



# Performance Review Body Monitoring Report

Italy - 2022

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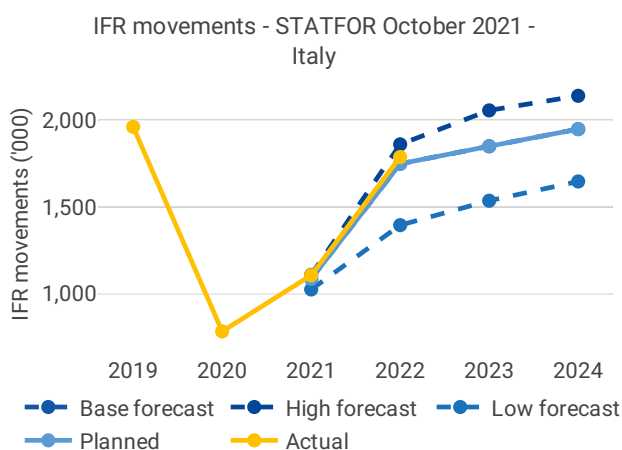
## 1 OVERVIEW

### 1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/773 of 13 April 2022

|                                                             |                                                       |                      |
|-------------------------------------------------------------|-------------------------------------------------------|----------------------|
| <b>List of ACCs</b> 4                                       | <b>Exchange rate (1 EUR=)</b>                         | <b>Main ANSP</b>     |
| Brindisi ACC                                                | 2017: 1 EUR                                           | • ENAV               |
| Milano ACC                                                  | 2022: 1 EUR                                           |                      |
| Padova ACC                                                  |                                                       | <b>Other ANSPs</b>   |
| Rome ACC                                                    |                                                       | • ITAF               |
| <b>No of airports in the scope of the performance plan:</b> | <b>Share of Union-wide:</b>                           | <b>MET Providers</b> |
| • ≥80'K 5                                                   | • traffic (TSUs) 2022 8.8%                            | –                    |
| • <80'K 0                                                   | • en route costs 2022 9.8%                            |                      |
|                                                             | <b>Share en route / terminal costs 2022</b> 87% / 13% |                      |
|                                                             | <b>En route charging zone(s)</b>                      |                      |
|                                                             | Italy                                                 |                      |
|                                                             | <b>Terminal charging zone(s)</b>                      |                      |
|                                                             | Italy Zone 1                                          |                      |
|                                                             | Italy Zone 2                                          |                      |

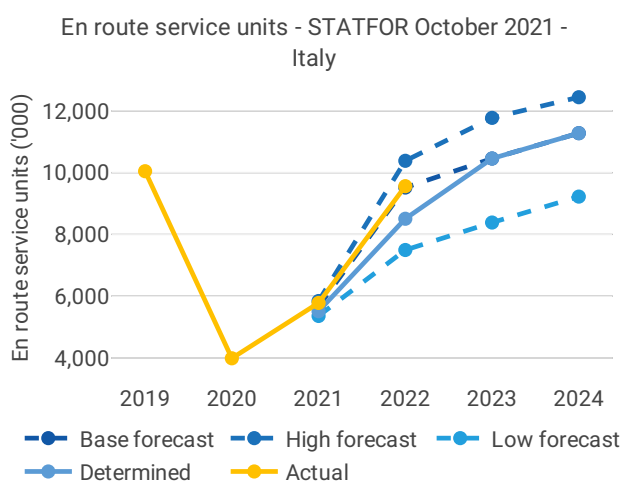
### 1.2 Traffic (En route traffic zone)



- Italy recorded 1,788K actual IFR movements in 2022, +62% compared to 2021 (1,106K).

- Actual 2022 IFR movements were +2.2% above the plan (1,749K).

- Actual 2022 IFR movements represent 91% of the actual 2019 level (1,962K).

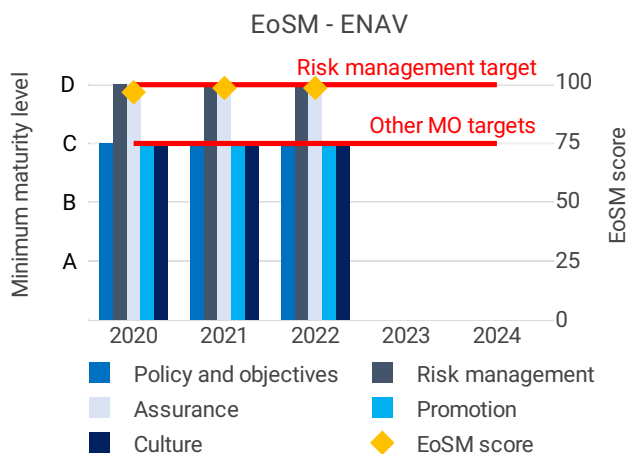


- Italy recorded 9,562K actual en route service units in 2022, +65% compared to 2021 (5,783K).

- Actual 2022 service units were +12% above the plan (8,507K).

- Actual 2022 service units represent 95% of the actual 2019 level (10,046K).

### 1.3 Safety (Main ANSP)

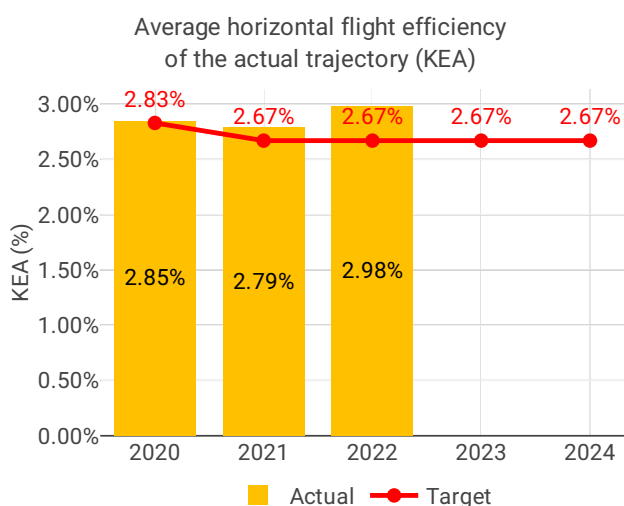


- ENAV maintained its safety performance, remaining at the RP3 EoS M target levels in all management objectives. The achieved maturity exceeds the planned maturity levels.

- Italy recorded an increase of the rate of separation minima infringements in 2022 relative to 2021. The rate was above the Union-wide average. The runway incursions rate was lower than in 2021.

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

### 1.4 Environment (Member State)



- Italy achieved a KEA performance of 2.98% compared to its target of 2.67% and did not contribute positively towards achieving the Union-wide target. KEA was at its highest value in RP3 so far.

- The NSA has not provided any adequate explanation as to why KEA deteriorated year on year.

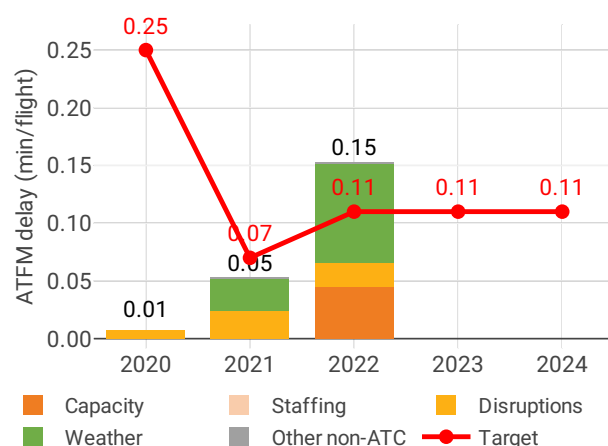
- Both KEP and SCR deteriorated in comparison with 2021.

- The share of CDO flights decreased by 10.34% compared to 2021.

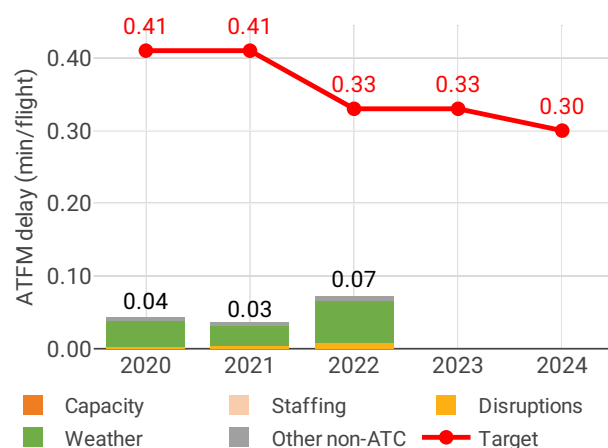
- During 2022, additional time in terminal airspace increased from 0.95 to 1.32 min/flight, while additional taxi out time increased from 2.36 to 3.41 min/flight.

## 1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



- Italy registered 0.22 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 0.15 minutes during the post-ops adjustment process, thus not achieving the local target value of 0.11.

- The average number of IFR movements was 9% below 2019 levels in Italy in 2022.

- The number of ATCOs in OPS is expected to increase in all ACCs, except for Rome by the end of RP3. In Brindisi, Padova and Rome ACCs, the actual values remained below the 2022 plan, while in Milano ACC the actual value was in line with the 2022 plan.

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

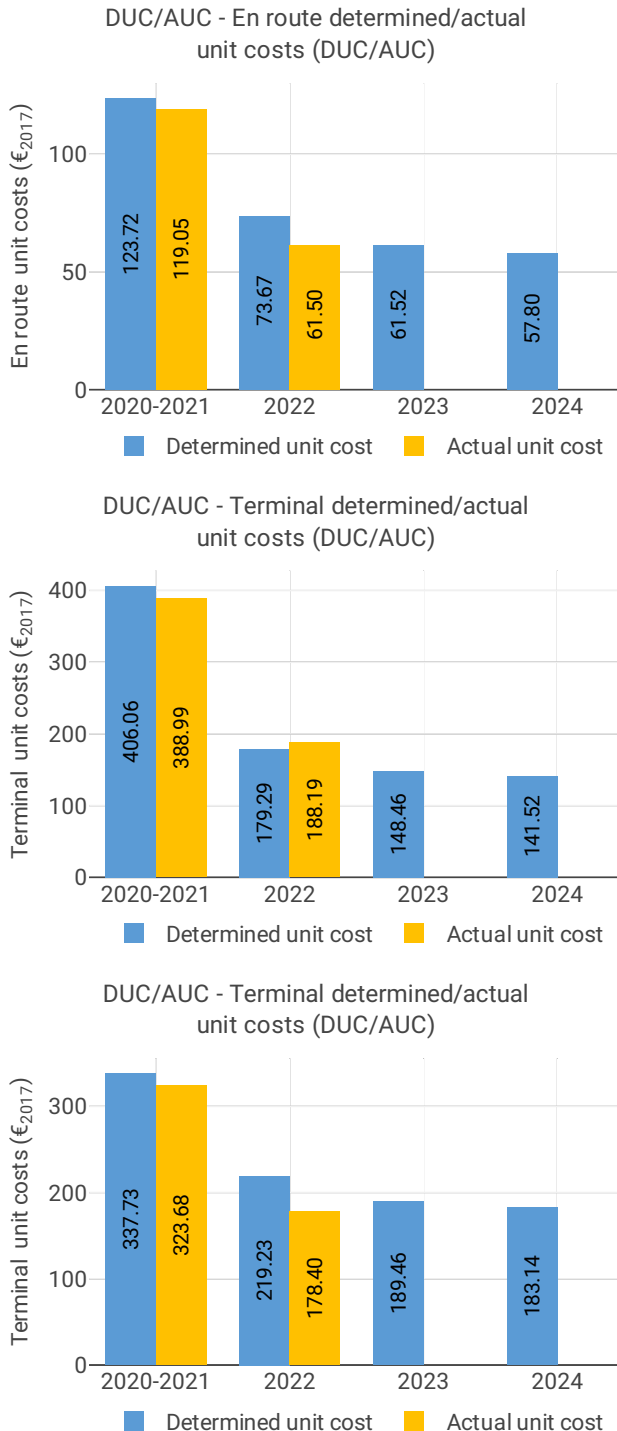
- The share of delayed flights with delays longer than 15 minutes in Italy decreased by 5.2 p.p. compared to 2021 and was lower than 2019 values.

- The yearly total of sector opening hours in Roma ACC was 89,114 in 2022, showing a 25.2% increase compared to 2021. Sector opening hours are 0.3% below 2019 levels. The yearly total of sector opening hours in Milano ACC was 75,567 in 2022, showing a 42.9% increase compared to 2021. Sector opening hours are 3.9% below 2019 levels.

The yearly total of sector opening hours in Brindisi ACC was 64,087 in 2022, showing a 35.1% increase compared to 2021. Sector opening hours are 5.6% below 2019 levels. The yearly total of sector opening hours in Padova ACC was 55,657 in 2022, showing a 41.4% increase compared to 2021. Sector opening hours are 10.4% below 2019 levels.

