



Performance Review Body Monitoring Report

Portugal - 2022

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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

Exchange rate (1 EUR=)
2017: 1 EUR
2022: 1 EUR

Main ANSP
• NAV Portugal (Continental)

No of airports in the scope of the performance plan:

- ≥80'K 2
- <80'K 8

Share of Union-wide:
• traffic (TSUs) 2022 3.4%
• en route costs 2022 2.0%

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

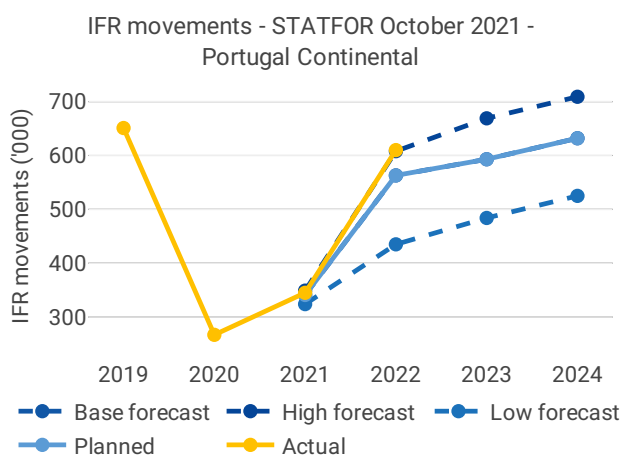
Share en route / terminal costs 2022 78% / 22%

MET Providers
• IPMA

En route charging zone(s)
Portugal Continental

Terminal charging zone(s)
Portugal

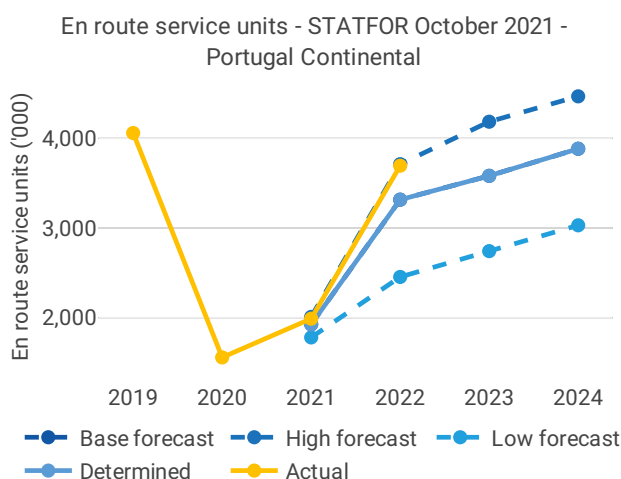
1.2 Traffic (En route traffic zone)



• Portugal recorded 610K actual IFR movements in 2022, +76% compared to 2021 (345K).

• Actual 2022 IFR movements were +8.2% above the plan (563K).

• Actual 2022 IFR movements represent 94% of the actual 2019 level (651K).

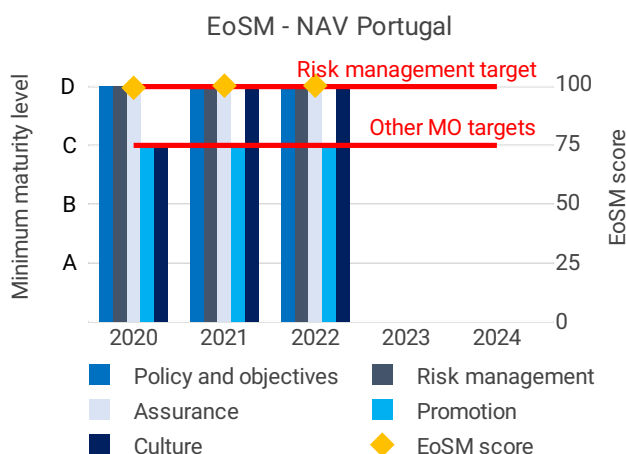


• Portugal recorded 3,695K actual en route service units in 2022, +86% compared to 2021 (1,988K).

• Actual 2022 service units were +11% above the plan (3,316K).

• Actual 2022 service units represent 91% of the actual 2019 level (4,060K).

1.3 Safety (Main ANSP)



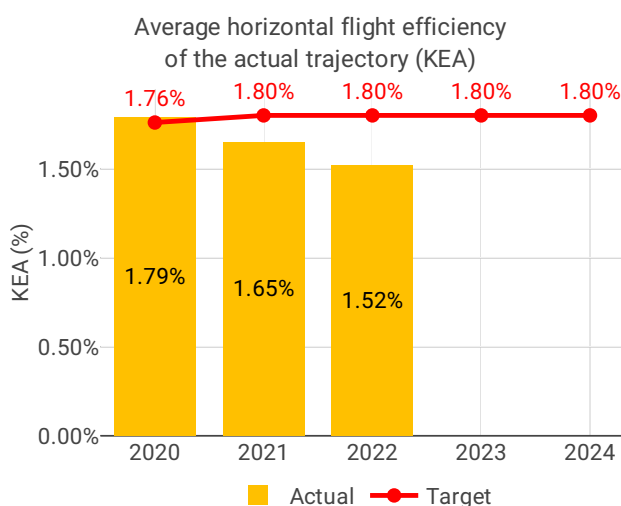
- NAV Portugal has already exceeded the RP3 EoSM targets in 2020 and remained on or above targets since then. NAV Portugal implemented continuous monitoring process with the development of new tools and indicators to ensure maintaining current safety performance.

- Portugal recorded stable performance with respect to safety occurrences. The rate of separation infringement decreased while the rate of runway incursion remained at a comparable level despite the traffic increase. The NSA was in the process of reviewing the State Safety Plan (SSP) related to monitoring of occurrences and implemen-

tation and efficiency of specific measures.

- NAV Portugal could improve its safety management by implementing automated safety data recording systems.

1.4 Environment (Member State)



- Portugal achieved a KEA performance of 1.52% compared to its target of 1.80% and contributed positively towards achieving the Union-wide target. KEA improved by 0.13 p.p. compared to 2021.

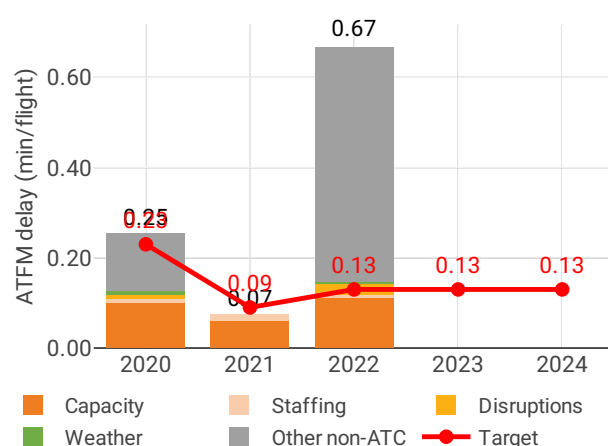
- KEP and SCR slightly improved compared to 2021 levels.

- The share of CDO flights decreased by 2.93% compared to 2021.

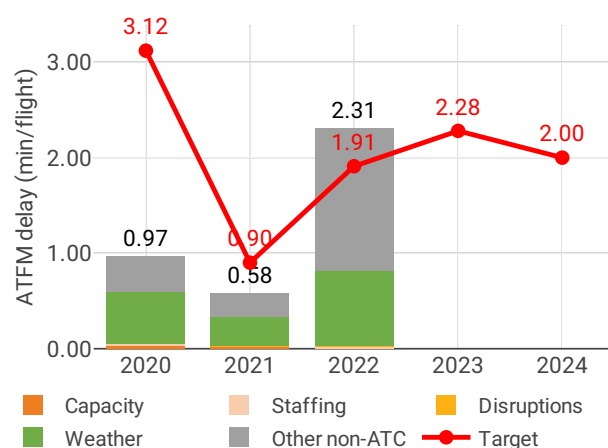
- During 2022, additional time in terminal airspace increased from 0.83 to 1.54 min/flight, while additional taxi out time increased from 1.64 to 2.69 min/flight.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



2019 levels.

- Portugal registered 0.63 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.67 during the post-ops adjustment process, thus not achieving the local target value of 0.13.

- The average number of IFR movements was 6% below 2019 levels in Portugal in 2022.

- A 25% increase in the number of ATCOs in OPS is expected by the end of RP3. The actual value remained below the 2022 plan in Lisbon ACC.

- The system transition in Lisbon ACC was the key reason behind delays in Portugal in 2022.

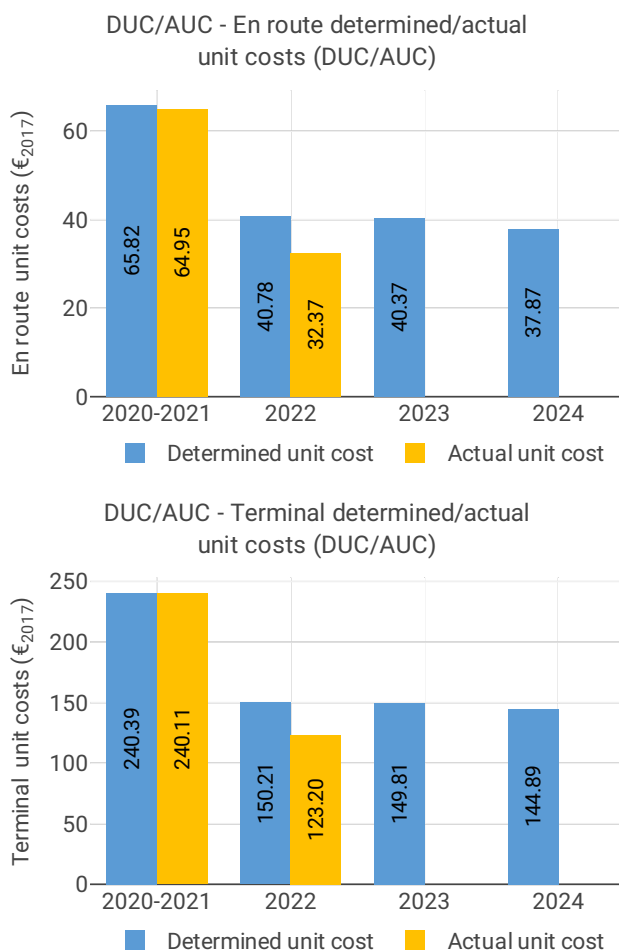
- Delays were highest between April and October, mostly due to ATC Capacity and adverse weather conditions.

