PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Portugal - 2020

This report is automatically generated from: sesperformance.eu

Performance Review Body of the Single European Sky | Rue de la Fusée 96, Office 50.659, 1130 Brussels
Office Telephone: +32 (0)2 234 7824 | cathy.mannion@prb.eusinglesky.eu | prb-office@prb.eusinglesky.eu | eu-single-sky.transport.ec.europa.eu

TABLE OF CONTENTS

1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/767 of 13 April 2022

List of ACCs 1
Lisbon ACC

No of airports in the scope of the performance plan:
- **≥80'K** 2
- **<80'K** 8

Exchange rate (1 EUR=)
2017: 1 EUR
2020: 1 EUR

Share of Union-wide:
- **traffic (TSUs) 2020** 3.0%
- **en route costs 2020** 1.9%

Share en route / terminal costs 2020 77% / 23%

En route charging zone(s)
Portugal Continental

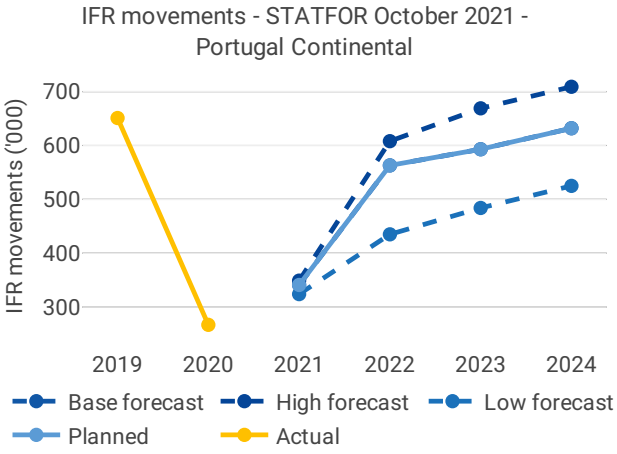
Terminal charging zone(s)
Portugal

Main ANSP
- NAV Portugal (Continental)

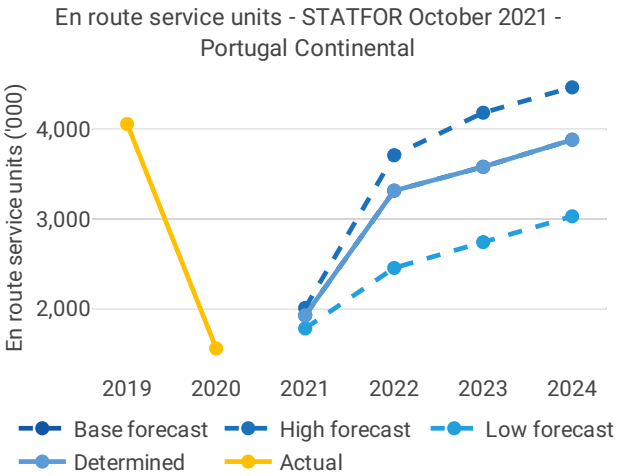
Other ANSPs
- Estado Maior da Força Aérea
- Estado Maior da Armada

MET Providers
- IPMA

1.2 Traffic (En route traffic zone)

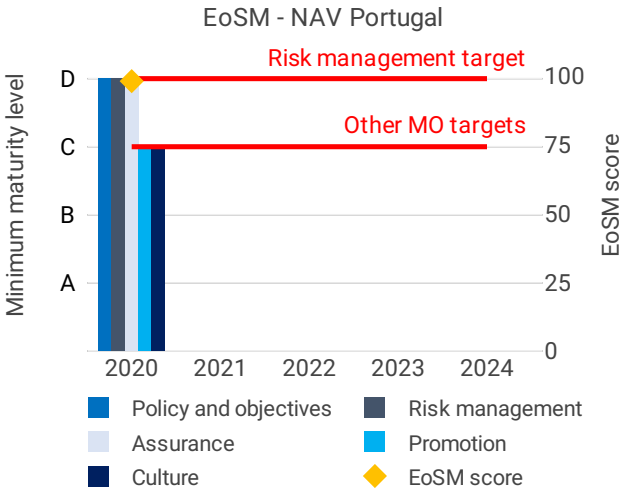


- Portugal recorded 267K actual IFR movements in 2020, -59% compared to 2019 (651K).
- Portugal IFR movements reduced more than the average reduction at Union-wide level (-57%).



- Portugal recorded 1,556K actual en route service units in 2020, -62% compared to 2019 (4,060K).
- Portugal service units reduced more than the average reduction at Union-wide level (-57%).

1.3 Safety (Main ANSP)



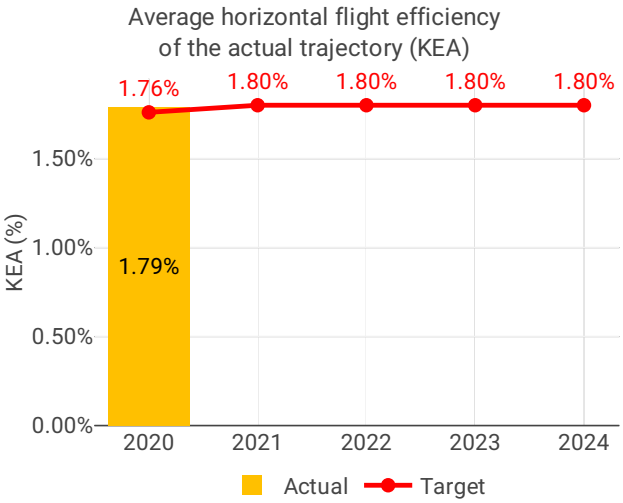
• NAV Portugal achieved the RP3 EoSM targets in 2020 and exceeded the targets in two out of five management objectives. The achieved levels are better than what was planned in the draft 2019 performance plan.

• The NSA said that NAV Portugal will continue to make every effort to maintain and improve the current safety performance levels and defined a set of measures to achieve this.

• Portugal recorded good performance with respect to safety occurrences with no occurrences recorded for SMIs or RIs. This improved the already low rate of SMIs and RIs recorded in 2019.

• NAV Portugal should improve its SMS by implementing automated safety data recording systems.

1.4 Environment (Member State)



• Portugal achieved a KEA performance of 1.79% compared to its reference value of 1.76% and therefore did not contribute positively towards achieving the Union-wide target.

• The NSA stated that thee reason for Portugal did not achieve the reference value is that the measurement of KEA performance was biased in 2020 since traffic was very low.

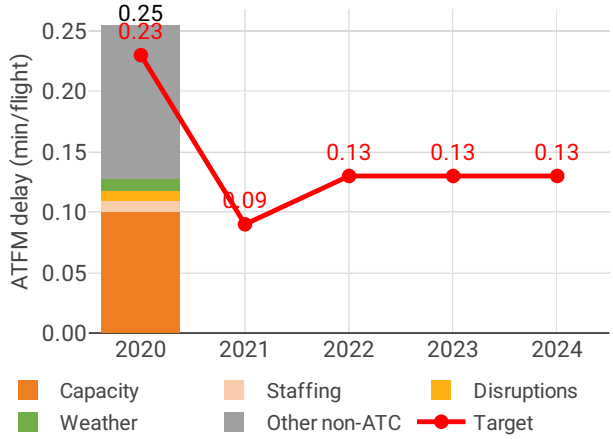
• However, KEA is linearly proportional to IFR movements and therefore less traffic generally improves performance. Indeed, Portugal admitted this in its performance plan. The performance in the first three months of 2020 was an issue that the NSA should seek to address.

• Only three out of 10 Portuguese airports that are regulated reported terminal data.

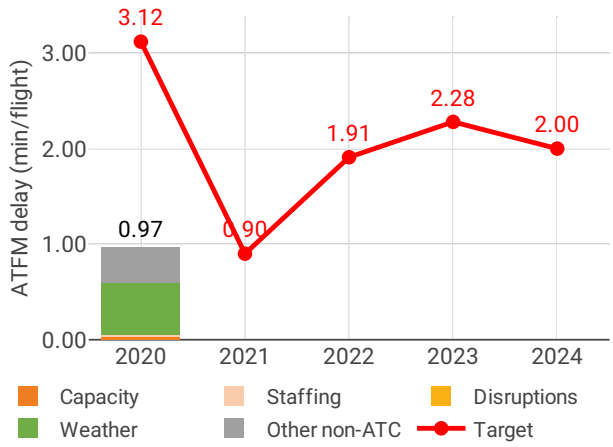
• The share of flights operating CCO/CDO at Portuguese airports improved in 2020 compared to 2019. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 39% compared to 2019.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



• NAV Portugal registered 0.25 minutes of average en route ATFM delay per flight, thus not achieving the local breakdown value of 0.23.

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

• Portugal reported that delays were generated by the transition to the provisional OPS room, associated works in the main OPS room, and the implementation of social distancing measures, which all reduced the available capacity.

• When comparing the first two months of 2020, the traffic was slightly lower than in 2019 (-2%) but en route ATFM delay increased by 38%.

• Portugal reported an almost 2% increase in ATCO FTE numbers in 2020 compared to 2019 values but this is still 8% less than planned for 2020.

• Portugal reported no rectifying measures to improve capacity performance.