- Roma ACC registered 8.56 IFR movements per one sector opening hour in 2022, being 10.3% below 2019 levels. Milano ACC registered 7.57 IFR movements per one sector opening hour in 2022, being 7.8% below 2019 levels. Brindisi ACC registered 8.98 IFR movements per one sector opening hour in 2022, being 10.2% below 2019 levels. Padova ACC registered 7.76 IFR movements per one sector opening hour in 2022, being 8.1% below 2019 levels.

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



- The en route 2022 actual unit cost of Italy was 62.12 €2017, -16% lower than the determined unit cost (73.67 €2017). The terminal zone 1 2022 actual unit cost was 192.48 €2017, 7.4% higher than the determined unit cost (179.29 €2017), while the terminal zone 2 2022 actual unit cost was 181.00 €2017, -17% lower than the determined unit cost (219.23 €2017).

- The en route 2022 actual service units (9,562K) were +12% higher than the determined service units (8,507K).

- The en route 2022 actual total costs were 33 M€2017 (-5.2%) lower than determined. With the exception of cost of capital, Italy decreased the costs in all cost categories.

- The decrease in staff cost (-20 M€2017, or -5.7%) was a result of higher inflation than expected. The NSA explained that the decrease in other operating costs (-13 M€2017, or -8.6%) was mainly due to lower external and maintenance costs. The cost of capital on the other hand increased significantly by 22% (+8.3 M€2017) due to higher interest on debt than planned.

- ENAV spent 135 M€2017 in 2022 related to costs of investments, -2.1% less than determined (137 M€2017). The reduction was driven by a decrease in depreciation costs.

- The en route actual unit cost incurred by users in 2022 was 74.13€, while the terminal zone 1 actual unit cost incurred by users was 211.31€ and 218.92€ for terminal zone 2.

## 2 SAFETY - ITALY

### 2.1 PRB monitoring

- ENAV maintained its safety performance, remaining at the RP3 EoSM target levels in all management objectives. The achieved maturity exceeds the planned maturity levels.
- Italy recorded an increase of the rate of separation minima infringements in 2022 relative to 2021. The rate was above the Union-wide average. The runway incursions rate was lower than in 2021.
- ENAV could improve its safety management by implementing automated safety data recording systems.

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



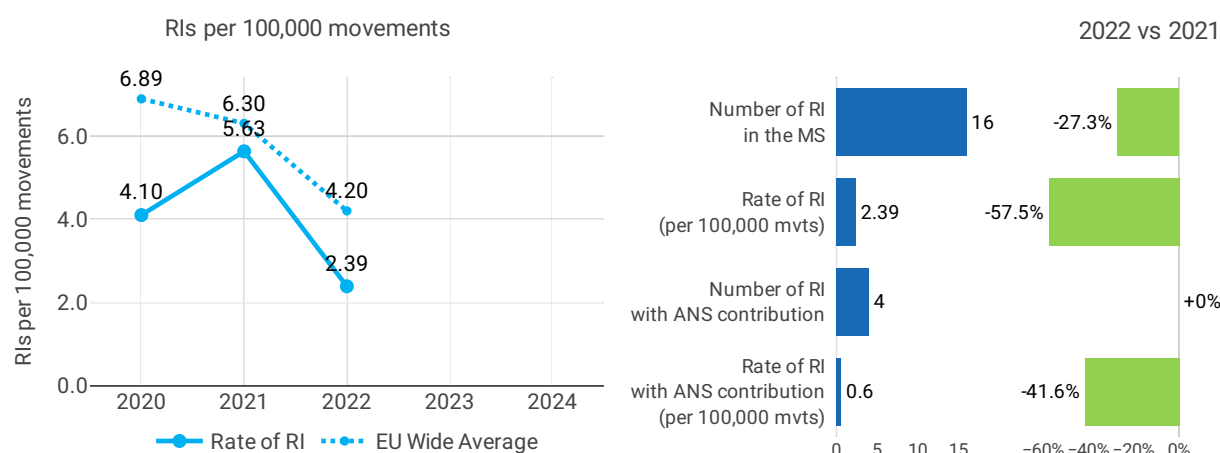
### Focus on EoSM

All five EoSM components of the ANSP meet, or exceed, the RP3 target level. The level was maintained compared with 2021.

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)



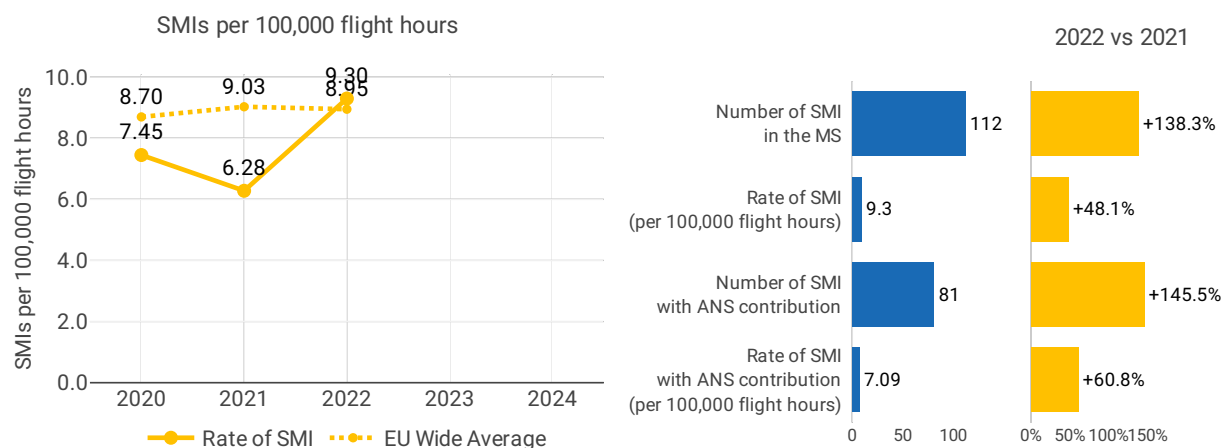
**Rate of RIs per 100,000 airport movements - Italy**

| # | Airport name     | APT movements | Number of RI | Rate RI per 100,000 |
|---|------------------|---------------|--------------|---------------------|
| 1 | Rome - Fiumicino | 212,315       | 0            | 0.00                |
| 2 | Milan - Malpensa | 186,463       | 0            | 0.00                |
| 3 | Milan - Linate   | 102,160       | 1            | 0.98                |
| 4 | Bergamo          | 88,904        | 2            | 2.25                |
| 5 | Venice           | 79,314        | 1            | 1.26                |

### 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 | ENAV | 494,359      | 747,998 | 1,141,849 | NA   | NA   | 26             | 33   | 81   | 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 | ENAV | 5.3                                  | 6.3  | 7.1  | NA   | NA   | NA                          | +19% | +13% | 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 - ITALY

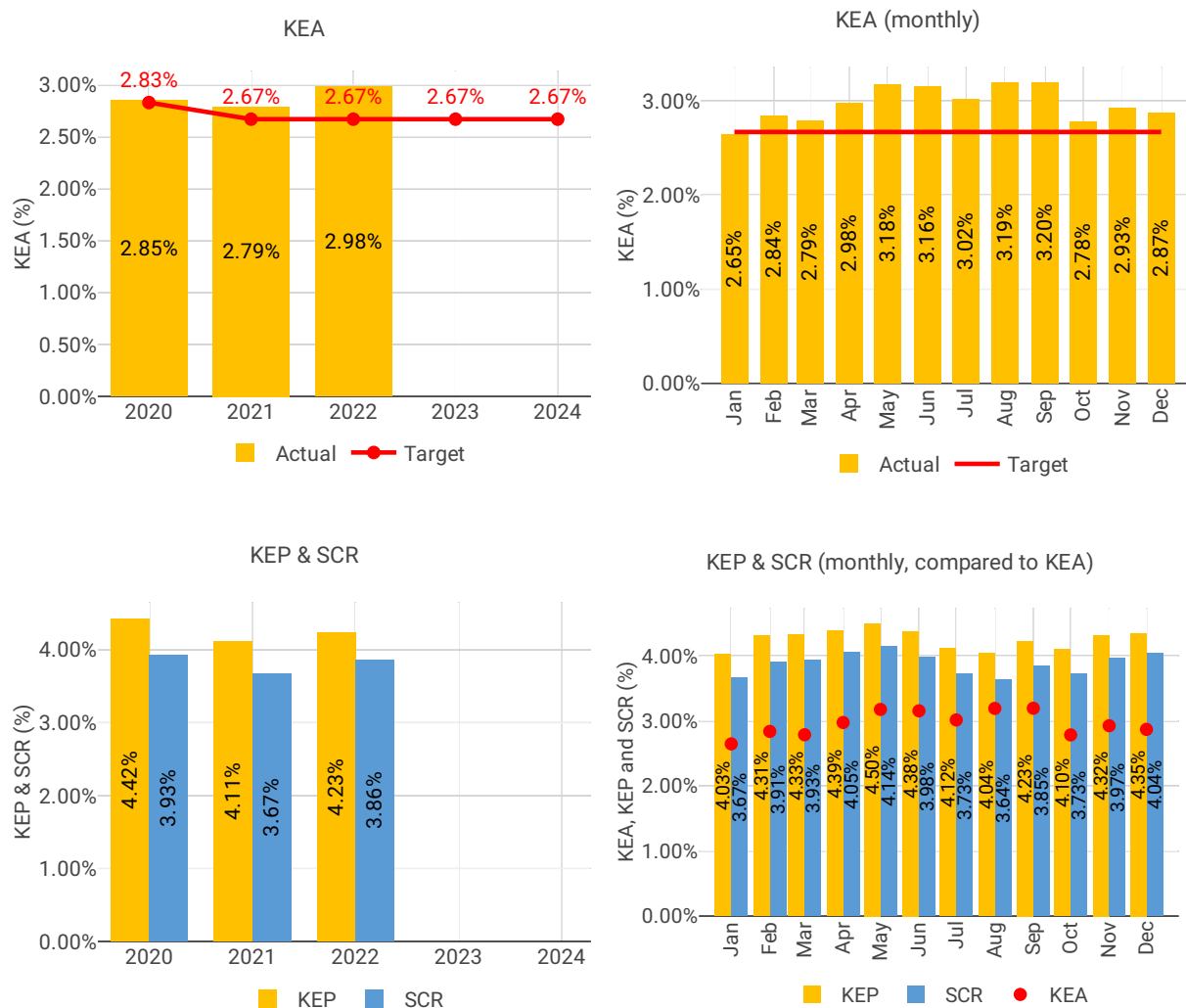
### 3.1 PRB monitoring

- Italy achieved a KEA performance of 2.98% compared to its target of 2.67% and did not contribute positively towards achieving the Union-wide target. KEA was at its highest value in RP3 so far.

- The NSA has not provided any adequate explanation as to why KEA deteriorated year on year.
- Both KEP and SCR deteriorated in comparison with 2021.
- The share of CDO flights decreased by 10.34% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.95 to 1.32 min/flight, while additional taxi out time increased from 2.36 to 3.41 min/flight.