- The share of delayed flights with delays longer than 15 minutes in Portugal increased by 16.23 p.p. compared to 2021 and was higher than 2019 values.

- The yearly total of sector opening hours in Lisbon ACC was 33,129 in 2022, showing a 2.1% increase compared to 2021. Sector opening hours are 6.5% below 2019 levels.

- Lisbon ACC registered 19.33 IFR movements per one sector opening hour in 2022, being 0.4% above

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



- The en route 2022 actual unit cost of Portugal was 32.34 €2017, -21% lower than the determined unit cost (40.78 €2017). The terminal 2022 actual unit cost was 123.20 €2017, -18% lower than the determined unit cost (150.21 €2017).

- The en route 2022 actual service units (3,695K) were +11% higher than the determined service units (3,316K).

- The en route 2022 actual total costs were 16 M€2017 (-12%) lower than planned. It was mainly caused by lower staff costs (-9.5 M€2017, or -10%) due to the performance of the defined pension plans, and lower depreciation costs (-3.1 M€2017, or -22%) as a result of the postponement of the implementation of the new ATM system as requested by the Network Manager.

- Portugal presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the ca-

capacity deviation are used to address the capacity issues.

- NAV Portugal spent 16 M€2017 in 2022 related to costs of investments, -19% less than determined (19 M€2017), driven by the postponement of the new ATM system as explained above.

- The en route actual unit cost incurred by users in 2022 was 38.24€, while the terminal actual unit cost incurred by users was 145.82€.

2 SAFETY - PORTUGAL

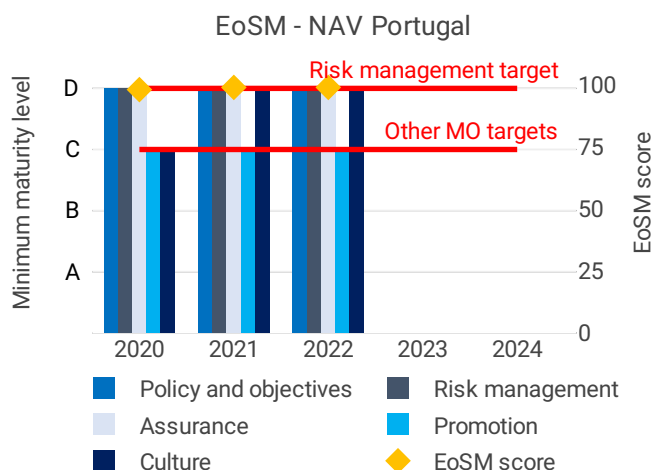
2.1 PRB monitoring

- NAV Portugal has already exceeded the RP3 EoSM targets in 2020 and remained on or above targets since then. NAV Portugal implemented continuous monitoring process with the development of new tools and indicators to ensure maintaining current safety performance.

- Portugal recorded stable performance with respect to safety occurrences. The rate of separation infringement decreased while the rate of runway incursion remained at a comparable level despite the traffic increase. The NSA was in the process of reviewing the State Safety Plan (SSP) related to monitoring of occurrences and implementation and efficiency of specific measures.

- NAV Portugal could improve its safety management by implementing automated safety data recording systems.

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



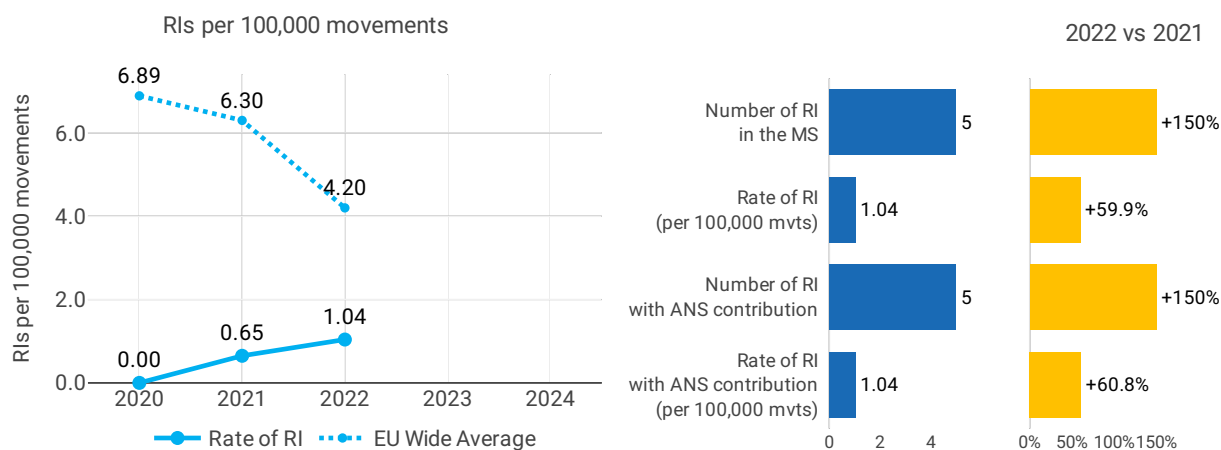
Focus on EoSM

All five EoSM components of the ANSP meet or exceed the RP3 target level. Only a single question remains to be improved in “Safety Promotion” to reach the maximum maturity level.

Detailed information on Safety performance monitoring for the year 2022 are included in Performance Review Body Monitoring Report 2022, Annex III – Safety report

2.3 Safety occurrences

2.3.1 Rate of runway incursions (RIs) (PI#1)



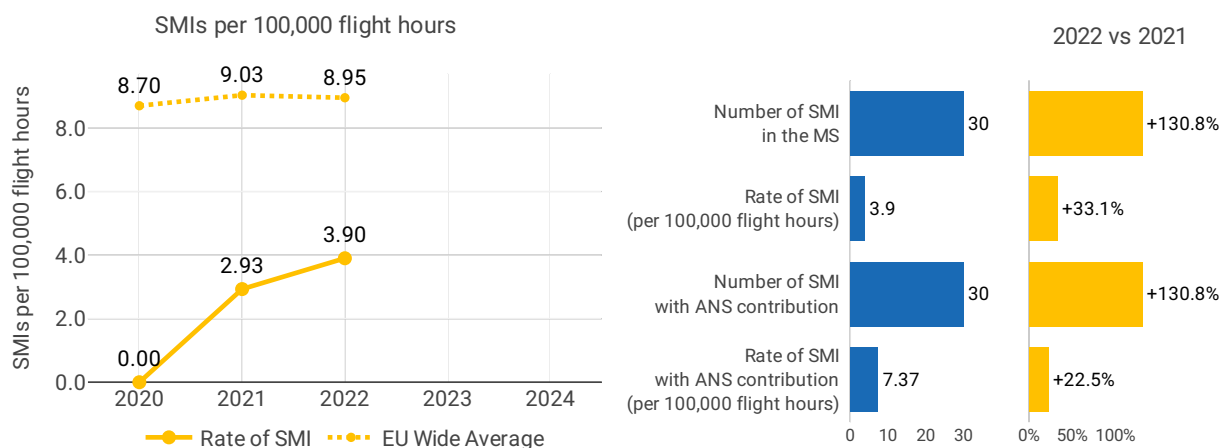
Rate of RIs per 100,000 airport movements - Portugal

#	Airport name	APT movements	Number of RI	Rate RI per 100,000
1	Lisbon	202,569	1	0.49
2	Porto	92,524	0	0.00
3	Faro	59,536	2	3.36
4	Cascais	59,330	1	1.69
5	Madeira	29,174	0	0.00
6	Ponta Delgada	23,727	1	4.21
7	Horta	5,421	0	0.00
8	Porto Santo	3,740	0	0.00
9	Santa Maria	3,073	0	0.00
10	Flores	2,092	0	0.00
11	Montijo	NA	NA	NA

Focus on runway incursions

Detailed information on Safety performance monitoring for the year 2022 are included in Performance Review Body Monitoring Report 2022, Annex III – Safety report

2.3.2 Rate of separation minima infringements (SMIs) (PI#2)



Rate of SMI with ANS contribution per 100,000 flight hours

#	ANSP	Flight hours					Number of SMIs				
		2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	NAV Portugal	175,009	215,958	406,816	NA	NA	10	13	30	NA	NA

#	ANSP	Rate of SMI per 100,000 flight hours					% variation in rate of SMIs				
		2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	NAV Portugal	5.7	6.0	7.4	NA	NA	NA	+5%	+23%	NA	NA

Focus on separation minima

Detailed information on Safety performance monitoring for the year 2022 are included in Performance Review Body Monitoring Report 2022, Annex III – Safety report

2.3.3 Quality of occurrences reporting

Detailed information on Safety performance monitoring for the year 2022 are included in Performance Review Body Monitoring Report 2022, Annex III – Safety report

2.4 Use of automated safety data recording system (ASDRS) (PI#3)

2022	
For RIs	For SMIs
X	X

Detailed information on Safety performance monitoring for the year 2022 are included in Performance Review Body Monitoring Report 2022, Annex III – Safety report

