PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Spain - 2022

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/776 of 13 April 2022

List of ACCs 5
- Barcelona ACC
- Madrid ACC
- Palma ACC
- Sevilla ACC
- Canarias ACC

No of airports in the scope of the performance plan:
- **≥80'K** 6
- **<80'K** 1

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

Share of Union-wide:
- **traffic (TSUs) 2022** 11.9%
- **en route costs 2022** 12.5%

Share en route / terminal costs 2022 88% / 12%

En route charging zone(s)
- Spain Continental
- Spain Canarias

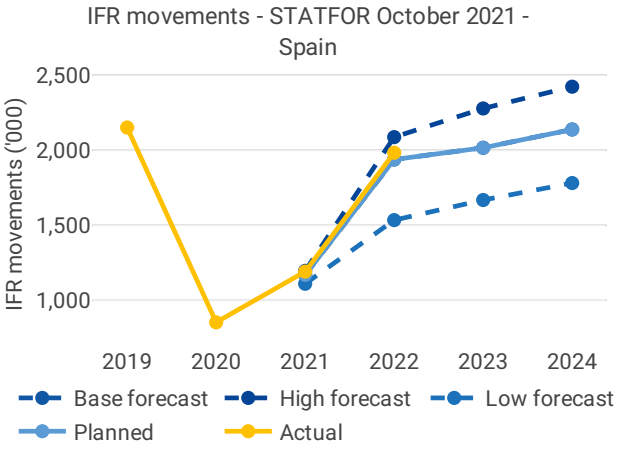
Terminal charging zone(s)
- Spain

Main ANSP
- ENAIRE

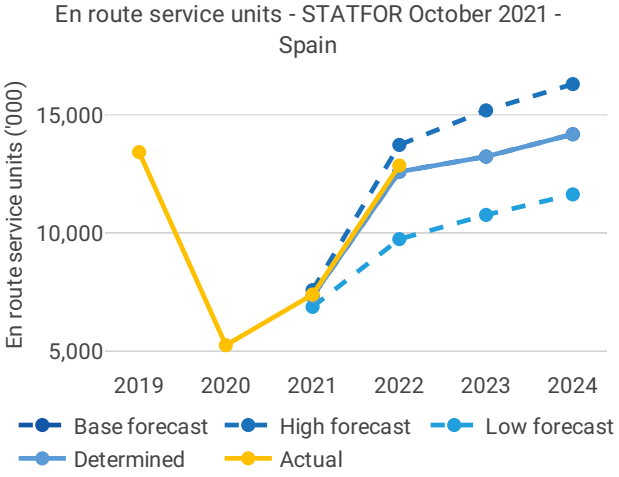
Other ANSPs
- FERRONATS
- ANSP EA

MET Providers
- AEMET

1.2 Traffic (En route traffic zone)

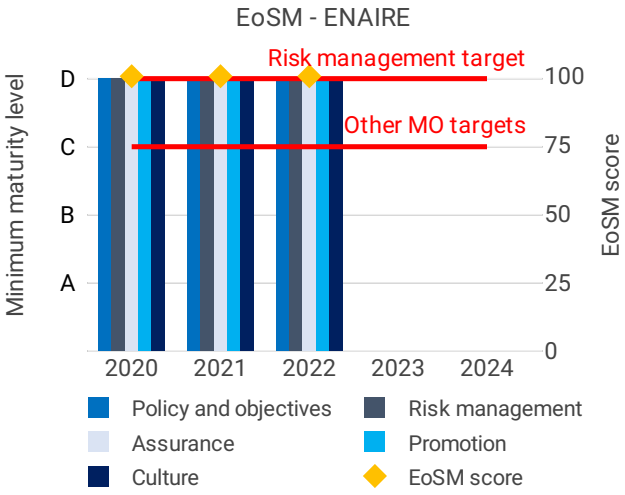


- Spain recorded 1,984K actual IFR movements in 2022, +66% compared to 2021 (1,192K).
- Actual 2022 IFR movements were +2.3% above the plan (1,939K).
- Actual 2022 IFR movements represent 92% of the actual 2019 level (2,152K).



- Spain recorded 12,868K actual en route service units in 2022, +74% compared to 2021 (7,390K).
- Actual 2022 service units were +2.1% above the plan (12,605K).
- Actual 2022 service units represent 96% of the actual 2019 level (13,439K).

1.3 Safety (Main ANSP)



• ENAIRE has already exceeded the RP3 EoSM targets in 2021 and remained on or above the targets since then. ENAIRE implemented continuous monitoring process to ensure maintaining high safety performance.

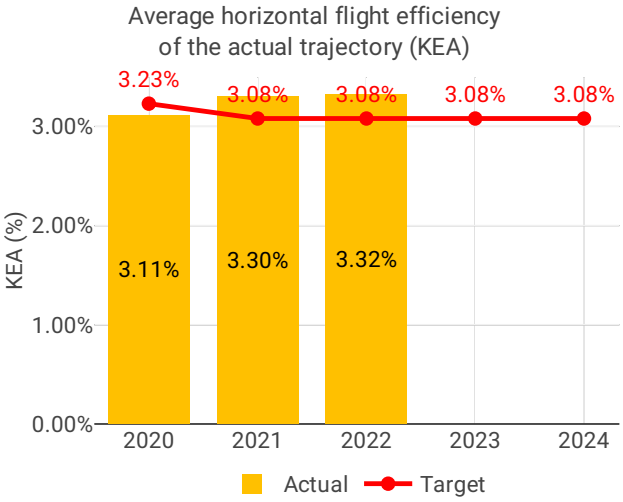
• SKYWAY achieved the RP3 EoSM target in four out of five management objectives with only safety risk management requiring further improvement. This is in line with their performance plan.

• SKYWAY continuously improves this area giving confidence that all RP3 EoSM targets will be achieved by the end of RP3.

• Spain recorded stable performance with respect to safety occurrences, with higher rate of separation minima infringements and marginally lower rate of runway incursions relative to 2021.

• Spain uses specific automated safety data recording systems for ACC and TMA sectors, and is one of the few ANSPs doing so.

1.4 Environment (Member State)



• Spain achieved a KEA performance of 3.32% compared to its target of 3.08% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.02 p.p. compared to 2021.

• The NSA states that the increase in KEA is due to traffic recovery and to transition plans for the new ATM system which requires mitigation measures in Reims, Lisbon, Marseille, and possibly Casablanca, leading to re-routings.

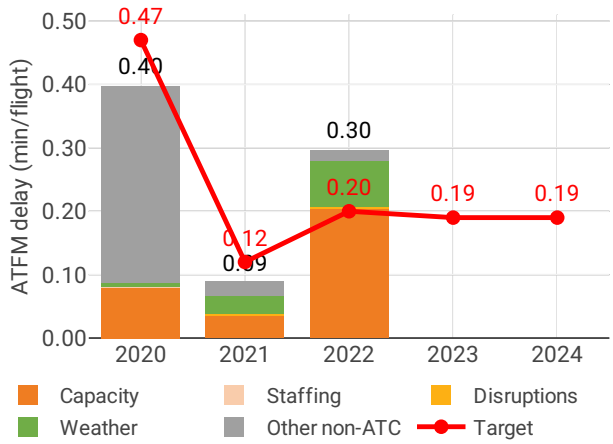
• Both KEP and SCR decreased in 2022 in comparison to 2021 and were at their lowest values in the past five years.

• The share of CDO flights decreased by 1.12% compared to 2021.

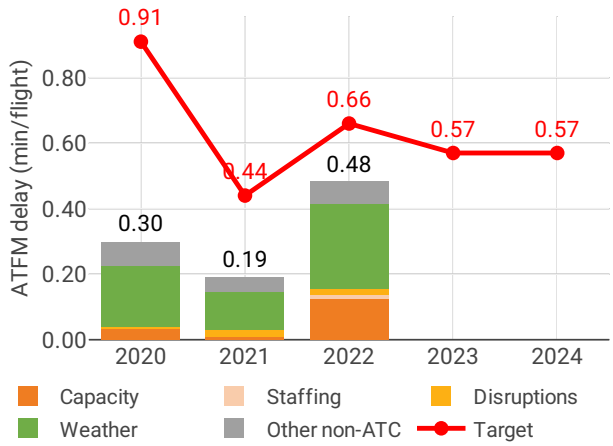
• During 2022, additional time in terminal airspace increased from 0.88 to 1.14 min/flight, while additional taxi out time increased from 2.01 to 2.64 min/flight.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



• Spain registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.30 during the post-ops adjustment process, thus not achieving the local target value of 0.20. Spain registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.30 during the post-ops adjustment process, thus not achieving the local target value of 0.20.

• The average number of IFR movements was 8% below 2019 levels in Spain in 2022.

• The number of ATCOs in OPS is planned to remain the same in Canarias ACC, while a decrease in the numbers is planned in all the other ACCs by the end of RP3. The actual values followed the 2022 plan in Barcelona and Sevilla ACCs, while in Canarias, Madrid, and Palma ACCs they were higher than the 2022 plan.

• Given that ATC capacity appears to be a continuing issue at Spanish ACCs, the planned number of ATCOs in OPS may need to be revised upwards.

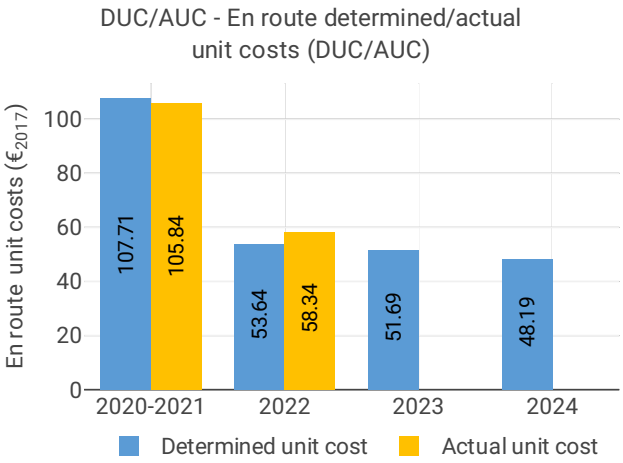
• Delays were highest between June and December, mostly due to ATC Capacity issues and adverse weather conditions.

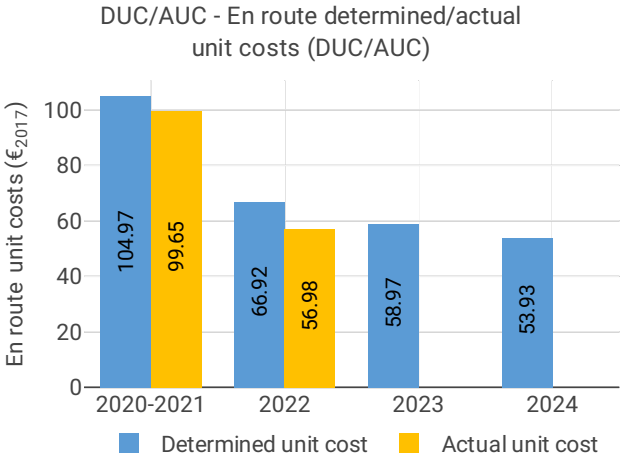
• The share of delayed flights with delays longer than 15 minutes in Spain increased by 5.01 p.p. compared to 2021 and was lower than 2019 values.

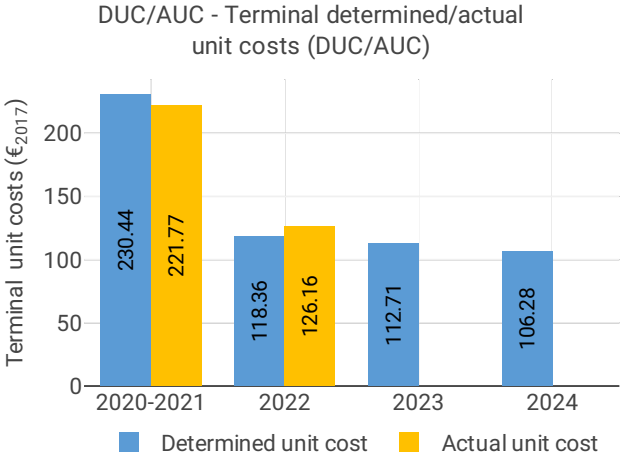
• The yearly total of sector opening hours in Barcelona ACC was 56,939 in 2022, showing a 51.5% increase compared to 2021. Sector opening hours are 5.7% below 2019 levels. The yearly total of sector opening hours in Madrid ACC was 92,490 in 2022, showing a 50.1% increase compared to 2021. Sector opening hours are 10.3% below 2019 levels. The yearly total of sector opening hours in Palma ACC was 37,197 in 2022, showing a 19.9% increase compared to 2021. Sector opening hours are 3.9% below 2019 levels. The yearly total of sector opening hours in Sevilla ACC was 38,559 in 2022, showing a 26.9% increase compared to 2021. Sector opening hours are 6.2% below 2019 levels.

• Barcelona ACC registered 15.36 IFR movements per one sector opening hour in 2022, being 1.3% below 2019 levels. Madrid ACC registered 11.64 IFR movements per one sector opening hour in 2022, being 1.9% over 2019 levels. Palma ACC registered 8.96 IFR movements per one sector opening hour in 2022, being 7.3% over 2019 levels. Sevilla ACC registered 11.43 IFR movements per one sector opening hour in 2022, being 9.3% over 2019 levels.

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







• The en route 2022 actual unit cost of Spain Continental was 58.30 €2017, 8.7% higher than the determined unit cost (53.64 €2017). The en route 2022 actual unit cost of Spain Canarias was 56.93 €2017, 15% lower than the determined unit cost (66.92 €2017).

• The terminal 2022 actual unit cost of Spain was 126.16 €2017, 6.6% higher than the determined unit cost (118.36 €2017).

• The en route 2022 actual service units of Spain Continental (11,079K) were 1.0% lower than the determined service units (11,190K). The en route 2022 actual service units of Spain Canarias (1,790K) were 27% higher than the determined (1,415K).

• In 2022, Spain Continental increased en route total cost by 46 M€2017 (+7.6%) compared to the determined. All cost categories increased, except the cost of capital. The increase in staff cost in ENAIRE (+45 M€2017, or +10.5%) was the main driver of the increase, the NSA noted that it is due to unforeseen increases in salaries derived from new national law requirements.

• In 2022, Spain Canaries increased en route total cost by 7.2 M€2017 (+7.6%) compared to determined. Similar to Spain Continental, all cost categories increased except for the cost of capital. The reasons are the same as for Spain Continental.