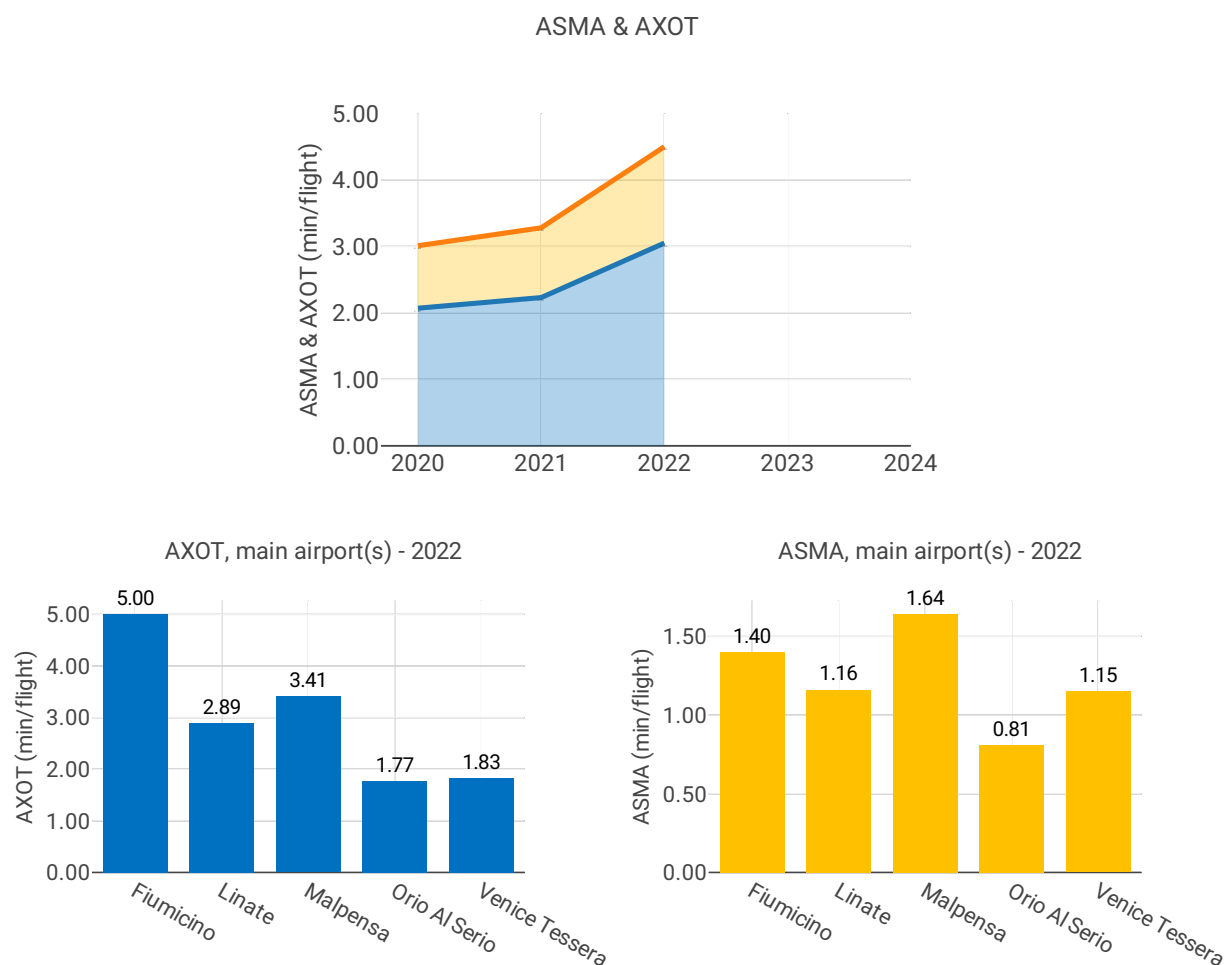
## 3.2 En route performance

### 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 Rome Fiumicino (LIRF; 2019: 7.87 min/dep.; 2020: 3.1 min/dep.; 2021: 3 min/dep.; 2022: 5 min/dep.) increased significantly in 2022 resulting in the second highest additional taxi-out times in the SES monitored airports. The rest of Italian airports also observed an increase of their taxi-out times in 2022.

According to the Italian monitoring report: As in previous years of this RP3 and also for the entire RP2, similar as for the PI of the Terminal/ASMA, ENAV SpA and the other ANSPs in ECAC do not have access to part of the data used by PRU to process the output, and therefore they are not able to replicate the data processing and consequently to verify the correct assessment of the information. As already reported last year within the comments of the 2022 Report, the ad-hoc WG PRU/EUROCONTROL/ANSPs created for the scope of reviewing the TAXI-OUT Methodology completed the assigned task and released the new Methodology at the end of the 2022.

Then, since March 2023 both the outputs (new output and previous one) are available within the ANS Performance website, accessible at monthly level for the scope of monitoring and comparing any gaps or any inconsistencies between the National yearly counted outputs vs the assigned Performance Targets. Considering that the details of the trajectory data (flight trajectory on the airport manoeuvring area/TAXI-OUT) are only available (except the case subsequent a specific request addressed directly to the PRU) as consolidated value at monthly level, by an ad-hoc analysis conducted for this scope it can be noted that the new Methodology ensures greater stability of the "Reference" (the so-called "Baseline", used to compare the actual data with the same "starting-ending" previous operational situations, obtained considering the

previous 12 months rolling and not the previous month only as for the previous Methodology) when compared with the Actual data used to determine the proposed output.

And so, leaving out the last two years characterized by the pandemic crisis, the consolidated figure for 2022 presents itself, for all 5 airports under monitoring, as an optimized/improved value when compared with the consolidated figure of 2019. The positive results counted in 2022, that evidence the reduction of the Additional TAXI-OUT time, encourage the Italian NSA to continue incentive ENAV SpA with their flight efficiency policy implemented at the scope to reduce/optimize the TAXI-OUT performances for the Italian airports monitored and consequently to reduce fuel consumptions and CO2 emissions. The single value that evidences (also for the PI ASMA) an increment in the Additional Time is Milano Linate (2019 vs 2022), for which an internal investigation is in progress to analyse the causes and to implement some mitigation actions to reduce the inefficiency.

Here following the output data of 2022 (using the new methodology) compared with similar amounts of traffic of 2019, although with characteristics that are not always the same both for the type of aircraft and/or for the details of the trajectory, for the PI additional taxi-out: LIMC (Milan/Malpensa) 2019: 5.11 mins 2022: 4.16 mins

LIME (Bergamo/Orio Alserio) 2019: 3.41 mins 2022: 3.22 mins

LIML (Milan/Linate) 2019: 3.75 mins 2022: 4.79 mins

LIPZ (Venice/Tessera) 2019: 3.98 mins 2022: 3.09 mins

LIRF (Rome/Fiumicino) 2019: 7.12 mins 2022: 5.88 mins

Here following the output data (using the current methodology), between 2019 and 2022 for the PI additional taxi-out: LIMC (Milan/Malpensa) 2019: 4.76 mins 2022: 3.41 mins

LIME (Bergamo/Orio Alserio) 2019: 1.81 mins 2022: 1.77 mins

LIML (Milan/Linate) 2019: 2.43 mins 2022: 2.89 mins

LIPZ (Venice/Tessera) 2019: 2.52 mins 2022: 1.83 mins

LIRF (Rome/Fiumicino) 2019: 7.87 mins 2022: 5.00 mins

## ASMA

Similar as for additional taxi-out time, additional ASMA times at the Italian airports increased in 2022. Milan Malpensa (LIMC: 2019: 2.59 min/arr.; 2020: 0.85 min/arr.; 2021: 1.25 min/arr.; 2022: 1.64 min/arr.) showed the longest additional ASMA time in Italy and one of the highest in the SES monitored airports (SES average additional ASMA time= 1.06 min/arr.).

According to the Italian monitoring report: As in previous years of this RP3 and also for the RP2, similar as for the PI of the Taxi Time, ENAV SpA and the other ANSPs in ECAC do not have access to part of the data used by PRU to process the output, and therefore they are not able to replicate the data processing and consequently to verify the correct assessment of the information.

As already reported last year within the comments of the 2022 Report, the ad-hoc WG created for the scope of reviewing the ASMA Methodology completed the assigned task and released the new Methodology at the end of the 2022.

Then, since March 2023 both the outputs (new output and previous one) are available within the ANS Performance website, accessible at monthly level for the scope of monitoring and comparing any gaps or any inconsistencies between the counted National yearly outputs and the assigned Performance Targets. Considering that the details of the trajectory data (flight trajectory on the Terminal Area/ASMA) are only available (except the case subsequent a specific request addressed directly to the PRU) as consolidated value at monthly level, by an ad-hoc analysis conducted for this scope it can be noted that the new Methodology ensures greater stability of the "Reference" (the so-called "Baseline", used to compare the actual data with the same "starting-ending" previous operational situations, obtained considering the previous 12 months rolling and not the previous month only as for the previous Methodology) when compared with the Actual data used to determine the proposed output.

And so, leaving out the last two years characterized by the pandemic crisis, the consolidated figure for 2022 presents itself, for all 5 airports under monitoring, as an optimized/improved value when compared with the consolidated figure of 2019. The positive results counted in 2022, that evidence the reduction of the Additional ASMA time, encourage the Italian NSA to continue incentive ENAV SpA with their flight efficiency policy implemented at the scope to reduce/optimize the ASMA performances for the Italian airports monitored and consequently to reduce fuel consumptions and CO2 emissions.

The single value that evidences (also for the PI TAXI-OUT) an increment in the Additional Time is Milano Linate, for which an internal investigation is in progress to analyse the causes and to implement some

mitigation actions to reduce the inefficiency.

Here following the output data of 2022 (using the new methodology) compared with similar amounts of traffic of 2019, although with characteristics that are not always the same both for the type of aircraft and/or for the details of the trajectory, for the PI ASMA:

LIMC (Milan/Malpensa) 2019: 4.48 mins 2022: 3.33 mins

LIME (Bergamo/Orio Alserio) 2019: 3.05 mins 2022: 2.30 mins

LIML (Milan/Linate) 2019: 2.46 mins 2022: 2.49 mins

LIPZ (Venice/Tessera) 2019: 3.49 mins 2022: 2.70 mins

LIRF (Rome/Fiumicino) 2019: 3.81 mins 2022: 2.88 mins

Here following the output data (using the current methodology), between 2019 and 2022 for the PI ASMA:

LIMC (Milan/Malpensa) 2019: 2.59 mins 2022: 1.64 mins

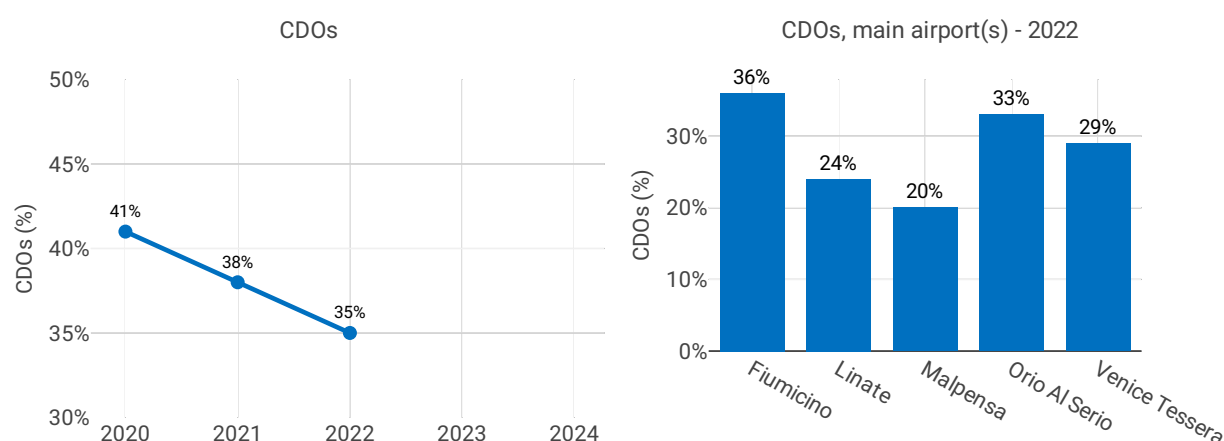
LIME (Bergamo/Orio Alserio) 2019: 0.94 mins 2022: 0.81 mins

LIML (Milan/Linate) 2019: 0.96 mins 2022: 1.16 mins

LIPZ (Venice/Tessera) 2019: 1.95 mins 2022: 1.15 mins

LIRF (Rome/Fiumicino) 2019: 2.08 mins 2022: 1.40 mins

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



#### Focus CDOs

The share of CDO flights decreased at all airports with the biggest decrease at Bergamo (-6.8 percentage points). Bergamo and Rome had shares of CDO flights above the overall RP3 value in 2022 - 29.0% - (LIME: 33.1%; LIRF: 33.8%). All airports had the lowest monthly values during the summer months.

According to the Italian monitoring report: *The methodology of the VFE during Climb and Descent segments to/from the Departure/Arrival airports was defined and released by the PRU at the end of multiple coordination meetings, in the recent past years, between PRU members and representatives of EUROCONTROL and multiple ECAC ANSPs. Even if further cooperation was requested mainly by the ANSPs since the time of the release of the Methodology, with the aim to refine the first release in relation to the output carried out from the actual performances of the AUs and so to fill-in any gaps or inconsistencies, this action isn't still carried out and the output of the processed file was never shared. For this reason, since the first year of this RP3 (2020) when the VFE PI is reported within the annual Report and thus till the last year 2022, it was not possible to analyse the details of the files with the complete information (the consolidated data on monthly basis, sum and average values, are published and available on the ANS Performance website but in terms of final values only and without the VFE performance data of the individual flights) and therefore it is not possible once again to validate or comment/assess the presented final PI's value.*

However, as it has been repeatedly highlighted during the previous years, ENAV SpA still disagrees with the value presented in the Performance Report for the year 2022. It therefore intends to represent that only 36% of the flights landed at LIRF in 2022, or only 20% landed in LIMC in 2022, were compliant with a continuous descent from TOD to touch down! This assessment due to both the CDO measures applied by the ATCOs during the live operations and based also on an efficient EnRoute and Terminal NTW that has been realized, together with the other implementations introduced in the Airspace, in order to increase the Flight efficiency of operations even in the Arrival phases at National airports.

The value presented in the above Table, according to the interpretation of the PRU Methodology, want to represent the % of flights that were compliant with a continuous descent from the TOD upon landing (inside a cylinder with a radius of D200 NM centered from the airport of landing). The value doesn't consider those flights that were been affected by an interruption, a leveling due to any reason, which caused of their exclusion from the list of efficient flights from the point of view of the VFE.

