than determined (20.7 M€2017), mainly due to a decrease in the average interest on debts.

- The en route actual unit cost incurred by users in 2020/2021 was 125.95€, while the terminal actual unit cost incurred by users was 360.39€.

2 SAFETY - DENMARK

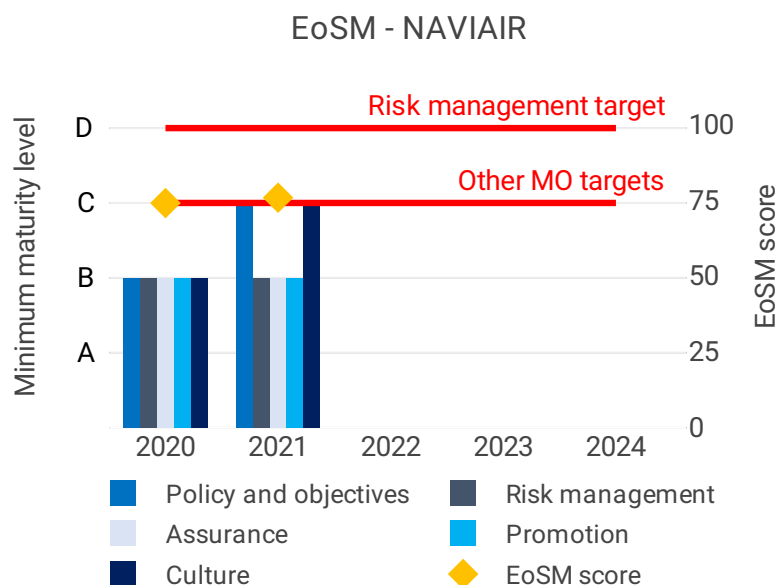
2.1 PRB monitoring

- NAVIAIR did not achieve the targets for the EoSM for three safety management objectives, but it has improved the performance in two management objectives in advance to the performance plan. The NSA monitors continuously safety performance through its oversight function.

- Denmark recorded a decrease of the rate of separation minima infringements (SMIs) per flight hour relative to 2020. The rate of runway incursions per movement increased in 2021. Both rates are below the Union-wide average rates.

- NAVIAIR should improve its safety management by implementing automated safety data recording systems.

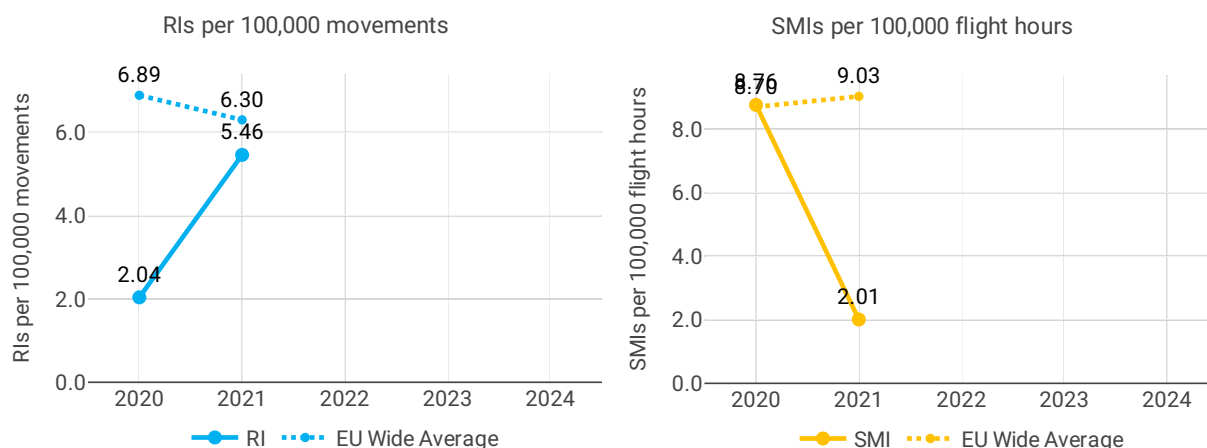
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)



Focus on EoSM

Three out of five EoSM components of the ANSP meet the 2024 target level. This year, it is observed improvement in two components (“Safety Culture” and “Safety Policy and Objectives”) that have achieved the target. Improvements in safety management are still expected in the other three components 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 - DENMARK

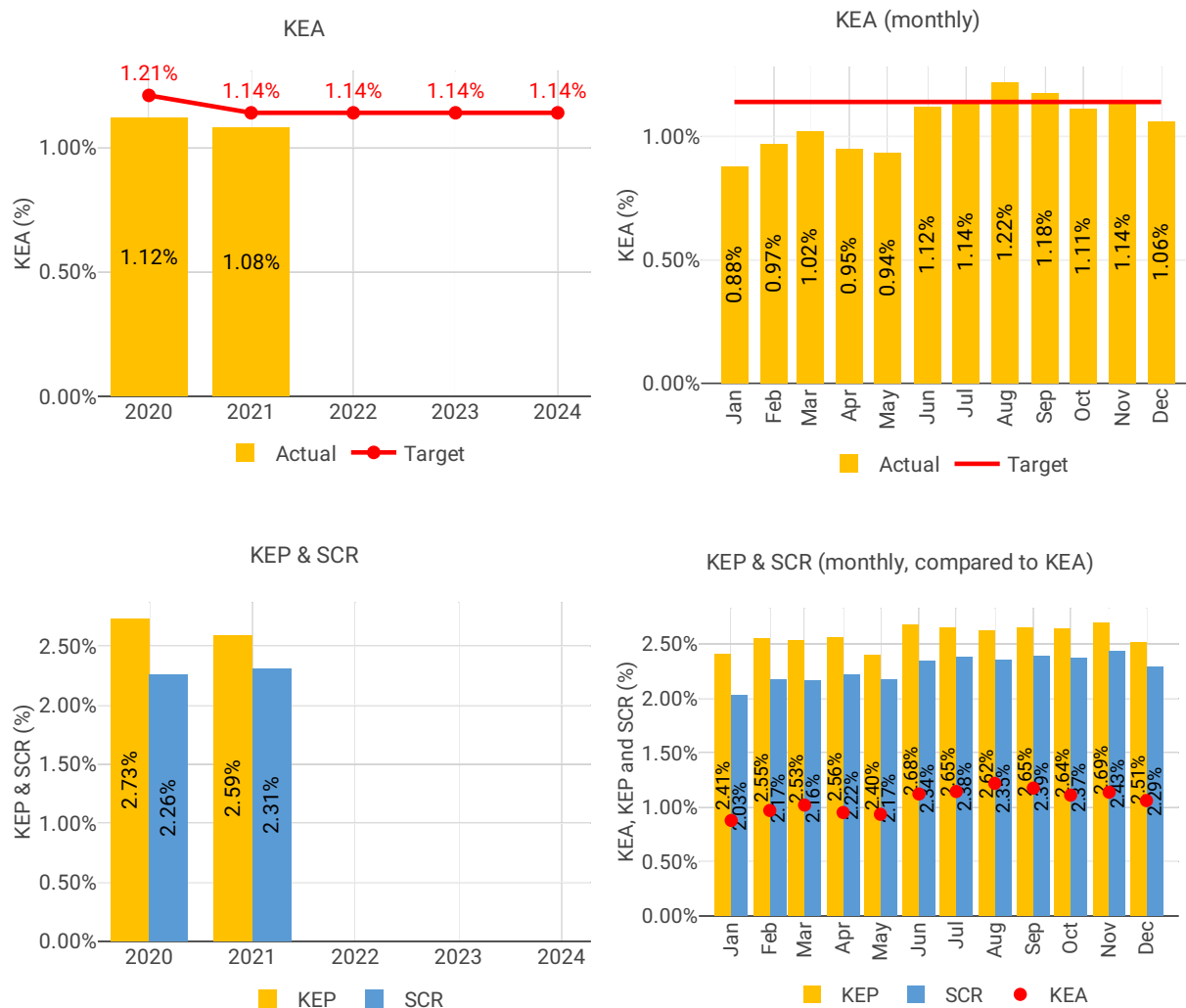
3.1 PRB monitoring

- Denmark achieved a KEA performance of 1.08% compared to its target of 1.14% and contributed positively to achieving the Union-wide target. These are the best levels of performance since 2017.
- The NSA states that KEA is the result of low traffic levels, and it is not anticipated to remain this low as traffic rises to previous levels.
- KEP continues to improve in 2021, while SCR is at the worst levels since 2021.