• These significant differences in staff costs amount to 97 M€ in nominal terms, which Spain intended to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.

• ENAIRE spent 115 M€2017 in 2022 related to costs of investments, 4.1% less than determined (120 M€2017) mainly due to some delays to take account of new technological evolution and regulation requirements in the investments.

• The en route Spain Continental actual unit cost incurred by users in 2022 was 70.16€, while the en route Spain Canarias actual unit cost incurred by users was 48.44€. The terminal actual unit cost incurred by users was 27.02€.

2 SAFETY - SPAIN

2.1 PRB monitoring

• ENAIRE has already exceeded the RP3 EoSM targets in 2021 and remained on or above the targets since then. ENAIRE implemented continuous monitoring process to ensure maintaining high safety performance.

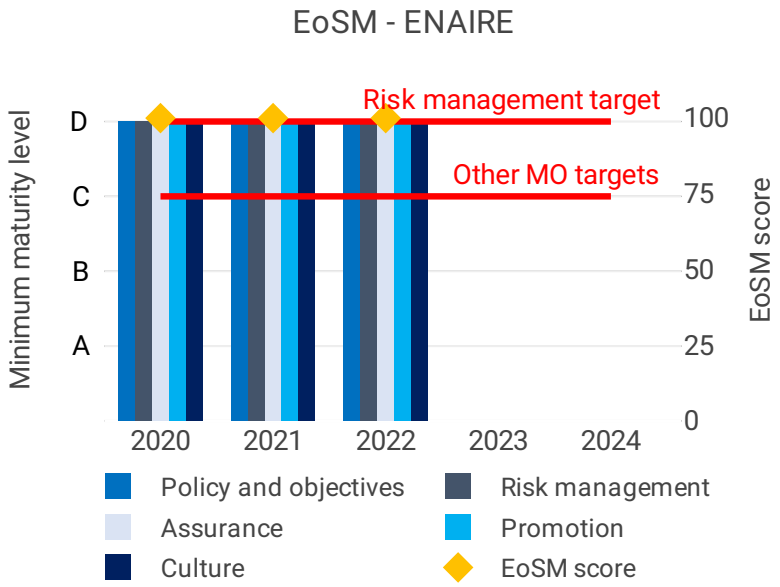
• SKYWAY achieved the RP3 EoSM target in four out of five management objectives with only safety risk management requiring further improvement. This is in line with their performance plan.

• SKYWAY continuously improves this area giving confidence that all RP3 EoSM targets will be achieved by the end of RP3.

• Spain recorded stable performance with respect to safety occurrences, with higher rate of separation minima infringements and marginally lower rate of runway incursions relative to 2021.

• Spain uses specific automated safety data recording systems for ACC and TMA sectors, and is one of the few ANSPs doing so.

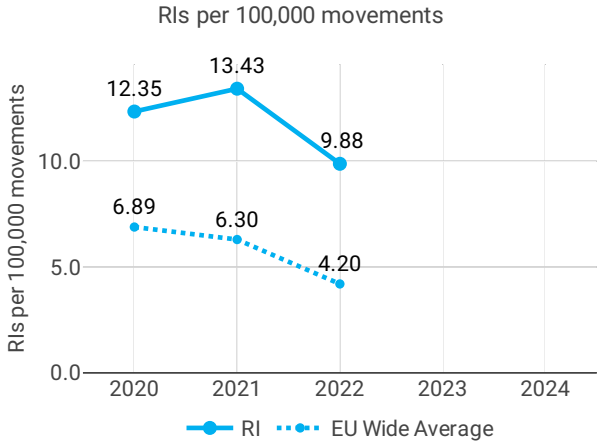
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

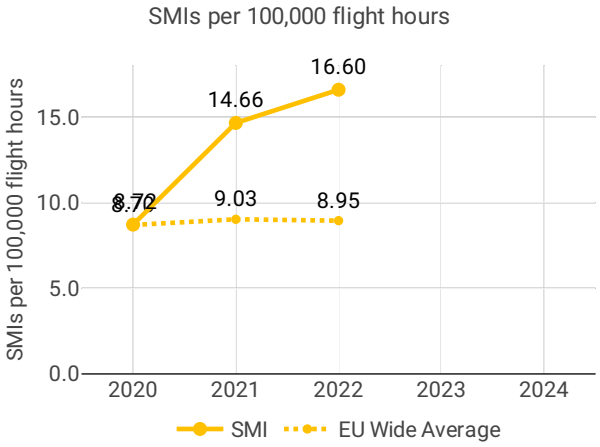


Focus on EoSM

All five EoSM components of ENAIRE meet or exceed the RP3 target level. Maximum maturity level is maintained. Four out of five EoSM components of SKYWAYS meet the RP3 target level. Compared with 2021, in 2022 improvements were seen on three questions. Only the component “Safety Risk Management” is below RP3 target level and improvements are still expected during RP3 to achieve RP3 targets.

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





3 ENVIRONMENT - SPAIN

3.1 PRB monitoring

• Spain achieved a KEA performance of 3.32% compared to its target of 3.08% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.02 p.p. compared to 2021.

• The NSA states that the increase in KEA is due to traffic recovery and to transition plans for the new ATM system which requires mitigation measures in Reims, Lisbon, Marseille, and possibly Casablanca, leading to re-routings.

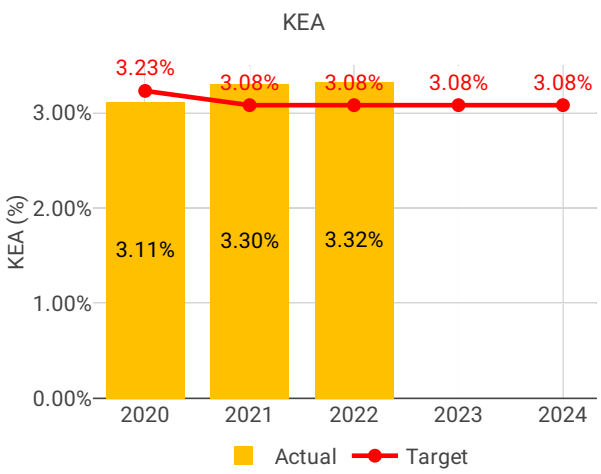
• Both KEP and SCR decreased in 2022 in comparison to 2021 and were at their lowest values in the past five years.

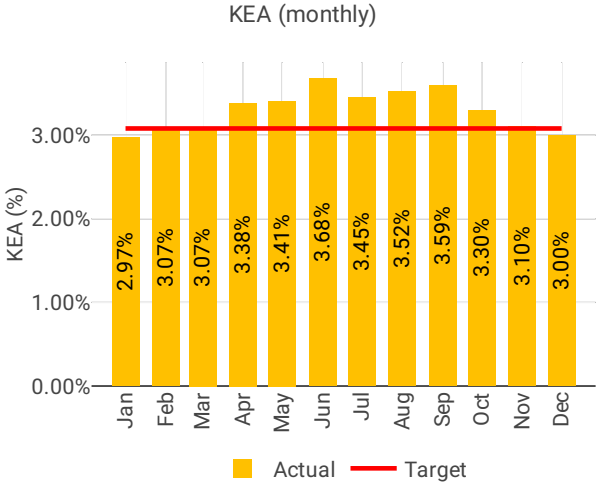
• The share of CDO flights decreased by 1.12% compared to 2021.

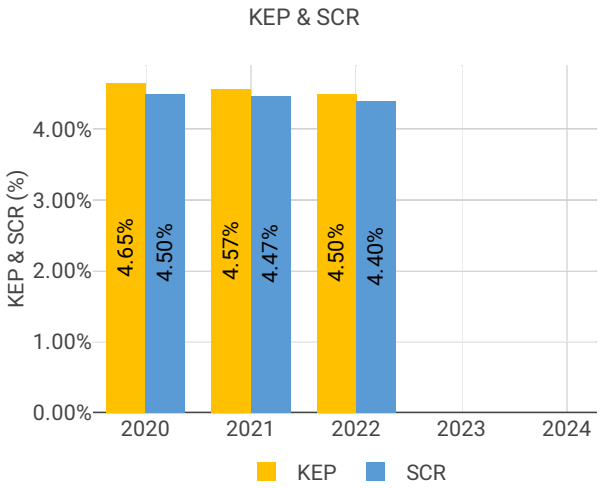
• During 2022, additional time in terminal airspace increased from 0.88 to 1.14 min/flight, while additional taxi out time increased from 2.01 to 2.64 min/flight.

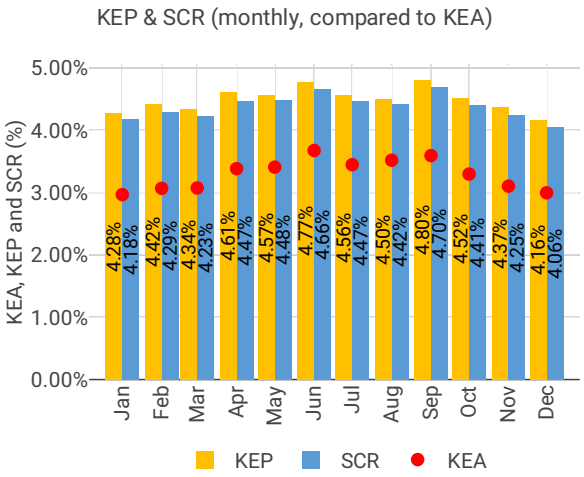
3.2 En route performance

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



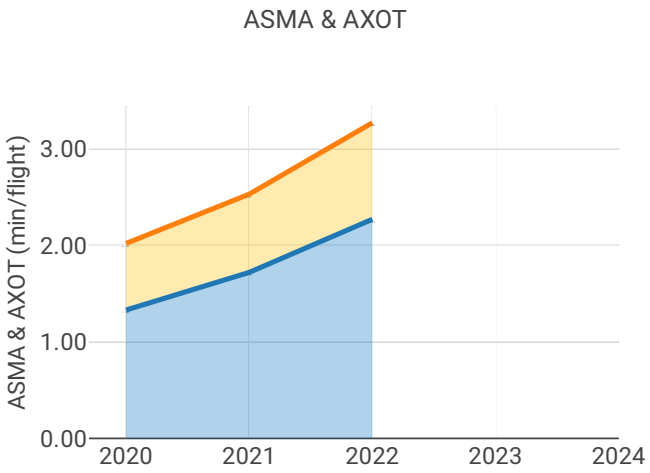


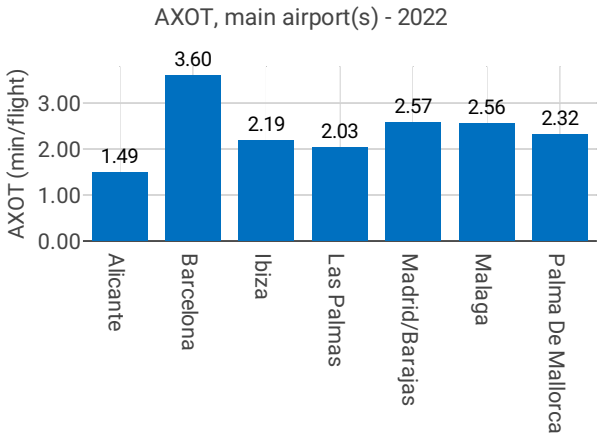


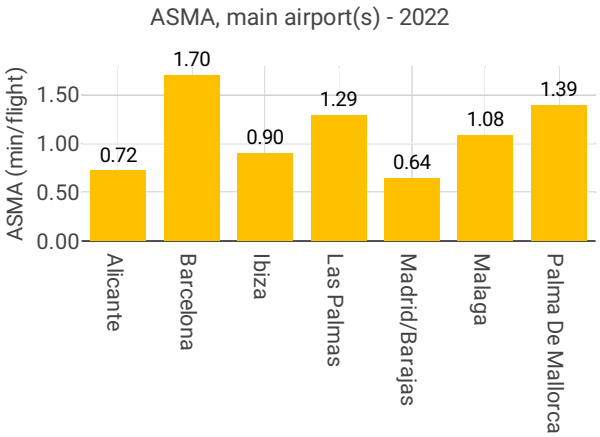


3.3 Terminal performance

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







Focus on ASMA & AXOT

AXOT

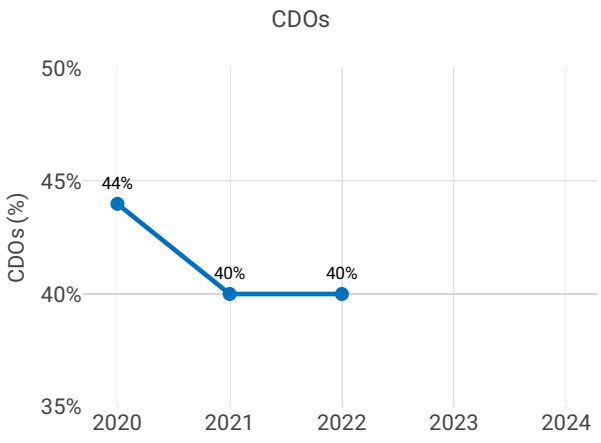
The additional taxi out time (aggregated for the 6 airports monitored in RP3) increased in 2022 by 31.3% in relation to the value of 2021. At Barcelona (LEBL; 2019: 4.48 min/dep.; 2020: 1.84 min/dep.; 2021: 2.33 min/dep.; 2022: 3.6 min/dep.) the additiona taxi-out times increased significantly in 2022 resulting in the third highest value amongst the SES monitored airports. The rest of airports observed a slight increase with respect to 2021, but remained around or below the SES average (2.52 min/dep.)