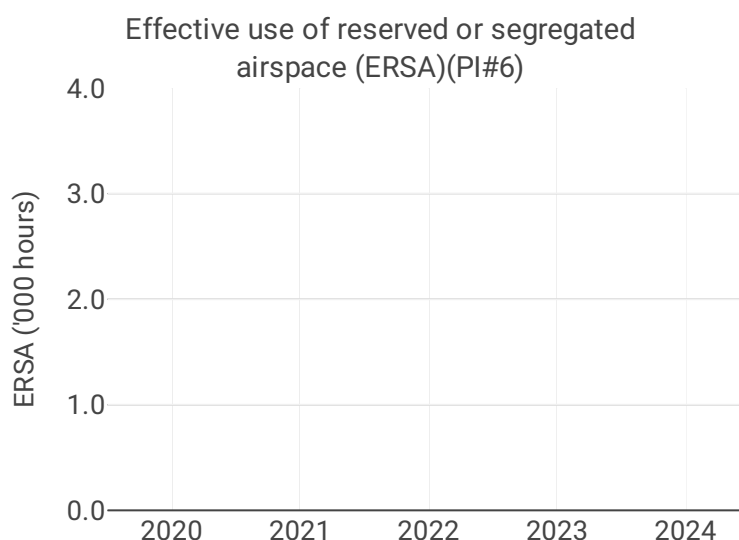
However, as it has been done for other KPIs and Pls in the KPA ENV area, there is currently a coordination between ENAV SpA and PRU in order to have, following the ad-hoc analysis of a monthly extract received from PRU upon request, an upgrade/review of the actual VFE Methodology.

The scope is to highlight the real inefficiency in the VFE due to external factors from the ATC scopes/Safety issues, those inconsistencies in the management of the "Level Segments" that will have to better define the parameters for which any interruption of the continuous descent can and it must be considered an inefficiency, and so to support the revision of the methodology and the setting of the algorithm. Considered the above, the ENAV SpA proposal is to remove for the 2022 (initially as first action but to recalculate also the other 2 previous years of the RP3 and to review the Methodology as well) all those flight that have been considered as not compliant for CDO when crossing FL 75 and till the touch down. The numbers are available within the ANS Performance website and easily manageable by PRU.

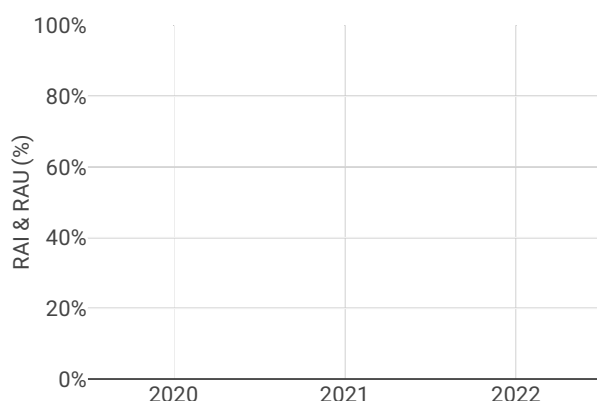
Giving simply that, that it is almost clear particularly during the rush hours when it is impossible for an aircraft in sequence for landing to maintain the continuous descent glide path due to preceding aircraft, the recalculated numbers will reflect what it really happens in the Italian airspace relatively to the VFE Pl.

| Airport Name   | Airport level                   |      |      |      |      |                             |      |      |      |      |                                       |      |      |      |      |
|----------------|---------------------------------|------|------|------|------|-----------------------------|------|------|------|------|---------------------------------------|------|------|------|------|
|                | Additional taxi-out time (PI#3) |      |      |      |      | Additional ASMA time (PI#4) |      |      |      |      | Share of arrivals applying CDO (PI#5) |      |      |      |      |
|                | 2020                            | 2021 | 2022 | 2023 | 2024 | 2020                        | 2021 | 2022 | 2023 | 2024 | 2020                                  | 2021 | 2022 | 2023 | 2024 |
| Orio Al Serio  | 1.02                            | 1.11 | 1.77 | NA   | NA   | 0.45                        | 0.70 | 0.81 | NA   | NA   | 39%                                   | 40%  | 33%  | NA   | NA   |
| Linate         | 1.93                            | 2.18 | 2.89 | NA   | NA   | 0.78                        | 0.84 | 1.16 | NA   | NA   | 28%                                   | 28%  | 24%  | NA   | NA   |
| Malpensa       | 2.66                            | 2.86 | 3.41 | NA   | NA   | 0.85                        | 1.25 | 1.64 | NA   | NA   | 24%                                   | 23%  | 20%  | NA   | NA   |
| Fiumicino      | 3.10                            | 3.00 | 5.00 | NA   | NA   | 1.25                        | 0.96 | 1.40 | NA   | NA   | 43%                                   | 40%  | 36%  | NA   | NA   |
| Venice Tessera | 1.38                            | 1.10 | 1.83 | NA   | NA   | 1.06                        | 0.53 | 1.15 | NA   | NA   | 34%                                   | 34%  | 29%  | NA   | NA   |

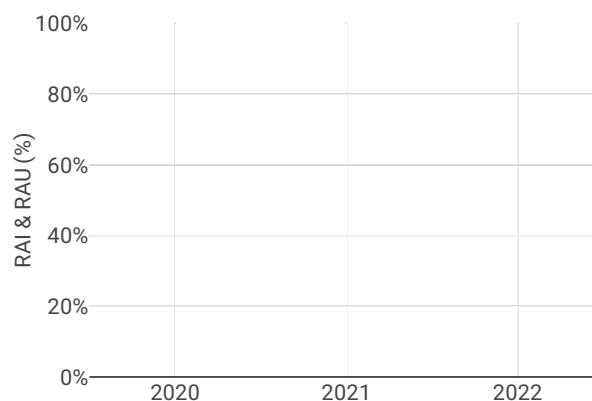
### 3.4 Civil-Military dimension



RAI &amp; RAU via available conditional routes (PIs#7 &amp; 8)



RAI &amp; RAU via available restricted and segregated airspace (PIs#7 &amp; 8)



## Focus on Civil-Military dimension

### Update on Military dimension of the plan

No data available.

### Military - related measures implemented or planned to improve capacity

No data available.

### Initiatives implemented or planned to improve PI#6

No data available.

### Initiatives implemented or planned to improve PI#7

No data available.

### Initiatives implemented or planned to improve PI#8

No data available.

## 4 CAPACITY - ITALY

### 4.1 PRB monitoring

- Italy registered 0.22 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 0.15 minutes during the post-ops adjustment process, thus not achieving the local target value of 0.11.
- The average number of IFR movements was 9% below 2019 levels in Italy in 2022.
- The number of ATCOs in OPS is expected to increase in all ACCs, except for Rome by the end of RP3. In Brindisi, Padova and Rome ACCs, the actual values remained below the 2022 plan, while in Milano ACC the actual value was in line with the 2022 plan.
- Delays were highest between July and October, mostly due to adverse weather conditions and ATC Capacity issues.
- The share of delayed flights with delays longer than 15 minutes in Italy decreased by 5.2 p.p. compared to 2021 and was lower than 2019 values.
- The yearly total of sector opening hours in Roma ACC was 89,114 in 2022, showing a 25.2% increase compared to 2021. Sector opening hours are 0.3% below 2019 levels. The yearly total of sector opening hours in Milano ACC was 75,567 in 2022, showing a 42.9% increase compared to 2021. Sector opening hours are 3.9% below 2019 levels. The yearly total of sector opening hours in Brindisi ACC was 64,087 in 2022, showing a 35.1% increase compared to 2021. Sector opening hours are 5.6% below 2019 levels.

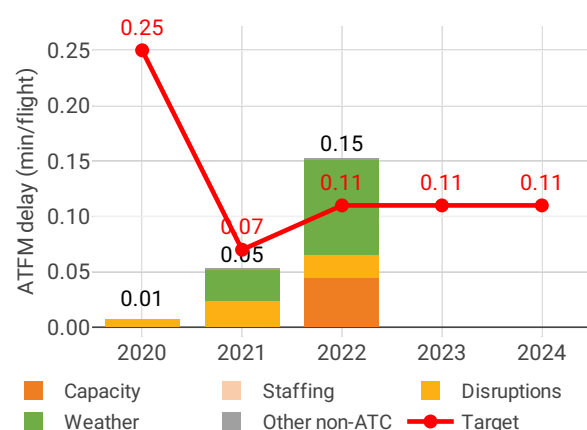
The yearly total of sector opening hours in Padova ACC was 55,657 in 2022, showing a 41.4% increase compared to 2021. Sector opening hours are 10.4% below 2019 levels.

- Roma ACC registered 8.56 IFR movements per one sector opening hour in 2022, being 10.3% below 2019 levels. Milano ACC registered 7.57 IFR movements per one sector opening hour in 2022, being 7.8% below 2019 levels. Brindisi ACC registered 8.98 IFR movements per one sector opening hour in 2022, being 10.2% below 2019 levels. Padova ACC registered 7.76 IFR movements per one sector opening hour in 2022, being 8.1% below 2019 levels.

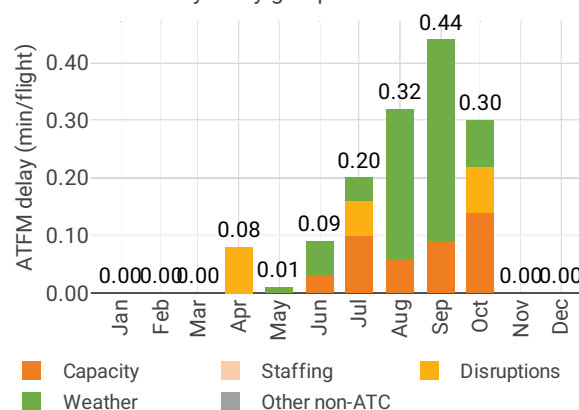
## 4.2 En route performance

### 4.2.1 En route ATFM delay (KPI#1)

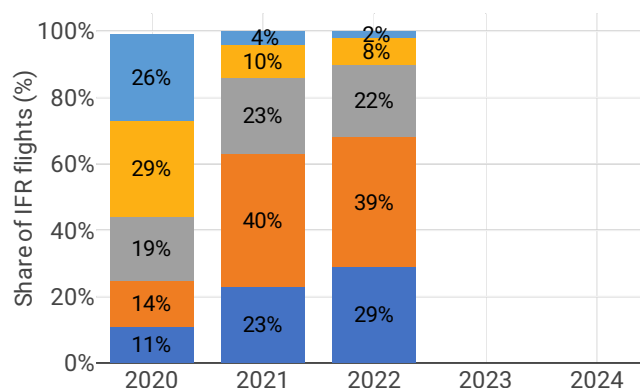
Average en route ATFM delay per flight by delay groups



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



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



## Focus on en route ATFM delay

### Summary of capacity performance

Italy ACCs experienced an increase in traffic from 1 020k flights in 2021, with 54k minutes of en route ATFM delays to 1 664k flights with 254k minutes of delay after the NM post operations delay attribution process. (An additional 109k minutes of en route ATFM delay was attributed to other ANSPs as part of the eNM/S22 measures agreed at the NMB (68k from ENAV to DFS; 41k from ENAV to DSNA).). However, traffic levels were still substantially below the 1,962k flights in 2019, for which there were 32k minutes of en route ATFM delay.

En route ATFM delays in 2022 were attributed to ATC Capacity (29%); ATC industrial action (14%) and adverse weather (57%).

The amount of delays attributed to adverse weather in 2022 were 144k minutes. In 2018, with 1 753k flights, there were 16k minutes of attributed weather delay; in 2019 with 1 831k flights, there were 15k minutes of ATFM delay attributed to adverse weather.

## NSA's assessment of capacity performance

The year 2022 was a period of intense and constant recovery in air traffic volumes, with air traffic levels recorded in August and October that were higher than the corresponding periods of 2019, the pre-pandemic year.

Contributing factors included the gradual easing of restrictions associated with the health emergency and the renewed propensity to travel, as well as the change in European routes, due to the Russian-Ukrainian conflict, which led to large, long-haul aircraft, mainly flying from the eastern quadrants, to fly over Italian airspace, with a consequent greater development of flights.

## Monitoring process for capacity performance

Monthly monitoring and analysis of the operational performance at Country and single ACC level is carried out by ENAV. Checks are made against the value of ATFM generated delay per month and its expected trend across the year.

At the beginning of summer 2022 a disputation process was initiated by ENAC in respect of NM to acknowledge the erroneous attribution to Italy of some enroute ATFM delays. The outcomes of the reconciliation process showed improvements in the initial figure of Capacity KPI #1 as presented by PRB in the current table (0.22 m/f) as follows:

- Capacity ENR KPI #1, which includes ATFM all-reasons of delay: 0,15 min/flight
- Capacity ENR PI#1, which solely includes the ATM reasons of ATFM delay: 0,04 min/flight.