- FRA is implemented in the airspace above FL285 but reasons for the SCR deterioration are not mentioned.
- Share of CDO flights remain at similar levels to 2020.
- Additional time in terminal airspace was reduced by 42% in comparison with 2020, however, additional taxi out time increased by 9%.

3.2 En route performance

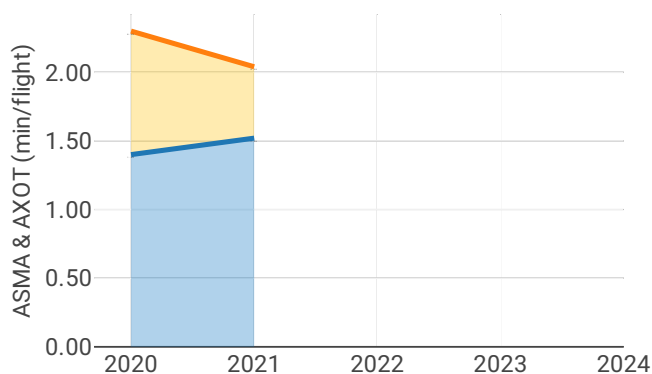
3.2.1 Horizontal flight efficiency of the actual trajectory (KEA) (KPI#1), of the last filed flight plan (KEP) (PI#1) & shortest constrained route (SCR) (PI#2)



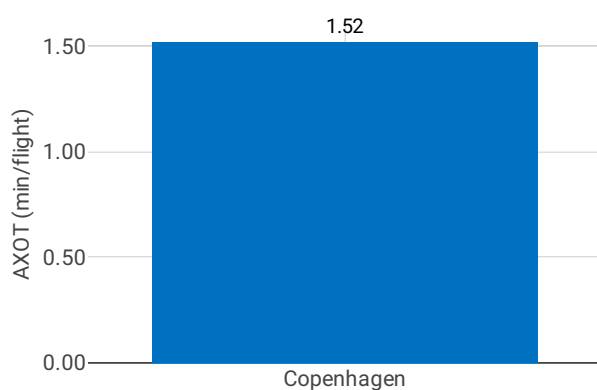
3.3 Terminal performance

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

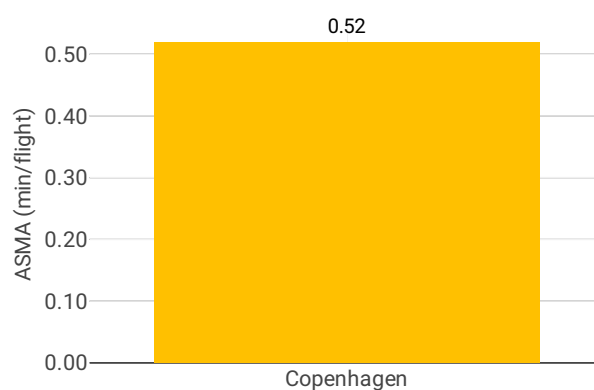
ASMA & AXOT



AXOT, main airport(s) - 2021



ASMA, main airport(s) - 2021



Focus on ASMA & AXOT

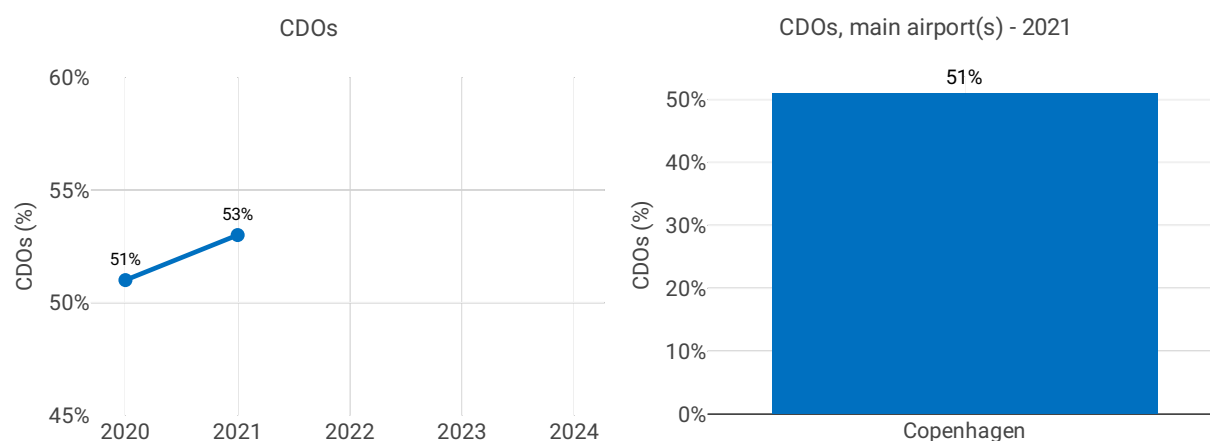
AXOT

Additional taxi-out times at Copenhagen in 2021 were still 41% lower than in 2019 (EKCH; 2019: 2.59 min/dep.; 2020: 1.4 min/dep.; 2021: 1.52 min/dep.)

ASMA

Additional ASMA times at Copenhagen in 2021 decreased further and were 51% lower than in 2019 (EKCH; 2019: 1.07 min/arr.; 2020: 0.9 min/arr.; 2021: 0.52 min/arr.)