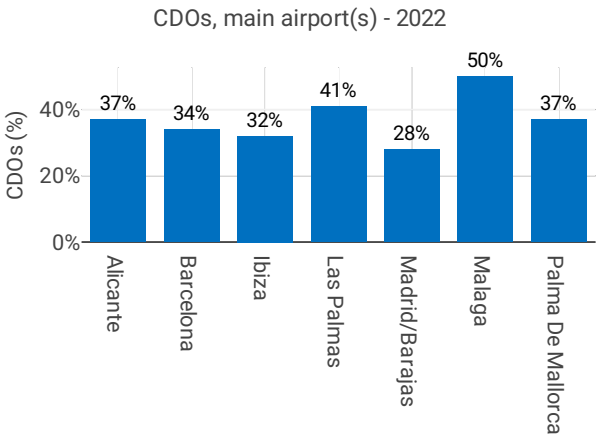
According to the Spanish monitoring report, the increase in these additional times is mainly due to the growth in traffic demand which is recovering from the COVID crisis. In general, the greatest increase throughout the year occurs in the high season months of each airport, except at LEMD where it is more uniform. Variations in this indicator are related to traffic, especially at airports such as LEPA. There is work in progress regarding the improvement of A-CDM in Madrid, Barcelona, Palma y Málaga (more accurate Taxi times/stand, new TWRUPDATE A-DPI message implementation, etc.). Although LEIB does not yet reach >80k movements, it is monitored together with these 6 airports since it is one of the airports considered in the Spanish performance plan (ESPP3) for RP3. In 2022 it reaches a value of 2,19, 13% higher than the 2021 value (1,94). The additional taxi out time (aggregated for the 7 airports monitored in RP3) has a value of 2,61 and it has increased in 2022 by 30% in relation to the value of 2021 (2,01).

ASMA

The additional time in terminal area (aggregated for the 6 airports monitored in RP3) increased by 31% in relation to the value of 2021. Barcelona (LEBL; 2019: 2.58 min/arr.; 2020: 1.13 min/arr.; 2021: 1.07 min/arr.; 2022: 1.7 min/arr.), like for additional taxi-out times, observed a significant increase of the times spent in the terminal area, with one of the highest values observed in the SES monitored airports. Both Palma (LEPA) , Malaga (LEMG) and Gran Canaria (GCLP) also resulted in additional ASMA time above the SES average (1.06 min/arr.) According to the Spanish monitoring report the increase of the additional ASMA times at these airports is mainly due to the growth in traffic demand which is recovering from the COVID crisis. In general, the greatest increase throughout the year occurs in the high season months of each airport but this relationship is not as strong as it is with AXOT. Variations in this indicator are related to traffic, especially at airports such as LEPA. Some restructuring projects are planned for the coming years in the main TMAs in Spain: - PBN SIDs, STARs and ILS & RNP APCH in Madrid TMA - PBN SIDs in Barcelona TMA - PBN SIDs, ILS & RNP APCH in Palma TMA - PBN STARs in Malaga - Reorganization of Canarias TMA Although LEIB does not yet reach >80k movements, it is monitored together with these 6 airports since it is one of the airports considered in the Spanish performance plan (ESPP3) for RP3. In 2022 it reaches a value of 1,14, 31% higher than the 2021 value (0,87). The additional time in terminal area (aggregated for the 7 airports monitored in RP3) has a value of 1,13 and it has increased in 2022 by 28% in relation to the value of 2020 (0,88).

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





Focus CDOs

Only Madrid (LEMD: 28.2%) has its share of CDO flights below the overall RP3 value in 2022 (29.0%). All other airports have shares of CDO flights above the overall RP3 value in 2022, ranging from 31.8% (LEIB) to 49.6% (LEMG).

Malaga (LEMG) had an increase of 2.8 percentage points while the values for Madrid (LEMD), Palma de Mallorca (LEPA) and Ibiza (LEIB) stayed almost the same. All other airports had a decrease of the share of CDO flights with respect to 2021, ranging from -1.3 percentage points (LEBL) to -2.5 percentage points (LEAL).

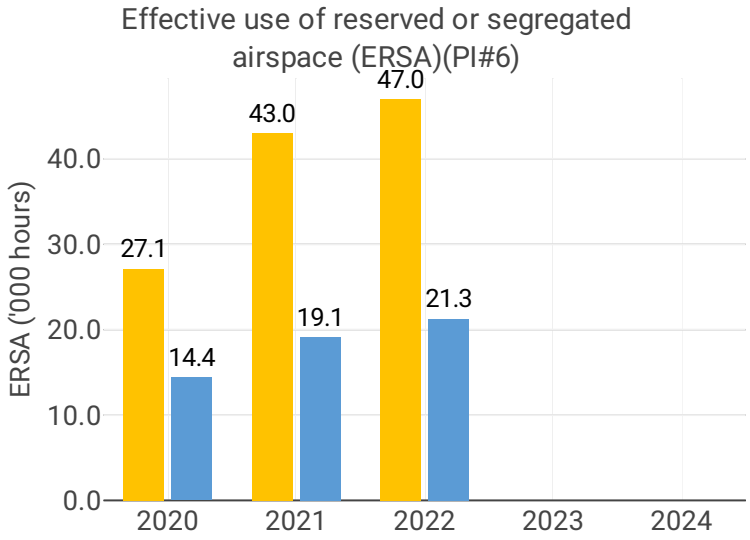
Over the summer months, the share of CDO flights is generally lower.

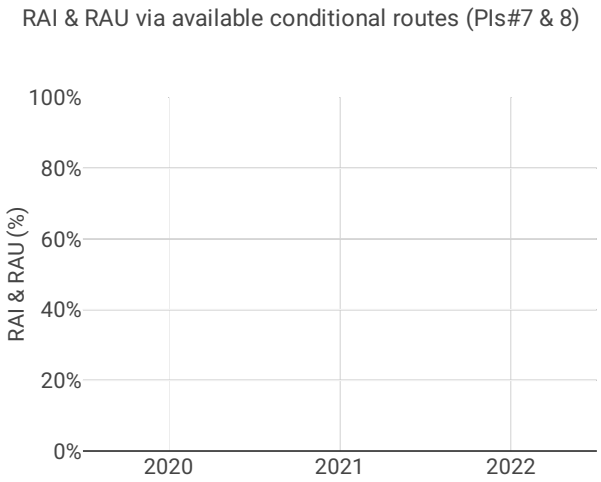
According to the Spanish monitoring report: *The share of arrivals applying continuous descent operation (aggregated for the 7 airports monitored in RP3) has remained at the same level as in 2021, despite the growth in traffic demand which is recovering from the COVID crisis.*
In general, the greatest decrease throughout the year occurs in the high season months of each airport but this relationship is not as strong as it is with AXOT. Variations in this indicator are related to traffic, especially at airports such as LEPA.
The conditions of use of continuous descent procedures mean that the use of this type of procedure is not always compatible with the techniques used when it is necessary to manage medium/high traffic demands at airports/TMAs. Therefore, the authorisation of these procedures must be compatible with the airport's operations in order to meet the demand without establishing restrictions. In the long term, there are plans to modify the structure of the CDA procedures currently published at some airports and to transfer to the arrival procedures section of the AIP the information to proceed with the continuous descent from some point of the STARs to the IAF, to some point of the intermediate approach or to the IF, thus maximising the use of these operations.
This PI is being monitored by AESA twice a year to evaluate the evolution of the indicators. If significant deviations are found, the possible causes will be analysed by contacting the relevant stakeholder.

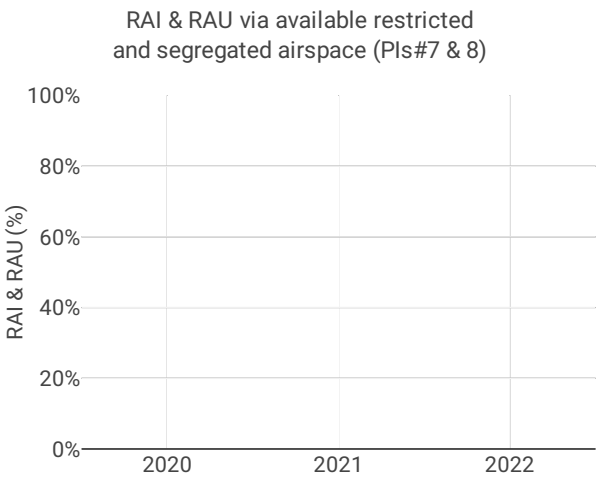
Airport level

	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
Alicante	0.70	1.15	1.49	NA	NA	0.41	0.62	0.72	NA	NA	45%	40%	37%	NA	NA
Barcelona	1.84	2.33	3.60	NA	NA	1.13	1.07	1.70	NA	NA	39%	36%	34%	NA	NA
Las Palmas	1.09	1.75	2.03	NA	NA	0.84	1.08	1.29	NA	NA	47%	43%	41%	NA	NA
Ibiza	1.18	1.94	2.19	NA	NA	0.61	1.05	0.90	NA	NA	41%	31%	32%	NA	NA
Madrid/Barajas	2.12	2.11	2.57	NA	NA	0.62	0.52	0.64	NA	NA	32%	28%	28%	NA	NA
Malaga	1.39	2.20	2.56	NA	NA	0.81	0.95	1.08	NA	NA	54%	47%	50%	NA	NA
Palma De Mallorca	0.69	1.83	2.32	NA	NA	0.35	1.13	1.39	NA	NA	47%	38%	37%	NA	NA
Stockholm/Arlanda	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43%	NA	NA	NA	NA
Geneva	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19%	NA	NA	NA	NA
Zurich	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21%	NA	NA	NA	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

Civil-Military coordination regarding Flexible Use of Airspace is on progress at strategic level established within CIDETMA (previous CIDEFO). Dissemination of progress on FUA to civil operators is considered an enabler to achieve Flight Plans using more efficient routes through the Civil Use of Release Airspace (CURA).
A new procedure for establishing variable lateral and vertical limits within the defined ARES (Reserved Airspace Areas) has been approved and implementation is ongoing through 2023.
Based on the Principles of FUA, additional capacity to the planned one could be provided once the airspace used for military operations and training is released.
Additional information related to Russia's war of aggression against Ukraine
Awareness of the need of larger areas for training in accordance with the new situation.
There is an ongoing study on where to locate the needed areas.

Military - related measures implemented or planned to improve capacity

Spanish Air and Space Force has been active participant in the general meetings to implement the Spanish Free Route Airspace Programme (HISPAFRA). An specific group composed by ENAIRE and Spanish Air Force has been working to further improve the coordination for the implementation of FRA, with a special focus in ASM related matters. Furthermore, a close coordination work with the Network Manager is ongoing.

Single CDR category has been implemented in 2022 by means of a National SCC transition plan. The plan has simplified the management of Airspace allowing the reservation of most of the ARES on D-1 and therefore improving the civil use of the airspace whilst maintaining the necessary allocation for military training and operations.
As explained above a level 1 document on "Procedimiento conjunto civil militar de criterios para la creación de estructuras de espacio aéreo con límites laterales y verticales ajustables y opciones múltiples de reserva y rutas" has been agreed helping to facilitate and improve the FUA and A-FUA implementation

Initiatives implemented or planned to improve PI#6

Spanish SCC transition plan implementation. Data reflects total national statistics as there are areas (D) affecting more than one ACC.
The particularities of this indicator have been analysed in our airspace since there are no monthly data published at SES portal and they are provided by the Spanish Air Force NSA. During 2022, several communications have been held between the Spanish Air Force NSA and the civil Spanish NSA to learn about the particularities of this indicator and to study the possibilities of a report beyond the one carried out in this annual monitoring framework.

Initiatives implemented or planned to improve PI#7

In February 2022 Phase 2 (and last one) of single CDR was implemented.
For the following years we expect to improve this PI with the definition of AMC specific coordination procedures to release traffic flows from RSA with military activity, definition of adjustable limits procedure, ASM scenarios implementation, definition of UAVs TSA tactical crossing procedure. We also expect FRA implementation to improve flight planning trough optimal route.
This PI is monitored only annually to evaluate the evolution of the indicators because our ANSP, ENAIRE, which provides the data to calculate the indicator, requests it from Eurocontrol and for the time being they are not in a position to request it on a more frequent basis. AESA reached out to Eurocontrol to find out if it is possible to obtain this data directly and more frequently, but has not yet been able to make any progress. If significant deviations are found in the indicator, the possible causes will be analysed by contacting the relevant stakeholder.

Initiatives implemented or planned to improve PI#8

In February 2022 Phase 2 (and last one) of single CDR was implemented.
For the following years we expect to improve this PI with the definition of AMC specific coordination procedures to release traffic flows from RSA with military activity, definition of adjustable limits procedure, ASM scenarios implementation, definition of UAVs TSA tactical crossing procedure. We also expect FRA implementation to improve flight planning trough optimal route.
This PI is monitored only annually to evaluate the evolution of the indicators because our ANSP, ENAIRE, which provides the data to calculate the indicator, requests it from Eurocontrol and for the time being they are not in a position to request it on a more frequent basis. AESA reached out to Eurocontrol to find out if it is possible to obtain this data directly and more frequently, but has not yet been able to make any progress. If significant deviations are found in the indicator, the possible causes will be analysed by contacting the relevant stakeholder

4 CAPACITY - SPAIN

4.1 PRB monitoring

• Spain registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.30 during the post-ops adjustment process, thus not achieving the local target value of 0.20. Spain registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.30 during the post-ops adjustment process, thus not achieving the local target value of 0.20.

• The average number of IFR movements was 8% below 2019 levels in Spain in 2022.

• The number of ATCOs in OPS is planned to remain the same in Canarias ACC, while a decrease in the numbers is planned in all the other ACCs by the end of RP3. The actual values followed the 2022 plan in Barcelona and Sevilla ACCs, while in Canarias, Madrid, and Palma ACCs they were higher than the 2022 plan.

• Given that ATC capacity appears to be a continuing issue at Spanish ACCs, the planned number of ATCOs in OPS may need to be revised upwards.

• Delays were highest between June and December, mostly due to ATC Capacity issues and adverse weather conditions.

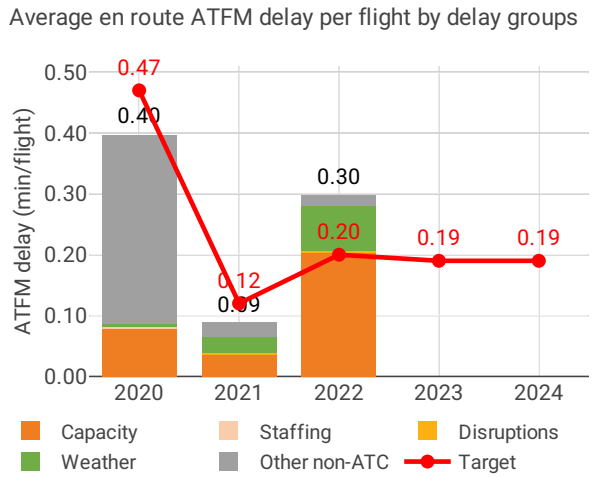
• The share of delayed flights with delays longer than 15 minutes in Spain increased by 5.01 p.p. compared to 2021 and was lower than 2019 values.