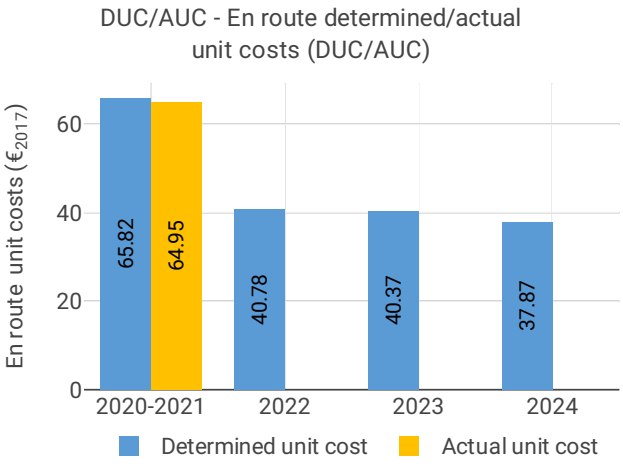
• Delays were mostly related to ATC capacity issues and preventive COVID-19 measures.

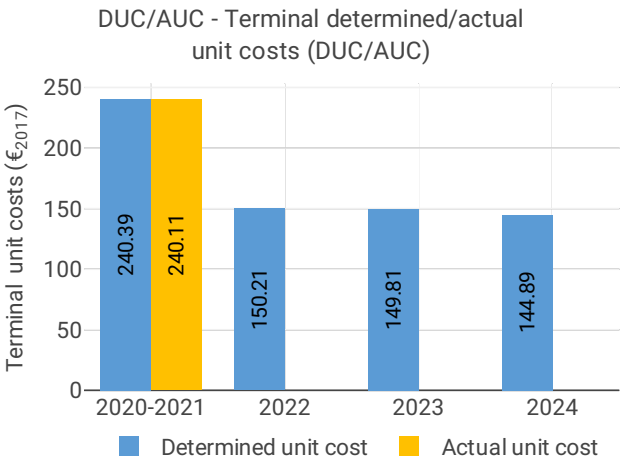
• The share of delayed flights with delays longer than 15 minutes in Portugal decreased by 2.8 p.p. compared to 2019.

• The yearly total of sector opening hours in Lisbon ACC was 48,067, showing a 30.5% decrease compared to 2019.

• Lisbon ACC registered 5.07 IFR movements per one sector opening hour in 2020, being 42.2% below 2019 levels.

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





• Portugal is the third most affected Member State by COVID-19 in terms of traffic decrease. In 2020, the actual service units (1,556K) were 61% lower than the actual service units in 2019 (4,034K).

• Portugal had the third highest percentage saving in 2020 across all Member States, with a 28 M€2017 (-20%) reduction in 2020 actual total costs compared to 2019 actual costs. The reduction is mainly driven by a decrease in staff costs of 28 M€2017 (-26%), resulting from wage freezes, impact on pension plan liabilities and reduction in overtime.

• NAV Portugal spent 13 M€2017 in 2020 related to cost of investments, 4% less than planned in the 2019 draft performance plan (14 M€2017). The reduction can be attributable to a lower cost of capital due to a lower asset base and a reduction of the WACC.

2 SAFETY - PORTUGAL

2.1 PRB monitoring

• NAV Portugal achieved the RP3 EoSM targets in 2020 and exceeded the targets in two out of five management objectives. The achieved levels are better than what was planned in the draft 2019 performance plan.

• The NSA said that NAV Portugal will continue to make every effort to maintain and improve the current safety performance levels and defined a set of measures to achieve this.

• Portugal recorded good performance with respect to safety occurrences with no occurrences recorded for SMIs or RIs. This improved the already low rate of SMIs and RIs recorded in 2019.

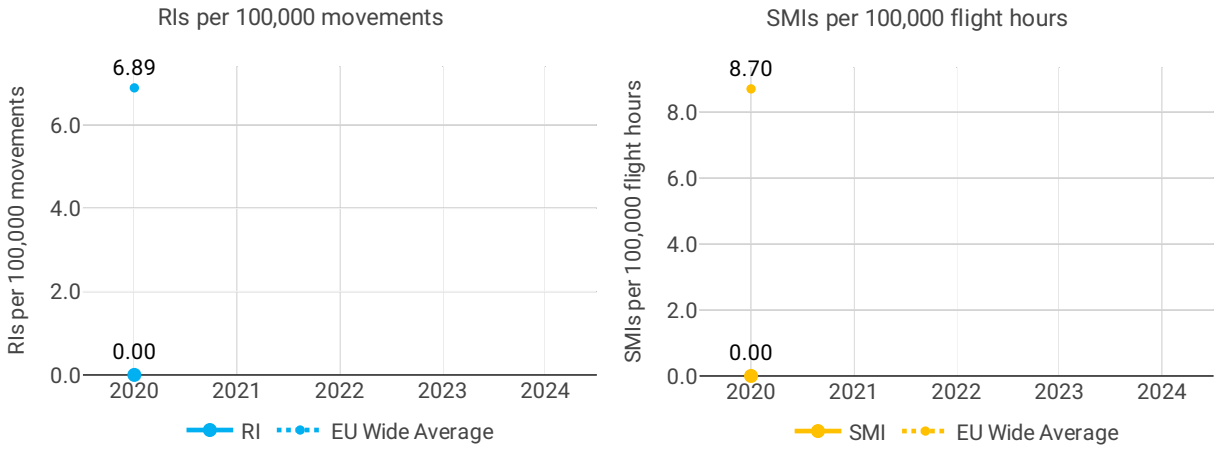
• NAV Portugal should improve its SMS by implementing automated safety data recording systems.

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

Focus on EoSM

All five EoSM components of the ANSP meet, or exceed, already the 2024 target level.

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



3 ENVIRONMENT - PORTUGAL

3.1 PRB monitoring

• Portugal achieved a KEA performance of 1.79% compared to its reference value of 1.76% and therefore did not contribute positively towards achieving the Union-wide target.

• The NSA stated that thee reason for Portugal did not achieve the reference value is that the measurement of KEA performance was biased in 2020 since traffic was very low.

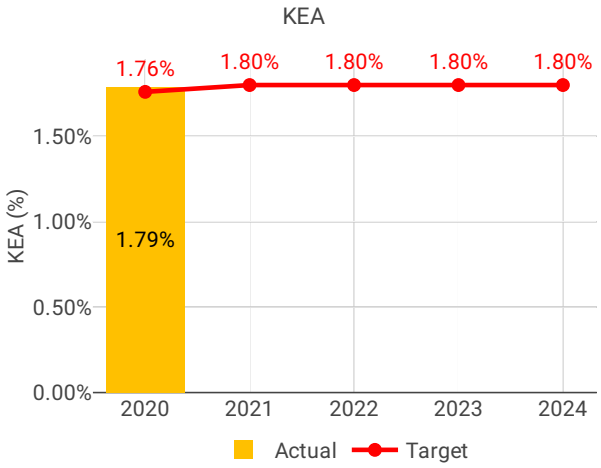
• However, KEA is linearly proportional to IFR movements and therefore less traffic generally improves performance. Indeed, Portugal admitted this in its performance plan. The performance in the first three months of 2020 was an issue that the NSA should seek to address.

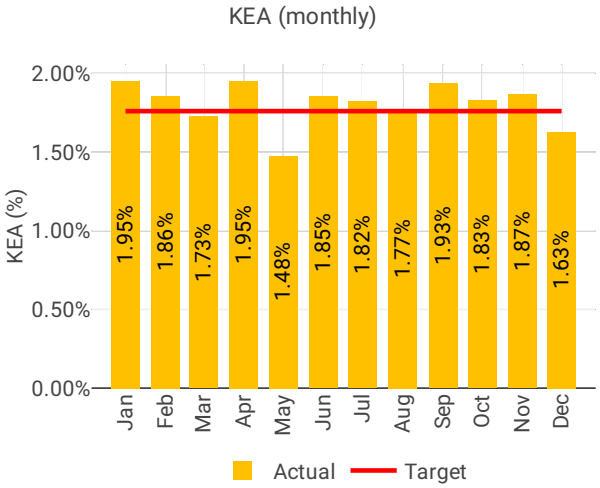
• Only three out of 10 Portuguese airports that are regulated reported terminal data.

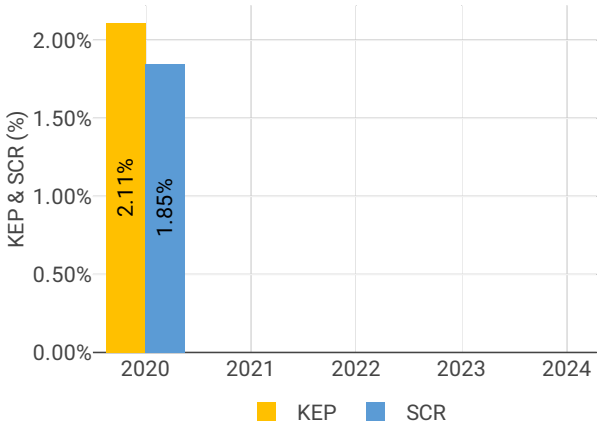
• The share of flights operating CCO/CDO at Portuguese airports improved in 2020 compared to 2019. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 39% compared to 2019.