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



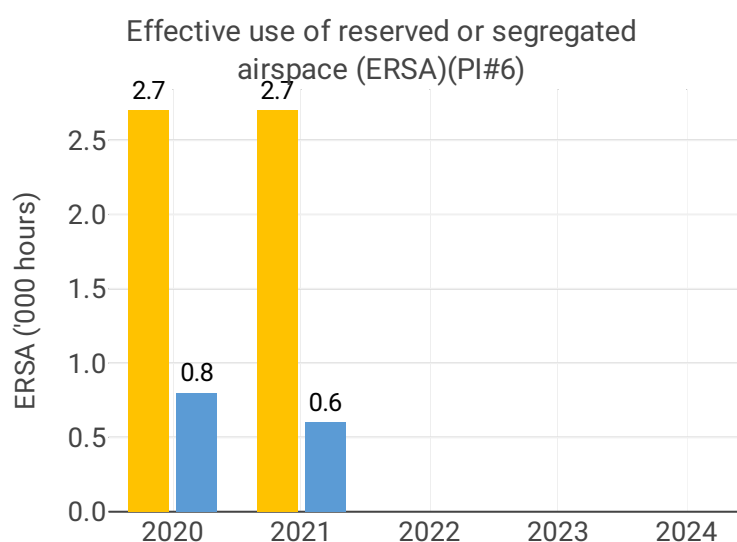
Focus CDOs

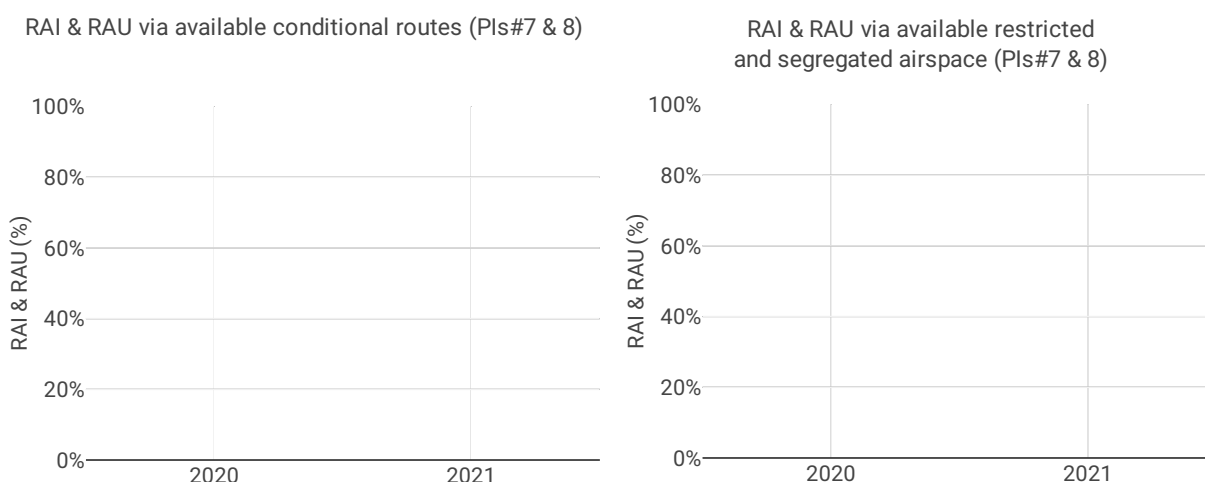
The share of CDO flights is 51.1% which is well above the overall RP3 value in 2021 (30.5%) and in the higher range of all observed values in 2021. It is also an increase of 0.9 percentage points with respect to 2020.

From January to December, the monthly values show a decreasing trend.

Airport Name	Airport level														
	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Copenhagen	1.40	1.52	NA	NA	NA	0.90	0.52	NA	NA	NA	50%	51%	NA	NA	NA

3.4 Civil-Military dimension





Focus on Civil-Military dimension

Update on Military dimension of the plan

No data available

Military - related measures implemented or planned to improve capacity

FUA is fully implemented in Denmark, thus it is very hard to increase capacity any further. Denmark fulfils the capacity targets. Denmark already fulfils the environmental targets. The airspace design and procedures used are created in order to minimise the negative effects on the environmental performance.

Initiatives implemented or planned to improve PI#6

No data available: The NSA monitors the performance via regularly reporting. ANSP and Military evaluates the performance with the scope of further improvement if possible. NSA will based on the development adress the issue with ANSP and Military.

Initiatives implemented or planned to improve PI#7

Neither Naviar or the NSA have this data available and have no plans to monitor this at local level but is using Eurocontrol numbers when available.

Free route airspace is implemented which is expected to decrease the use of CDR's.

Initiatives implemented or planned to improve PI#8

Naviar does not have this data available and have no plans to monitor this at local level but is using Eurocontrol numbers when available,

4 CAPACITY - DENMARK

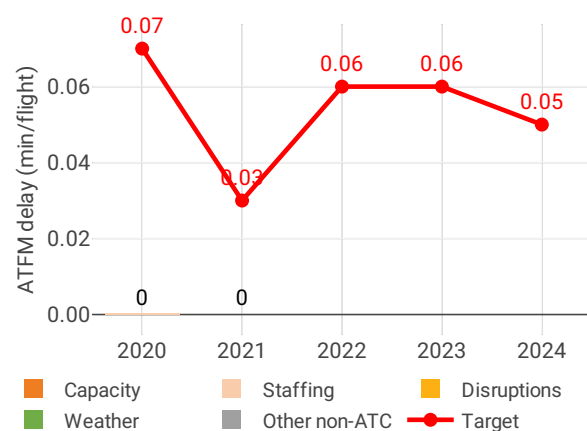
4.1 PRB monitoring

- Denmark registered zero minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.03.
- En route ATFM delays in Denmark were also zero on average during the past years.
- Traffic recovery in Denmark has been slower than in many other Member States (also due to non-COVID-19 related issues), and 2019 traffic levels are not likely to be reached during RP3. However, a decrease in the number of ATCOs in OPS is planned by the end of RP3 which, depending on the evolution of the geopolitical situation and associated traffic demand, may require the monitoring of capacity development.
- The yearly total of sector opening hours in Copenhagen ACC was 44,692, showing a 0.3% decrease compared to 2020. Sector opening hours are unchanged from 2019 levels.
- Copenhagen ACC registered 5.81 IFR movements per one sector opening hour in 2021, being 55.0% below 2019 levels.

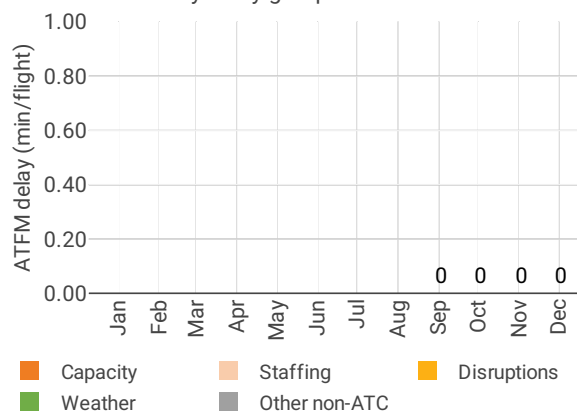
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)

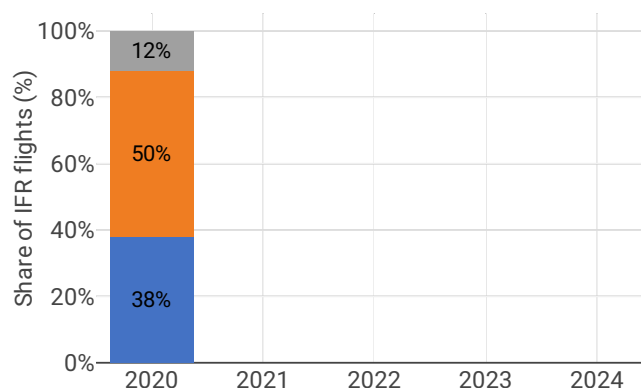
Average en route ATFM delay per flight by delay groups



Monthly distribution of en route ATFM delay by delay groups - 2021



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



Focus on en route ATFM delay

Summary of capacity performance

Denmark experienced an increase in traffic from 275k flights in 2020 to 300k flights in 2021, with zero ATFM delay. However, traffic levels were still substantially below the 669k flights in 2019.