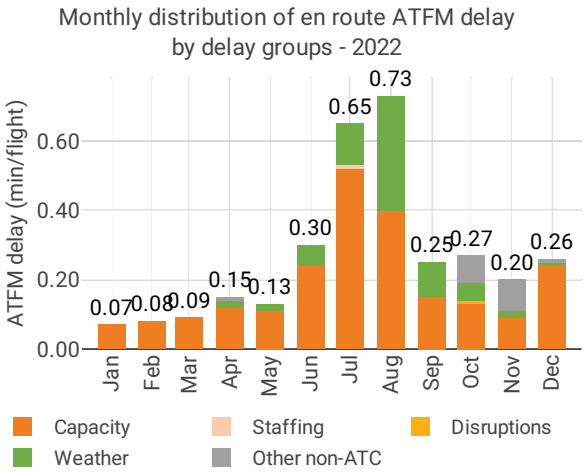
• The yearly total of sector opening hours in Barcelona ACC was 56,939 in 2022, showing a 51.5% increase compared to 2021. Sector opening hours are 5.7% below 2019 levels. The yearly total of sector opening hours in Madrid ACC was 92,490 in 2022, showing a 50.1% increase compared to 2021. Sector opening hours are 10.3% below 2019 levels. The yearly total of sector opening hours in Palma ACC was 37,197 in 2022, showing a 19.9% increase compared to 2021. Sector opening hours are 3.9% below 2019 levels. The yearly total of sector opening hours in Sevilla ACC was 38,559 in 2022, showing a 26.9% increase compared to 2021. Sector opening hours are 6.2% below 2019 levels.

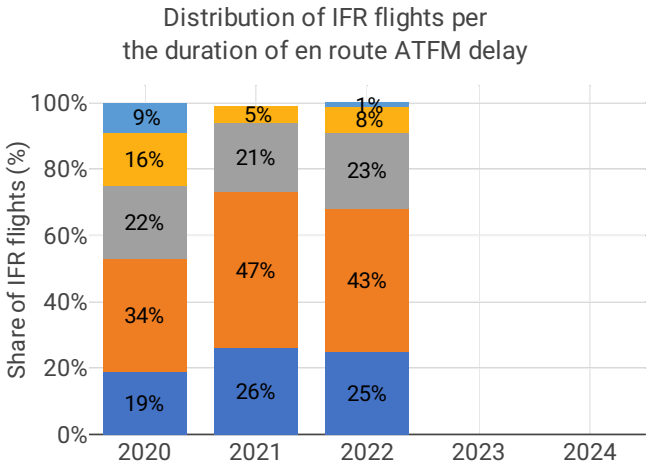
• Barcelona ACC registered 15.36 IFR movements per one sector opening hour in 2022, being 1.3% below 2019 levels. Madrid ACC registered 11.64 IFR movements per one sector opening hour in 2022, being 1.9% over 2019 levels. Palma ACC registered 8.96 IFR movements per one sector opening hour in 2022, being 7.3% over 2019 levels. Sevilla ACC registered 11.43 IFR movements per one sector opening hour in 2022, being 9.3% over 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

Spain experienced an increase in traffic from 1 192k flights in 2021 to 1 983k flights in 2022. However, traffic levels were still below the 2 152k flights in 2019.
In 2022, Spain had 598k minutes of ATFM delay - 68% attributed to ATC capacity; 24% attributed to adverse weather and 7% attributed to 'Other'.
There were an additional 63k minutes of en route ATFM delay originating in the Spanish ACCs that were re-attributed to adjacent ANSPs via the NM post operations delay attribution process:
- 43k minutes of en route ATFM delay were re-attributed to DSNA, according to the NMB agreement for eNM/S22 measures, to ameliorate capacity shortfalls in Reims ACC.
- 20k minutes of delay were re-attributed to NAV Portugal due to implementation of the TOPSKY ATM system in Portugal.
- A further 15k minutes of delay originated in Spain when airspace was closed due to the possible re-entry of a Chinese space rocket on 4th November 2022.

NSA's assessment of capacity performance

KPI1: the en route capacity target has not been met.

By 2022 the minutes reallocated by network measures (eNM/22), Topsky implementation and approved Post-Ops cases have been taken into account, therefore the actual value for 2022 is 0,30 instead of 0,34. None of the reallocated minutes of delay are related to the exceptional event relating to Russia's war of aggression against Ukraine, in the case of Spain.
In the first part of the year 2022, the delay was more moderate and traffic had not exceeded pre-pandemic levels in all ACCs.
From July onwards, with the reactivation of traffic and the development of the high season in most ACCs, more delay minutes were generated, concluding the year with their non-compliance.
Delays were mainly caused by C-ATC Capacity (69% of the 2022 total) and W-Weather (25% of the 2022 total).
At GCCC [Canarias ACC], the splitting of the GCCCRNE sector since July, whose transition process has been extended until the end of the year, is expected to improve operations from 2023 onwards.
At LECB [BarcelonaACC], weather accounts for almost half of the delay. In LECM and LECS, most of the delay is due to C-ATC Capacity.
In LECP [Palma ACC], the delay is mainly concentrated in Jul-Aug due to C-ATC Capacity. In Oct-Nov there was some impact due to the implementation of Topsky in Portugal in GCCC, LECM and LECS [Sevilla ACC].

Monitoring process for capacity performance

The AESA Monitoring Process continues to monitor this indicator on a monthly basis taking into account the different causes of delay, since the incentive system implemented for RP3 considers a mechanism modulated by causes of delay. The evolution of the attributable and non-attributable delay causes is monitored in order to apply the incentive mechanism and to identify the reasons in the event of non-compliance.
The alert mechanism continues to be active to warn, months before the end of the year, of possible non-compliance. In 2022 this mechanism was activated to report to the Commission the expected non-compliance of this indicator, which finally occurred.

Capacity planning

The NOP Recovery Plan was the NOP structured plan adapted since 2020 (COVID-19 crisis), updated every week, initially covering an outlook of four weeks and later reconverted into the NOP Rolling Seasonal Plan covering an outlook of six weeks. The time horizon and frequency of the updates is regularly reviewed.
Every week ENAIRE updated data to the plan (planned sector openings, maximum possible sector openings, sector capacity reductions if any, availability of support to operations staff, additional information -e.g. other constraints to be highlighted- and special events and major projects). The plan is a living document regularly updated and published by NM in order to be adapted to the changed conditions of the Air Navigation Service.
Also a NOP for the 2022-2026 period was elaborated. This is the current status of the main projects included in ESPP3 planned for 2022 (included in the NOP too) and some additional information over the planned projects for 2023:
• ALL ACCs: ATFCM measures (continuous); Optimized sector configurations and sector capacities (continuous); iTEC 4.1 - TTM, Complexity Manager, MTCD and Stripless En-route (ongoing); contained ATCOS increase (in progress); IMPACT V2 - Flows complexity monitoring (concluded in 2023); iCMON - Conformance monitor (planned 2023); STAM (planned 2023).
• PALMA ACC: Split Menorca - MXX (completed in 2023).
• CANARIAS ACC: FRA (ongoing); Morocco interface (ongoing); Splitting of NE sector and cluster; RNAV1 in GCTS - NIVARIA (planned 2023).
• MADRID ACC: FRA (ongoing).
• SEVILLA ACC: FRA (ongoing); Improvement of operation mode TWR-APP LEMG (Ongoing); MIDAS - Málaga APP - impacting en-route (planned 2023); Redesign of MAR sector - MIDAS - SEVILLA (planned 2023).
• BARCELONA ACC: FRA (Ongoing); Splitting of Balse Sector (completed in 2023).

Application of Corrective Measures for Capacity (if applicable)

While in LECB {Barcelona ACC] the delay due to W-Weather accounted for 45% of the total in the ACC and therefore a very significant contribution, in LECM [Madrid ACC] and LECS [Sevilla ACC] the delay due to C-ATC Capacity accounted for 79% and 87%, respectively.
Compared to 2019, the high records of delay in LECP [Palma ACC] and LECS in summer stand out, these are the ACCs that have reached pre-pandemic traffic levels more quickly.
• LECB: Some action as planned LECBBAS split with significant contribution to increase capacity in this bottleneck sector, has not yet taken in place.
• GCCC [Canarias ACC]: The GCCCRNE sector split introduced in July 2022 has not yet been put to use in Canarias' high season (November to February), but it is though this project will provide important capacity increase in Canarias.
• LECM: The ZAR-TER split will improve the situation, but further work will be required to increase capacity in the upper sectors. A possible way forward being evaluated is the creation of super-high sectors in all the ACC.
• LECP : Some action as split of LECPMXX have not yet been implemented but it will provide a significant increase capacity in the bottleneck sector in LECP.
• LECS: Is still pending on implementation the redesign of the sectors feeding Malaga (MA4 and neighbouring airspaces), together with new approach procedures (trombone-based) for LEMG, will provide a very important benefit in terms of capacity both in Sevilla ACC and in Malaga airport approach.
Summer 2022 was more complex than 2019 and and on-time performance was poor. In particular noted that LECS and LECP were two of the few ACCs in which traffic exceeded the pre-pandemic levels. Flight, airport and air traffic operations all suffered from volatility of demand, in general.
Weather regulations were particularly volatile in 2022. And in the case of Spain the percentage of the annual ATFM delay due to weather increased over the 2019 percentage value of the whole annual ATFM delay figures. Other circumstances could be new distribution of traffic flows due to changes in the en-route unit rates and to the resumption of flight traffic to and from Morocco after their alleviation of COVID measures.

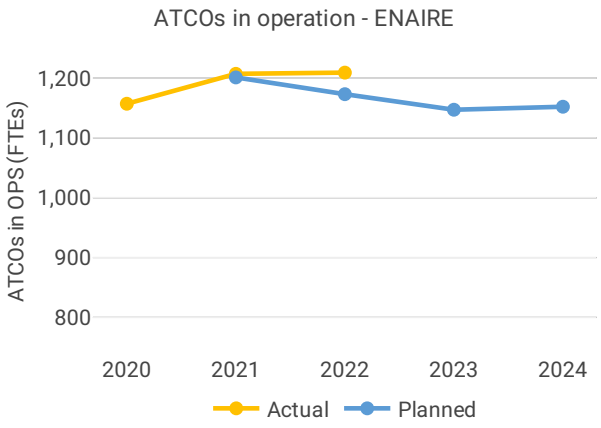
NSA recommendations to the ANSP to rectify situation

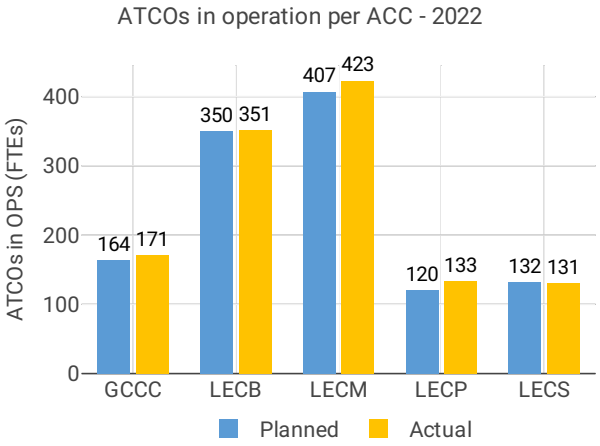
Endorse ENAIRE to continue implementing the capacity plan to achieve the objectives of delay and better air traffic management, focusing on projects that have an impact on increasing available capacity as well as implementing projects that improve operations to handle increases in traffic above pre-pandemic levels.
Capacity projects already achieved by ANSP include:
Continued effort to increase staffing levels and/or availability in Madrid ACC and Barcelona ACC;
Continued alignment of traffic demand and sector opening times in Madrid ACC and Barcelona ACC;
Revision of sector capacities in Madrid ACC and Barcelona ACC;
Network weather mitigation measures in Barcelona ACC.
Capacity projects that remain ongoing include:
France / Spain airspace restructuring project and re-sectorisation in Barcelona ACC and Madrid ACC [2022-2024];
Participation in the Operational Excellence Program of EUROCONTROL (Barcelona ACC and Madrid ACC) [2022-2023].

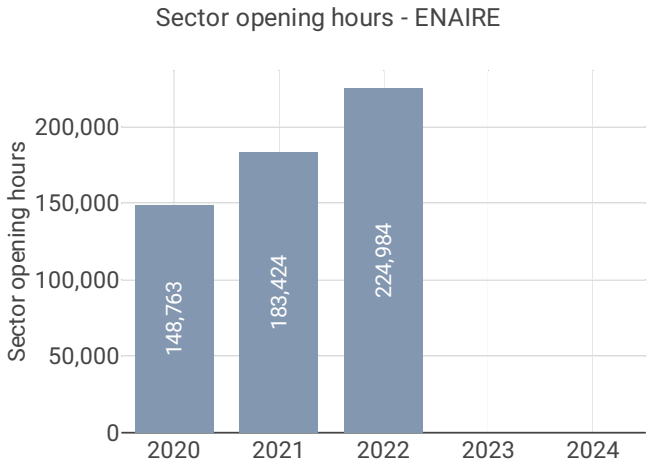
Additional comments from NSA

AESA is aware that there is a certain risk of not meeting the performance target in 2023 given the degree of seasonality that exists in some units. The various monitoring activities will continue, monthly and annual monitoring, as well as periodic monitoring of the assignment of delay causes in order to know the evolution of the KPIs and the specific characteristics of each unit.
This results in a better knowledge of the behaviour of the indicators and a fluid communication and coordination with the ANSP. Additionally, AESA is monitoring the cases reported by our ANSP through the Post-OPS performance adjustment process, collaborating with both ANSPs and other stakeholders with the aim of deepening the analysis of the cases.
As the year progresses and especially as the summer season unfolds, with the existing follow-up mechanisms thanks to various monitoring and alert system in force, if this risk of non-compliance materializes, it will be notified to the Commission as established in the Regulation (EU) 2019/317.

4.2.2 Other indicators







Focus on ATCOs in operations

"Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)" it's been considered all the operative ATCOs (C4) who started working for all reasons: CMCD, transfer, secondment, article 88 (II ATCOs collective bargaining agreement), new recruitments, unpaid leave return (voluntary or without job post reservation), change of designation, etc.

"Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)" it's been considered all the operative ATCOs (C4) who stopped working for all reasons: retirements, RAE or RA concessions, dismissals, CMCD, transfer, end of a secondment, end of article 88 application, voluntary unpaid leave, change of designation, etc.