In 2022 there were four reasons of Enroute ATFM delay: Weather (56.6%), ATC Capacity (29.3%), Industrial Action (13.8%), Other (0.3%). As such, the "ATM" reasons only counted for 29.3% of the overall delay assignment.

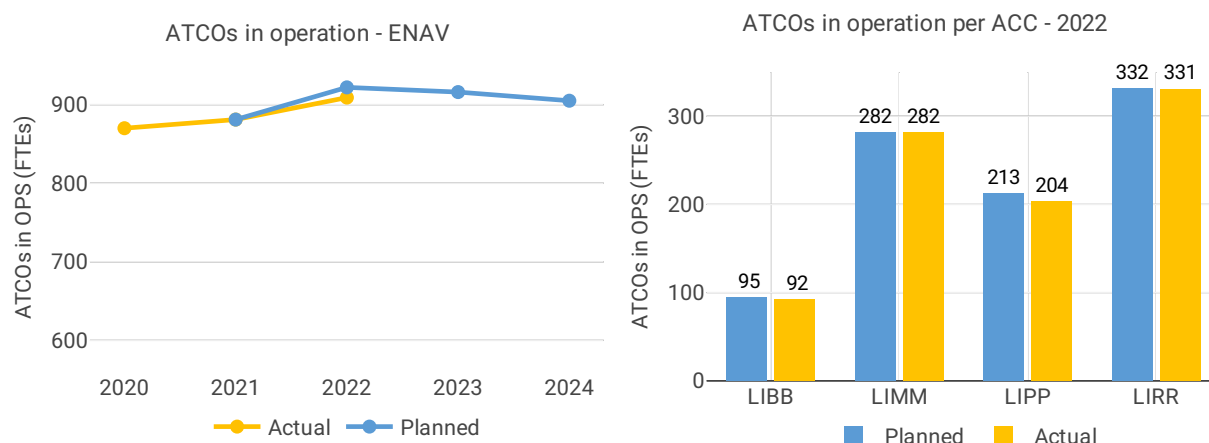
## Capacity planning

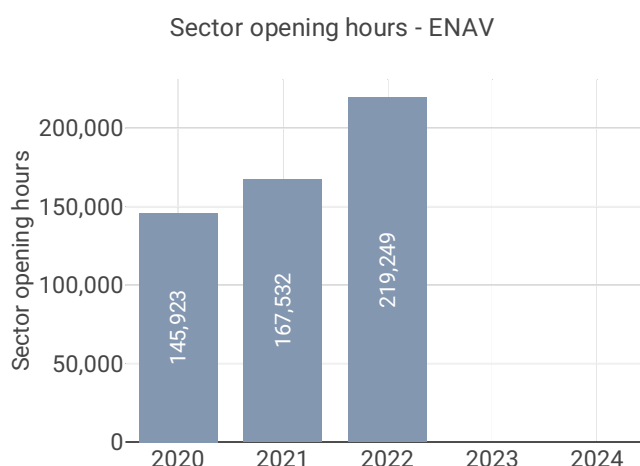
No data available.

## Application of Corrective Measures for Capacity (if applicable)

No data available.

### 4.2.2 Other indicators



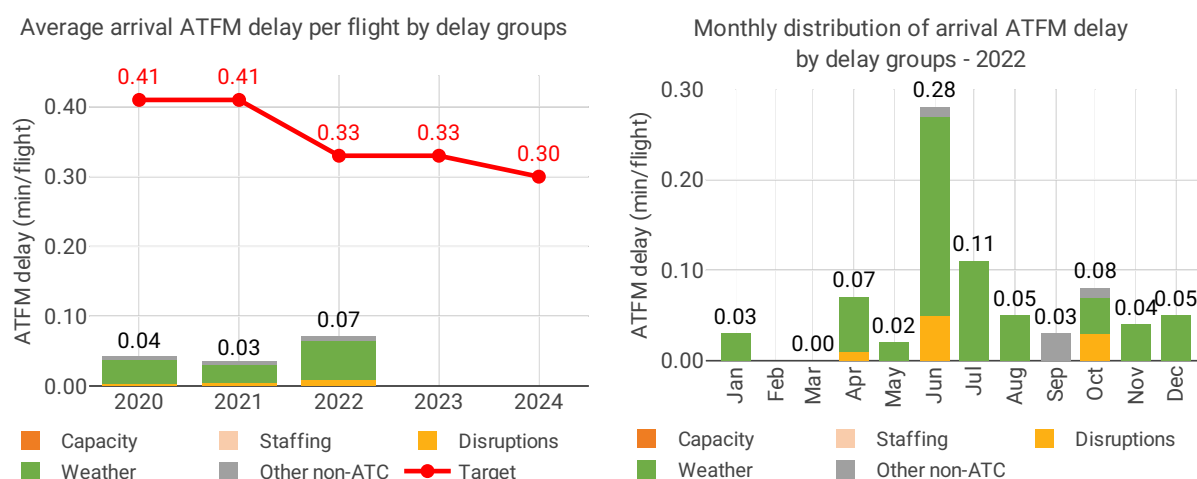


## Focus on ATCOs in operations

N/A

## 4.3 Terminal performance

### 4.3.1 Arrival ATFM delay (KPI#2)



## Focus on arrival ATFM delay

Italy identified five airports as subject to RP3 monitoring. All of them have a fully implemented data flow that allows the proper monitoring of pre-departure delays. Nevertheless, the quality of the reporting does not allow for the calculation of the ATC pre-departure delay at Milan Linate, with more than 60% of the reported delay not allocated to any cause. Traffic at the ensemble of these Italian airports in 2022 is still 18% lower than in 2019, but increased 71% with respect to 2022.

Average arrival ATFM delays in 2022 was 0.07 min/arr, compared to 0.03 min/arr in 2021. ATFM slot adherence has slightly deteriorated (2022: 96.1%; 2021: 96.8%).

The national average arrival ATFM delay at Italian airports in 2022 was 0.07 min/arr. 80% of all delays at Italian airports were attributed to weather and 12% associated with industrial action mostly at Milan Malpensa.

According to the Italian monitoring report: *it is important to show the figures that really contributed to the achievement of the ATM performance. Below there are the figures for the Terminal and airport ANS ATFM arrival delay per flight indicator which limited to ATM-only reasons of ATFM delay:*

National level:

LIMC: 0.00 m/f

LIME: 0.00 m/f

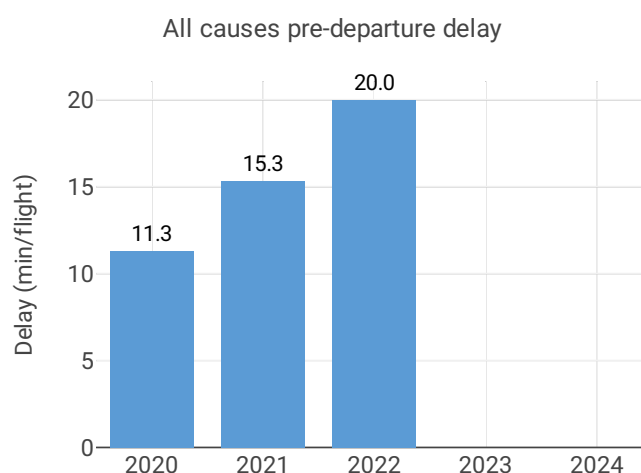
LIML: 0,02 m/f

LIPZ: 0,00 m/f

LIRF: 0.00 m/f3. Arrival ATFM Delay – National TargetThe national target on arrival ATFM delay in 2022 was met.

All Italian airports showed adherence above 94% and the national average was 96.1%. With regard to the 3.9% of flights that did not adhere, 2% was early and 1.9% was late.

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



##### Airport level

| Airport name   | Avg arrival ATFM delay (KPI#2) |      |      |      |      | Slot adherence (PI#1) |       |       |      |      |
|----------------|--------------------------------|------|------|------|------|-----------------------|-------|-------|------|------|
|                | 2020                           | 2021 | 2022 | 2023 | 2024 | 2020                  | 2021  | 2022  | 2023 | 2024 |
| Fiumicino      | 0.02                           | 0.00 | 0.04 | NA   | NA   | 98.0%                 | 98.1% | 96.5% | NA%  | NA%  |
| Linate         | 0.06                           | 0.03 | 0.13 | NA   | NA   | 96.1%                 | 96.9% | 98.0% | NA%  | NA%  |
| Malpensa       | 0.02                           | 0.05 | 0.09 | NA   | NA   | 97.3%                 | 97.2% | 97.7% | NA%  | NA%  |
| Orio Al Serio  | 0.04                           | 0.07 | 0.08 | NA   | NA   | 94.8%                 | 96.1% | 93.9% | NA%  | NA%  |
| Venice Tessera | 0.16                           | 0.04 | 0.04 | NA   | NA   | 90.0%                 | 94.2% | 92.8% | NA%  | NA%  |

| Airport name   | ATC pre departure delay (PI#2) |      |      |      |      | All causes pre departure delay (PI#3) |      |      |      |      |
|----------------|--------------------------------|------|------|------|------|---------------------------------------|------|------|------|------|
|                | 2020                           | 2021 | 2022 | 2023 | 2024 | 2020                                  | 2021 | 2022 | 2023 | 2024 |
| Fiumicino      | 0.64                           | 0.89 | 1.55 | NA   | NA   | 6.4                                   | 9.2  | 14.9 | NA   | NA   |
| Linate         | 0.05                           | 0.06 | 0.38 | NA   | NA   | 5.1                                   | 7.8  | 11.2 | NA   | NA   |
| Malpensa       | 0.36                           | 0.64 | 1.18 | NA   | NA   | 17.8                                  | 20.1 | 23.5 | NA   | NA   |
| Orio Al Serio  | 0.52                           | 0.77 | 1.14 | NA   | NA   | 8.0                                   | 12.5 | 21.4 | NA   | NA   |
| Venice Tessera | 0.85                           | 0.68 | 1.15 | NA   | NA   | 9.8                                   | 12.0 | 20.1 | NA   | NA   |

### Focus on performance indicators at airport level

#### ATFM slot adherence

The performance at all four Italian airports where this indicator can be calculated has deteriorated in 2022 and are all among the highest values for this indicator in the SES monitored airports.

The quality of the airport data reported by Milan Linate was too low, preventing the calculation of this indicator for these two airports. 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 the Italian airports subject to monitoring. 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.

### **ATC pre-departure delay**

The total (all causes) delay in the actual off block time at Italian airports has increased in 2022. The highest pre-departure delays were observed at Milan Malpensa (LIMC: 2022: 23.51 min/dep) followed by Bergamo (LIME: 2022: 21.37 min/dep) and Venice (LIPZ: 2022: 20.06 min/dep). The worse delays were registered in June and July at all these airports.