NSA's assessment of capacity performance

No data available

Monitoring process for capacity performance

No data available

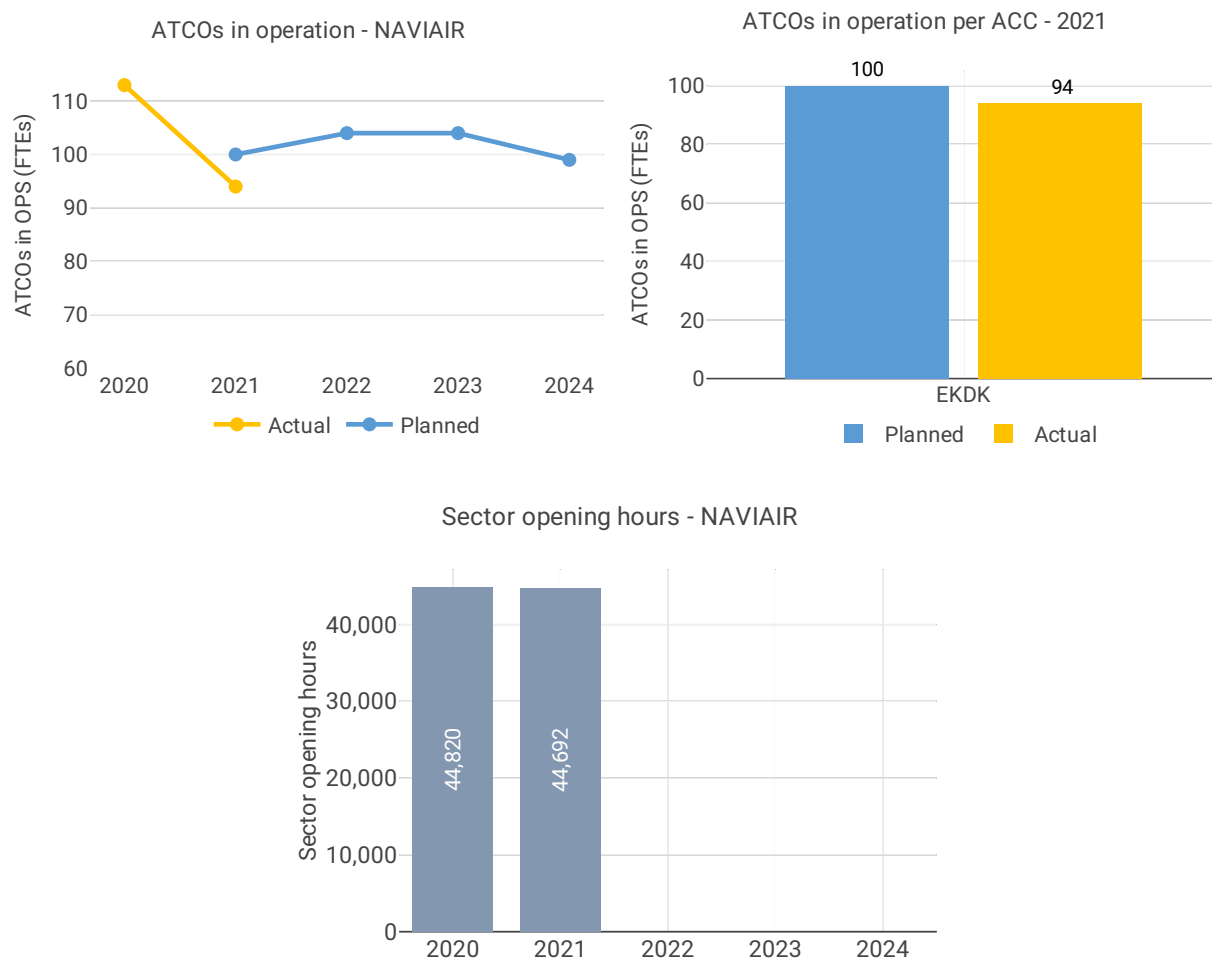
Capacity planning

No data available

Application of Corrective Measures for Capacity (if applicable)

No data available

4.2.2 Other indicators

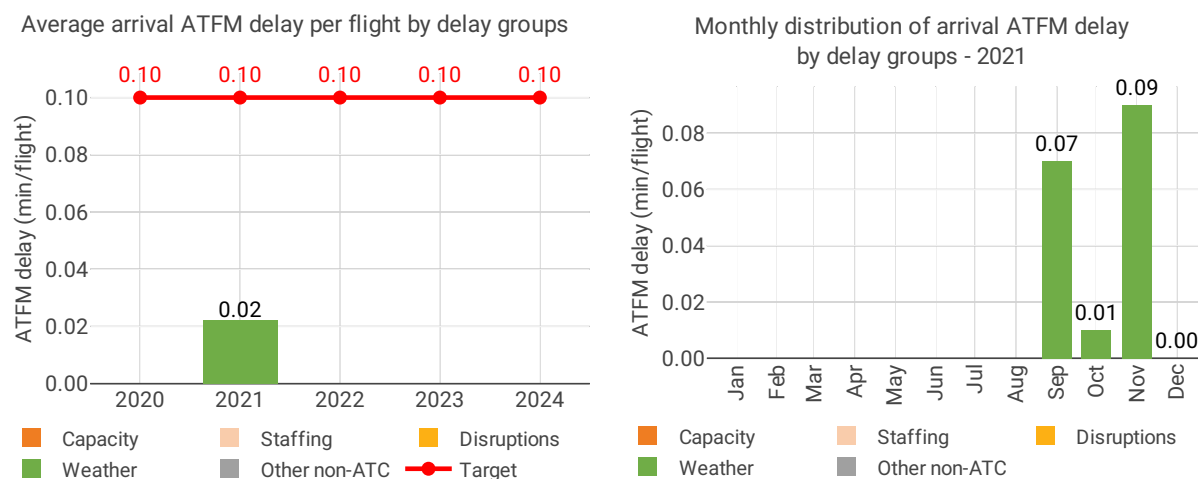


Focus on ATCOs in operations

N/A

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)



Focus on arrival ATFM delay

Denmark only has Copenhagen/Kastrup (EKCH) 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 2021 is still 58% lower than in 2019, even if 12% higher than in 2020.

Average arrival ATFM delays in 2021 was 0.02 min/arr, compared to 0 min/arr in 2020.

ATFM slot adherence has slightly improved (2021: 99.2%; 2020: 98.7%).

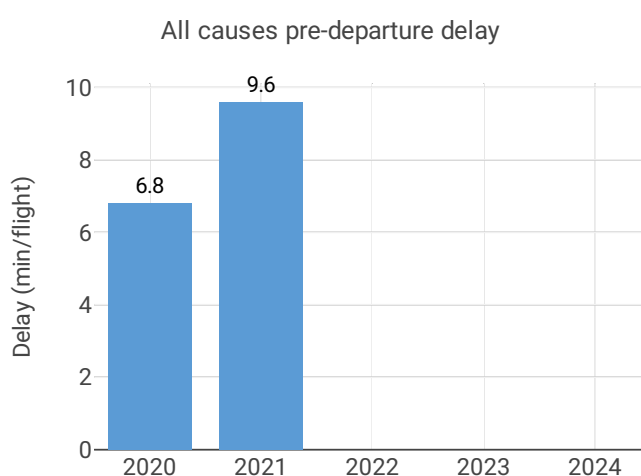
Copenhagen, that in the last years had registered low delays, observed nearly zero delays in 2021 (EKCH; 2019: 0.07 min/arr.; 2020: 0 min/arr.; 2021: 0.02 min/arr.)

All regulations were attributed to weather and concentrated mostly in September and November.

The provisional national target on arrival ATFM delay in 2021 was met.

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

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



Airport level								
Airport name	Avg arrival ATFM delay (KPI#2)				Slot adherence (PI#1)			
	2020	2021	2022	2023	2020	2021	2022	2023
Copenhagen	NA	0.02	NA	NA	98.7%	99.2%	NA%	NA%

Airport name	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
	2020	2021	2022	2023	2020	2021	2022	2023
Copenhagen	0.02	0.13	NA	NA	6.8	9.6	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, regulated departures from Copenhagen virtually disappeared until July 2021.