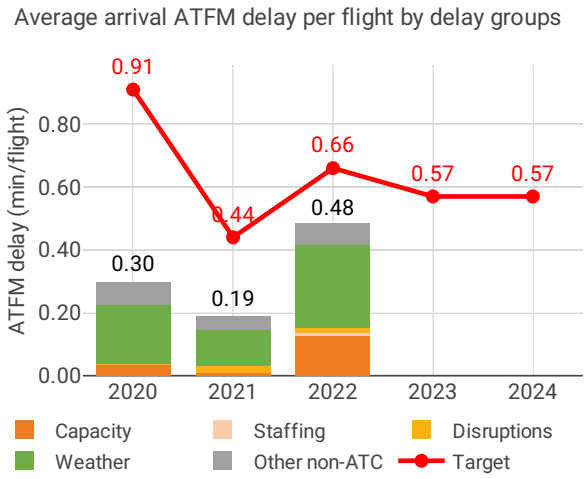
In the versions previously submitted, the following criterion was considered:

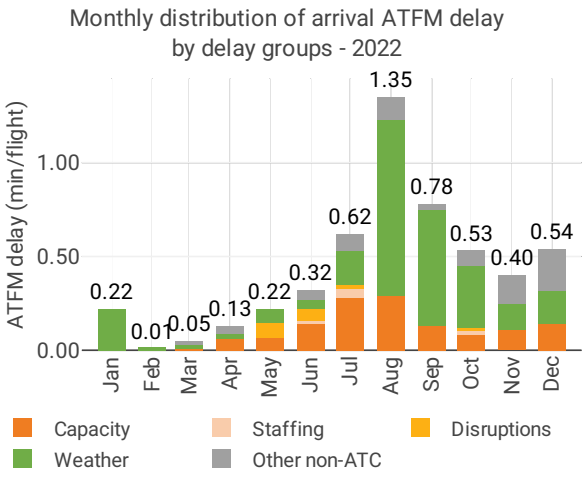
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs): New ATCOs in ENAIRE and ATCOs who have moved to the ACCs by CMCD during the year. Incorporated ATCOs are considered.

Number of ATCOs in OPS who have stopped working in the OPS room (FTEs): For operative ATCOs (C4), retirements, dismissals (permanent disabilities, deaths, voluntary leaves, etc.) and RA concessions are considered.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





Focus on arrival ATFM delay

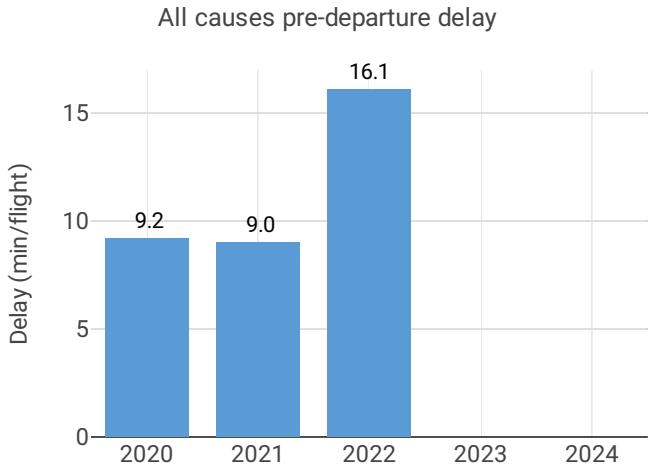
Spain includes seven airports under RP3 monitoring. However in accordance with IR (EU) 2019/317 and the traffic figures, Ibiza is not monitored for pre-departure delays.
The Airport Operator Data Flow, necessary for the monitoring of these pre-departure delays, is correctly implemented where required. Nevertheless, the quality of the reporting from 3 of the 6 the Spanish airports 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 the ensemble of Spanish airports under monitoring in 2022 is still 10% lower than in 2019, but 60% higher than in 2021. Palma and Ibiza surpassed in 2022 the 2019 traffic.
Average arrival ATFM delays in 2022 was 0.48 min/arr, compared to 0.19 min/arr in 2021.
ATFM slot adherence has improved (2022: 97.9%; 2021: 97.2%).

The national average arrival ATFM delay at Spanish airports in 2022 was 0.48 min/arr., an increase with respect to the 2021 value (0.19 min/arr) but still lower than the 2019 value (1.02 min/arr). The increase at national level was driven by the worsening of the performance at Palma (LEPA: 2020: 0.05 min/arr; 2021: 0.29 min/arr; 2022: 1.13 min/arr) followed by Barcelona (LEBL: 2020: 0.12 min/arr; 2021: 0.06 min/arr; 2022: 0.52 min/arr) and to some extent Ibiza (LEIB: 2020: 0 min/arr; 2021: 0.09 min/arr; 2022: 0.4 min/arr) . Madrid, Malaga and Gran Canaria also observed a slight deterioration.
54% of the delays at Spanish airports were attributed to Weather (mostly at Barcelona and Palma) and 26% to ATC Capacity (mostly at Madrid and Palma).
According to the Spanish monitoring report: *In the first part of the year, the delay was very moderate except in LEMG, which suffered two days with important W-Weather delays that increased its indicator. From July onwards, with the reactivation of traffic and the development of the high season in most airports, more delay minutes were generated. Delays were mainly caused by W-Weather (54% of the 2022 total) considering that almost half of those minutes were due to delays at LEPA in summer and one third at LEBL also in summer. 26% of the delay were attributed to C-ATC Capacity, half in LEMD and half in LEPA. The rest of the delay causes are less than 8%.*
Regarding the particularity of the LEAL and LEIB airports, in which different ANSPs are involved, for 2022, as for 2021 and 2020, it is not necessary to make a breakdown between ENAIRE and Skyway delays, since the incentive scheme is not applicable to these years. However, from 2023 onwards it will be necessary to differentiate this value for both aerodromes for incentive purposes.
In any case, for 2022 and according the document "Monitoring of delays in arrivals in RP3 for Alicante and Ibiza airports" prepared by AESA, the part of delay that would correspond to ENAIRE or Skyway (previously FerroNATS) for these two airports would be as follows:
- Alicante: 0,00 min/flight (ENAIRE and Skyway). In post-ops phase a delay was reallocated to en-route leading to a decrease from the initial value of 0,03 to a final value of 0,00 after post-ops.
- Ibiza: 0,14 min/flight (ENAIRE) and 0,26 min/flight (Skyway)

Concerning Russia's war: *Significant variations in traffic flows have been observed in 2021-2022, but it is difficult to identify Russia's war against Ukraine as the main causal factor.*3. Arrival ATFM Delay – National TargetThe national target on arrival ATFM delay in 2022 was met.According to the Spanish monitoring report: *No particular risk of non-compliance with the KPI is expected, but given the degree of seasonality that exists in some units, the various monitoring activities will continue, monthly and annual monitoring, as well as periodic monitoring of the assignment of delay causes in order to know the evolution of the KPIs and the specific characteristics of each unit. This results in a better knowledge of the behaviour of the indicators and a fluid communication and coordination with the ANSP. Additionally, AESA is monitoring the cases reported by our ANSP through the Post-Ops performance adjustment process, collaborating with both ANSPs and other stakeholders with the aim of deepening the analysis of the cases.*
As the year progresses and especially as the summer season unfolds, with the existing follow-up mechanisms thanks to various monitoring and alert system in force, if this risk of non-compliance materializes, it will be notified to the Commission as established in the Regulation (EU) 2019/317.

All Spanish airports showed adherence above 95% and the national average was 97.9%, a small improvement with respect to 2021's performance (97.2%). With regard to the 2.1% of flights that did not adhere, 1.2% was early and 0.9% was late.
The Spanish monitoring reports adds: *The result for 2022 (aggregate of the 7 airports subject to monitoring) improves by 0,7% the result of the previous year, being all results well above the value of 80% set in Regulation (EU) No. 255/2010 of the Commission . ANSPs does not believe it is necessary to establish specific improvement measures.*
This PI is being monitored by AESA twice a year to evaluate the evolution of the indicators. If significant deviations are found, the possible causes will be analysed by contacting the relevant stakeholder.

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
Alicante	0.02	0.00	0.00	NA	98.8%	99.7%	99.1%	NA%
Barcelona	0.12	0.06	0.52	NA	94.9%	98.7%	99.0%	NA%
Ibiza	NA	0.09	0.40	NA	99.0%	98.6%	99.1%	NA%
Las Palmas	0.97	0.44	0.46	NA	96.4%	95.5%	98.3%	NA%
Madrid/Barajas	0.49	0.27	0.35	NA	94.2%	96.6%	97.4%	NA%
Malaga	0.01	0.02	0.11	NA	93.4%	95.0%	95.2%	NA%
Palma De Mallorca	0.05	0.29	1.13	NA	97.3%	96.8%	97.9%	NA%

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Alicante	0.23	0.23	0.51	NA	9.0	8.1	17.4	NA
Barcelona	0.00	0.04	0.09	NA	8.7	8.3	15.8	NA
Ibiza	NA	NA	0.00	NA	6.3	9.1	19.7	NA
Las Palmas	0.08	0.05	0.29	NA	11.3	9.4	15.0	NA
Madrid/Barajas	NA	NA	0.04	NA	9.5	9.7	13.1	NA
Malaga	0.18	NA	0.52	NA	11.3	10.9	19.1	NA
Palma De Mallorca	NA	NA	0.30	NA	5.4	8.2	20.0	NA

Focus on performance indicators at airport level

ATFM slot adherence

The calculation of the ATC pre-departure delay is based on the data provided by the airport operators through the Airport Operator Data Flow (APDF) which is properly implemented at all 6 Spanish airports subject to monitoring of this indicator.
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 high share of unidentified delay reported by Barcelona, Madrid and Palma prevents the calculation of this indicator for these three airports. At the rest of airports the quality of the data reporting in 2022 allowed for this calculation.
The Spanish monitoring report includes some analysis on the monthly values that could be calculated:
According to the Spanish monitoring report: *GCLP, LEAL, LEMG and LEPA have improved in reporting because there is more monthly data in 2022 than there was in 2021. While LEBL, LEMD and LEIB have only reported data one month.*
Although LEIB does not yet reach >80k movements, it is monitored together with these 6 airports since it is one of the airports considered in the Spanish performance plan (ESPP3) for RP3.
This PI is being monitored by AESA twice a year to evaluate the evolution of the indicators. If significant deviations are found, the possible causes will be analysed by contacting the relevant stakeholder.
The Spanish monitoring report includes some analysis on the monthly values that could be calculated: *After several communications with the airport manager, AESA has understood that codes ZZZ and 999 are generally assigned when no code has been given (and therefore the cause of the delay is not known) or when the actual delay does not match the declared delay. The indicator picks up the initial declared delay data but this is subject to change and so there are occasions when it does not match the actual delay. This is why there is so much indeterminacy represented by these ZZZ and 999 codes.*
There does not seem to be a simple resolution to this situation since the data needed to publish the indicator is collected around the middle of the following month and the process of defining the codes that are more in line with reality is done through a post-operational analysis that takes considerably longer.

ATC pre-departure delay

The total (all causes) delay in the actual off block time at Spanish airports in 2022 increased significantly at all airports. The highest pre-departure delays were observed at Palma (LEPA: 2020: 5.44 min/arr; 8.20

min/arr; 2022: 19.98 min/dep) and Malaga (LEMG: 2020: 11.33 min/arr; 10.86 min/arr; 2022: 19.14 min/dep). The worst delays per flight at these airports were observed in Summer, except for Gran Canaria where the highest delays were registered in December.
According to the Spanish monitoring report: *The 2022 values are higher than the 2020-2021 values. The evolution of the indicator throughout 2022 is upward in the first half of the year and then remains stable until the end of the year, this behaviour is given in the 7 airports considered in ESPP3. The aggregated result for 2022 (of the 6 airports subject to monitoring) is 16,20 min/dep, which worsens significantly compared to 2021 (9,09 min/dep).*
The indicator could be directly related to the traffic in arrivals. It would be logical that this type of delay would increase when the number of movements grows. However the historical series with only 3 years (2020-2022) is very small because 2020-2021 are special years and therefore the behaviour of 2022, being only one year, might not be extrapolable for future years. Therefore, for the time being, no conclusions will be drawn regarding this indicator.
This PI is being monitored by AESA twice a year to evaluate the evolution of the indicators. If significant deviations are found, the possible causes will be analysed by contacting the relevant stakeholder.

All causes pre-departure delay

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

5 COST-EFFIENCY - SPAIN

5.1 PRB monitoring

• The en route 2022 actual unit cost of Spain Continental was 58.30 €2017, 8.7% higher than the determined unit cost (53.64 €2017). The en route 2022 actual unit cost of Spain Canarias was 56.93 €2017, 15% lower than the determined unit cost (66.92 €2017).

• The terminal 2022 actual unit cost of Spain was 126.16 €2017, 6.6% higher than the determined unit cost (118.36 €2017).

• The en route 2022 actual service units of Spain Continental (11,079K) were 1.0% lower than the determined service units (11,190K). The en route 2022 actual service units of Spain Canarias (1,790K) were 27% higher than the determined (1,415K).

• In 2022, Spain Continental increased en route total cost by 46 M€2017 (+7.6%) compared to the determined. All cost categories increased, except the cost of capital. The increase in staff cost in ENAIRE (+45 M€2017, or +10.5%) was the main driver of the increase, the NSA noted that it is due to unforeseen increases in salaries derived from new national law requirements.

• In 2022, Spain Canaries increased en route total cost by 7.2 M€2017 (+7.6%) compared to determined. Similar to Spain Continental, all cost categories increased except for the cost of capital. The reasons are the same as for Spain Continental.

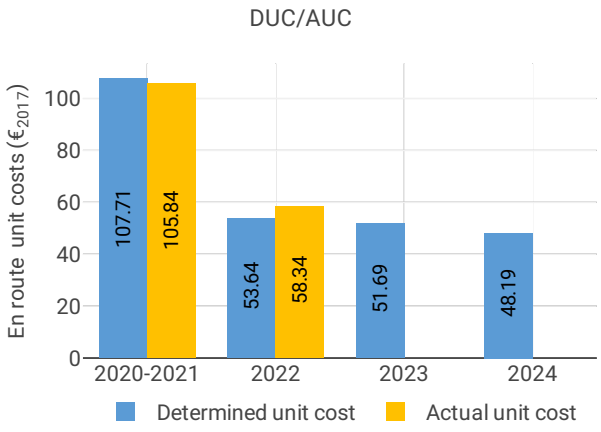
• These significant differences in staff costs amount to 97 M€ in nominal terms, which Spain intended to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.