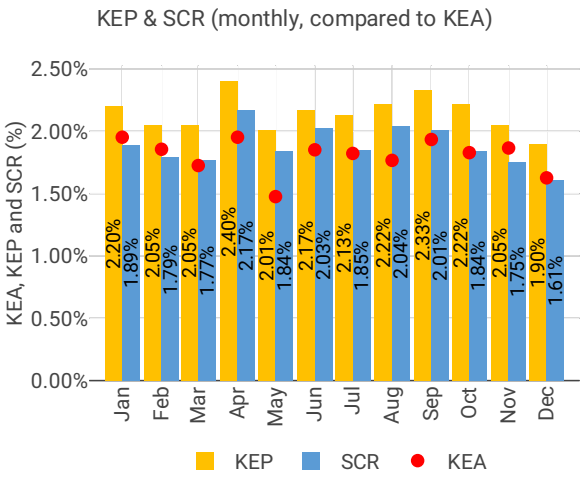
3.2 En route performance

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



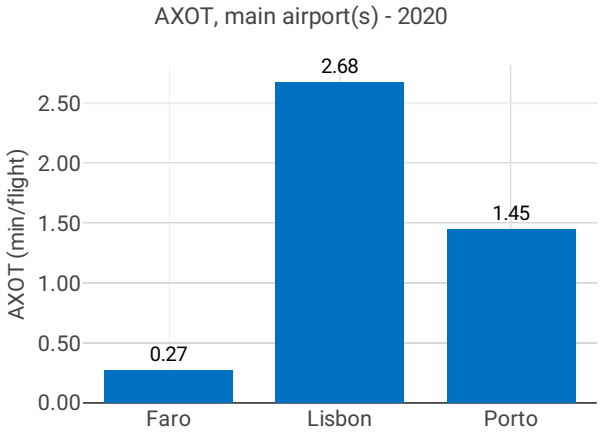


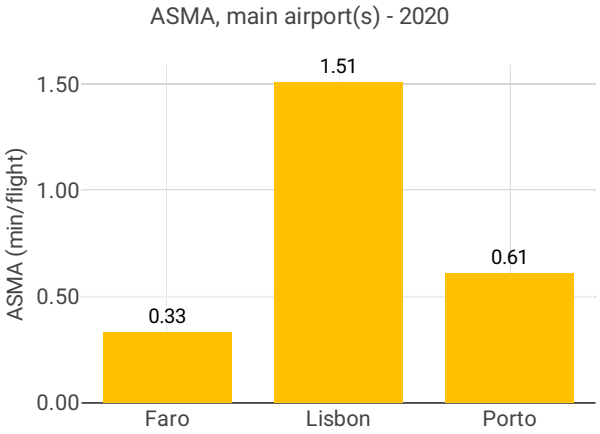




3.3 Terminal performance

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





Focus on ASMA & AXOT

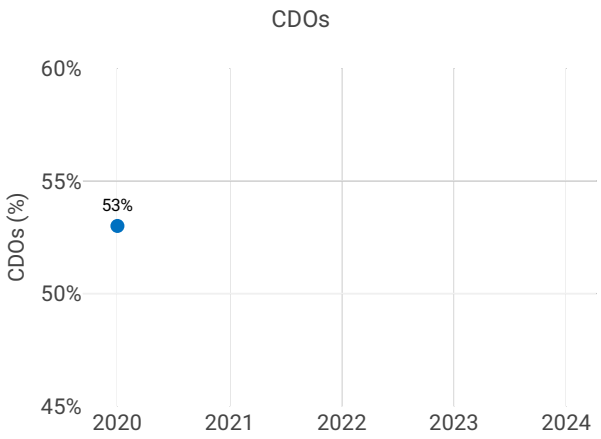
AXOT

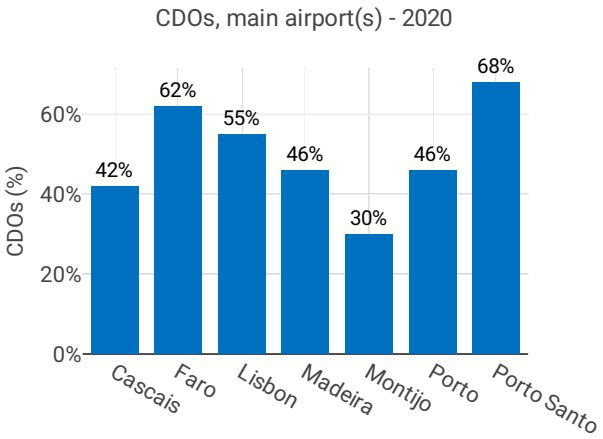
Additional taxi-out times at Lisbon (LPPT; 2019: 3.96 min/dep.; 2020: 2.68 min/dep.) decreased drastically as of the month of April alongside the traffic. Between April and December these times averaged 1.35 min/dep.
Similarly, at Porto the reduction in traffic impacted this indicator, that from April to December averaged 1.14 min/dep.

ASMA

Like the additional taxi-out times, the additional times in the terminal airspace drastically decreased in 2020.
At Lisbon (LPPT; 2019: 2.75 min/arr.; 2020: 1.51 min/arr.) the additional ASMA times were practically zero between April and June, then increased slightly averaging 0.6 min/arr. the second half of the year.
At Porto (LPPR; 2019: 1.34 min/arr.; 2020: 0.61 min/arr.) the additional ASMA times averaged only 0.17 min/arr. between April and December.

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





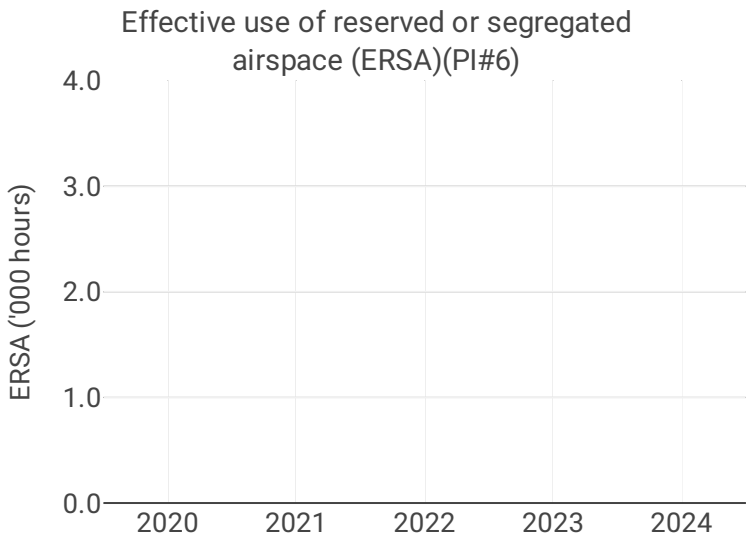
Focus CDOs

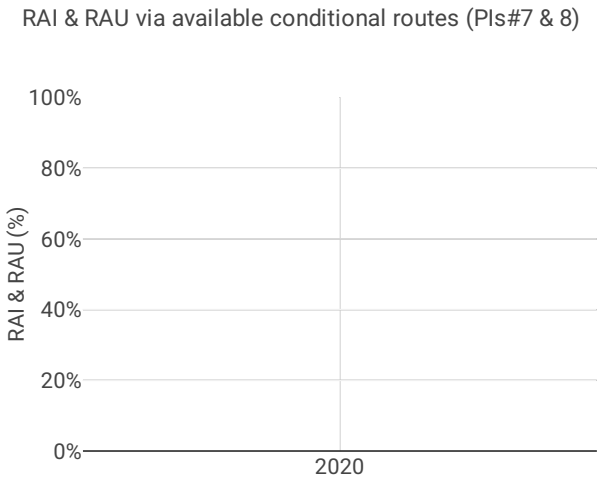
All airports have shares of CDO flights (well) above the overall RP3 value in 2020 (32.5%), ranging from 41.5% (Cascais - LPCS) to 67.4% (Porto Santo - LPPS).

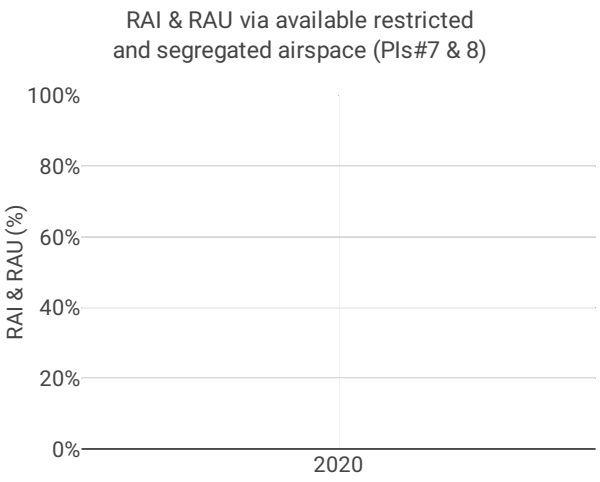
Airport level

	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
Faro	0.27	NA	NA	NA	NA	0.33	NA	NA	NA	NA	62%	NA	NA	NA	NA
Lisbon	2.68	NA	NA	NA	NA	1.51	NA	NA	NA	NA	55%	NA	NA	NA	NA
Porto	1.45	NA	NA	NA	NA	0.61	NA	NA	NA	NA	46%	NA	NA	NA	NA
Cascais	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42%	NA	NA	NA	NA
Madeira	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	46%	NA	NA	NA	NA
Montijo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30%	NA	NA	NA	NA
Porto Santo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68%	NA	NA	NA	NA
Santa Maria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Flores	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Horta	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ponta Delgada	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