Copenhagen's ATFM slot compliance in 2021 was 99.2%, a slight improvement with respect to the already good value in 2020 (98.7%). Only 26 flights in total in 2021 departed out of the STW, 24 of them early and 2 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 Copenhagen. The quality of the airport data reported by Copenhagen has improved after the COVID crisis and it is possible again to calculate this indicator.

The annual value has increased with respect to 2019 (EKCH: 2019: 0.09 min/dep; 2021: 0.13 min/dep) In fact the figures stayed below the 2019 values throughout the entire year except for December, when the average ATC pre-departure delay spiked to 0.87 min/dep. The Danish monitoring report does not provide any information about the possible reason(s).

All causes pre-departure delay

The total (all causes) delay in the actual off block time at Copenhagen increased in 2021 (EKCH: 2020: 6.79 min/dep.; 2021: 9.63 min/dep.). The highest delays per flight were observed in February and December, averaging more than 14 min/dep.

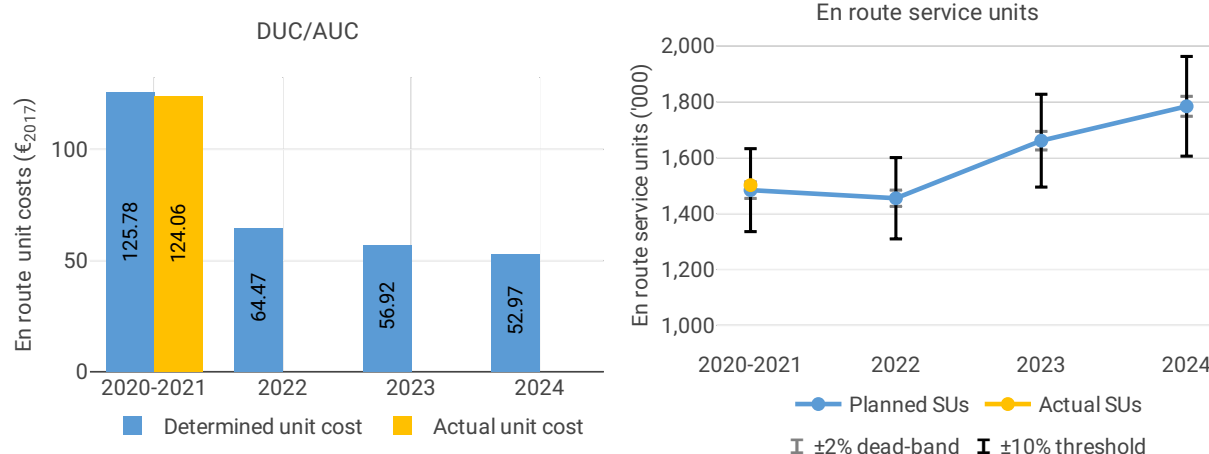
5 COST-EFFICIENCY - DENMARK

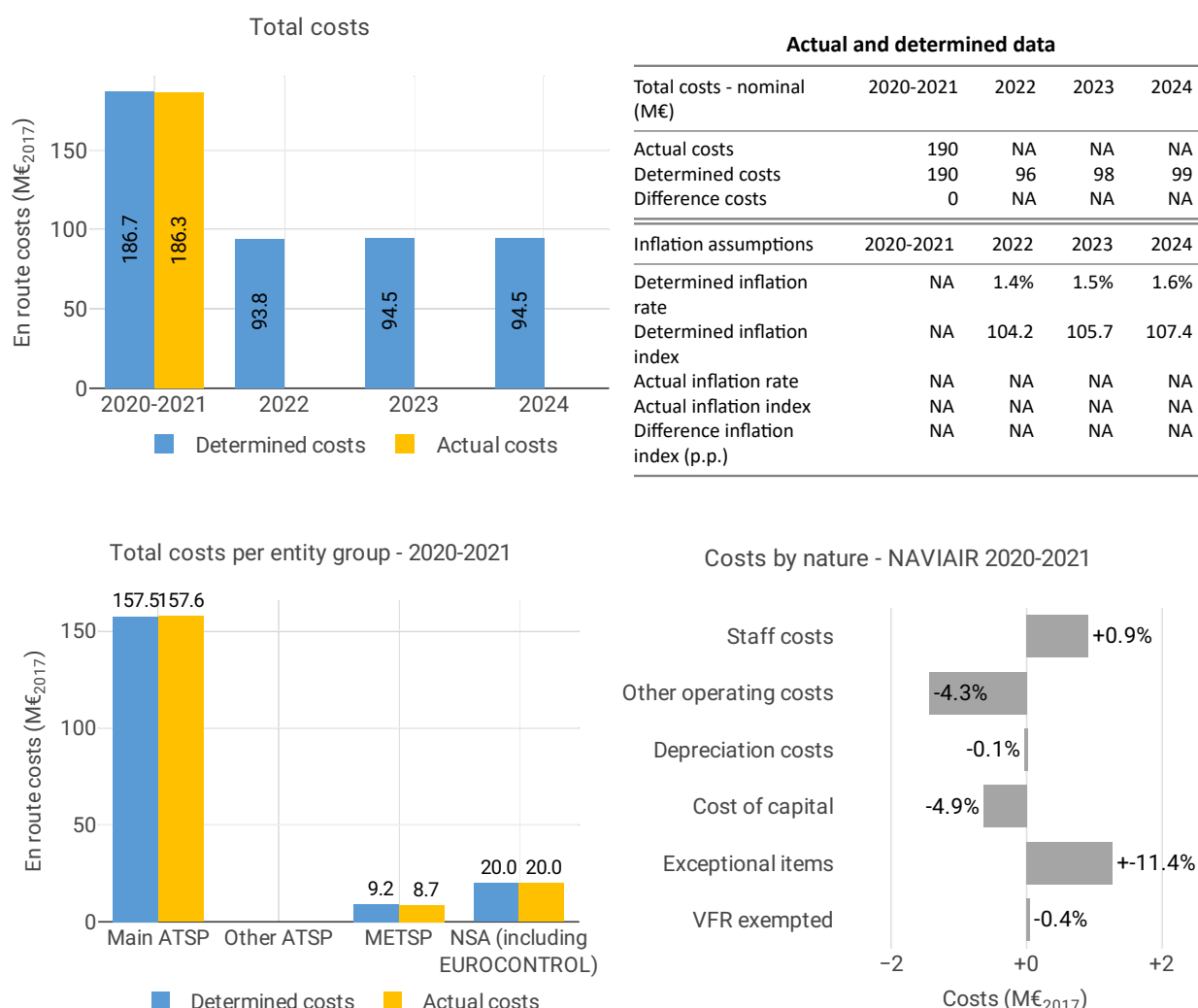
5.1 PRB monitoring

- The en route 2020/2021 actual unit cost of Denmark was 124.06 €2017, -1.4% lower than the determined unit cost (125.78 €2017). The terminal actual unit cost was 346.72 €2017, -2.4% lower than the determined unit cost (355.16 €2017).
- The en route 2021 actual service units (785K) were +2.3% higher than determined (767K).
- In 2021, despite variations within cost categories, actual total costs were in line (-0.3 M€2017, or -0.4%) with determined. Denmark had negative 2021 determined exceptional items in order to reflect the necessity of further future cost-reduction, which materialised in 2021 actual costs as a decrease in all cost categories with the only exception of staff costs.
- NAVIAIR spent 20 M€2017 in 2021 related to costs of investments, -3.3% lower than determined (20.7 M€2017), mainly due to a de-crease in the average interest on debts.
- The en route actual unit cost incurred by users in 2020/2021 was 125.95€, while the terminal actual unit cost incurred by users was 360.39€.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the AUC was lower than the planned DUC (by -1.4%, or -12.82DKK2017, or -1.72€2017). This results from the combination of higher than planned TSUs (+1.2%) and lower than planned en route costs in real terms (by -0.2%, or -2.6 MDKK2017, or -0.3 M€2017).