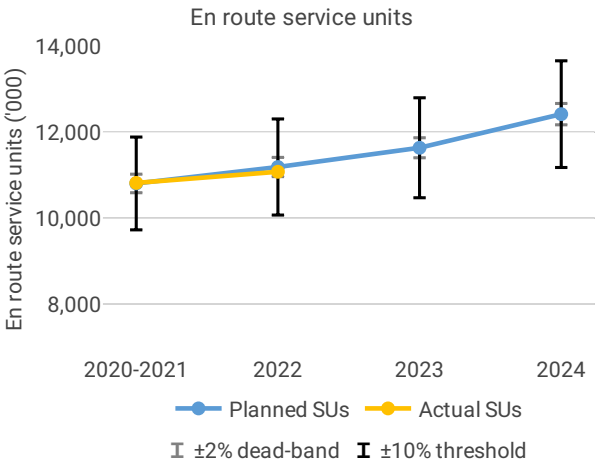
• ENAIRE spent 115 M€2017 in 2022 related to costs of investments, 4.1% less than determined (120 M€2017) mainly due to some delays to take account of new technological evolution and regulation requirements in the investments.

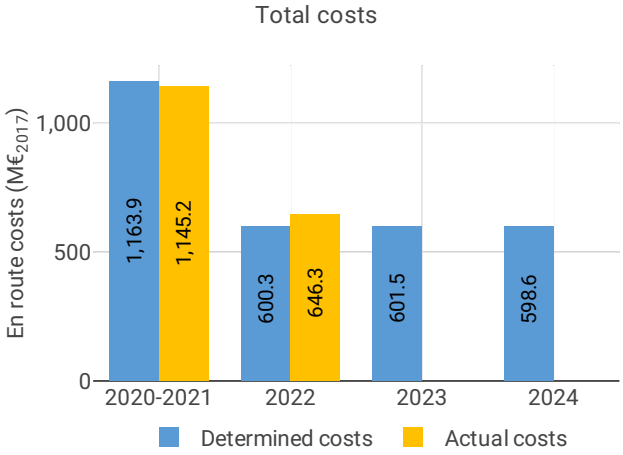
• The en route Spain Continental actual unit cost incurred by users in 2022 was 70.16€, while the en route Spain Canarias actual unit cost incurred by users was 48.44€. The terminal actual unit cost incurred by users was 27.02€.

5.2 En route charging zone - Spain Continental

5.2.1 Unit cost (KPI#1)

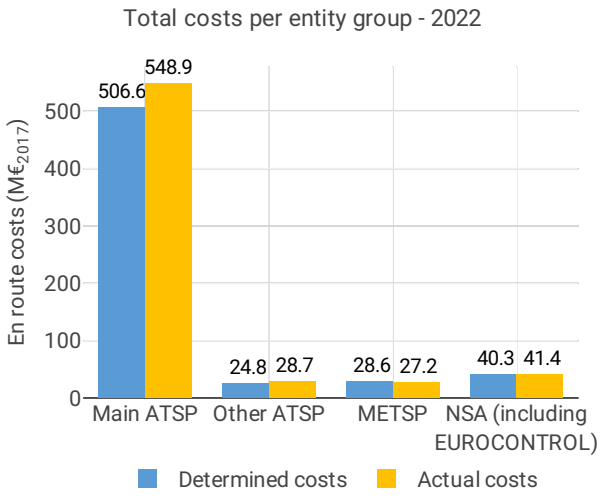


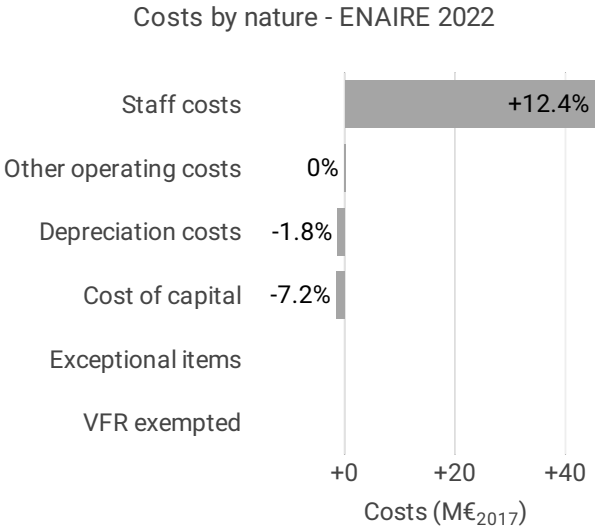




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	1,180	717	NA	NA
Determined costs	1,191	622	630	634
Difference costs	-11	95	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.3%	1.5%	1.6%
Determined inflation index	NA	104.9	106.5	108.2
Actual inflation rate	NA	8.3%	NA	NA
Actual inflation index	NA	114.4	NA	NA
Difference inflation index (p.p.)	NA	+9.5	NA	NA





Focus on unit cost

AUC vs. DUC

In 2022, the en route AUC was +8.7% (or +4.66 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned en route costs in real terms (+7.6%, or +45.6 M€2017)

and lower than planned TSUs (-1.0%). It should be noted that the actual inflation index in 2022 was +9.5 p.p. higher than planned.

En route service units

The difference between the 2022 actual and planned TSUs (-1.0%) falls inside the ±2% dead band. Hence the loss of en route revenues is borne by the ANSPs .

En route costs by entity

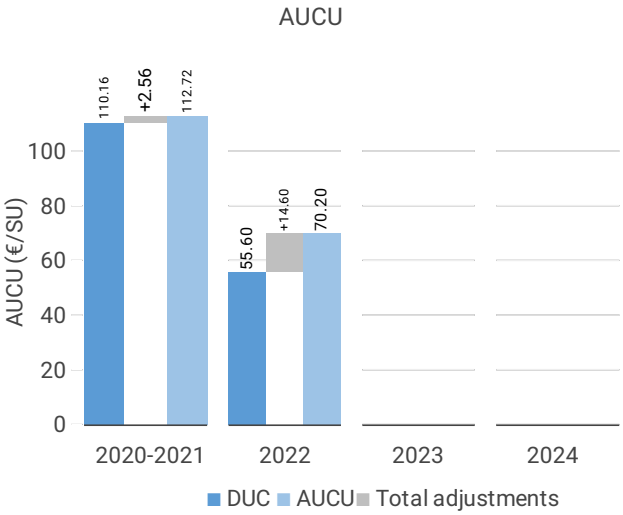
The 2022 actual real en route costs are +7.6% (or +45.6 M€2017) higher than planned. This is the result of higher than planned costs for ENAIRE (+8.4%, or +42.3 M€2017), the other ANSP (EA, +16.0%, or +4.0 M€2017) and the NSA/EUROCONTROL (+1.6%, or +0.6 M€2017) and lower than planned costs for the MET service provider (-4.7%, or -1.3 M€2017).

En route costs for the main ANSP at charging zone level

Significantly higher than planned en route (Continental) costs in real terms for ENAIRE in 2022 (+8.4%, or +42.3 M€2017) result from:

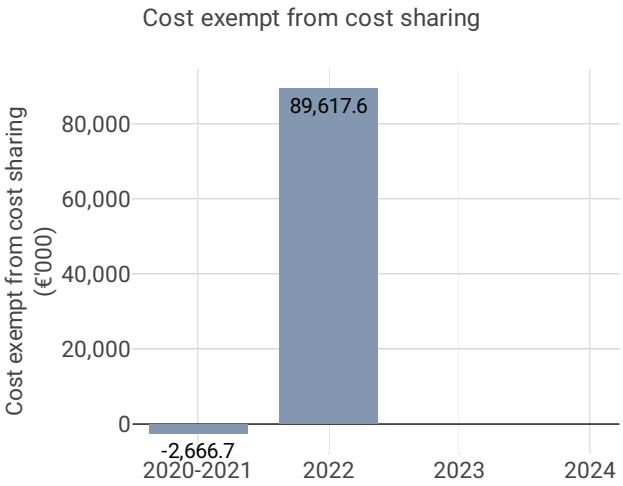
- Significantly higher than planned staff costs (+12.4%, or +45.3 M€2017), reported to be due to "unforeseeable new cost items not covered in the performance plan but required by law (Law 26/2022 of 19 December), which develops the figure of a Special Active Reserve , solving, among others, the problem of the forced retirement of ATCOs at age 65." And the "actual increase of salaries for 2022 was +3.5%, following public employees' salaries decisions adopted by Government, compared to 0%" in the PP.
- Other operating costs are in line with the plan in real terms (-0.03%) mainly due to the inflation impact, but higher in nominal terms (+9.0%), reported to be mainly a result of increasing energy costs.
- Lower than planned depreciation costs (-1.8%),
- Lower than planned cost of capital (-7.2%, or -1.6 M€2017), mainly due to a lower asset base and slightly lower WACC rate (4.4% vs. 4.7% in the PP).

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



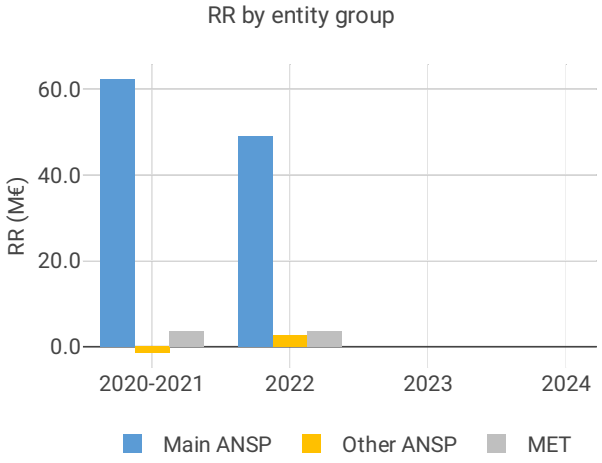
AUCU components (€/SU) – 2022

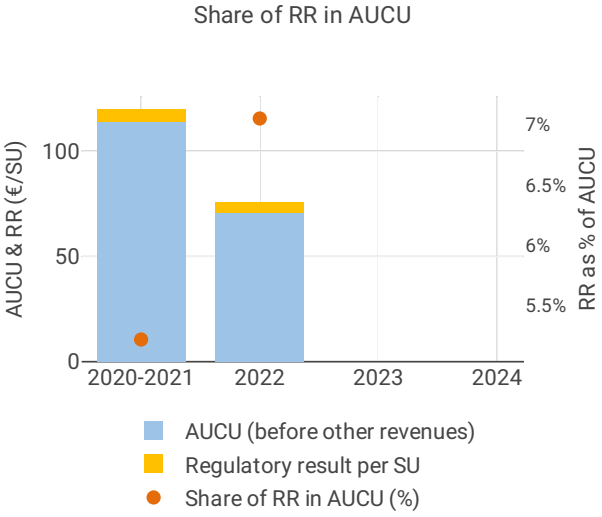
Components of the AUCU in 2022	€/SU
DUC	**55.60**
Inflation adjustment	3.82
Cost exempt from cost-sharing	8.09
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	0.09
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	3.03
Other revenues	-0.44
Application of lower unit rate	0.00
Total adjustments	14.60
AUCU	**70.20**
AUCU vs. DUC	**+26.3%**

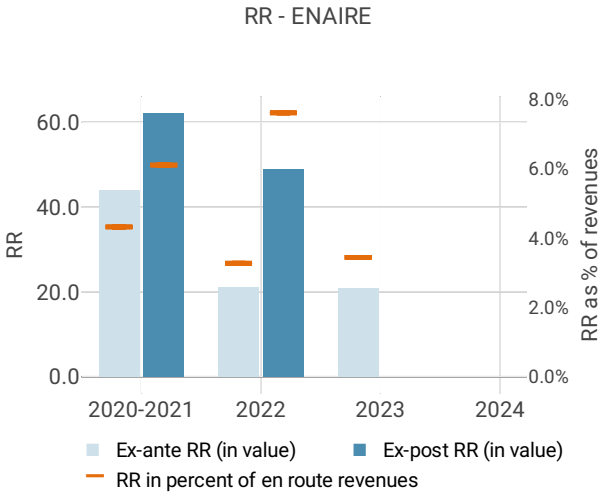


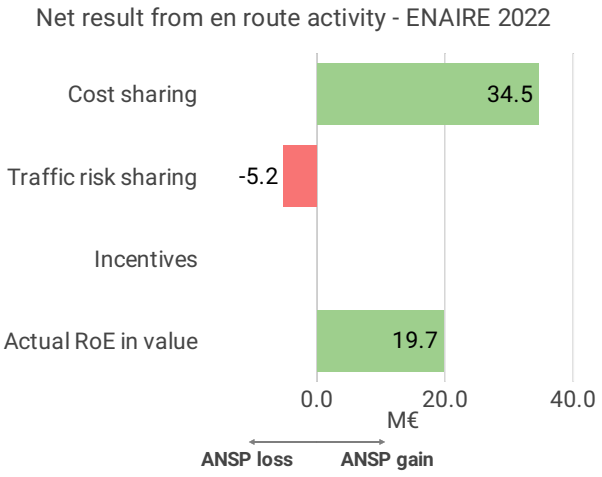
Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	2,343.4	0.21
Competent authorities and qualified entities costs	580.4	0.05
Eurocontrol costs	513.0	0.05
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	86,180.8	7.78
Total cost exempt from cost risk sharing	**89,617.6**	**8.09**

5.2.3 Regulatory result (RR)









Focus on regulatory result

ENAIRE net gain on activity in the Spain Continental en route charging zone in the year 2022

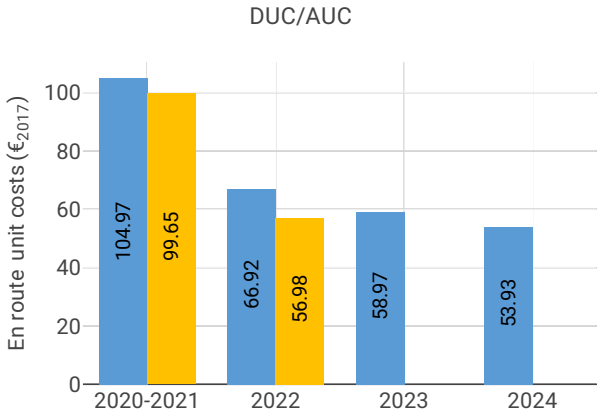
ENAIRE reported a net gain of +29.2 M€, a combination of a gain of +34.5 M€ arising from the cost sharing mechanism with a loss of -5.2 M€ arising from the traffic risk sharing mechanism.