### **All causes pre-departure delay**

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

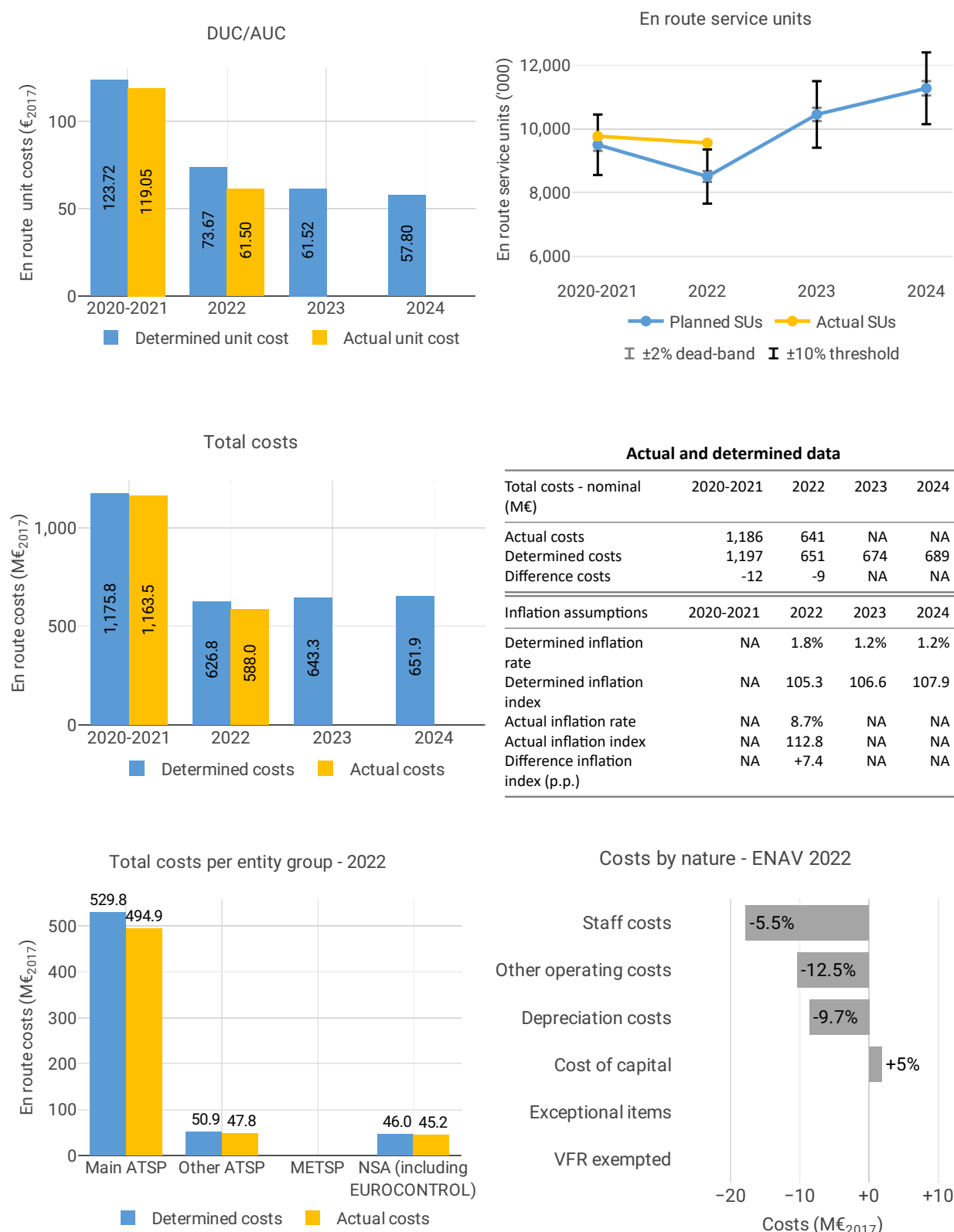
## **5 COST-EFFICIENCY - ITALY**

### **5.1 PRB monitoring**

- The en route 2022 actual unit cost of Italy was 62.12 €2017, -16% lower than the determined unit cost (73.67 €2017). The terminal zone 1 2022 actual unit cost was 192.48 €2017, 7.4% higher than the determined unit cost (179.29 €2017), while the terminal zone 2 2022 actual unit cost was 181.00 €2017, -17% lower than the determined unit cost (219.23 €2017).
- The en route 2022 actual service units (9,562K) were +12% higher than the determined service units (8,507K).
- The en route 2022 actual total costs were 33 M€2017 (-5.2%) lower than determined. With the exception of cost of capital, Italy decreased the costs in all cost categories.
- The decrease in staff cost (-20 M€2017, or -5.7%) was a result of higher inflation than expected. The NSA explained that the decrease in other operating costs (-13 M€2017, or -8.6%) was mainly due to lower external and maintenance costs. The cost of capital on the other hand increased significantly by 22% (+8.3 M€2017) due to higher interest on debt than planned.
- ENAV spent 135 M€2017 in 2022 related to costs of investments, -2.1% less than determined (137 M€2017). The reduction was driven by a decrease in depreciation costs.
- The en route actual unit cost incurred by users in 2022 was 74.13€, while the terminal zone 1 actual unit cost incurred by users was 211.31€ and 218.92€ for terminal zone 2.

## 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 -15.7% (or -11.56 €2017) lower than the planned DUC. This results from the combination of significantly higher than planned TSUs (+12.4%) and significantly lower than planned

en route costs in real terms (-5.2%, or -32.8 M€2017). It should be noted that the actual inflation index in 2022 was +7.4 p.p. higher than planned.

### En route service units

The difference between the 2022 actual and planned TSUs (+12.4%) 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 ANSP and the airspace users, with the ANSP (ENAV) retaining an amount of +21.0 M€2017.

### En route costs by entity

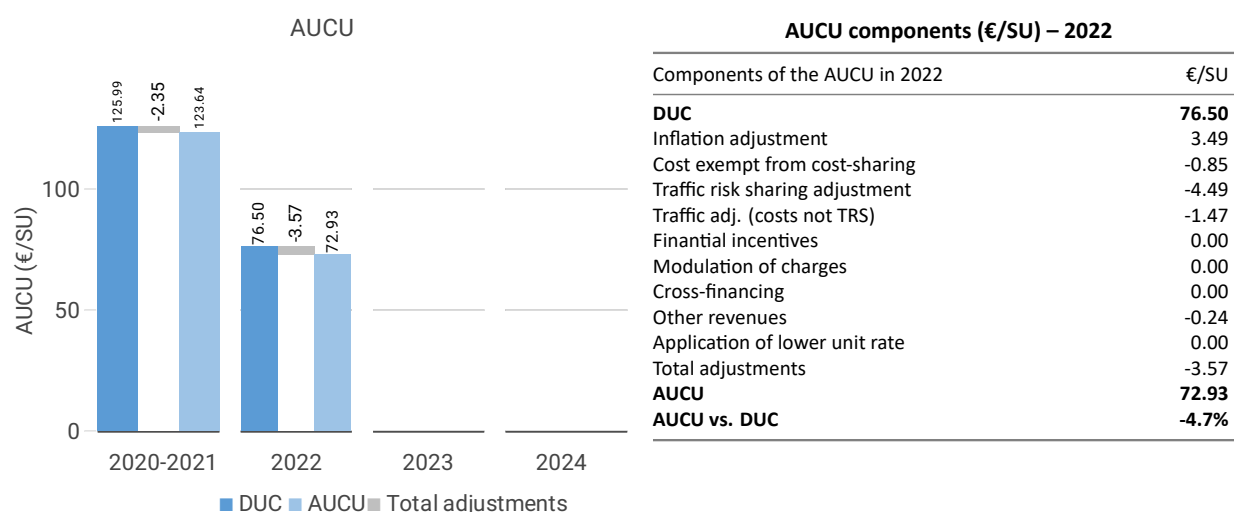
The 2022 actual real en route costs are -5.2% (-32.8 M€2017) lower than planned mainly due to the inflation impact. This translates in lower than planned costs in real terms for ENAV (-5.4%, or -28.4 M€2017), the other ANSP (ITAF, -6.0%, or -3.0 M€2017) and the NSA/EUROCONTROL (-2.8%, or -1.3 M€2017).

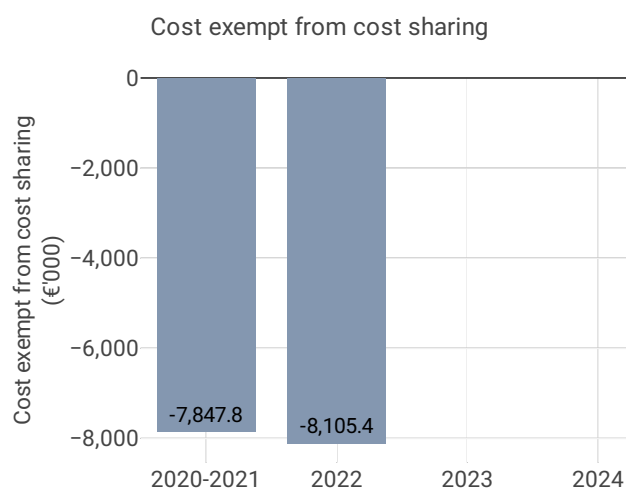
### En route costs for the main ANSP at charging zone level

The 2022 actual real en route costs for ENAV are significantly lower than planned (-5.4%, or -28.4 M€2017) mainly due to the inflation impact:

- Significantly lower than planned staff costs (-5.5% or -17.8 M€2017) in real terms but higher than planned in nominal terms (+1.1%), also reported to be due to higher staff presence on site to manage the Summer traffic;
- Significantly lower than planned other operating costs (-12.5%, or -10.4 M€2017), reported to result “from savings in consultancy support which more than offset the increase in energy prices, lower maintenance costs, as well as lower external costs following the slowdown in ENAV investments”;
- Significantly lower than planned depreciation costs (-9.7%, or -8.6 M€2017);
- Significantly higher than planned cost of capital (+22.2%, or +8.3 M€2017) due to higher than planned interest rate (from 1.86% to 3.86%) and a higher than planned asset base (+7.8%).

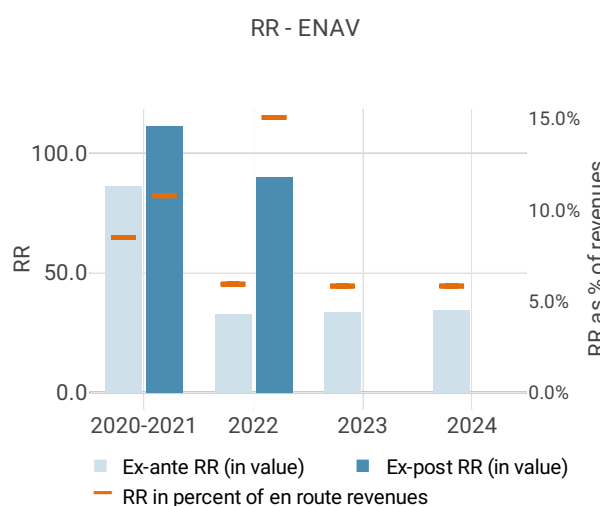
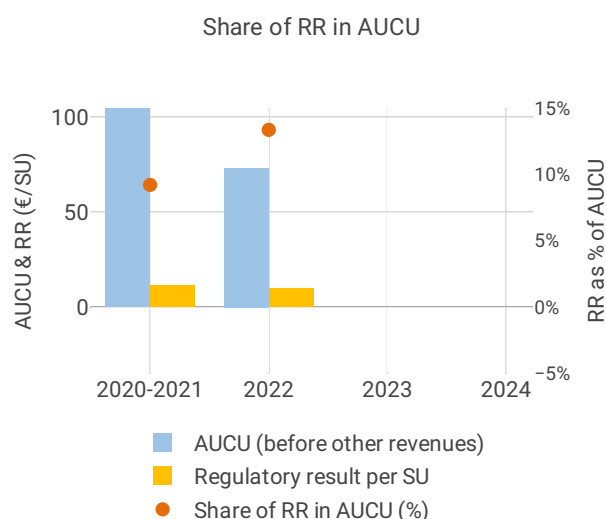
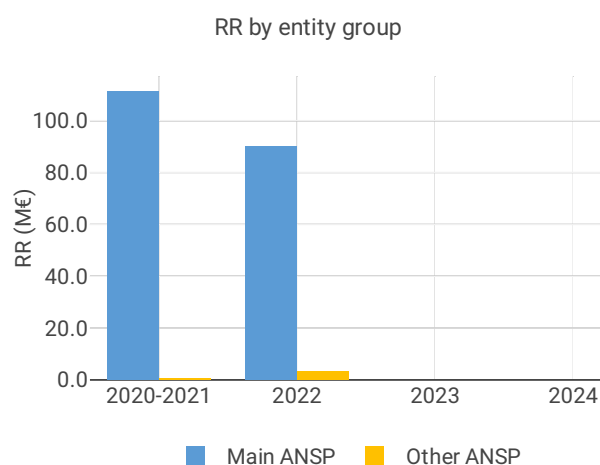
## 5.2.2 Actual unit cost incurred by the users (AUCU) (PI#1)



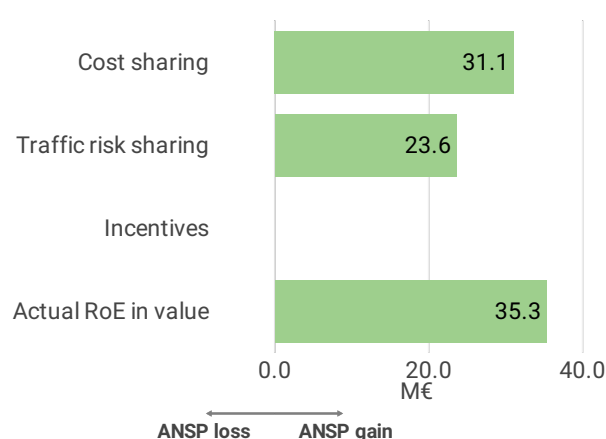


| Cost exempt from cost sharing by item - 2022       | €'000           | €/SU         |
|----------------------------------------------------|-----------------|--------------|
| New and existing investments                       | -7,022.2        | -0.73        |
| Competent authorities and qualified entities costs | 39.9            | 0.00         |
| Eurocontrol costs                                  | -810.9          | -0.08        |
| Pension costs                                      | 0.0             | 0.00         |
| Interest on loans                                  | -312.1          | -0.03        |
| Changes in law                                     | 0.0             | 0.00         |
| <b>Total cost exempt from cost risk sharing</b>    | <b>-8,105.4</b> | <b>-0.85</b> |