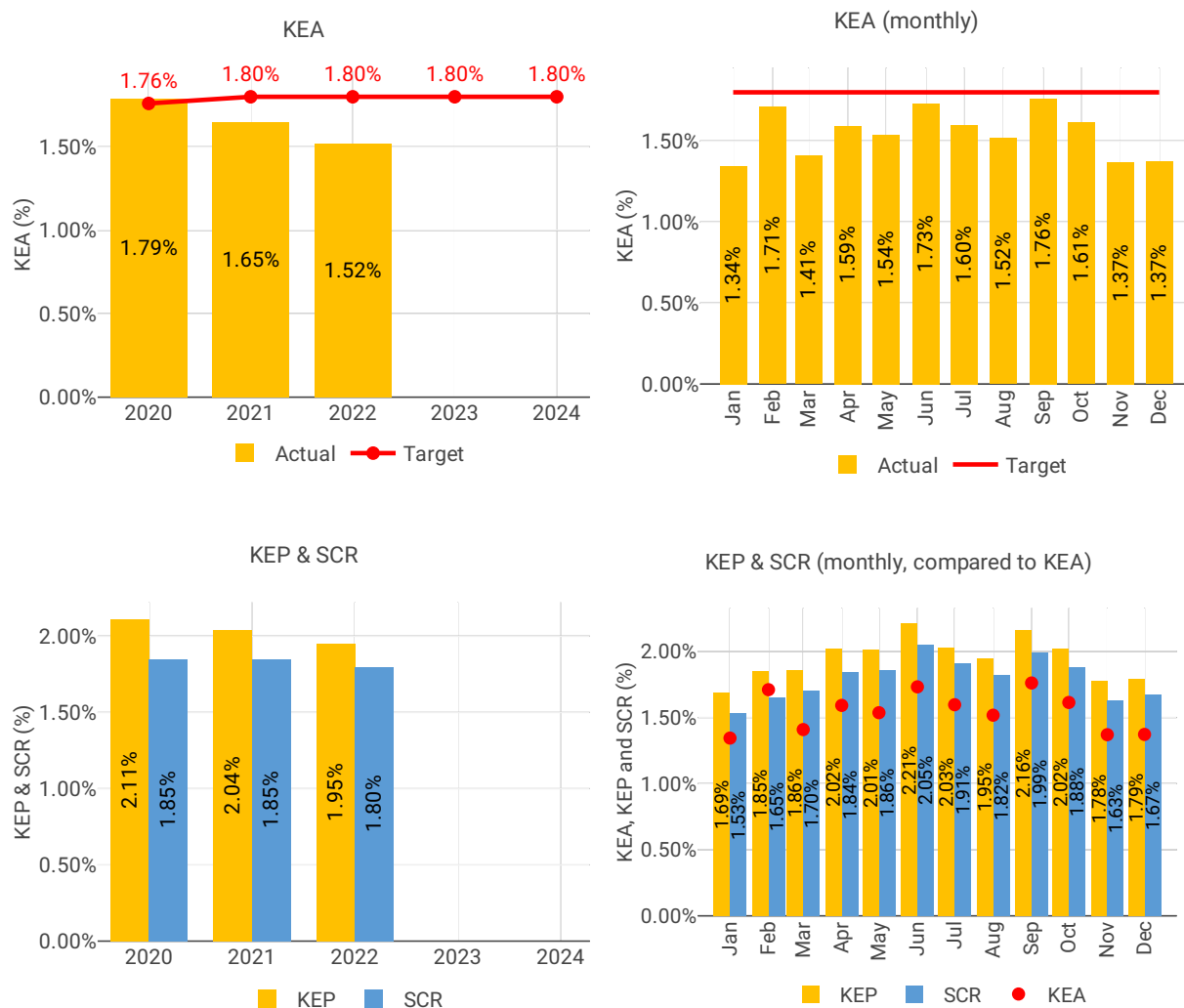
3 ENVIRONMENT - PORTUGAL

3.1 PRB monitoring

- Portugal achieved a KEA performance of 1.52% compared to its target of 1.80% and contributed positively towards achieving the Union-wide target. KEA improved by 0.13 p.p. compared to 2021.
- KEP and SCR slightly improved compared to 2021 levels.
- The share of CDO flights decreased by 2.93% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.83 to 1.54 min/flight, while additional taxi out time increased from 1.64 to 2.69 min/flight.

3.2 En route performance

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



3.3 Terminal performance

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



Focus on ASMA & AXOT

AXOT

Additional taxi-out times at Lisbon (LPPT; 2019: 3.96 min/dep.; 2020: 2.68 min/dep.; 2021: 1.93 min/dep.; 2022: 3.18 min/dep.) increased by 65% with respect to 2021 resulting well above the SES average of 2.52 min/dep.

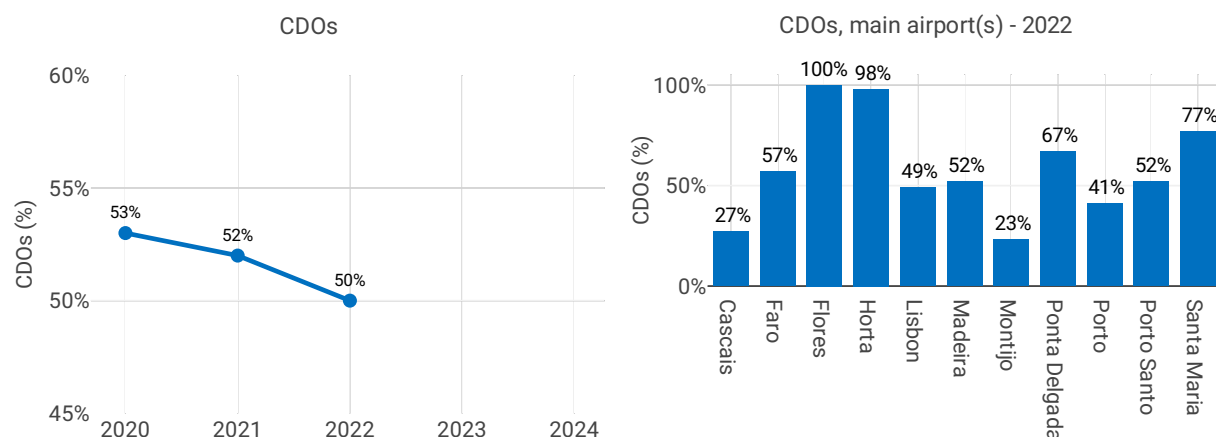
According to the Portuguese monitoring report: *Regular performance and capacity reports by the ANSP are presented to the NSA in which the ENV KPI is specifically addressed.*

ASMA

Like the additional taxi-out times, the additional times in the terminal airspace at Lisbon (LPPT; 2019: 2.75 min/arr.; 2020: 1.51 min/arr.; 2021: 1.15 min/arr.; 2022: 1.84 min/arr.) experimented an important increase in 2022 and resulted well above the SES average of 1.06 min/arr with the second highest value of all SES monitored airports. At Porto (LPPR; 2019: 1.34 min/arr.; 2020: 0.61 min/arr.; 2021: 0.57 min/arr.; 2022: 0.89 min/arr.) the additional ASMA times also increased in 2022 but remain under 1 min.

According to the Portuguese monitoring report: *Regular performance and capacity reports by the ANSP are presented to the NSA in which the ENV KPI is specifically addressed.*

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



Focus CDOs

All airports except Cascais have shares of CDO flights well above the overall RP3 value in 2022 (29.0%), ranging from 26.9% (Cascais - LPCS) to 100.0% (Flores - LPFL). It should however be noted that Flores and Horta had a limited number of flights in 2022: respectively 1 and 215 arrivals.

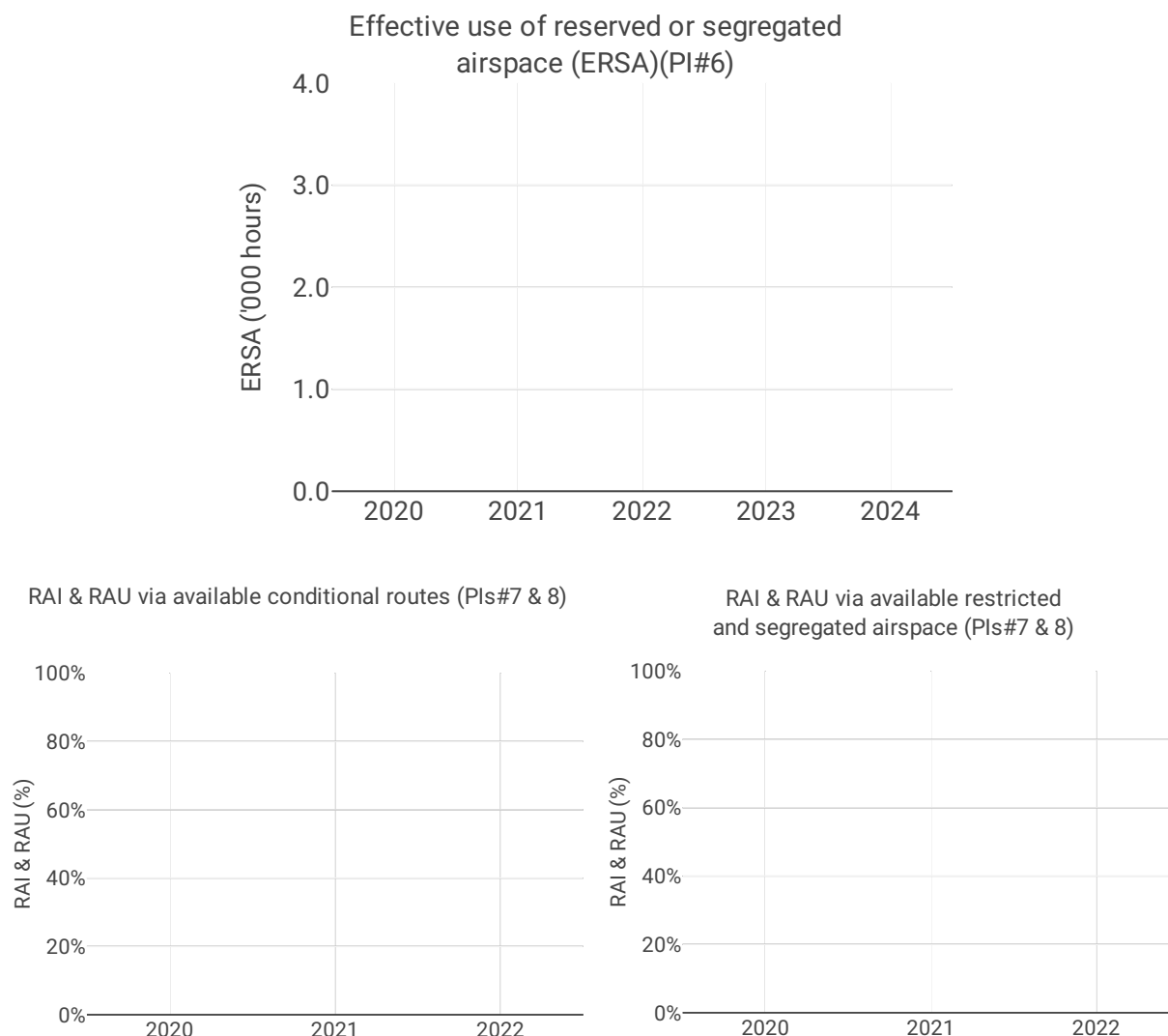
Most airports have a reduction of the share of CDO flights, with a big reduction for Porto Santo by -13.6 percentage points.