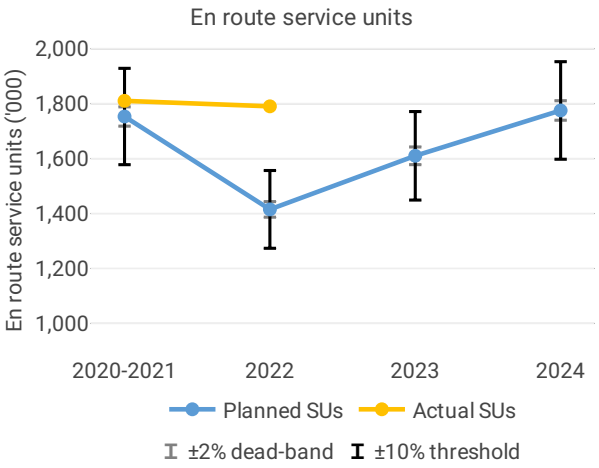
ENAIRE overall regulatory results (RR) for the en route activity

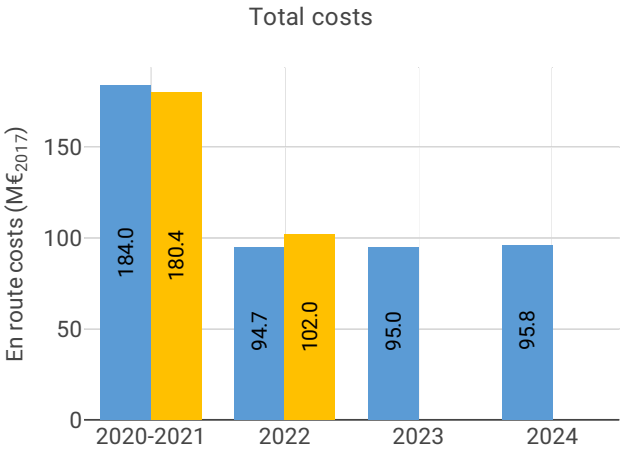
Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+29.2 M€) and the actual RoE (+19.7 M€) amounts to +49.0 M€ (7.6% of the en route revenues). The resulting ex-post rate of return on equity is 18.0%, which is higher than the 7.2% planned in the PP. It should be noted that an amount of +83.3 M€ is submitted as costs exempt from cost-sharing, reported to be mainly due to the unforeseen change in law and significantly impacting the staff costs.

5.3 En route charging zone - Spain Canarias

5.3.1 Unit cost (KPI#1)

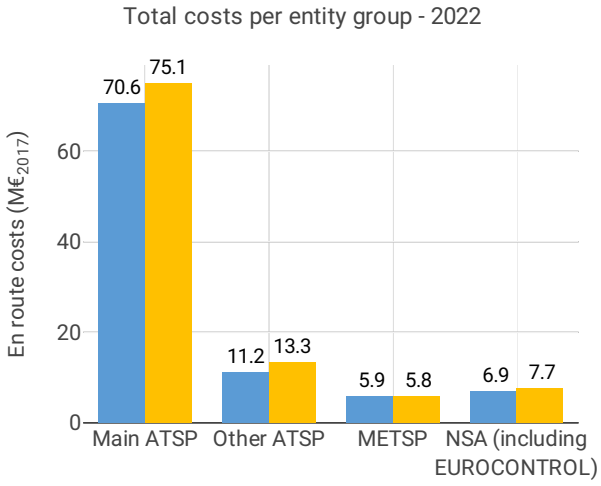


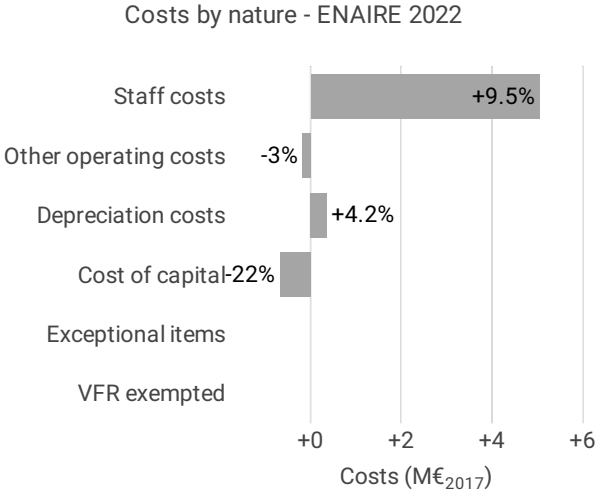




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	186	113	NA	NA
Determined costs	188	98	100	102
Difference costs	-2	15	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.3%	1.5%	1.6%
Determined inflation index	NA	104.9	106.5	108.2
Actual inflation rate	NA	8.3%	NA	NA
Actual inflation index	NA	114.4	NA	NA
Difference inflation index (p.p.)	NA	+9.5	NA	NA





Focus on unit cost

AUC vs. DUC

In 2022, the en route AUC was -14.9% (or -9.99 €2017) lower than the planned DUC. This results from the combination of significantly higher than planned TSUs (+26.5%) and significantly higher than planned en route costs in real terms (+7.6%, or +7.2 M€2017). It should be noted that actual inflation index in 2022 was +9.5 p.p. higher than planned.

En route service units

The difference between the 2022 actual and planned TSUs (+26.5%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional en route revenues is therefore shared between the ANSP and the airspace users, with the ANSP (ENAIRE) retaining an amount of +2.8 M€2017.

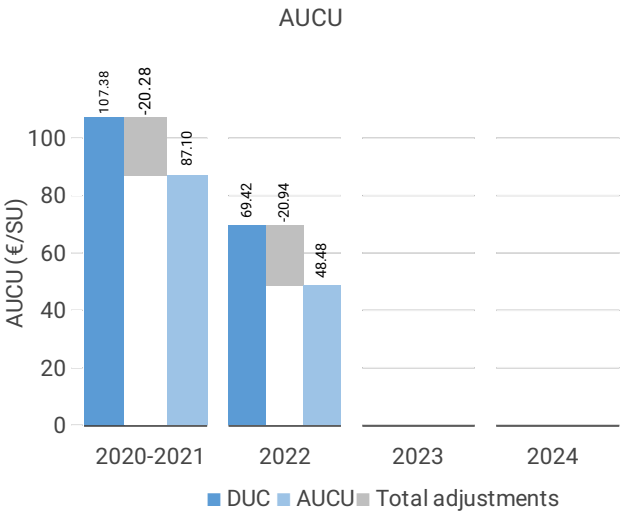
En route costs by entity

The 2022 actual real en route costs are +7.6% (+7.2 M€2017) higher than planned. This is the result of higher than planned costs for ENAIRE (+6.4%, or +4.5 M€2017), the other ANSP (EA +18.4%, or +2.1 M€2017) and the NSA/EUROCONTROL (+10.2%, or +0.7 M€2017), while for the MET SP the costs are lower than planned (-1.5%, or -0.1 M€2017).

En route costs for the main ANSP at charging zone level

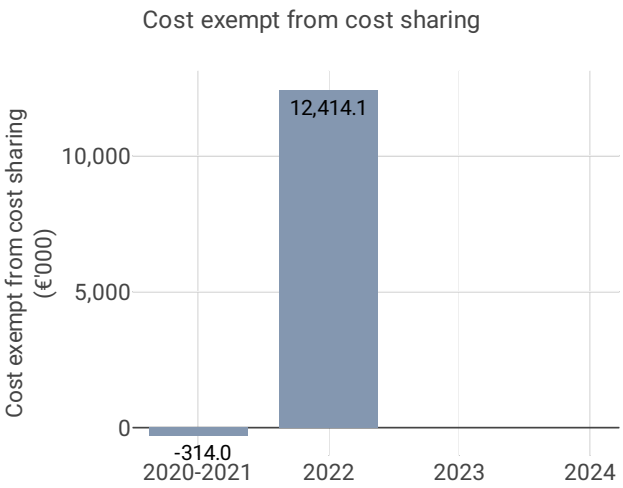
Significantly higher than planned en route costs in real terms for ENAIRE in 2022 (+6.4%, or +4.5 M€2017) result from: - Significantly higher than planned staff costs (+9.5%, or +5.0 M€2017), reported to be due to "unforeseeable new cost items not covered in the performance plan but required by law (Law 26/2022 of 19 December), which develops the figure of a Special Active Reserve , solving, among others, the problem of the forced retirement of ATCOs at age 65." And the "actual increase of salaries for 2022 was +3.5%, following public employees' salaries decisions adopted by Government, compared to 0%" in the PP. - Lower than planned other operating costs in real terms (-3.0%, or -0.2 M€2017) due to the inflation impact, but higher in nominal terms (+5.7%), reported to be mainly due to higher energy costs. - Higher than planned depreciation costs (+4.2%, or +0.4 M€2017), - Significantly lower than planned cost of capital (-22.0%, or -0.7 M€2017), as a combination of a lower asset base and lower WACC rate (4.4%) than planned (4.7%).

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



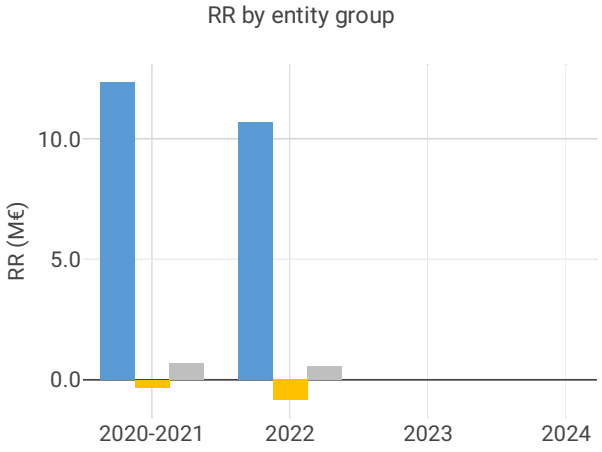
AUCU components (€/SU) – 2022

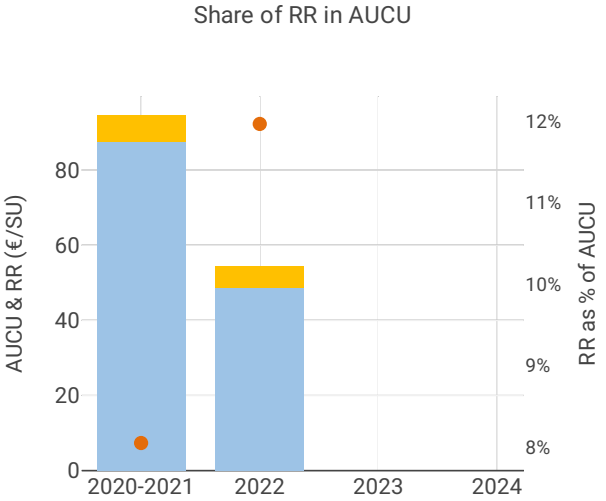
Components of the AUCU in 2022	€/SU
DUC	**69.42**
Inflation adjustment	3.83
Cost exempt from cost-sharing	6.94
Traffic risk sharing adjustment	-9.08
Traffic adj. (costs not TRS)	-3.67
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	-18.78
Other revenues	-0.18
Application of lower unit rate	0.00
Total adjustments	-20.94
AUCU	**48.48**
AUCU vs. DUC	**-30.2%**

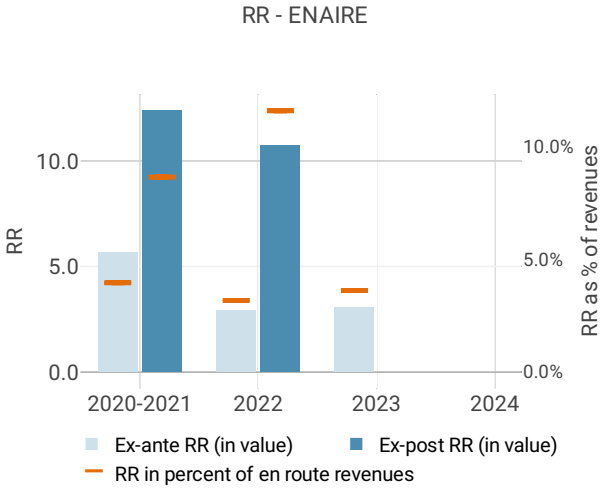


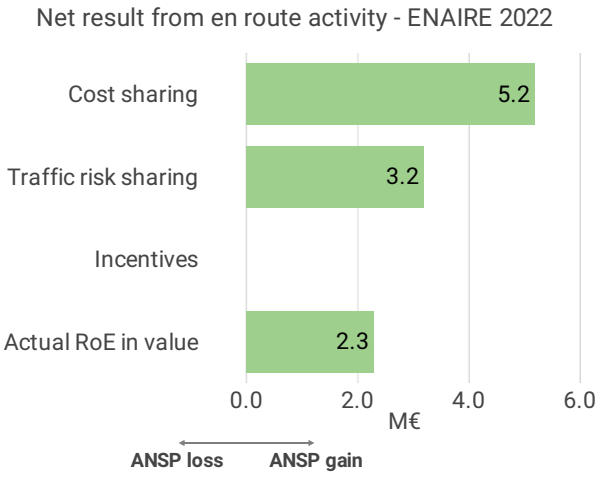
Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	822.8	0.46
Competent authorities and qualified entities costs	170.6	0.10
Eurocontrol costs	620.7	0.35
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	10,799.9	6.03
Total cost exempt from cost risk sharing	**12,414.1**	**6.94**

5.3.3 Regulatory result (RR)









Focus on regulatory result

ENAIRE net gain on activity in the Spain Canarias en route charging zone in the year 2022

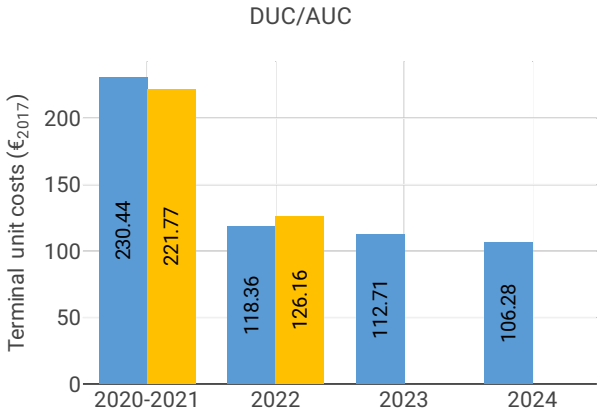
ENAIRE reported a net gain of +8.4 M€, as a combination of a gain of +5.2 M€ arising from the cost sharing mechanism, with a gain of +3.2 M€ arising from the traffic risk sharing mechanism.