### 5.2.3 Regulatory result (RR)



#### Net result from en route activity - ENAV 2022



### Focus on regulatory result

#### ENAV net gain on activity in the Italy en route charging zone in the year 2022

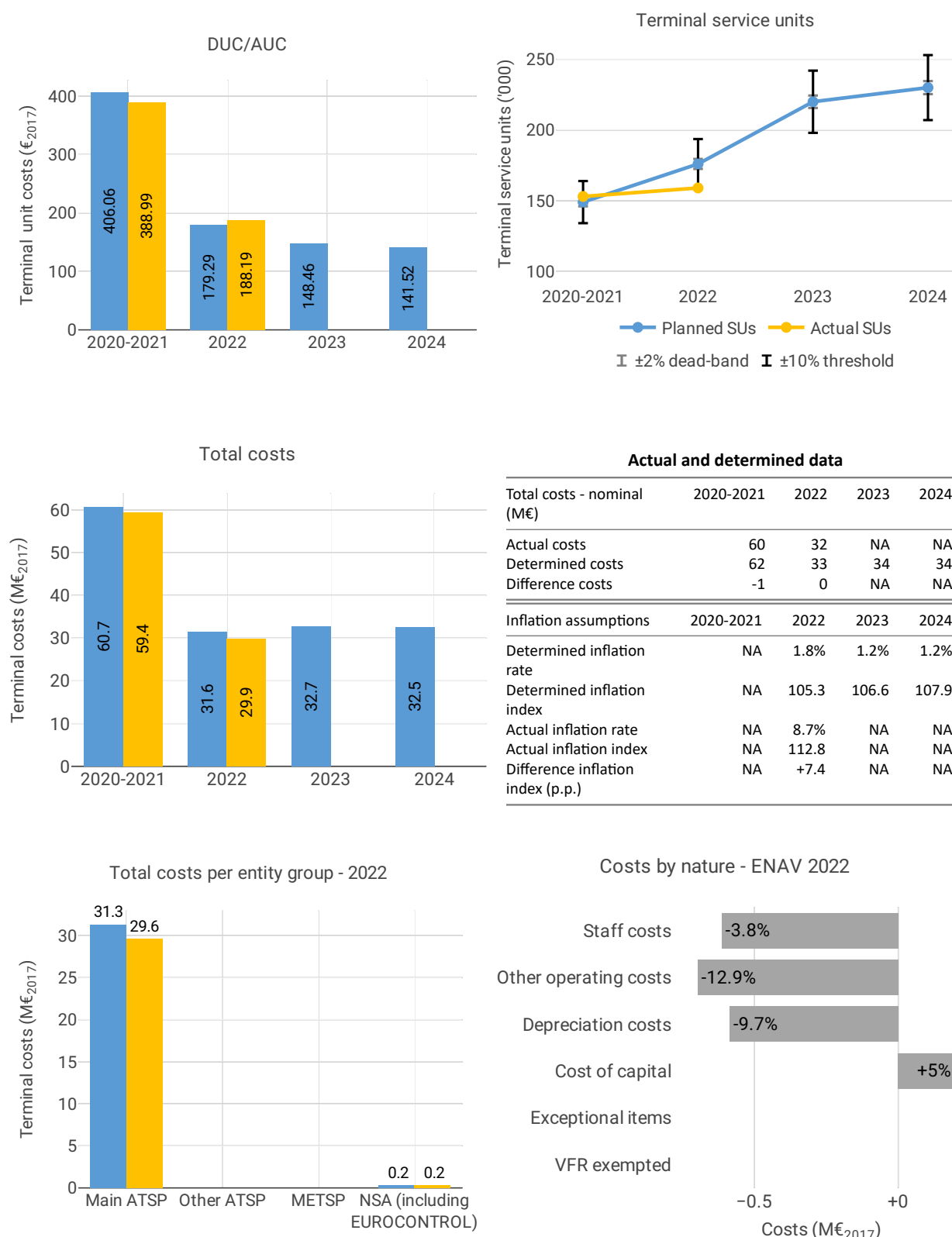
ENAV reported a net gain of +60.4 M€, as a combination of a gain of +31.2 M€ arising from the cost sharing mechanism, with a gain of +23.6 M€ arising from the traffic risk sharing mechanism and a gain of +5.5 M€ relating to financial incentives. It should be noted that the application of financial incentives for year 2022 is under review by the European Commission, in accordance with Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020.

## ENAV 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 above mentioned (+60.4 M€) and the actual RoE (+35.3 M€) amounts to +95.7 M€ (or 15.7% of the en route revenues). The resulting ex-post rate of return on equity is +11.8%, which is higher than the +4.4% planned in the PP.

### 5.3 Terminal charging zone - Italy Zone 1

#### 5.3.1 Unit cost (KPI#1)



## Focus on unit cost

### AUC vs. DUC

In 2022, the terminal AUC was +7.4% (or +13.19 €2017) higher than the planned DUC. This results from the combination of significantly lower than planned TNSUs (-9.8%) and lower than planned terminal costs in real terms (-3.2%, or -1.0 M€2017). It should be noted that actual inflation index in 2022 was +7.4 p.p. higher than planned.

### Terminal service units

The difference between actual and planned TNSUs (-9.8%) falls outside the  $\pm 2\%$  dead band, but does not exceed the  $\pm 10\%$  threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ANSP and the airspace users, with the ANSP (ENAV) bearing a loss of -1.2 M€2017.

### Terminal costs by entity

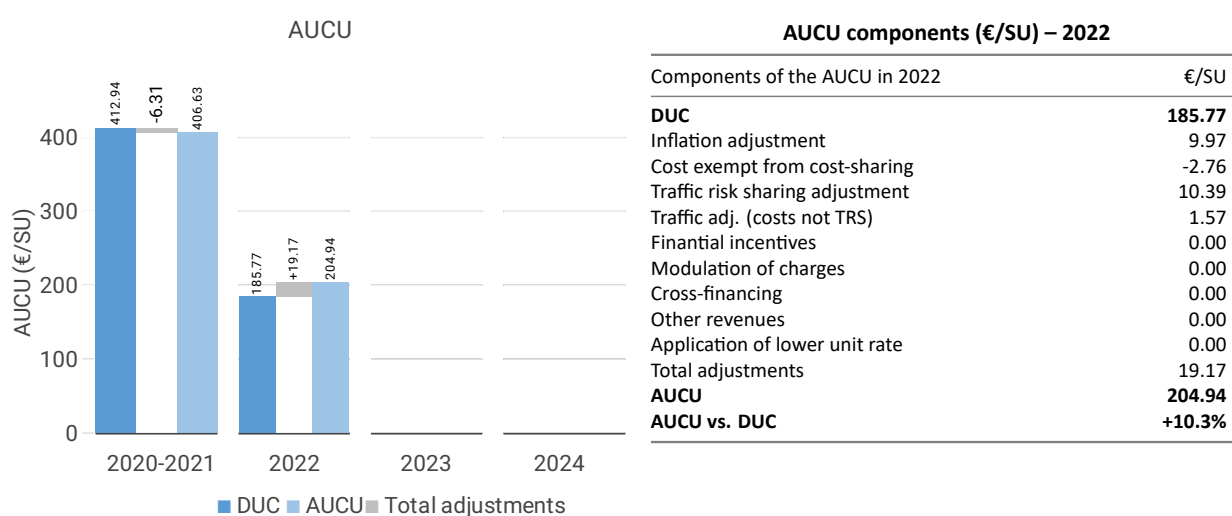
The 2022 actual real terminal costs for the TCZ1 are -3.2% (-1.0 M€2017) lower than planned, mainly due to the inflation impact since in nominal terms the costs are +1.3% higher than planned. This translates in lower than planned costs for the main ANSP, ENAV (-3.3%, or -1.0 M€2017) and higher costs for the NSA (+6.9%, or +0.02 M€2017).

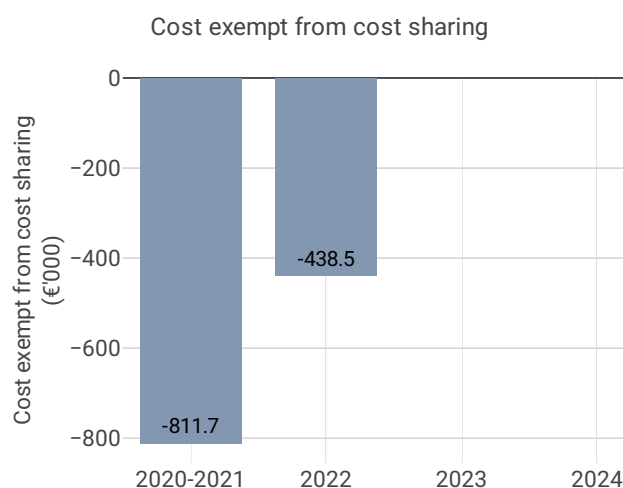
### Terminal costs for the main ANSP at charging zone level

The terminal zone 1 costs in real terms for ENAV are lower than planned in 2022 (-3.3%, or -1.0 M€2017) mainly due to the inflation impact :

- Lower than planned staff costs in real terms (-3.8%, or -0.6 M€2017), mainly due to the inflation impact since in nominal terms staff costs are higher than planned (+2.9%), and reported to be mainly due to higher staff presence on site to manage the Summer traffic;
- Significantly lower other operating costs (-12.9%, or -0.7 M€2017), reported to result *“from savings in consultancy support which more than offset the increase in energy prices, lower maintenance costs, as well as lower external costs following the slowdown in ENAV investments”*;
- Significantly lower depreciation costs (-9.7%, or -0.6 M€2017);
- Significantly higher cost of capital (+22.2%, or +0.9 M€2017) due to higher than planned average interest rate (from 1.86% to 3.86%) and a higher asset base (+7.8%).

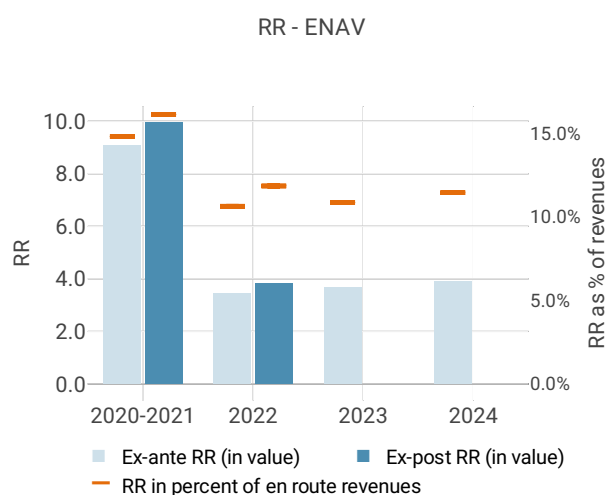
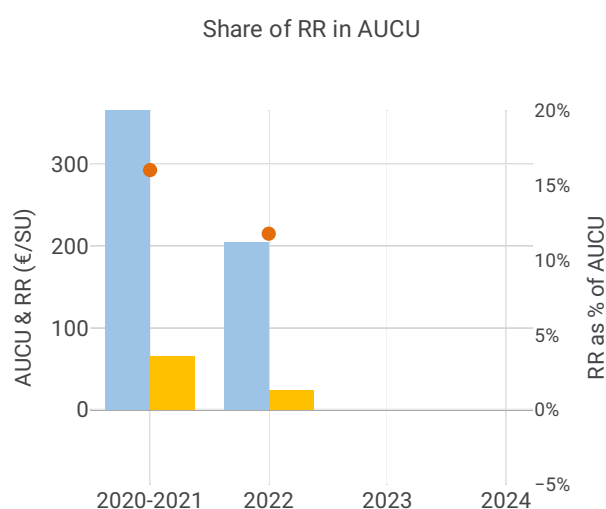
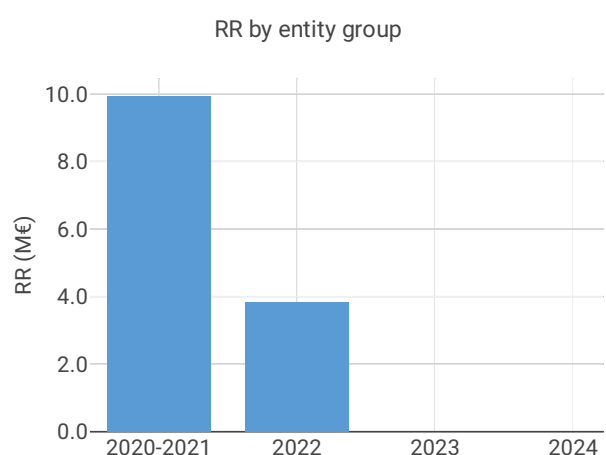
### 5.3.2 Actual unit cost incurred by the users (AUCU) (PI#1)