According to the Portuguese monitoring report: *CDO is the basis for the arrival route structuring within Lisbon FIR. Nonetheless, most of the times a shorter route is provided to the arriving traffic. Since these shorter routes are not covered by the STARs, the resulting final CDO percentage is negatively affected, even though the traffic is flying more efficient and shorter routes.*

Airport level

Airport Name	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Faro	0.27	0.65	0.65	NA	NA	0.33	0.19	0.21	NA	NA	62%	58%	57%	NA	NA
Lisbon	2.68	1.93	3.18	NA	NA	1.51	1.15	1.84	NA	NA	55%	51%	49%	NA	NA
Porto	1.45	1.67	1.61	NA	NA	0.61	0.57	0.89	NA	NA	46%	43%	41%	NA	NA
Cascais	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42%	34%	27%	NA	NA
Madeira	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	46%	48%	52%	NA	NA
Montijo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30%	32%	23%	NA	NA
Porto Santo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68%	65%	52%	NA	NA
Santa Maria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75%	77%	NA	NA
Flores	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	100%	NA	NA
Horta	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99%	98%	NA	NA
Ponta Delgada	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	67%	67%	NA	NA

3.4 Civil-Military dimension



Focus on Civil-Military dimension

Update on Military dimension of the plan

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.

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.

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 capacity

No data available.

Initiatives implemented or planned to improve PI#6

Implementation of the A_FUA functionality as per regulation 2021/116 will improve the use of airspace by both the civil and the military. Also with the implementation of the LARA tool more accurate statistic reports will be available to evaluate the FUA performance.

Initiatives implemented or planned to improve PI#7

LARA interfaces and associated statistic tools are in the final stages of implementation by the ANSP.

Initiatives implemented or planned to improve PI#8

LARA interfaces and associated statistic tools are in the final stages of implementation by the ANSP.

4 CAPACITY - PORTUGAL

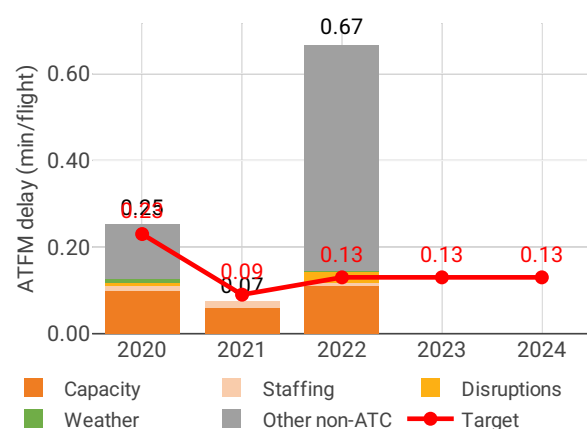
4.1 PRB monitoring

- Portugal registered 0.63 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.67 during the post-ops adjustment process, thus not achieving the local target value of 0.13.
- The average number of IFR movements was 6% below 2019 levels in Portugal in 2022.
- A 25% increase in the number of ATCOs in OPS is expected by the end of RP3. The actual value remained below the 2022 plan in Lisbon ACC.
- The system transition in Lisbon ACC was the key reason behind delays in Portugal in 2022.
- Delays were highest between April and October, mostly due to ATC Capacity and adverse weather conditions.
- The share of delayed flights with delays longer than 15 minutes in Portugal increased by 16.23 p.p. compared to 2021 and was higher than 2019 values.
- The yearly total of sector opening hours in Lisbon ACC was 33,129 in 2022, showing a 2.1% increase compared to 2021. Sector opening hours are 6.5% below 2019 levels.
- Lisbon ACC registered 19.33 IFR movements per one sector opening hour in 2022, being 0.4% above 2019 levels.

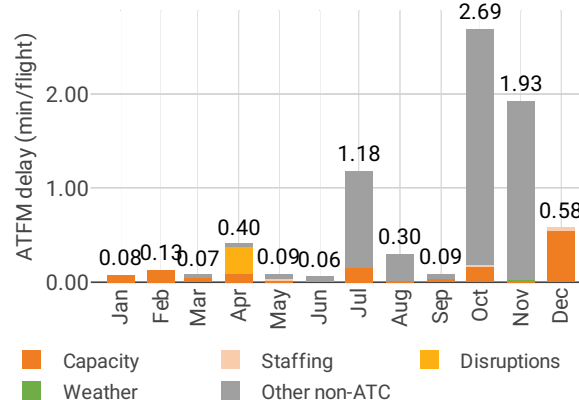
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)

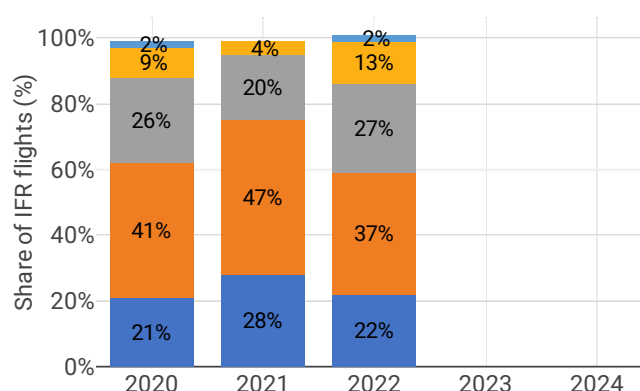
Average en route ATFM delay per flight by delay groups



Monthly distribution of en route ATFM delay by delay groups - 2022



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



Focus on en route ATFM delay

Summary of capacity performance

Portugal experienced an increase in traffic from 345k flights in 2021 to 610k flights in 2022. However, traffic levels were still below the 651k flights in 2019.

In 2022, Lisboa ACC had 404k minutes of en route ATFM delay 79% of which were attributed to 'Special event' & 'Other' - the implementation of TOPSKY ATM system. 17% of ATFM delays were attributed to ATC capacity and the remaining 4% of ATFM delays were attributed to ATC equipment.

The en route delay figures reported above include circa 20k minutes of en route ATFM delay, re-attributed from ENAIRE, under the NM post operations relay attribution process, due to capacity constraints, in Spain, stemming from the implementation of the TOPSKY project in Portugal.

NSA's assessment of capacity performance

2022 was the much expected recovery year from the covid-19 pandemic. Traffic levels recovered to levels close to 2019, especially in the summer and year-end. Specifically, in Lisbon FIR, traffic recovered by 76%, when compared to 2021, but remained 6,3% below 2019 levels.

Further to the recovery in traffic, in Portugal ANS was marked by the change in the ATM System, that after some delays due to the COVID pandemic, was finally ready by October 2022. The transition to the new ATM system, was planned with the objective of maintaining the highest traffic levels that could be managed safely. As such, capacity reduction was kept to a minimum, with a direct impact in terms of delays.

The capacity KPI for en-route was highly affected by the implementation of the new ATM system in October, and the preparatory work that came with it. The new system implementation was carefully planned and

prepared with 2 key objectives, assuring all the safety conditions, and at the same time minimize the impact at the network level and on users.

Unfortunately, the process had a significant toll in terms of delays in the Lisbon FIR, and at the Lisbon airport, which were the most affected by the process, leading to a non-compliance of both en-route and terminal delay targets.

Monitoring process for capacity performance

NAV Portugal and ANAC have a capacity monitoring process in place that consists of quarterly reports and follow-up meetings to monitor and present corrective measures whenever necessary.

In particular in 2022, ANAC closely supervised the implementation of the new ATM System (TopSky), the measures taken to insure safety, and to minimize its impact in the overall system.

Capacity planning

Regarding the ATFM En Route delay, the KPI's performance was particularly affected by the implementation of the new TOPSKY system, in NAV Portugal, which influenced the final value of the KPI (0.63min/flight) - well above the target for 2022 (0.13min/flight).

Nevertheless, discounting the causes associated with the implementation of TOPSKY, the ATFM en-route delay would have been approx. 0.15min/flight. Finally, It must be mentioned that the all process of TOPSKY's implementation has been coordinated with the most critical stakeholders like the: NM, Airspace users, Airports and NSA in order to minimize the impact of this transition at network and local level.

Application of Corrective Measures for Capacity (if applicable)

The implementation process of the new ATM system (TOPSKY), namely during the months of July, October and November, originated capacity constraints and consequently additional delays that significantly degraded this indicator. It should be noted that the entire operation in 2022 was impacted by the TOPSY implementation process, which required a very strict management of resources in order to respond as efficiently as possible to the training needs of Air Traffic Controllers (ATCO), the customization and parameterization of the system and the daily operation in the various ATC units.

The implementation of the TOPSKY system, previously scheduled for the month of March, was initially postponed to 26 September after talks with the Network Manager (NM), in order to minimize the impacts on the European network (EATMN), due to the overlap with the implementation of the 4FLIGHT ATM system in Reims (France). In this way it was possible to mitigate the impacts on the European network during the summer period.