Environment: Airspace design is established in accordance with the FUA principles for strategic, pre-tactical and tactical levels.
The military training missions are conducted primarily within the restricted airspace associated with military aerodromes or, when necessary, at the temporary segregated airspace established at strategic level. This type of airspace usage results in direct and short transit routes to and from the established training areas. The average transit route extension between the military aerodromes and the training areas in Portugal is around 20NM.
Additionally, the average duration of the training missions, (not including the transit times) is one (1) hour, except during major exercises.
The number of major air exercises in Portugal in 2020 was reduced due to the COVID19 pandemic, and those that took place were downscaled, in both the number of missions and flight hours.
A close and active daily coordination between the military and the civil ANSP is, since long, the trademark of the Portuguese ASM. Also, the FUA coordination is supported by the Local and regional Airspace Management Tool (LARA), which enables the required level of civil military interoperability for the ASM process.
As a general assessment, the environmental impact of the military during the RP3 period is expected to be low, since the military training activity was reduced due to the pandemic, and the current airspace structure promotes the optimization of transit times between air bases and training areas, thus reducing the associated carbon footprint.
Capacity: As mentioned for the environment KPA, during the RP3 period the military air activity in Portugal was reduced due to the COVID 19 pandemic.
This, in conjunction with the general reduction of the commercial aviation activity, also associated with the COVID19 pandemic, has resulted in a very low impact of the military in the capacity KPA, particularly since 2019.
The military training activities in Portugal are conducted in accordance with the FUA principle, as mentioned in the environment KPA.
ASM is the main enabler to minimize the military impact on the capacity KPA, which is supported by the LARA tool, and is achieved through a close civil military cooperation at all the three FUA levels.
On a daily basis, the FUA level 2 and 3 is managed by the ASM cell which is jointly manned by civil and military personnel, co-located within the Lisbon ACC. This provides for a close liaison at both pre-tactical and tactical level.
Overall, the reduction of the military training activity, including exercises, should result in a low impact in capacity. Moreover, the activation of airspace under the FUA principle should not be included in any type of capacity reduction, since, in the current operational arrangements between the Portuguese civil ANSP and the military, the required blocks of airspace are only active between the actual time the military aircraft enter the area until the moment they vacate it, thus increasing capacity.
The current trend by some ANSP to include the use of FUA by the military as a “capacity reduction factor”,

is not only contrary to the principles contained in Regulation 2150/2005, it is also detrimental to the effort put by the military in the mission planning phase when establishing the airspace daily requirements.

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

Environment: The military are updating the CNS equipment to be able to fly on more efficient routes, especially when operating as General Air Traffic. In this sense, several fleets are being modified to comply with the latest CNS requirements and new aircraft are scheduled for delivery soon.
Regarding airspace design, Portugal is currently undergoing a major restructuring of its airspace structures in order to improve its overall capacity and adequacy to both military and civil requirements.
Capacity: As already mentioned in the environment KPA, a major airspace restructuring is currently ongoing in Portugal, involving all the main stakeholders, in order to accommodate for both the military and civil requirements.

Initiatives implemented or planned to improve PI#6

No data available. LARA tool with the direct interface with the NM is only available from 2021 onwards.

Initiatives implemented or planned to improve PI#7

There are no CDRs at Lisboa FIR

Initiatives implemented or planned to improve PI#8

No data available

4 CAPACITY - PORTUGAL

4.1 PRB monitoring

• NAV Portugal registered 0.25 minutes of average en route ATFM delay per flight, thus not achieving the local breakdown value of 0.23.

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

• Portugal reported that delays were generated by the transition to the provisional OPS room, associated works in the main OPS room, and the implementation of social distancing measures, which all reduced the available capacity.

• When comparing the first two months of 2020, the traffic was slightly lower than in 2019 (-2%) but en route ATFM delay increased by 38%.

• Portugal reported an almost 2% increase in ATCO FTE numbers in 2020 compared to 2019 values but this is still 8% less than planned for 2020.

• Portugal reported no rectifying measures to improve capacity performance.

• Delays were mostly related to ATC capacity issues and preventive COVID-19 measures.

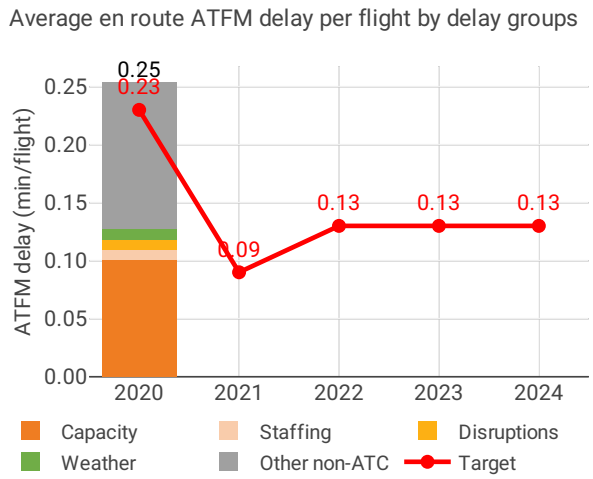
• The share of delayed flights with delays longer than 15 minutes in Portugal decreased by 2.8 p.p. compared to 2019.

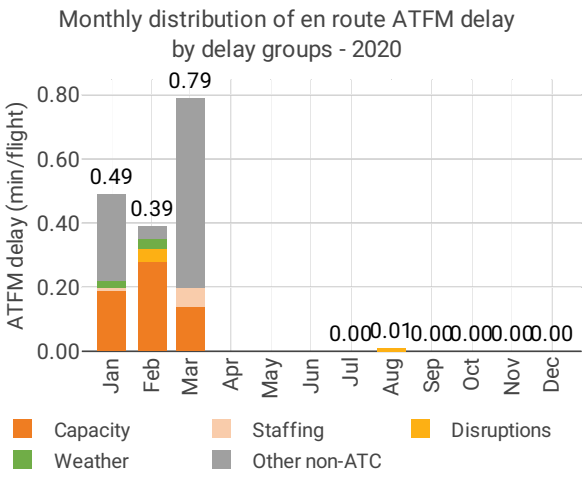
• The yearly total of sector opening hours in Lisbon ACC was 48,067, showing a 30.5% decrease compared to 2019.

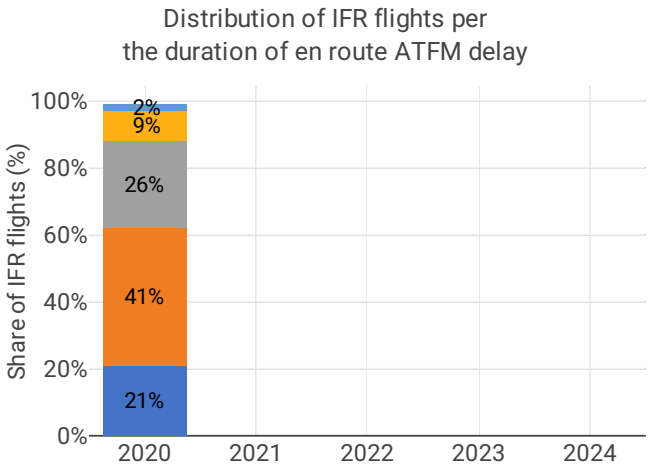
• Lisbon ACC registered 5.07 IFR movements per one sector opening hour in 2020, being 42.2% below 2019 levels.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

The Lisbon FIR experienced a traffic reduction of 59% from 2019 levels, to 267k flights. The traffic level was accommodated with 67k minutes of en route ATFM delays to airspace users. Practically all delays occurred between January and March: 45% of delays were attributed to “Other” or “Special Event” and another 40% were attributed to ATC capacity.

NSA’s assessment of capacity performance

ATFM en route delay was impacted by two events in 2020. The transition to the provisional ops room, due to works in the main room, and in March the implementation of segregation measures due to COVID19, with the consequent reduction of available capacity during this period. Although for the remainder of the year, en-route delays were at zero, the significant traffic reduction did not allow the total delays to be diluted in accordance with the target set

Monitoring process for capacity performance

NAV Portugal and ANAC have a quarterly monitoring process of the Performance Indicators.

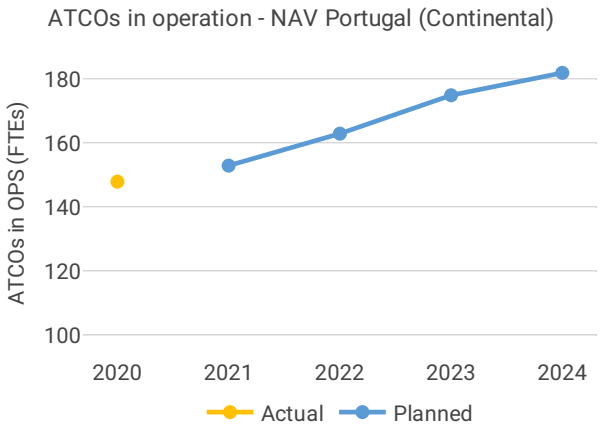
Capacity planning

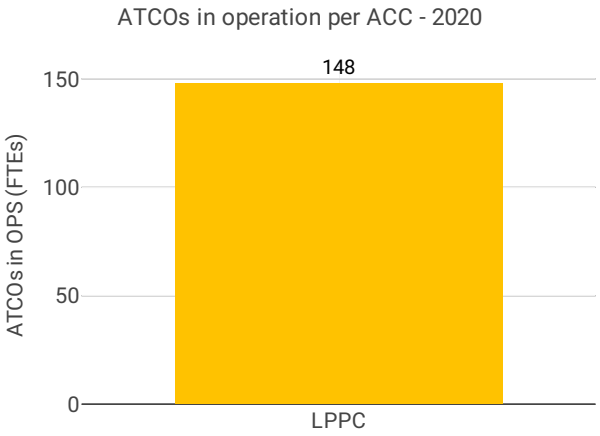
Due to COVID 19, priority was given to the deployment and training of the new ATM system to be operational during Q1 of 2022, since at this stage there are no capacity constrains foreseen at En route level.