En route service units

The difference between actual and planned TSUs (+1.2%) falls within the $\pm 2\%$ dead band. Hence the resulting additional revenue is kept by the ANSPs (see items 10 to 14).

En route costs by entity

Actual real en route costs for 2020-2021 are -0.2% (-2.6 MDKK2017, or -0.3 M€2017) lower than planned. This result is driven by the MET service provider (-5.0%, or -0.5 M€2017) while the main ANSP, NAVIAIR costs are +0.1% (+0.1 M€2017) higher than planned.

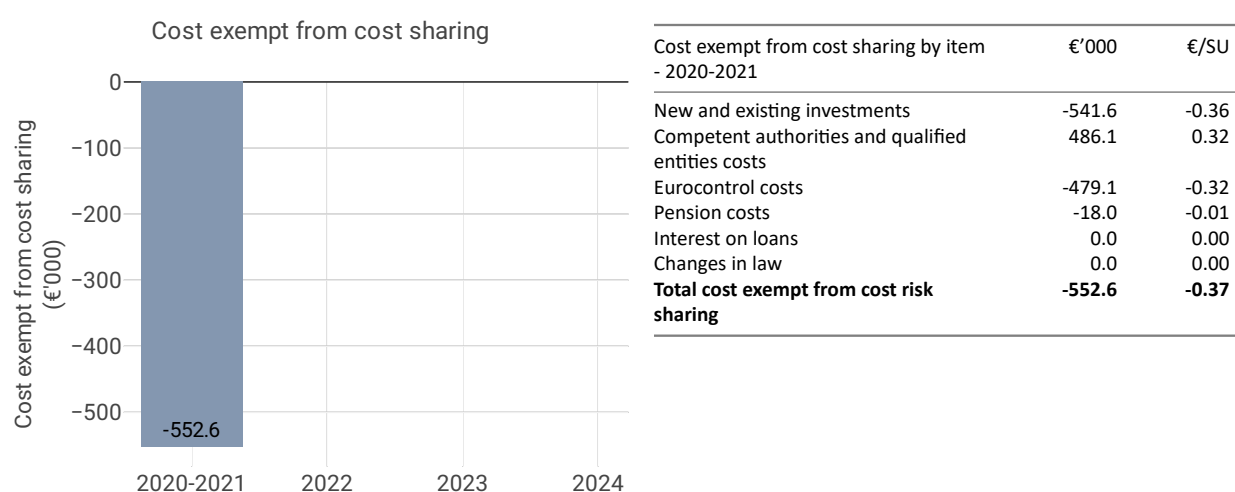
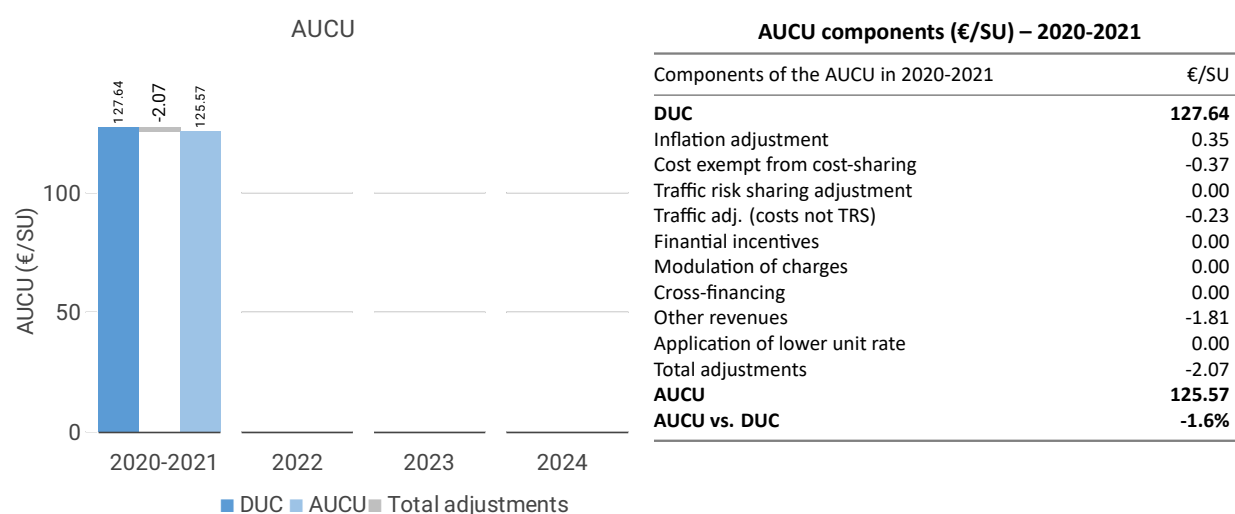
En route costs for the main ANSP at charging zone level

Slightly higher than planned en route costs in real terms for NAVIAIR in 2020-2021 (+0.1%, or +0.1 M€2017 higher) results from:

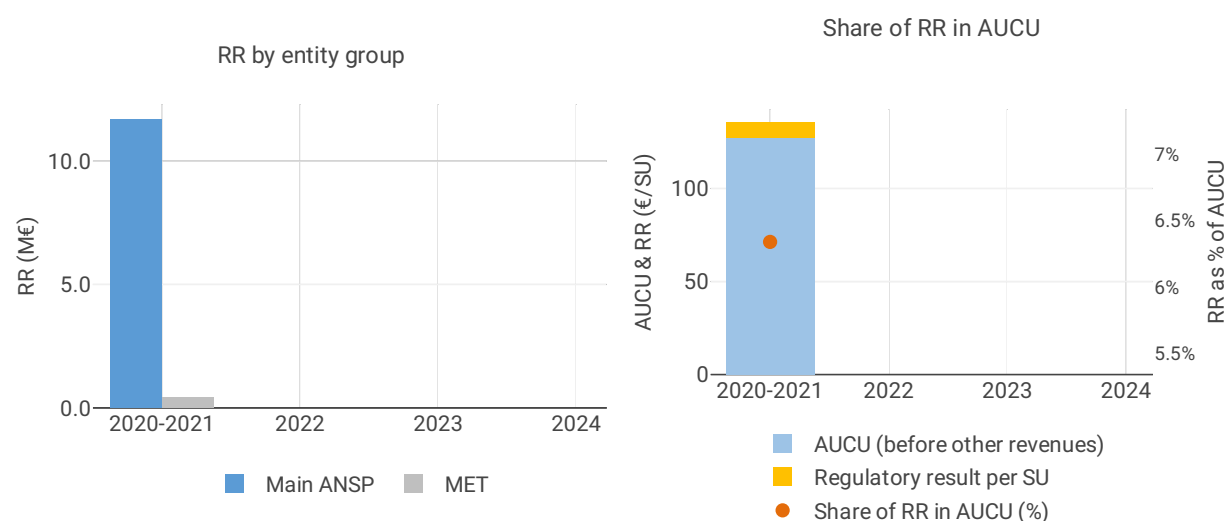
- higher staff costs (+0.9%), "mainly driven by costs for extra shifts primarily COVID-related absence;"
- lower other operating costs (-4.3%), "driven by low travel expenses, lower costs on administrative IT, and on fewer costs for training, e.g. COVID-related delays;"
- slightly lower depreciation (-0.1%);
- lower cost of capital (-4.9%), due to "fewer costs of debt related to lower renegotiated interest on subordinated loan;"