However, the adverse side effect of this decision was the need to prolong the shadow operation in order to keep the ATCOs in a state of readiness adequate for the final phase of the ATM system transition, with the consequent challenges referred to above.

The transition plan was duly coordinated by the ANSP with ANAC, the air operators and the NM, with the latter highlighting NAV Portugal's availability to accommodate the new planning.

It should be noted in this regard that this new plan, scheduled to begin on September the 26th, contemplated 8 weeks for the final transition, a very demanding and ambitious period, compared to other identical processes. As an example, the transition to the 4FLIGHT system in Reims involved 6 months of air traffic restrictions and the implementation of TOPSKY in Prague 8 months of restrictions.

However, also this second plan suffered changes at the request of several air operators, especially those operating from Lisbon. Once again, the ANSP, trying as much as possible to minimize the impacts of ATM system transition, delayed the beginning of the final phase of transition by three weeks, to October 18th, bringing it as close as possible to IATA winter and, additionally, shortening it by two weeks, proposing to carry out the final phase of transition in only 6 weeks, with increments of capacity in each week.

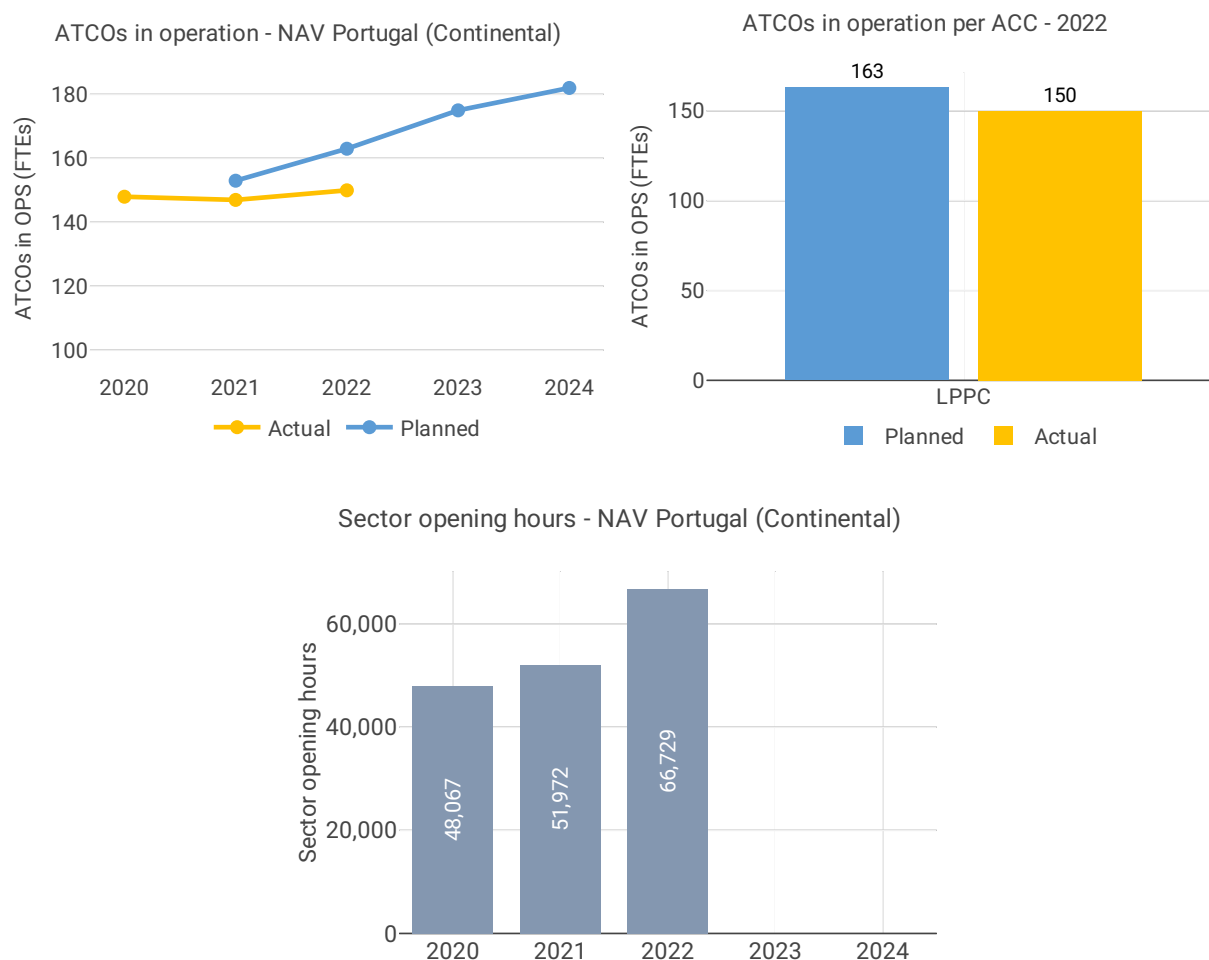
Additionally, throughout the final phase of transition, in order to mitigate the impacts of a significant capacity decrease in the Lisbon FIR, all ATCOs were mobilized for the operation in order to allow the opening of the maximum number of sectors, accommodating higher traffic demand and reducing the need for restrictions.

Finally, it should be noted that the transition to a new ATM system is a highly complex process that requires the management of a wide set of variables and it is not possible to shorten the steps and time required to build confidence in the system, nor is it possible to offer more capacity than can be provided while ensuring the safety of air operations.

Other measures were implemented, including the issuing of a Ministerial Order derogating temporarily and to a limited extent, the restrictions to Lisbon airport operations between 00H00/02H00 and 05H00/06H00 (night curfew), during the critical period of reduction in the capacity derived from the final transition phase to the new ATM system.

As this was a one-off situation, there are no specific recommendations to the ANSP.

4.2.2 Other indicators



Focus on ATCOs in operations

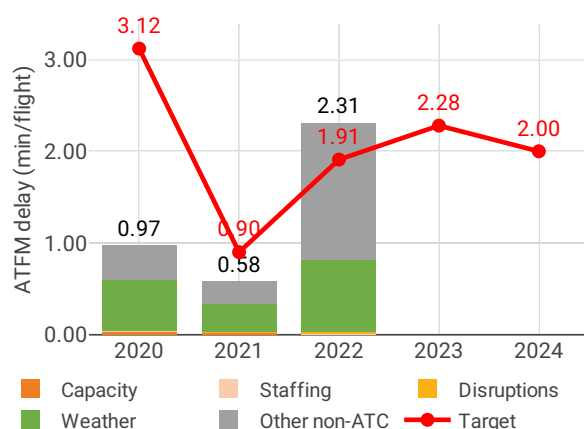
The current gap between the number of ATCOs planned and those that actually entered is mainly the result of two factors. The first, still relates with the impact of COVID which forced the interruption of the training cycle and as such delayed the entry of new ATCOs in 2022. As such it was not possible to reduce this gap.

The second factor has its origin in the implementation of the new TOPSKY system in 6 different units, which forced NAV Portugal to carry out a delay period of almost an year, in the admission of new ATCOs, so that when they entered they have already been trained for the new system.

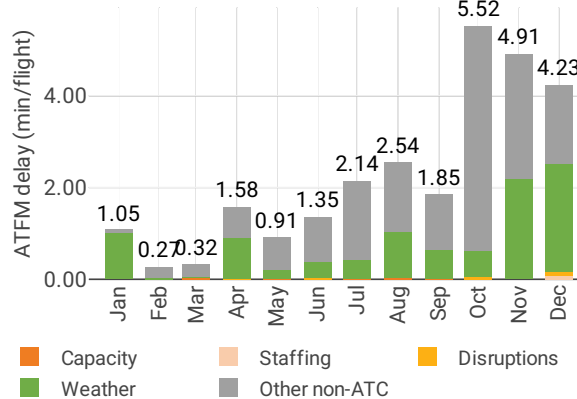
4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)

Average arrival ATFM delay per flight by delay groups



Monthly distribution of arrival ATFM delay by delay groups - 2022



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. Traffic at these 10 airports in 2022, after an increase of 67% versus 2021, was only 4% lower than in 2019.

Average arrival ATFM delays in 2022 was 2.31 min/arr, compared to 0.58 min/arr in 2021. ATFM slot adherence has not changed and remains at 96,1% in 2022.

The national average arrival ATFM delay at Portuguese airports in 2022 was 2.31 min/arr, significantly higher than the 0.58 min/arr of 2021. This is driven by the deterioration of performance at Lisbon (LPPT; 2019: 4.13 min/arr; 2020: 1.72 min/arr; 2021: 0.28 min/arr; 2022: 3.96 min/arr). 33% of these delays were attributed to Aerodrome Capacity issues, 31% to Special Event (in relation to the TOPSKY implementation) and 25% to Weather.

At Porto (LPPR; 2019: 3.09 min/arr; 2020: 0.77 min/arr; 2021: 2.14 min/arr; 2022: 1,89 min/arr) delays have slightly decreased and 74% of them were attributed to weather.

According to the Portuguese monitoring report: *ATFM arrival delay followed the same behaviour as the ATFM en Route delay, with several causes affecting at airport level. One of the main causes that affected Porto and Lisbon airport in 2022 was the implementation of the TOPSKY ATC system in Lisbon FIR. In the case of Lisbon the implementation of the new ATC system was responsible for 31% of all delay causes, with Weather and Aerodrome Capacity responsible for 68%. In the case of Porto, the implementation of the new ATC system contributed for 16% of all delay causes while Aerodrome capacity and weather contributed with 83%. One last remark for Madeira with 0,11 min/flight delay caused by Weather (0,10 min/flight) and the TOPSKY transition (0,01 min/flight) and Cascais with 0,36 min/flight caused by ATC capacity due to capacity restriction in Lisbon TMA since summer 2022.3. Arrival ATFM Delay – National Target* The national target on arrival ATFM delay in 2022 was met.