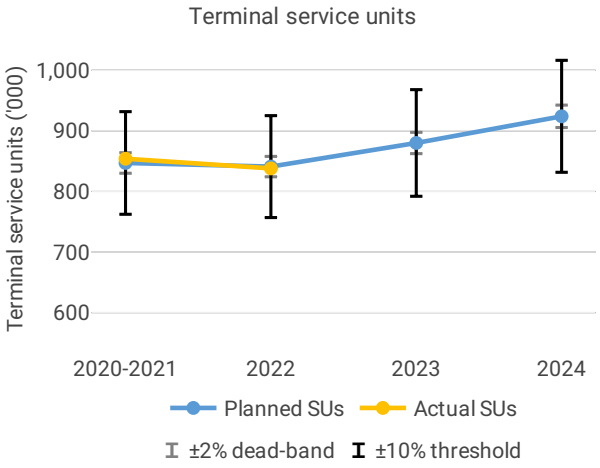
ENAIRE overall regulatory results (RR) for the en route activity

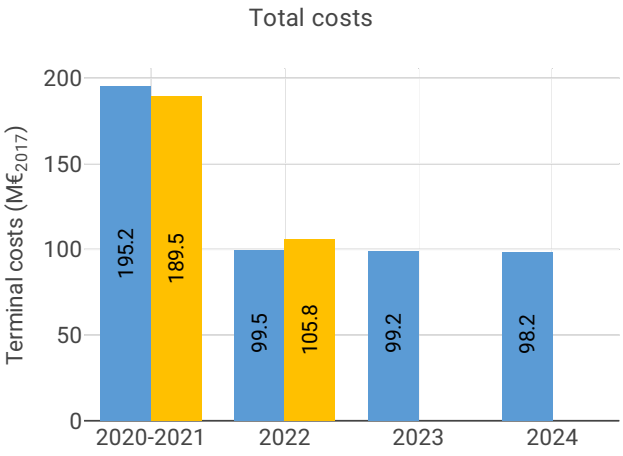
Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+8.4 M€) and the actual RoE (+2.3 M€) amounts to +10.7 M€ (11.6% of the en route revenues). The resulting ex-post rate of return on equity is 33.6%, which is higher than the 7.2% planned in the PP. It should be noted that an amount of +10.4 M€ is submitted as costs exempt from cost-sharing, reported to be mainly due to the unforeseen change in law and significantly impacting the staff costs.

5.4 Terminal charging zone

5.4.1 Unit cost (KPI#1)

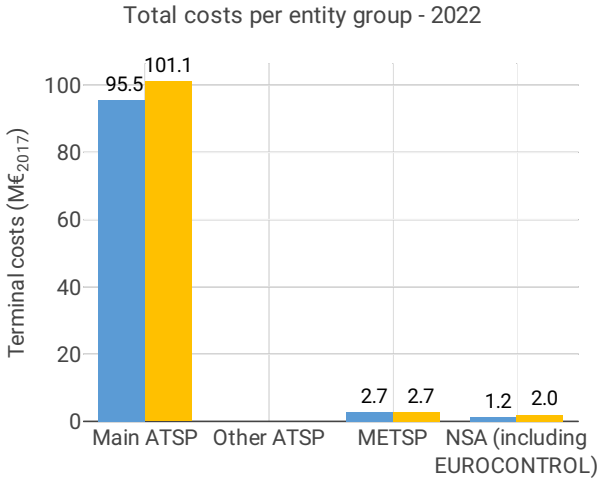


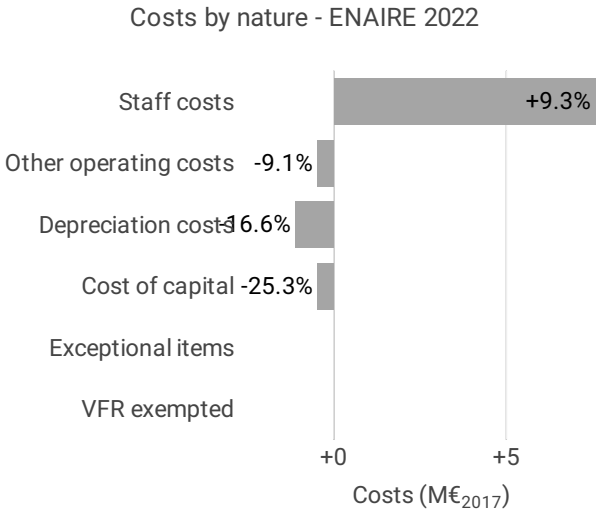




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	196	119	NA	NA
Determined costs	201	104	105	105
Difference costs	-4	16	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.3%	1.5%	1.6%
Determined inflation index	NA	104.9	106.5	108.2
Actual inflation rate	NA	8.3%	NA	NA
Actual inflation index	NA	114.4	NA	NA
Difference inflation index (p.p.)	NA	+9.5	NA	NA





Focus on unit cost

AUC vs. DUC

In 2022, the terminal AUC was +6.6% (or +7.8 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+6.3%, or +6.2 M€2017) and slightly lower than planned TNSUs (-0.3%). It should be noted that the actual inflation index in 2022 was +9.5 p.p. higher than planned.

Terminal service units

The difference between the 2022 actual and planned TNSUs (-0.3%) falls inside the ±2% dead band. Hence the loss of terminal revenues is borne by the ANSPs .

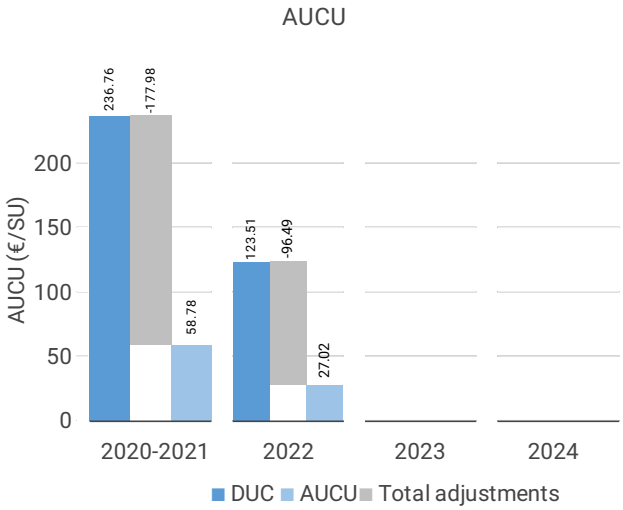
Terminal costs by entity

The 2022 actual real terminal costs are +6.3% (or +6.2 M€2017) higher than planned. This includes higher than planned costs for the main ANSP, ENAIRE (+5.8%, or +5.5 M€2017) and the NSA (+58.0%, or +0.7 M€2017) and in line with the PP for the MET service provider (-0.8%, or -0.02 M€2017).

Terminal costs for the main ANSP at charging zone level

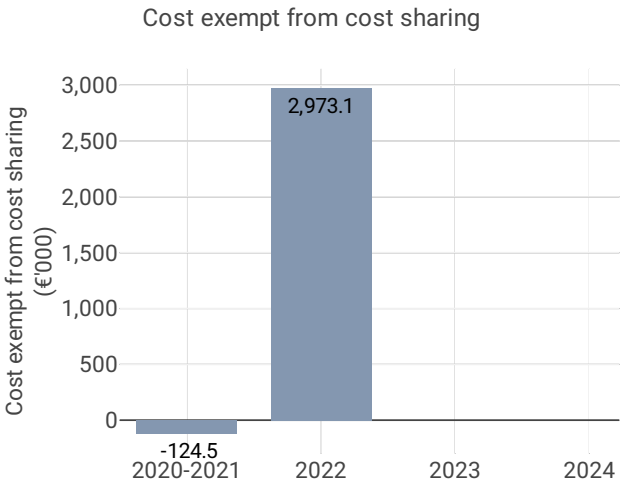
Higher than planned terminal costs in real terms for ENAIRE in 2022 (+5.8%, or +5.5 M€2017) result from:
- Significantly higher than planned staff costs (+9.3%, or +7.6 M€2017), reported to be due to *"unforeseeable new cost items not covered in the performance plan but required by law (Law 26/2022 of 19 December), which develops the figure of a Special Active Reserve , solving, among others, the problem of the forced retirement of ATCOs at age 65." And the "actual increase of salaries for 2022 was +3.5%, following public employees' salaries decisions adopted by Government, compared to 0%" in the PP.*
- Lower other operating costs (-9.1%, or -0.5 M€2017) mainly due to the inflation index impact (+9.5 p.p.), since in nominal terms other operating costs are in line with the plan (-0.9%).
- Lower depreciation costs (-16.6% or -1.1 M€2017),
- Lower cost of capital (-25.3%, or -0.5 M€2017), mainly due to a lower asset base and slightly lower WACC rate (4.4% vs. 4.7% in the PP).

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



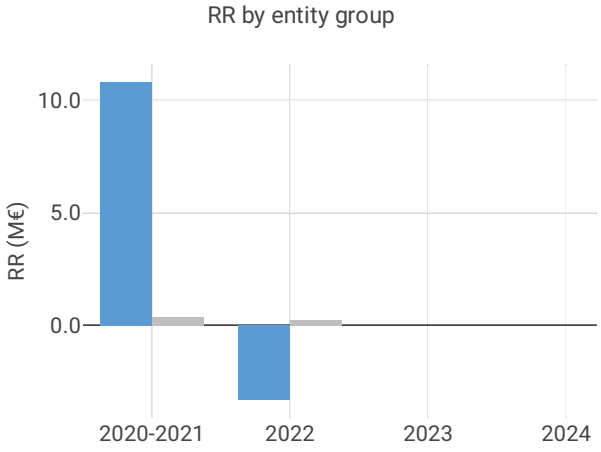
AUCU components (€/SU) – 2022

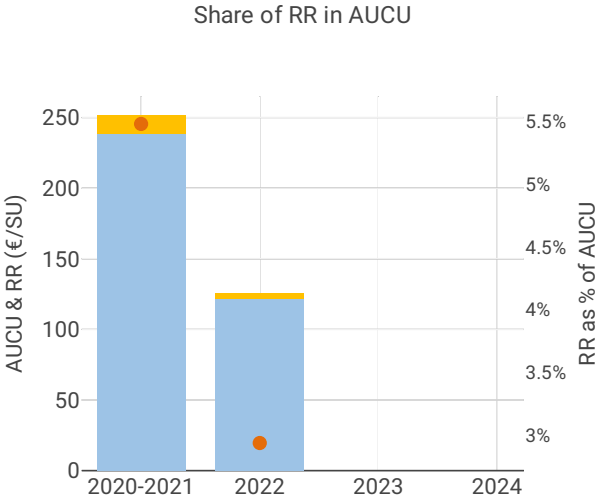
Components of the AUCU in 2022	€/SU
DUC	**123.51**
Inflation adjustment	10.01
Cost exempt from cost-sharing	3.55
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	0.01
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-98.26
Application of lower unit rate	-11.81
Total adjustments	-96.49
AUCU	**27.02**
AUCU vs. DUC	**-78.1%**

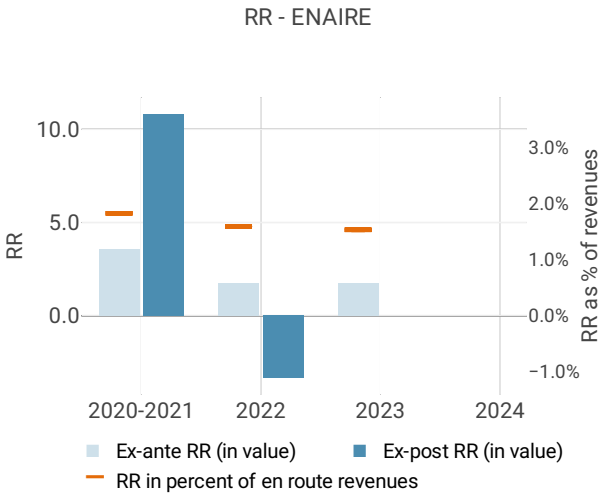


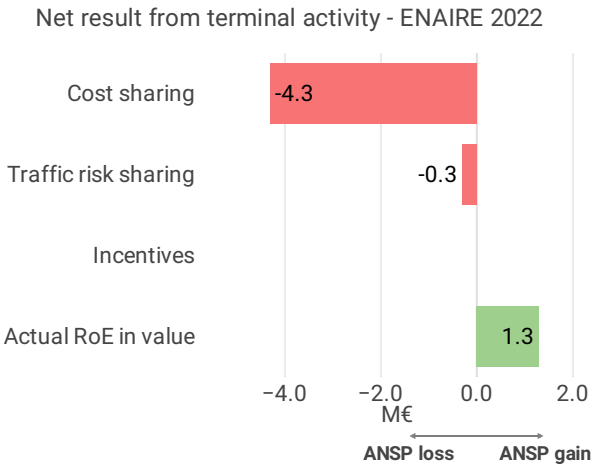
Cost exempt from cost sharing by item - 2022	€'000	€/SU
New and existing investments	-1,579.4	-1.88
Competent authorities and qualified entities costs	721.6	0.86
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	0.0	0.00
Changes in law	3,830.9	4.57
Total cost exempt from cost risk sharing	**2,973.1**	**3.55**

5.4.3 Regulatory result (RR)









Focus on regulatory result

ENAIRE net gain on activity in the Spain Continental terminal charging zone in the year 2022

ENAIRE reported a net loss of -4.6 M€, as a combination of a loss of -4.3 M€ arising from the cost sharing mechanism, with a loss of -0.3 M€ arising from the traffic risk sharing mechanism.

ENAIRE overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-4.6 M€) and the actual RoE (+1.3 M€) amounts to -3.3 M€ (-3.0% of the terminal revenues). The resulting ex-post rate of return on equity is -18.2%. It should be noted that an amount of +3.0 M€ is submitted as costs exempt from cost-sharing, reported to be mainly due to the unforeseen change in law and significantly impacting the staff costs.

Note 2: Ex-post RR does not take into account the application of the lower unit rate as per Art. 29.6 (loss in revenues corresponds to -9.9 M€ for 2022).