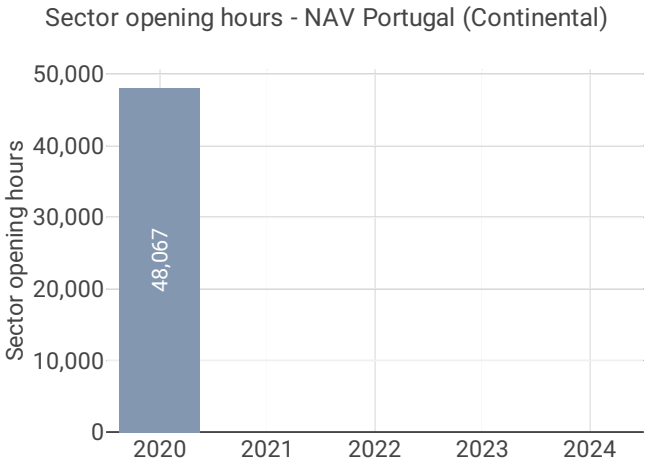
Application of Corrective Measures for Capacity (if applicable)

On what concerns Capacity and en-route delay, the actual value was 0,25 min/flight and the objective was 0,23 min/flight (+0,02) caused by a transition to the operation room and due to staff segregation measures caused by COVID 19. The last 9 months of 2020 had almost zero minutes of delay, However as the levels of traffic were very low, it was not possible to dilute the performance of the first quarter.
Considering the reasons for the non-compliance no recommendations were made.

4.2.2 Other indicators



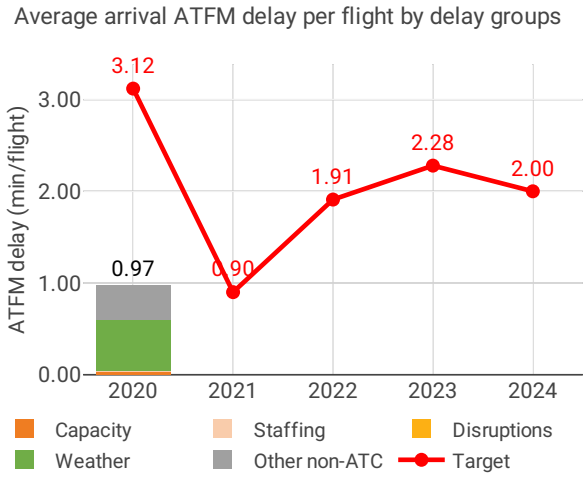


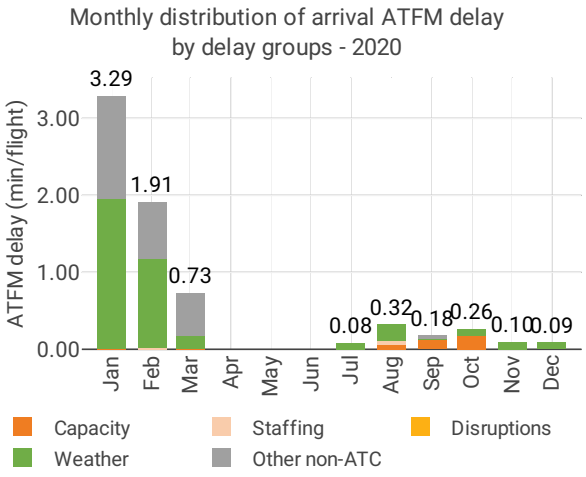


Focus on ATCOs in operations

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





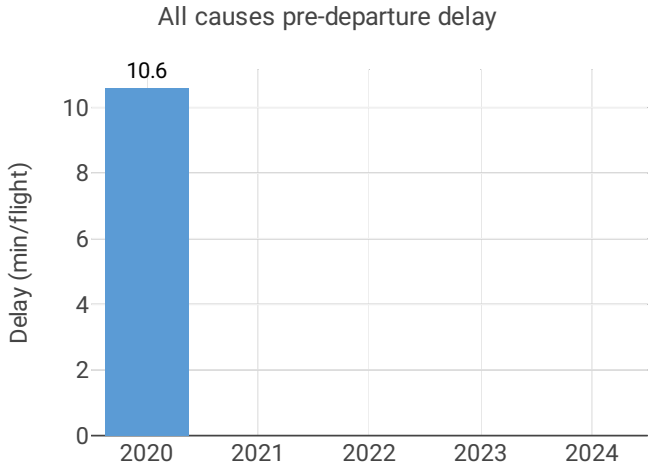
Focus on arrival ATFM delay

The scope of RP3 monitoring for Portugal comprises 10 airports in 2020, However, in accordance with IR (EU) 2019/317 and the traffic figures, only two of these airports (Lisbon (LPPT) and Porto (LPPR)) must be monitored for pre-departure delays.
The Airport Operator Data Flow, necessary for the monitoring of these pre-departure delays, is correctly established where required and the monitoring of all capacity indicators can be performed. Nevertheless, the quality of the reporting from Porto does not allow for the calculation of the ATC pre-departure delay, with more than 60% of the reported delay not allocated to any cause.
Traffic at these 10 airports, that had increased considerably during RP2, decreased in 2020 by 56% with respect to 2019. In line with this drop in traffic, arrival ATFM delays decreased by 65% with respect to 2019 and were observed only at the two main airports Lisbon and Porto. Slot adherence at national level was 95.3%.

The national average arrival ATFM delay at Portuguese airports in 2020 was 0.97 min/arr, significantly lower than the 2.76 min/arr in 2019 (-65%)
At airport level, only Lisbon and Porto registered delays. Most delays took place in the first trimester of the year, but despite the drastic reduction in traffic, ATFM delays were also present during the rest of the year.
Lisbon (LPPT; 2019: 4.13 min/arr; 2020: 1.72 min/arr) showed the second highest ATFM delays in the SES area. 49% of these delays were attributed to weather, 26% to airspace management issues and 18% to aerodrome capacity.
At Porto (LPPR; 2019: 3.09 min/arr; 2020: 0.77 min/arr) delays were attributed to weather (89%), aerodrome capacity (10%) and ATC staffing (1%)

The provisional national target on arrival ATFM delay in 2020 was met.
In accordance with Article 3 (3) (a) of Implementing Regulation (EU) 2020/1627: The incentive scheme shall cover only the calendar years 2022 to 2024.

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



Airport level

	Avg arrival ATFM delay (KPI#2)				Slot adherence (PI#1)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Cascais	NA	NA	NA	NA	82.6%	NA%	NA%	NA%
Faro	0.00	NA	NA	NA	95.8%	NA%	NA%	NA%
Horta	NA	NA	NA	NA	93.8%	NA%	NA%	NA%
Lisbon	1.72	NA	NA	NA	96.5%	NA%	NA%	NA%
Madeira	NA	NA	NA	NA	93.2%	NA%	NA%	NA%
Montijo	NA	NA	NA	NA	0.0%	NA%	NA%	NA%
Ponta Delgada	NA	NA	NA	NA	98.2%	NA%	NA%	NA%
Porto	0.77	NA	NA	NA	93.4%	NA%	NA%	NA%
Porto Santo	NA	NA	NA	NA	92.9%	NA%	NA%	NA%
Santa Maria	NA	NA	NA	NA	100.0%	NA%	NA%	NA%

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Cascais	NA	NA	NA	NA	NA	NA	NA	NA
Faro	0.09	NA	NA	NA	8.2	NA	NA	NA
Horta	NA	NA	NA	NA	NA	NA	NA	NA
Lisbon	2.14	NA	NA	NA	12.0	NA	NA	NA
Madeira	NA	NA	NA	NA	NA	NA	NA	NA
Montijo	NA	NA	NA	NA	NA	NA	NA	NA
Ponta Delgada	NA	NA	NA	NA	NA	NA	NA	NA
Porto	0.26	NA	NA	NA	9.2	NA	NA	NA
Porto Santo	NA	NA	NA	NA	NA	NA	NA	NA
Santa Maria	NA	NA	NA	NA	NA	NA	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, the share of regulated departures from Portuguese airports virtually disappeared as of April. The annual figures are therefore driven by the performance in the first trimester.
Most Portuguese airports showed adherence above 90% with the exception of Cascais (LPCS) that ranged just above the required compliance threshold of 80%. Nevertheless this lower adherence corresponds to only 8 departures outside of the STW in 2020.
The national average was 95.3%. With regard to the 4.7% of flights that did not adhere, 3.5% was early and 1.2% was late.

ATC pre-departure delay

The performance at Lisbon, the only Portuguese airport where this indicator can be calculated has notably improved with respect to the previous year (LPPT; 2019: 4.16 min/dep.; 2020: 2.13 min/dep.) but this delay is still the highest in the SES area.

The quality of the airport data reported by Porto was too low, preventing the calculation of this indicator for this airport.
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 both Porto and Lisbon. However, there are several quality checks before EUROCONTROL can produce the final value which is established as the average minutes of pre-departure delay (delay in the actual off block time) associated to the IATA delay code 89 (through the APDF, for each delayed flight, the reasons for that delay have to be transmitted and coded according to IATA delay codes.
However, sometimes the airport operator has no information concerning the reasons for the delay in the off block, or they cannot convert the reasons to the IATA delay codes. In those cases, the airport operator might:
- Not report any information about the reasons for the delay for that flight (unreported delay)
- Report a special code to indicate they do not have the information (code ZZZ)
- Report a special code to indicate they do not have the means to collect and/or translate the information (code 999)

To be able to calculate with a minimum of accuracy the PI for a given month, the minutes of delay that are not attributed to any IATA code reason should not exceed 40% of the total minutes of pre-departure delay observed at the airport.
Finally, to be able to produce the annual figure, at least 10 months of valid data is requested by EUROCONTROL.
The share of unidentified delay reported by Porto was above 40% for 5 months in 2020, preventing the annual calculation of this indicator. Porto usually has proper reporting.