According to the Portuguese monitoring report: *As in the case of en-route, the implementation of the Top-Sky influenced significantly the performance at the Lisbon airport, where 1,22 minutes of delay/flight were due to the implementation of the new system. As for Porto airport, 1, 4 minutes of delay were associated to weather, or 75% of the delays registered. Considering the reasons for the incompliance with the capacity targets in these airports, ANAC along 2023 is monitoring performance more closely, especially taking into account the extraordinary recovery in traffic, which is already surpassing 2029 levels.*

The monitoring report mentions the following remedial measures: *The recovery in traffic levels expected to occur in the summer of 2023 to levels above the ones registered in 2019, and the level of congestion of the Lisbon airport, together pose a risk to the proposed performance targets. At the present moment*

Focus on performance indicators at airport level

ATFM slot adherence

The performance at Lisbon deteriorated with respect to the previous years as RP3 but remained below the delays of 2019 (LPPT; 2019: 4.16 min/dep.; 2020: 2.13 min/dep.; 2021: 1.22 min/dep.; 2022: 3.22 min/dep.) Nevertheless, like in previous years this delay is still the highest in the SES area. The quality of the airport data reported by Porto has improved, allowing the calculation of this indicator for this airport in 2022 and resulting in 0.44 min/dep.

According to the Portuguese monitoring report: *ATC pre-departure delay Performance Indicator follows exactly the same trend as traffic growth. As traffic starts to increase in the main airports - Lisbon and Porto - ATC pre-departure delay starts to increase due to the fact that more traffic needs to be managed at ground level to keep an efficient operation at airport level. If we look back to 2019 figures, for the same period, this performance indicator shows 4,06 and 0,74 respectively for Lisbon and Porto Airport.*

ATC pre-departure delay

The total (all causes) delay in the actual off block time significantly increased in 2022 at both Lisbon (LPPT: 2020: 12.02 min/dep.; 2021: 11.03 min/dep.; 2022: 25.21 min/dep.) and Porto (LPPR: 2020: 9.15 min/dep.; 2021: 10.70 min/dep.; 2022: 18,40 min/dep.)

According to the Portuguese monitoring report: *This performance indicator refers to all causes affecting a flight at airport level before its departure. Several causes contribute to the performance of this indicator. According EUROCONTROL -CODA in 2022, the main contributively causes for this indicator in Lisbon were reactionary and airline delay (both 68%) and ATC (En route and Airport) 24%. Compared with 2019 figures (19,6 min/departure), the last comparable year in terms of traffic, the main increase was in reactionary and airline component, from 12,1 min/departure to 17,0 min/departure. Concerning Porto, the trend is exactly the same. Main causes are Reactionary and Airline delay responsible for 82% for all departure delay. ATC is responsible for 17% of delay (2,9 min/departure). Compared with 2019 (15,7 min/departure), the main increase was at reactionary and airline delay component, from 11,2 min/departure to 13,0 min/departure. On the other way around, ATC delay has a small decrease from 3,1 min/departure in 2019 to 2,9min/departure in 2022.*

All causes pre-departure delay

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

5 COST-EFFICIENCY - PORTUGAL

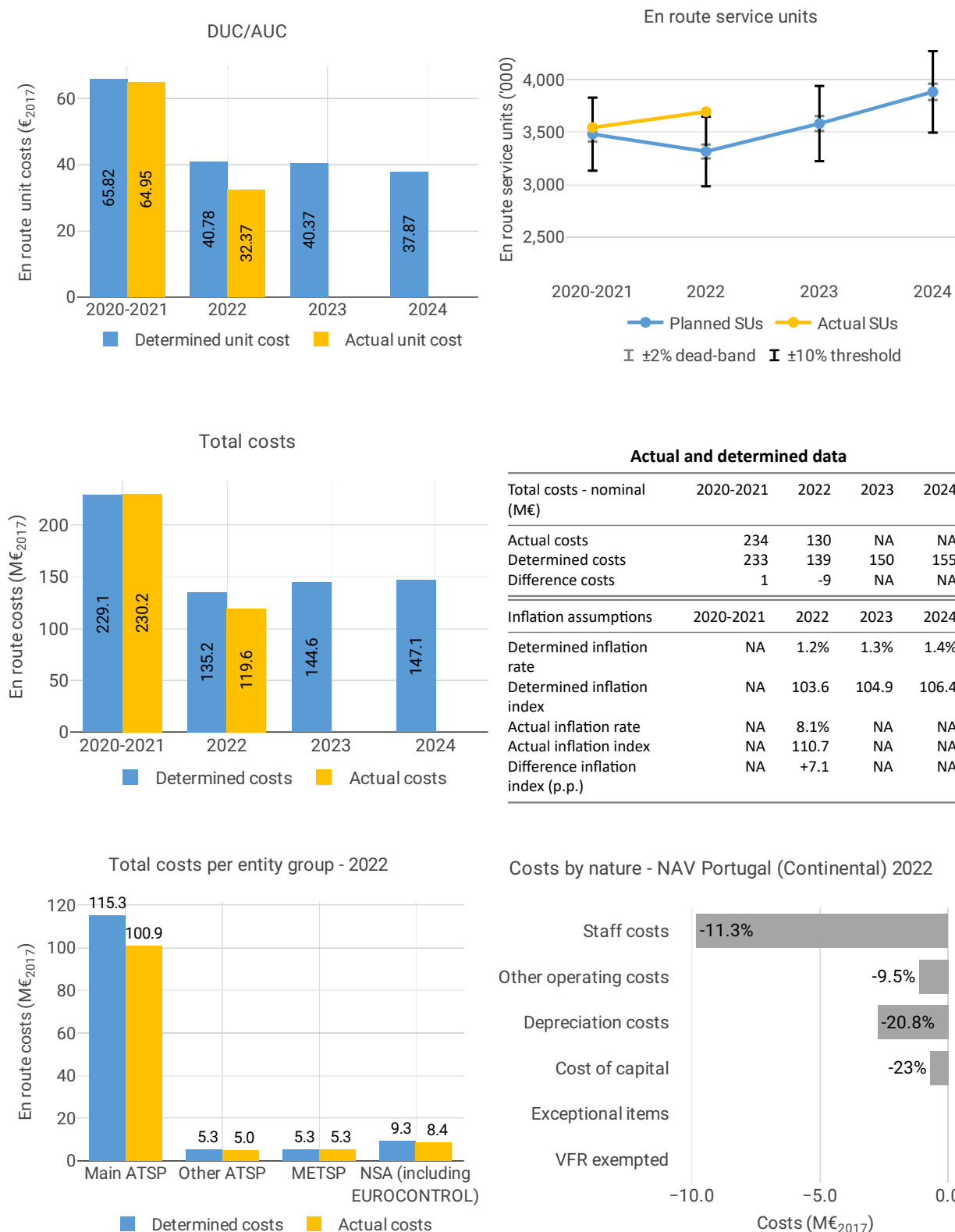
5.1 PRB monitoring

- The en route 2022 actual unit cost of Portugal was 32.34 €2017, -21% lower than the determined unit cost (40.78 €2017). The terminal 2022 actual unit cost was 123.20 €2017, -18% lower than the determined unit cost (150.21 €2017).
- The en route 2022 actual service units (3,695K) were +11% higher than the determined service units (3,316K).
- The en route 2022 actual total costs were 16 M€2017 (-12%) lower than planned. It was mainly caused by lower staff costs (-9.5 M€2017, or -10%) due to the performance of the defined pension plans, and lower depreciation costs (-3.1 M€2017, or -22%) as a result of the postponement of the implementation of the new ATM system as requested by the Network Manager.
- Portugal presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are used to address the capacity issues.

- NAV Portugal spent 16 M€2017 in 2022 related to costs of investments, -19% less than determined (19 M€2017), driven by the postponement of the new ATM system as explained above.
- The en route actual unit cost incurred by users in 2022 was 38.24€, while the terminal actual unit cost incurred by users was 145.82€.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)



Focus on unit cost

AUC vs. DUC

In 2022, the en route AUC was -20.7% (or -8.44 €2017) lower than the planned DUC. This results from the combination of significantly lower than planned en route costs in real terms (-11.6%, or -15.7 M€2017) and significantly higher than planned TSUs (+11.4%). It should be noted that actual inflation index in 2022 was +7.1 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (+11.4%) falls outside the $\pm 10\%$ threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en route revenues is therefore shared between the ANSPs and the airspace users, with the main ANSP (NAV Portugal) retaining an amount of +4.7 M€2017.

En route costs by entity

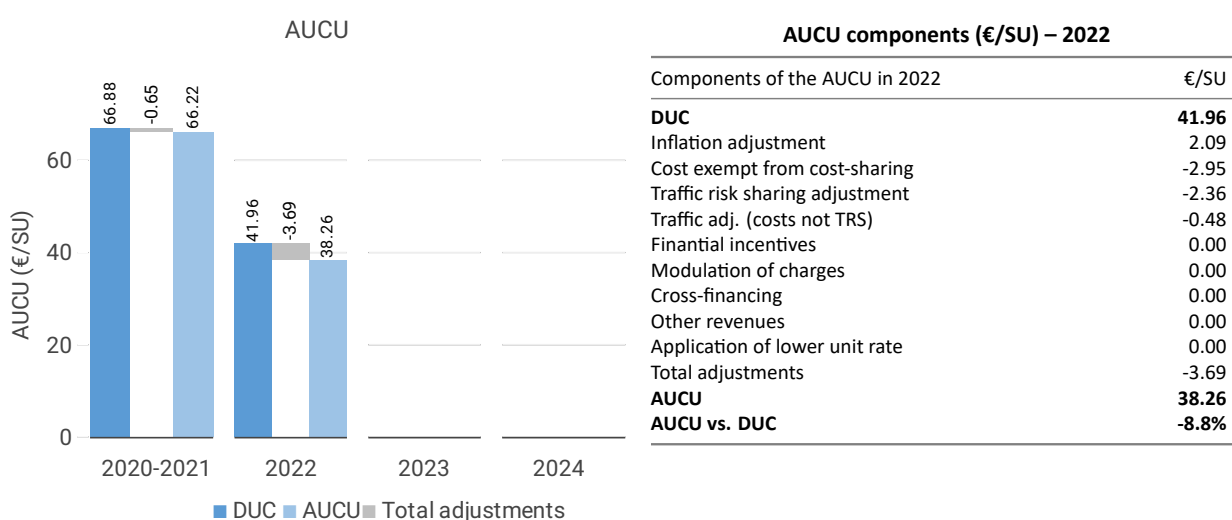
Actual real en route costs are -11.6% (-15.7 M€2017) lower than planned reflecting lower than planned costs in real terms for all the reporting entities: main ANSP, NAV Portugal (-12.5%, or -14.4 M€2017), the NSA/EUROCONTROL (-9.9%, or -0.9 M€2017), other ANSP (SAR provider, -6.8%, or -0.4 M€2017) and the MET service provider (-0.3%). It should be noted that, in nominal terms, the costs for the MET service provider were above the plan.