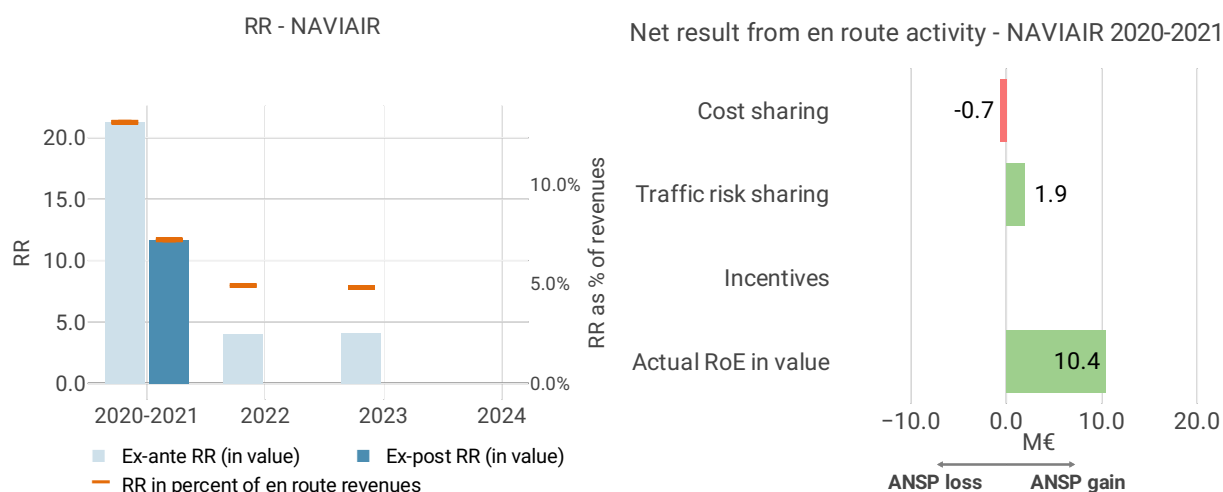
- lower deduction as exceptional costs (-11.4%, as amounts are negative it reflects an increase of total costs), due to no deduction in 2021 actuals;
- lower deduction for VFR exempted flights (-0.4%).

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



5.2.3 Regulatory result (RR)





Focus on regulatory result

NAVIAIR net gain on en route activity in the Denmark charging zone in the combined year 2020-2021

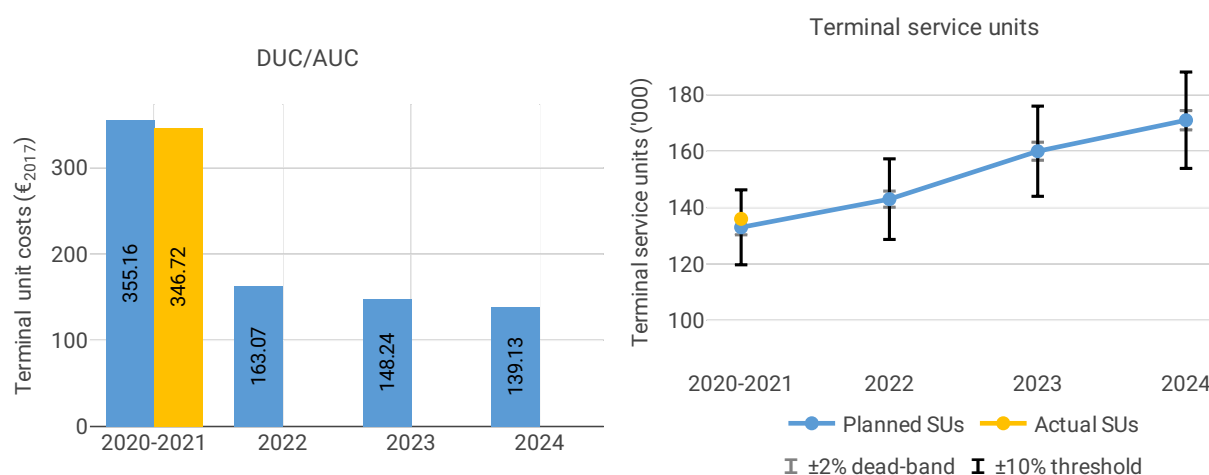
NAVIAIR's net gain amounts to +1.8 M€, as a combination of a loss of -0.1 M€ arising from the cost sharing mechanism and a gain of +1.9 M€ arising from the traffic risk sharing mechanism.

NAVIAIR 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 (+1.8 M€) and the actual RoE (+10.4 M€) amounts to +12.2 M€ (7.5% of the en route revenues). The resulting ex-post rate of return on equity is 5.9%.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the terminal AUC was -2.4% (or -62.74DKK2017, or -8.44€2017) lower than the planned DUC. This results from the combination of higher than planned TNSUs (+2.2%) and lower than planned terminal costs in real terms (-0.3%, or -0.9 MDKK2017, or -0.1 M€2017).

Terminal service units

The difference between actual and planned TNSUs (+2.2%) falls outside the $\pm 2\%$ dead band, but does not exceed the $\pm 10\%$ threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ATSP and the airspace users, with the ATSP (NAVIAIR) retaining an amount of +7.0 MDKK2017.

Terminal costs by entity

Actual real terminal costs are -0.3% (-0.9 MDKK2017, or -0.1 M€2017) lower than planned. This is driven by the main ANSP, NAVIAIR (-0.2%, or -0.1 M€2017) and the MET service provider (-4.6%, or -0.02 M€2017).