All causes pre-departure delay

The total (all causes) delay in the actual off block time at the two Portuguese airports monitored for this indicator in 2020 was 12.02 min/dep for Lisbon (LPPT) and 9.15 min/dep. for Porto (LPPR).
High delays per flight at both airports were observed in the second trimester of the year, due to the lower traffic and extraordinary circumstances. At Lisbon the highest delays in the year took place in January, averaging more than 20 min/dep.
This performance indicator has been introduced in the performance scheme for the first time this year, so no evolution with respect to 2019 can be analysed.

5 COST-EFFIENCY - PORTUGAL

5.1 PRB monitoring

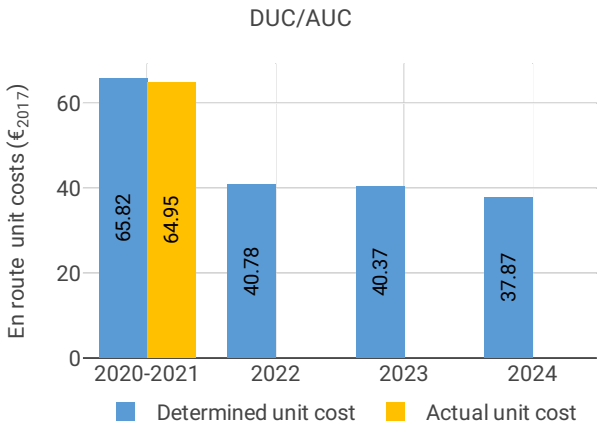
• Portugal is the third most affected Member State by COVID-19 in terms of traffic decrease. In 2020, the actual service units (1,556K) were 61% lower than the actual service units in 2019 (4,034K).

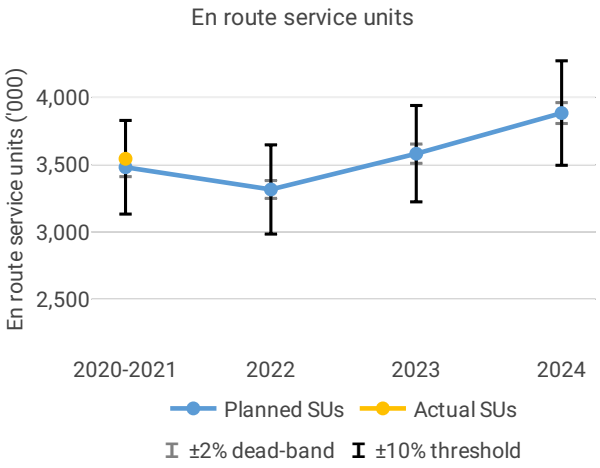
• Portugal had the third highest percentage saving in 2020 across all Member States, with a 28 M€2017 (-20%) reduction in 2020 actual total costs compared to 2019 actual costs. The reduction is mainly driven by a decrease in staff costs of 28 M€2017 (-26%), resulting from wage freezes, impact on pension plan liabilities and reduction in overtime.

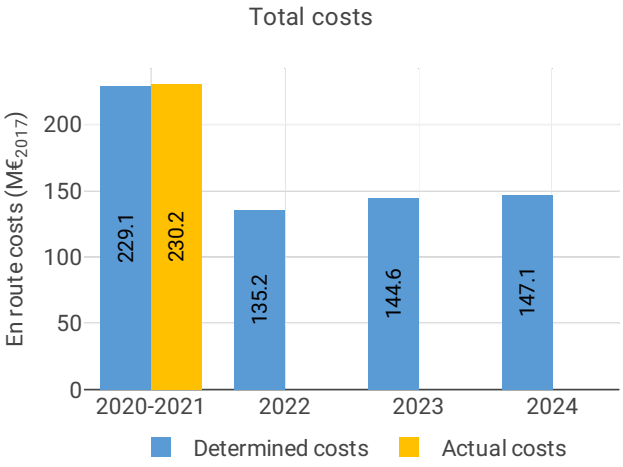
• NAV Portugal spent 13 M€2017 in 2020 related to cost of investments, 4% less than planned in the 2019 draft performance plan (14 M€2017). The reduction can be attributable to a lower cost of capital due to a lower asset base and a reduction of the WACC.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

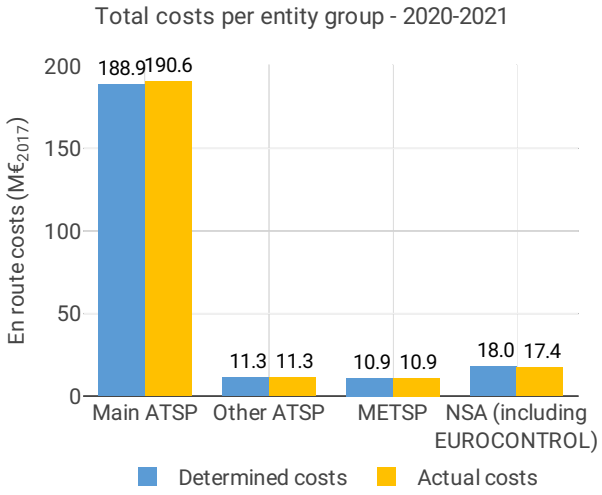


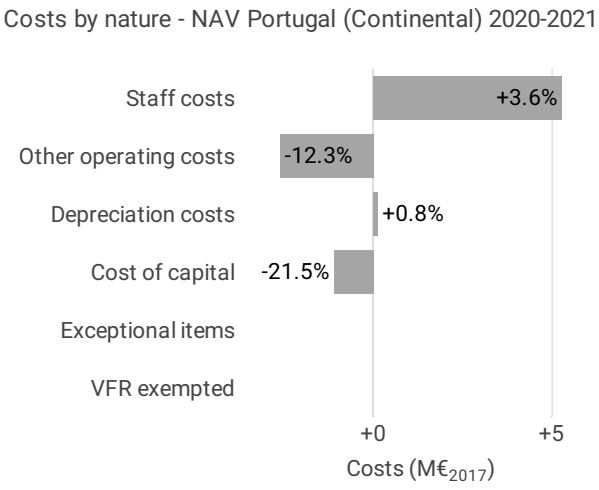




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	234	NA	NA	NA
Determined costs	233	139	150	155
Difference costs	1	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.2%	1.3%	1.4%
Determined inflation index	NA	103.6	104.9	106.4
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the en route AUC was -1.3% (or -0.87€2017) lower than the planned DUC. This results from the combination of higher than planned TSUs (+1.8%) and higher than planned en-route costs in real terms but in a lesser proportion (+0.5%, or +1.1 M€2017).

En route service units

The difference between actual and planned TSUs (+1.8%) falls within the ±2% dead band. Hence the resulting additional en-route revenue is kept by the ANSPs.

En route costs by entity

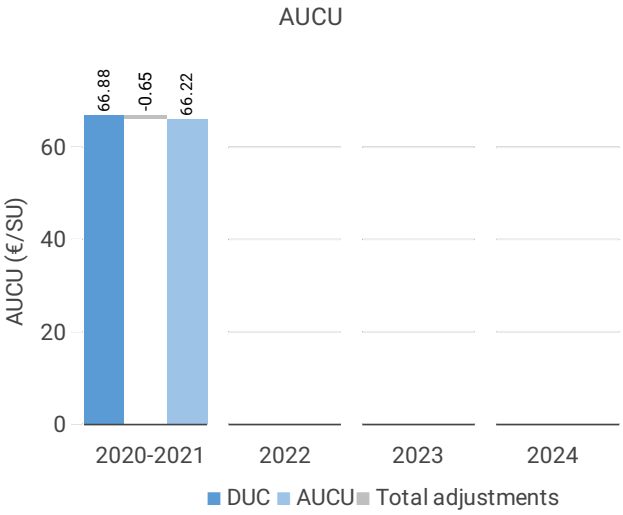
Actual real en route costs are +-0.5% (+1.1 M€2017) higher than planned. This is driven by the main ANSP, NAV Portugal (+0.9%, or +1.7 M€2017), while the costs of the SAR provider and the MET provider are in line with the plan (+0.1% and -0.03%, respectively) and the NSA/EUROCONTROL costs are lower than planned (-3.4%, or -0.6 M€2017).

En route costs for the main ANSP at charging zone level

The higher than planned en route costs in real terms for NAV Portugal (+0.9%, or +1.7 M€2017) result from:

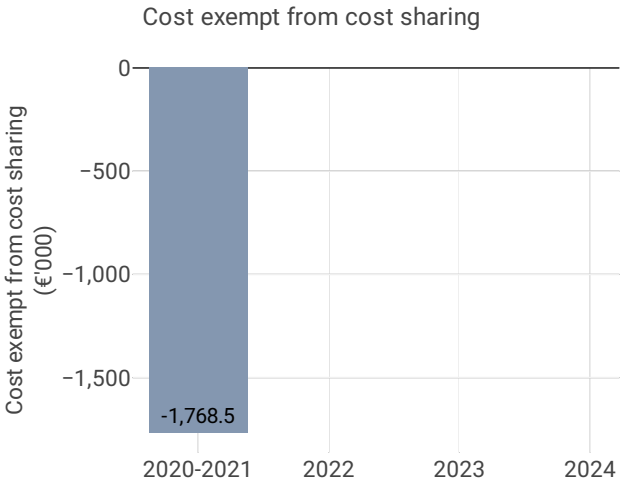
- higher staff costs (+3.6% for the period 2020-2021), "mainly due to the following factors: i) Higher pension fund costs, namely in NAV/CTA-MT; ii) Contingent liabilities arising from specific situations in which ATCOs do not meet the requirements for access to retirement status;iii) Capitalized work that did not materialize at the same level as planned;"
- lower other operating costs (-12.3%), mainly explained by lower spending on IT assistance and other outsourced services, repair and maintenance, communication and travel;"
- slightly higher depreciation (+0.8%); and
- lower cost of capital (-21.5%), due to a slight delay in implementation of the new ATM System.