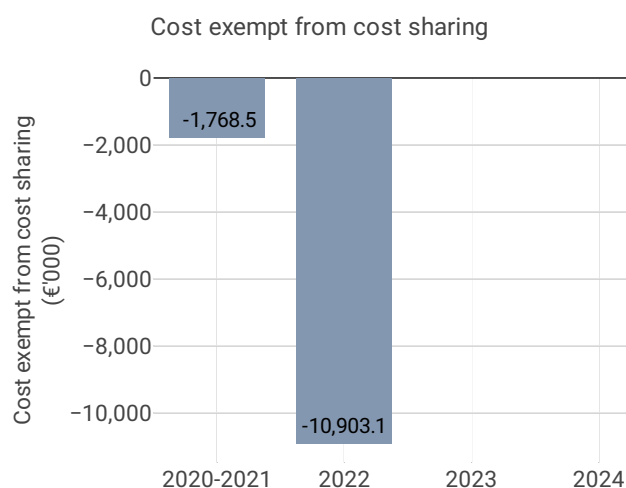
En route costs for the main ANSP at charging zone level

Significantly lower than planned en route costs in real terms for NAV Portugal in 2022 (-12.5%, or -14.4 M€2017) result from:

- Significantly lower staff costs (-11.3%) resulting from the performance of defined benefit pension plans.
- Significantly lower other operating costs (-9.5%) driven by savings on specialist services and travel.
- Significantly lower depreciation (-20.8%) reflecting the postponement of the implementation of the new ATM system.
- Significantly lower cost of capital (-23.0%) reflecting a significantly lower than planned asset base.

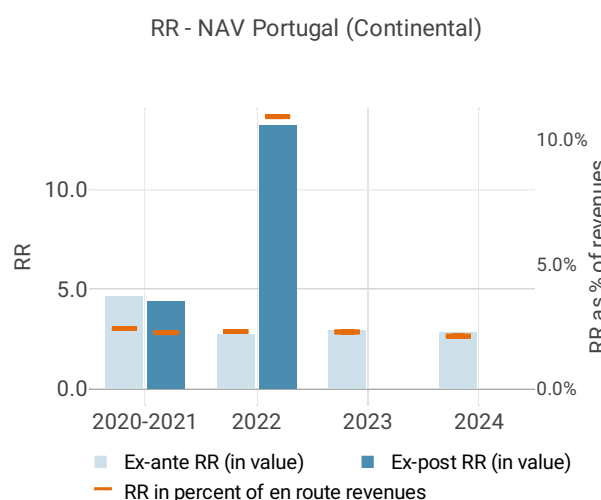
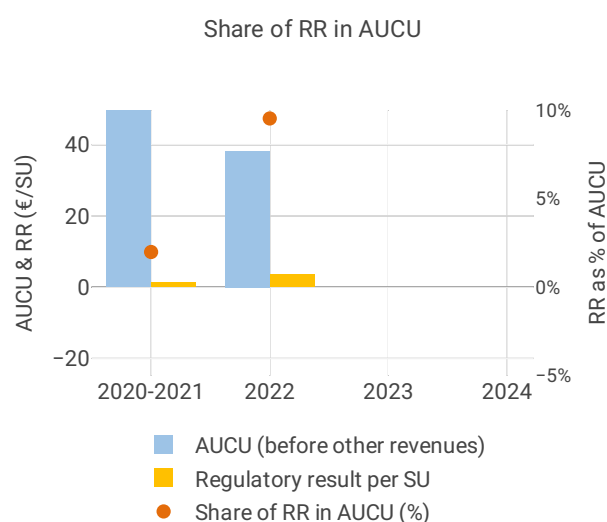
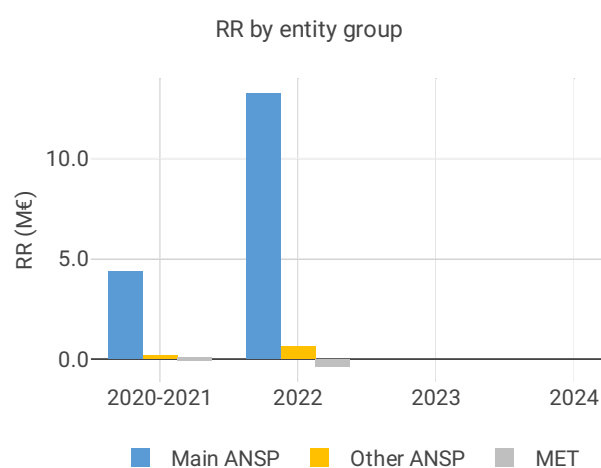
5.2.2 Actual unit cost incurred by the users (AUCU) (PI#1)



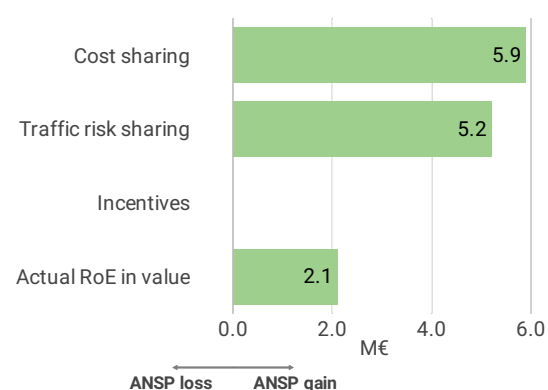


Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	-3,884.0	-1.05
Competent authorities and qualified entities costs	-79.6	-0.02
Eurocontrol costs	-747.2	-0.20
Pension costs	-6,192.2	-1.68
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	-10,903.1	-2.95

5.2.3 Regulatory result (RR)



Result from en route activity - NAV Portugal (Continental) 2022



Focus on regulatory result

NAV Portugal net gain on activity in the Portugal Continental en route charging zone in the year 2022

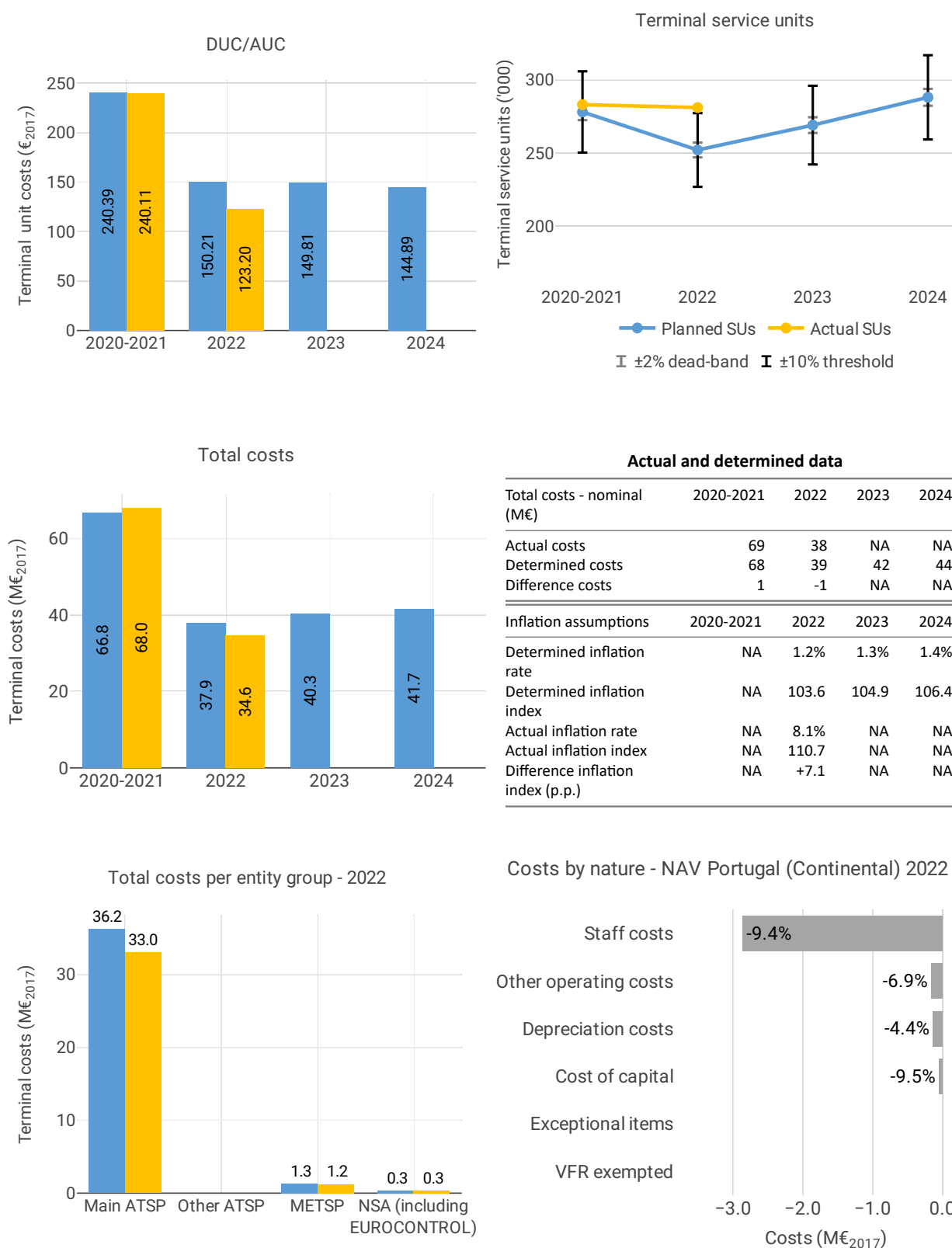
NAV Portugal reported a net gain of +11.1 M€, as a combination of a gain of +5.9 M€ arising from the cost sharing mechanism, with a gain of +5.2 M€ arising from the traffic risk sharing mechanism.