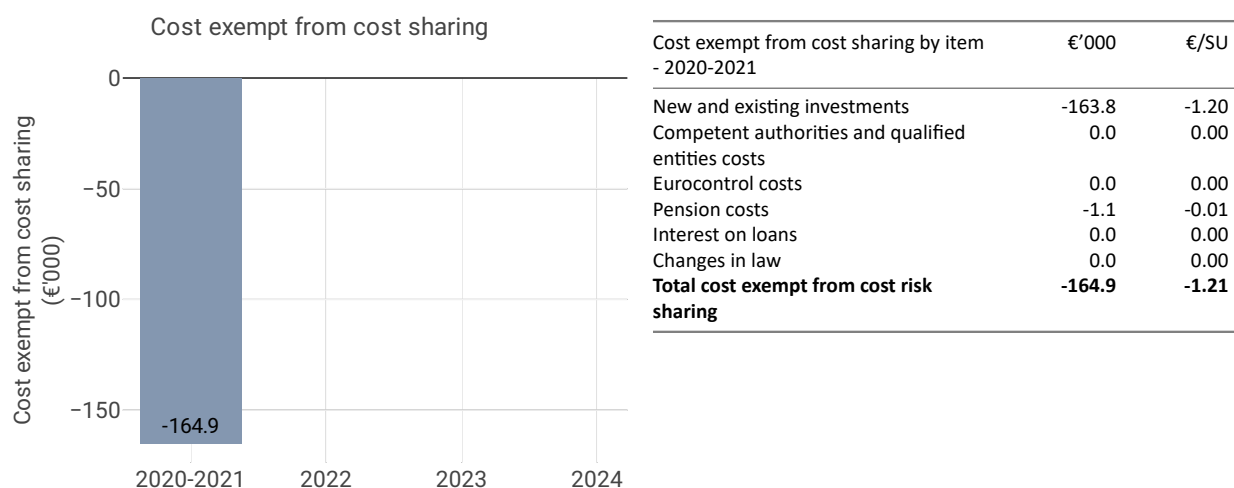
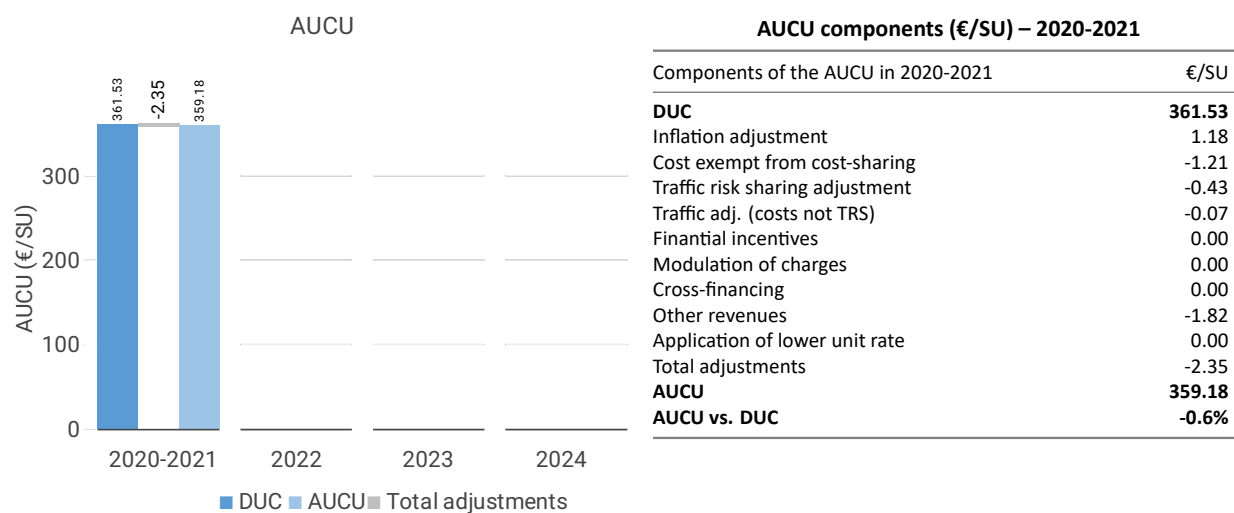
Terminal costs for the main ANSP at charging zone level

The lower than planned terminal costs in real terms for NAVIAIR (-0.2%, or -0.1 M€2017) result from:

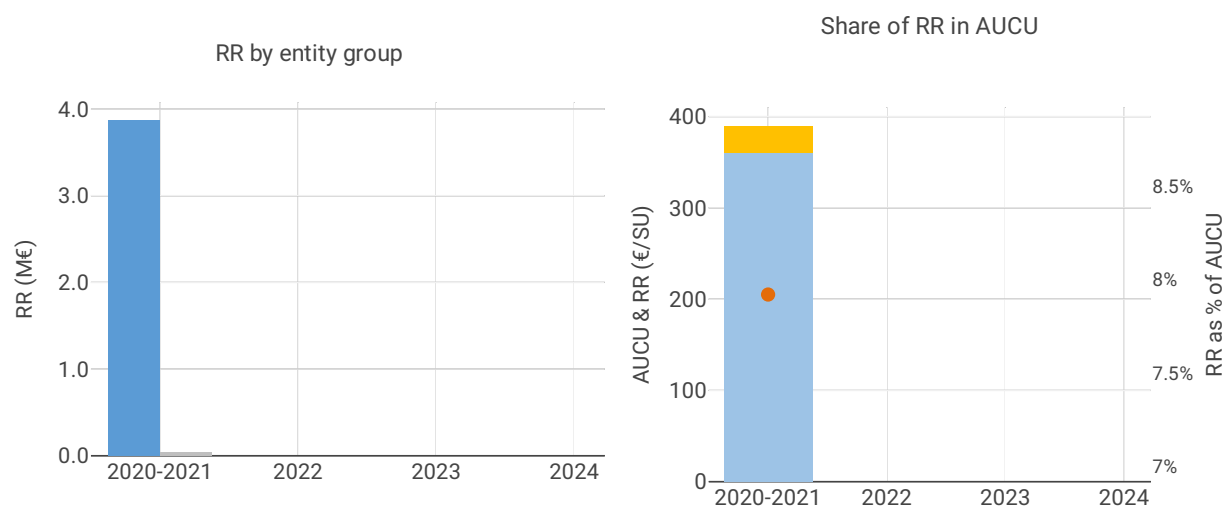
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- lower other operating costs (-4.0%), "driven by low travel expenses, lower costs on administrative IT, and on fewer costs for training, e.g. COVID-related delays;"
- slightly higher depreciation (+0.2%);

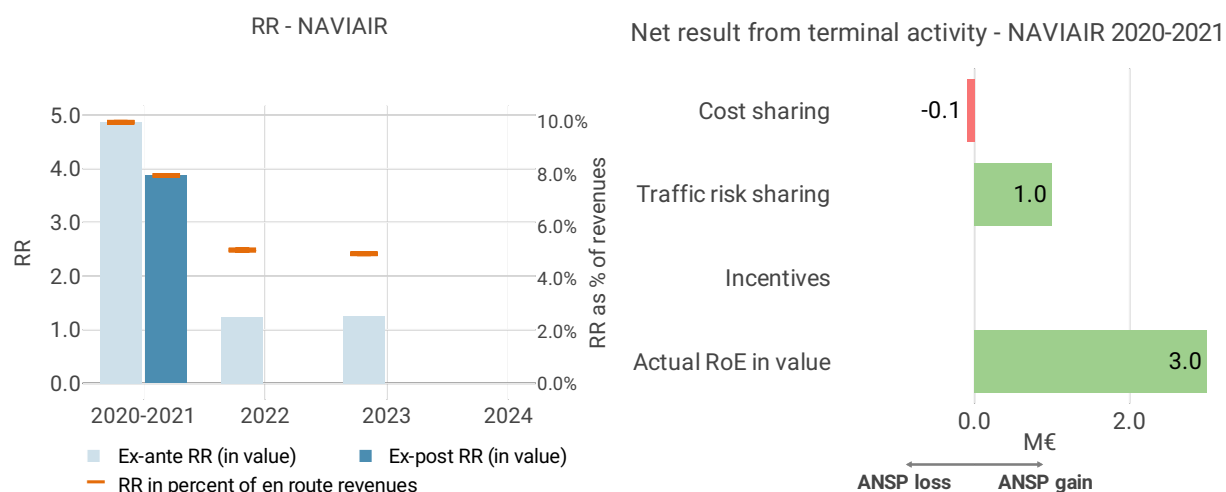
- lower cost of capital (-5.7%), due to “fewer costs of debt related to lower renegotiated interest on subordinated loan;”
- lower deduction as exceptional costs (-5.7%, as amounts are negative it reflects an increase of total costs), due to no deduction in 2021 actuals.

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



5.3.3 Regulatory result (RR)





Focus on regulatory result

NAVIAIR net gain on terminal activity in the Denmark charging zone in the combined year 2020-2021

NAVIAIR reported a net gain of +1.1 M€, as a combination of a gain of +0.1 M€ arising from the cost sharing mechanism and a loss of -1.0 M€ arising from the traffic risk sharing mechanism.

NAVIAIR overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+1.1 M€) and the actual RoE (+3.0 M€) amounts to 4.0 M€ (8.3% of the terminal revenues). The resulting ex-post rate of return on equity is 6.8%.