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



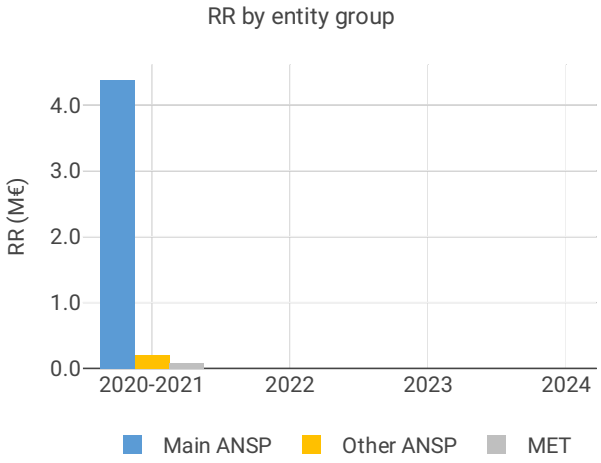
AUCU components (€/SU) – 2020-2021

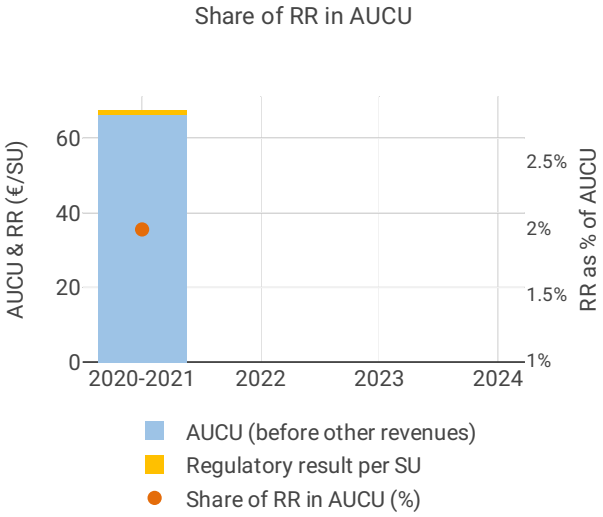
Components of the AUCU in 2020-2021	€/SU
DUC	**66.88**
Inflation adjustment	0.00
Cost exempt from cost-sharing	-0.50
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	-0.16
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	-0.65
AUCU	**66.22**
AUCU vs. DUC	**-1.0%**

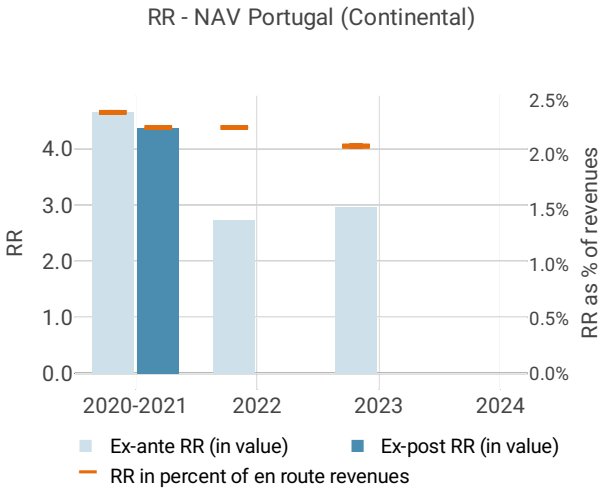


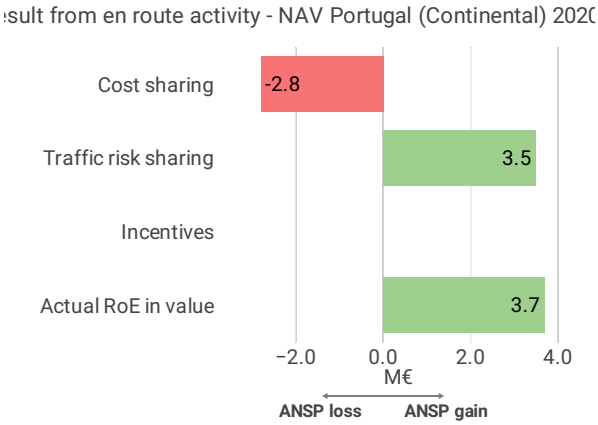
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	-1,149.7	-0.32
Competent authorities and qualified entities costs	-38.0	-0.01
Eurocontrol costs	-580.9	-0.16
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-1,768.5**	**-0.50**

5.2.3 Regulatory result (RR)









Focus on regulatory result

NAV Portugal net gain on activity in Portugal Continental en route charging zone in the combined year 2020-2021

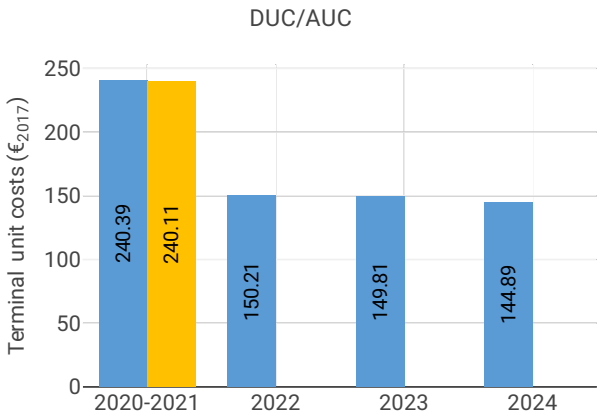
NAV Portugal generated a net gain of +0.7 M€, resulting from a loss of -2.8 M€ arising from the cost sharing mechanism and a gain of +3.5 M€ arising from the traffic risk sharing mechanism.

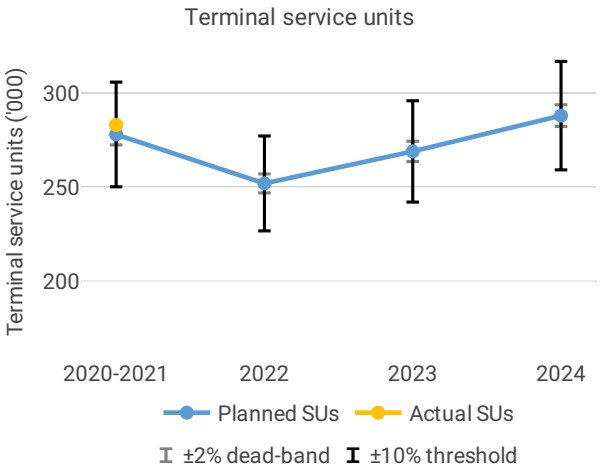
NAV Portugal overall regulatory results (RR) for the en route activity

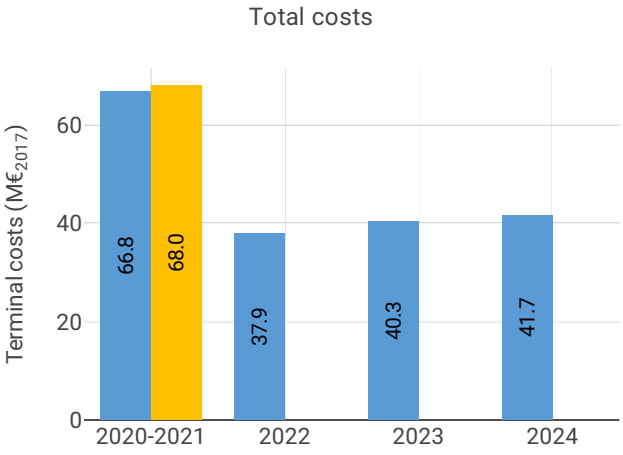
Ex-post, the overall RR corresponding to the net gain from the en route activity mentioned above (+0.7 M€) and the RoE (+3.7 M€) amounts to +4.4 M€ (2.2% of the en route revenues). The resulting ex-post rate of return on equity is 7.2%, which is higher than the 6.0% planned in the PP.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)

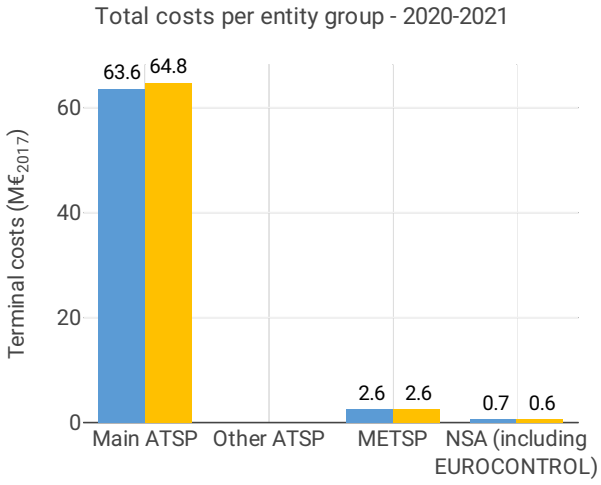


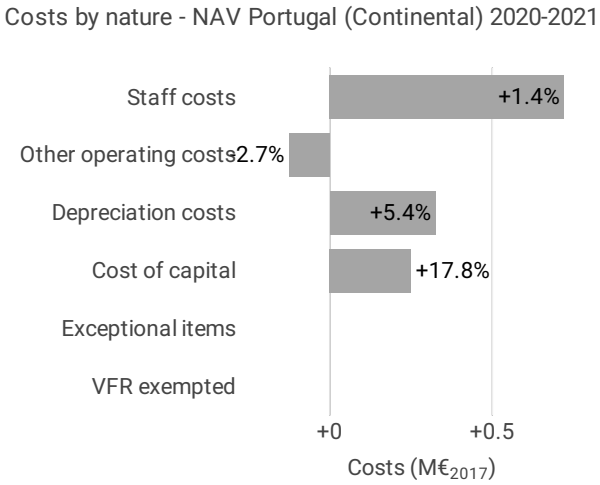




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	69	NA	NA	NA
Determined costs	68	39	42	44
Difference costs	1	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.2%	1.3%	1.4%
Determined inflation index	NA	103.6	104.9	106.4
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

The AUC for the combined year 2020-2021 is in line with the planned DUC (-0.1%, or -0.29 €2017). This is due to the combination of higher than planned TNSUs (+1.9%) and higher than planned terminal costs in real terms but in a lesser proportion (+1.7%, or +1.2 M€2017).