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

Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+11.1 M€) and the actual RoE (+2.1 M€) amounts to +13.2 M€ (10.9% of the en route revenues). The resulting ex-post rate of return on equity is 26.7%, which is higher than the 4.2% planned in the PP.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)



Focus on unit cost

AUC vs. DUC

In 2022, the terminal AUC was -18.0% (or -27.01 €2017) lower than the planned DUC. This results from the combination of significantly higher than planned TNSUs (+11.3%) and significantly lower than planned terminal costs in real terms (-8.7%, or -3.3 M€2017). It should be noted that actual inflation index in 2022 was +7.1 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (+11.3%) falls outside the $\pm 10\%$ threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ANSP and the airspace users, with the ANSP (NAV Portugal) retaining an amount of +1.5 M€2017.

Terminal costs by entity

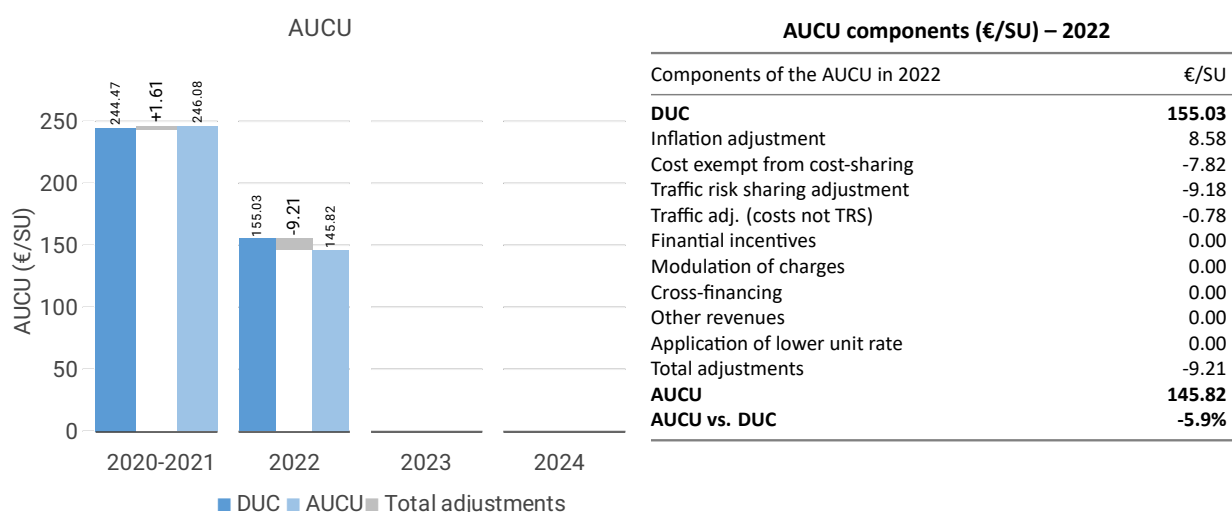
Actual real terminal costs are -8.7% (-3.3 M€2017) lower than planned. This is the result of lower than planned costs for all the reporting entities: ANSP, NAV Portugal (-8.9%, or -3.2 M€2017), the MET service provider (-4.5%, or -0.1 M€2017) and the NSA (-6.8%, or -0.02 M€2017). It should be noted that, in nominal terms, the costs for the MET service provider were above the plan.

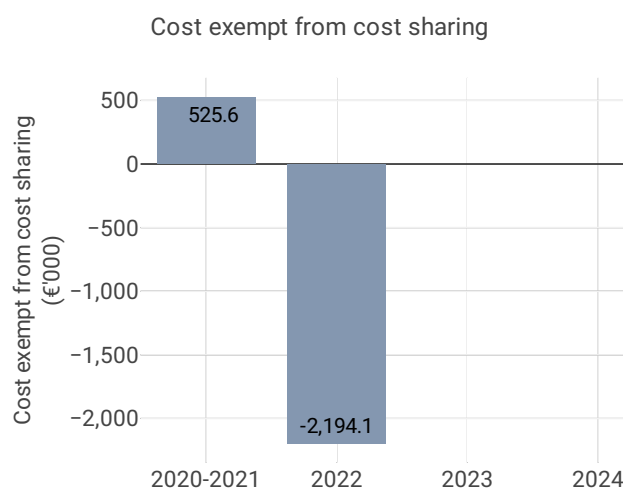
Terminal costs for the main ANSP at charging zone level

Lower than planned terminal costs in real terms for NAV Portugal in 2022 (-8.9%, or -3.2 M€2017) result from:

- Significantly lower staff costs (-9.4%) resulting from the performance of defined benefit pension plans;
- Significantly lower other operating costs (-6.9%) driven by savings on specialist services and travel;
- Lower depreciation (-4.4%); and,
- Significantly lower cost of capital (-9.5%) reflecting a significantly lower than planned asset base.

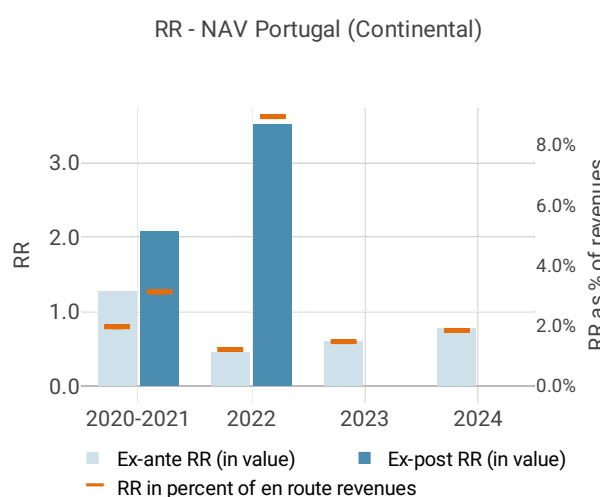
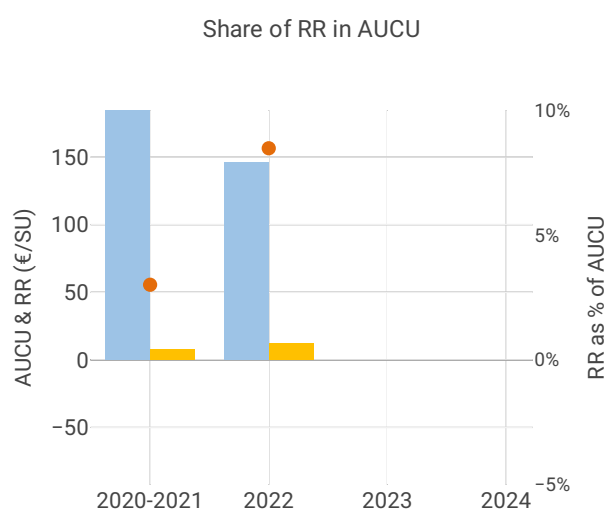
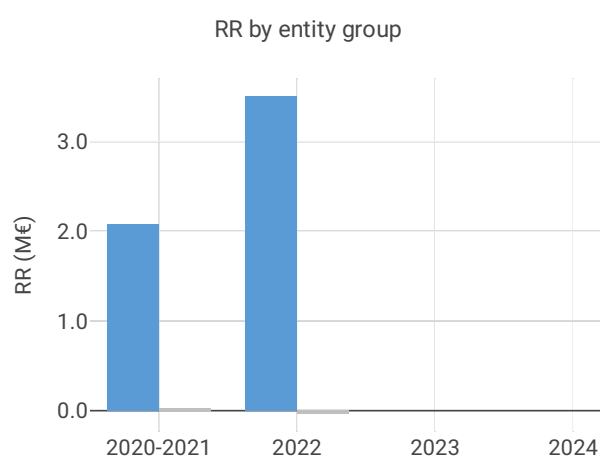
5.3.2 Actual unit cost incurred by the users (AUCU) (PI#1)



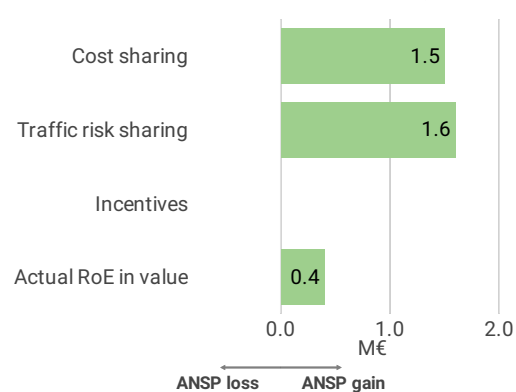


Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	-287.7	-1.03
Competent authorities and qualified entities costs	-24.0	-0.09
Eurocontrol costs	0.0	0.00
Pension costs	-1,882.5	-6.71
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	-2,194.1	-7.82

5.3.3 Regulatory result (RR)



Result from terminal activity - NAV Portugal (Continental) 2022



Focus on regulatory result

NAV Portugal net gain on activity in the Portugal terminal charging zone in the year 2022

NAV Portugal reported a net gain of +3.1 M€, reflecting a combination of a gain of +1.5 M€ arising from the cost sharing mechanism and a gain of +1.6 M€ arising from the traffic risk sharing mechanism.

NAV Portugal overall regulatory result (RR) for the terminal activity

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+3.1 M€) and the actual RoE (+0.4 M€) amounts to +3.5 M€ (8.9% of the terminal revenues). The resulting ex-post rate of return on equity is 36.2%, which is significantly higher than the 4.2% planned in the PP.