Terminal service units

The difference between actual and planned TNSUs (+1.9%) falls within the ±2% dead band. Thus the resulting additional terminal revenue is kept by the ANSPs.

Terminal costs by entity

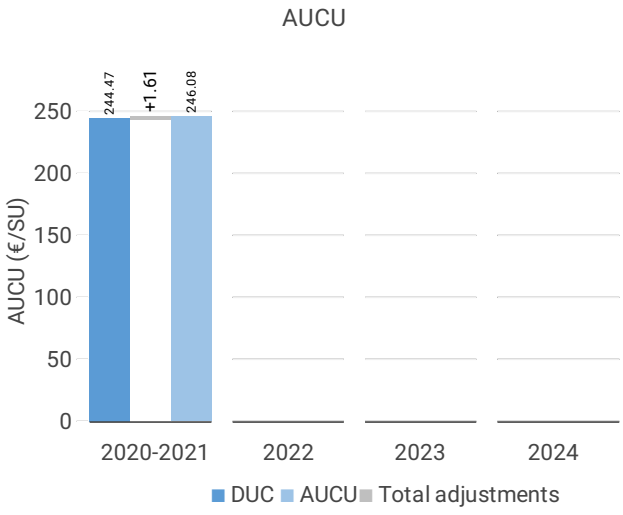
Actual real terminal costs for 2020-2021 are +1.7% (+1.2 M€2017) higher than planned. This result is driven by the main ANSP, NAV Portugal (+1.8%, or +1.2 M€2017), while the METSPs costs are in line with the plan and NSA costs are -1.7% lower than planned.

Terminal costs for the main ANSP at charging zone level

Overall, the terminal costs in real terms for NAV Portugal in 2020-2021 were higher than the determined costs from the performance plan (by +1.8%, or +1.2 M€2017). This results from:

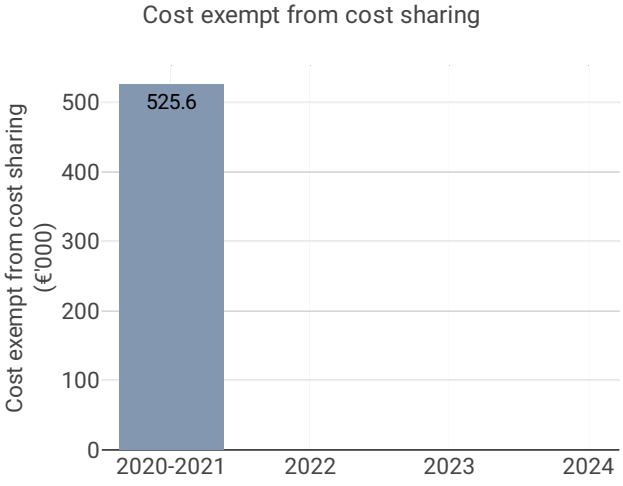
- higher staff costs (+1.4% for 2020-2021), "mainly due to the following factors: i) Higher pension fund costs, namely in NAV/CTA-MT; ii) Contingent liabilities arising from specific situations in which ATCOs do not meet the requirements for access to retirement status; iii) Capitalized work that did not materialize at the same level as planned."
- lower other operating costs (-2.7%), "mainly explained by lower spending on IT assistance and other out-sourced services, repair and maintenance, communication and travel."
- higher depreciation (+5.4%); and higher cost of capital (+17.8%), due to a "higher than expected incorporation of investments over the period", also "reflected in the net book value of fixed assets".

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



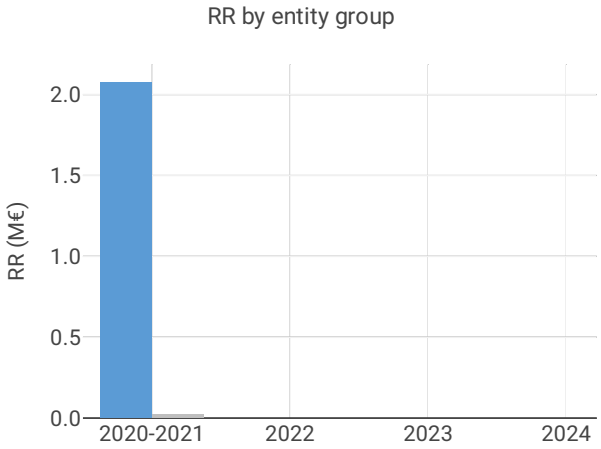
AUCU components (€/SU) – 2020-2021

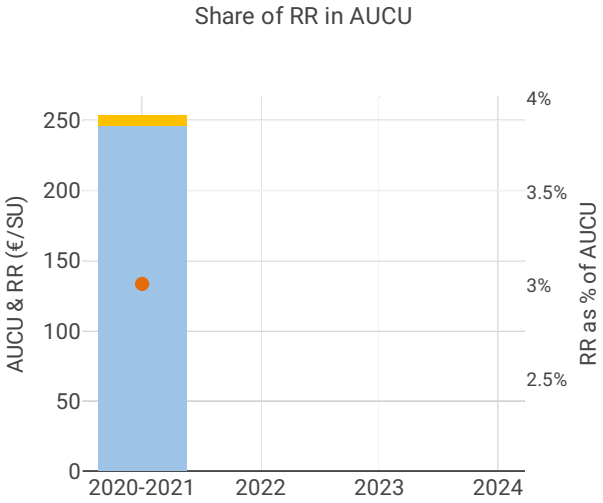
Components of the AUCU in 2020-2021	€/SU
DUC	**244.47**
Inflation adjustment	0.00
Cost exempt from cost-sharing	1.86
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	-0.25
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	1.61
AUCU	**246.08**
AUCU vs. DUC	**+0.7%**

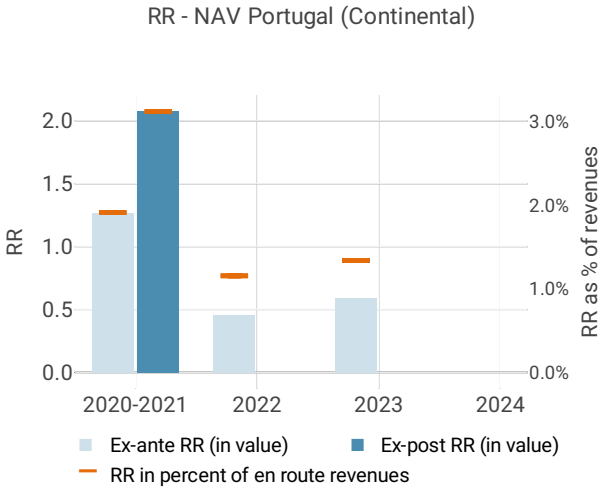


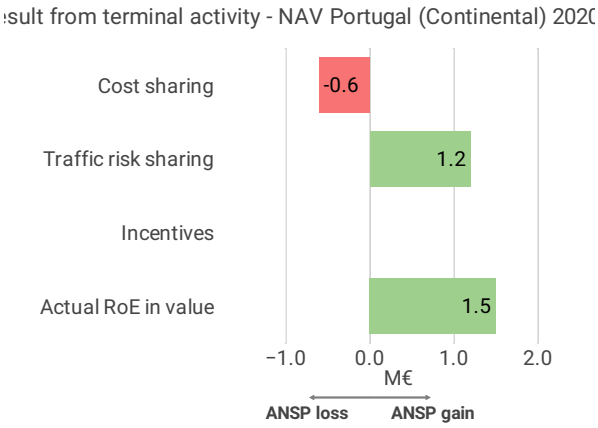
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	536.4	1.90
Competent authorities and qualified entities costs	-10.8	-0.04
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**525.6**	**1.86**

5.3.3 Regulatory result (RR)









Focus on regulatory result

NAV Portugal net gain on activity in Portugal terminal charging zone in the combined year 2020-2021
NAV Portugal generated a net gain of +0.6 M€, resulting from a loss of -0.6 M€ arising from the cost sharing mechanism and a gain of +1.2 M€ arising from the traffic risk sharing mechanism.
NAV Portugal overall regulatory results (RR) for the terminal activity
Ex-post, the overall RR corresponding to the net gain from the terminal activity mentioned above (+0.6 M€) and the RoE (+1.5 M€) amounts to +2.1 M€ (3.1% of the terminal revenues). The resulting ex-post rate of return on equity is 8.3%, which is higher than the 6.0% planned in the PP.