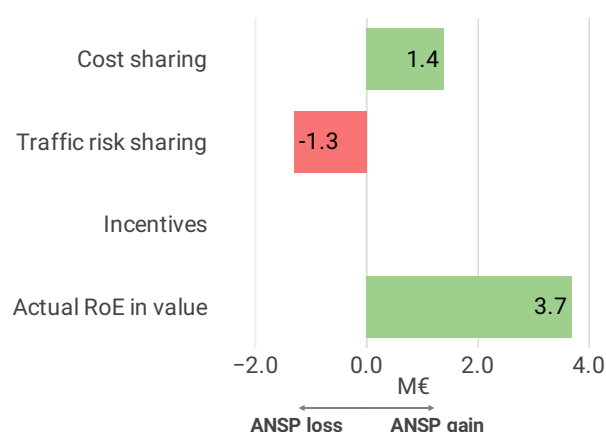


| Cost exempt from cost sharing by item - 2022       | €'000         | €/SU         |
|----------------------------------------------------|---------------|--------------|
| New and existing investments                       | -421.0        | -2.65        |
| Competent authorities and qualified entities costs | 15.4          | 0.10         |
| Eurocontrol costs                                  | 0.0           | 0.00         |
| Pension costs                                      | 0.0           | 0.00         |
| Interest on loans                                  | -32.9         | -0.21        |
| Changes in law                                     | 0.0           | 0.00         |
| <b>Total cost exempt from cost risk sharing</b>    | <b>-438.5</b> | <b>-2.76</b> |

### 5.3.3 Regulatory result (RR)



#### Net result from terminal activity - ENAV 2022



### Focus on regulatory result

#### ENAV net gain on activity in the Italy terminal charging zone 1 in the year 2022

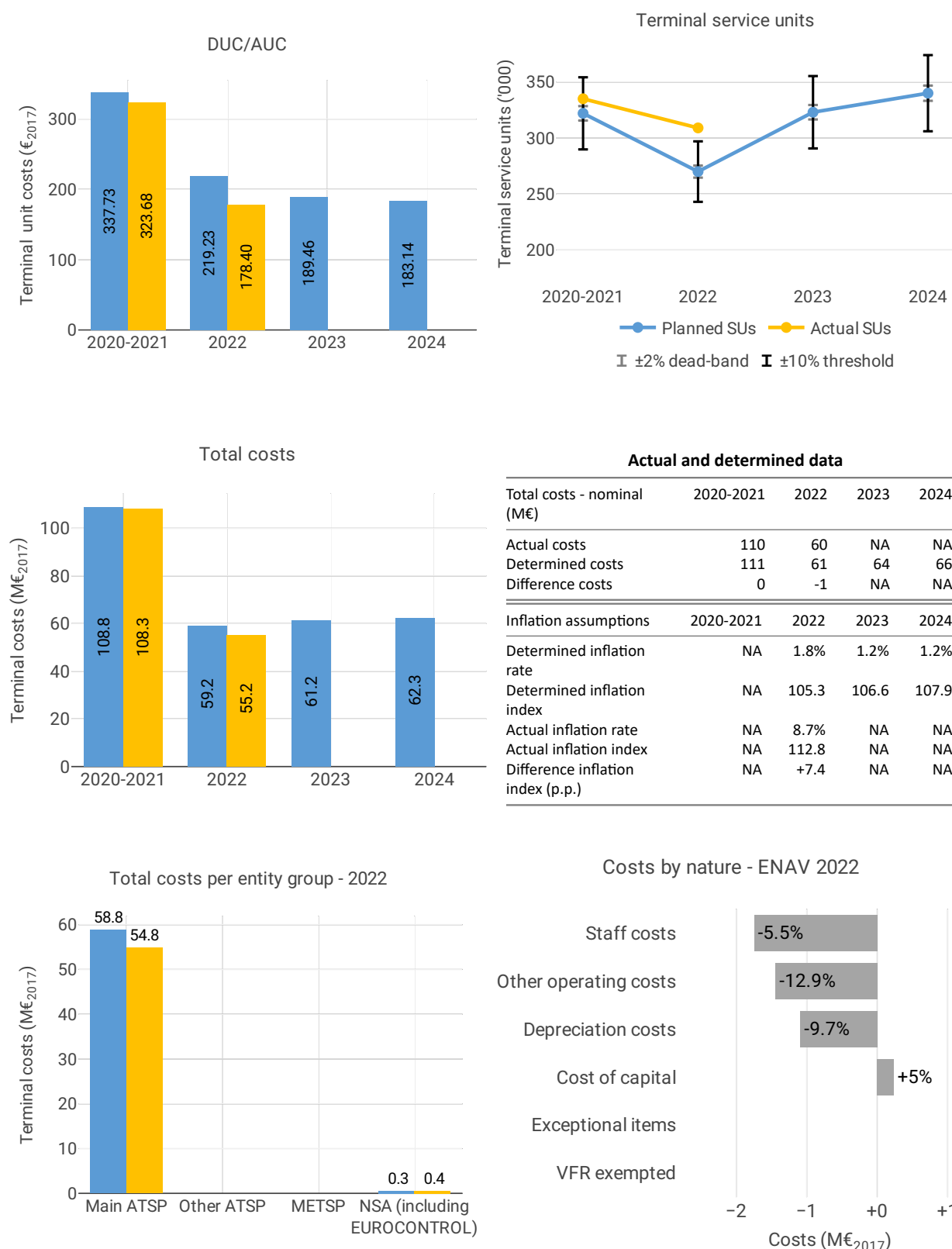
ENAV reported a net gain of +0.4 M€, as a combination of a gain of +1.4 M€ arising from the cost sharing mechanism, with a loss of -1.3 M€ arising from the traffic risk sharing mechanism and a gain of +0.3 M€ relating to financial incentives. It should be noted that the application of financial incentives for year 2022 is under review by the European Commission, in accordance with Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020.

## ENAV overall regulatory results (RR) for the terminal charging zone 1 activity

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+0.4 M€) and the actual RoE (+3.7 M€) amounts to +4.2 M€ (12.5% of the terminal revenues of the TCZ1). The resulting ex-post rate of return on equity is +4.9%, which is higher than the +4.4% planned in the PP.

### 5.4 Terminal charging zone - Italy Zone 2

#### 5.4.1 Unit cost (KPI#1)



## Focus on unit cost

### AUC vs. DUC

In 2022, the terminal AUC was -17.4% (or -38.23 €2017) lower than the planned DUC. This results from the combination of significantly higher than planned TNSUs (+14.5%) and significantly lower than planned terminal costs in real terms (-5.4%, or -3.2 M€2017). It should be noted that actual inflation index in 2022 was +7.4 p.p. higher than planned.

### Terminal service units

The difference between actual and planned TNSUs (+14.5%) 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 (ENAV) retaining an amount of +2.2 M€2017.

### Terminal costs by entity

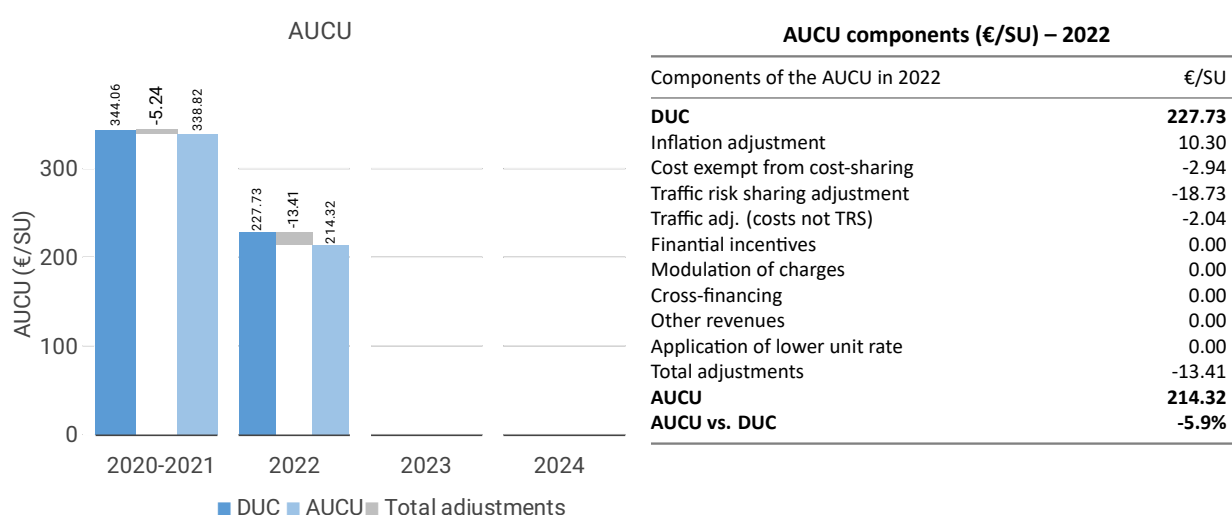
Actual real terminal costs are -5.4% (-3.2 M€2017) lower than planned. This is the result of lower costs for the main ANSP, ENAV (-5.5%, or -3.2 M€2017) and higher costs for the NSA (+6.9%, or +0.02 M€2017).

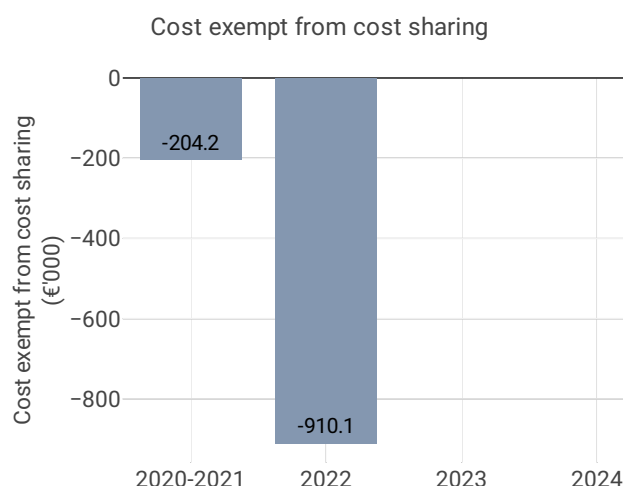
### Terminal costs for the main ANSP at charging zone level

The terminal zone 2 costs in real terms for ENAV are lower than planned in 2022 (-5.5%, or -3.2 M€2017) mainly due to the inflation impact :

- Lower than planned staff costs in real terms (-5.5%, or -1.7 M€2017) mainly due to the inflation impact since in nominal terms staff costs are higher than planned (+1.2%), and reported to be mainly due to higher staff presence on site to manage the Summer traffic;
- Significantly lower than planned other operating costs (-12.9%, or -1.4 M€2017); reported to result “from savings in consultancy support which more than offset the increase in energy prices, lower maintenance costs, as well as lower external costs following the slowdown in ENAV investments”;
- Significantly lower depreciation (-9.7%, or -1.1 M€2017);
- Significantly higher cost of capital (+22.2%, or +1.0 M€2017) due to higher than planned average interest rate (from 1.86% to 3.86%) and a higher asset base (+7.8%).

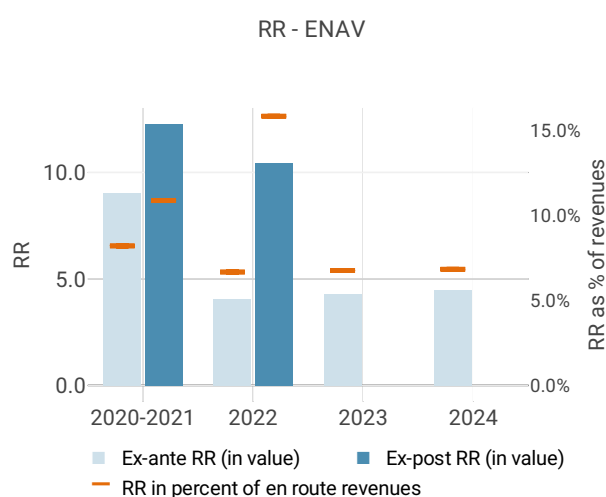
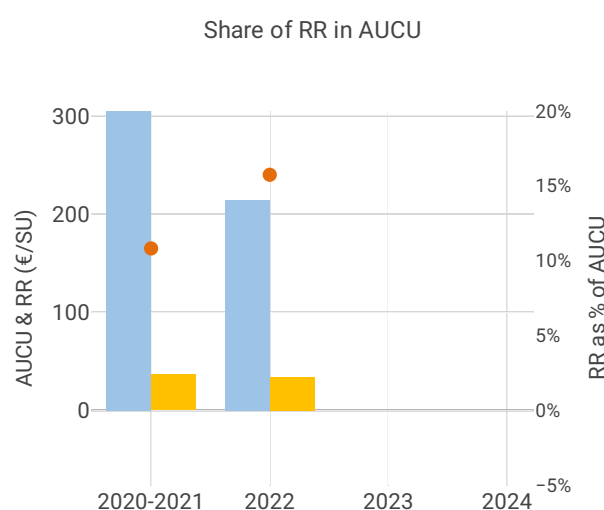
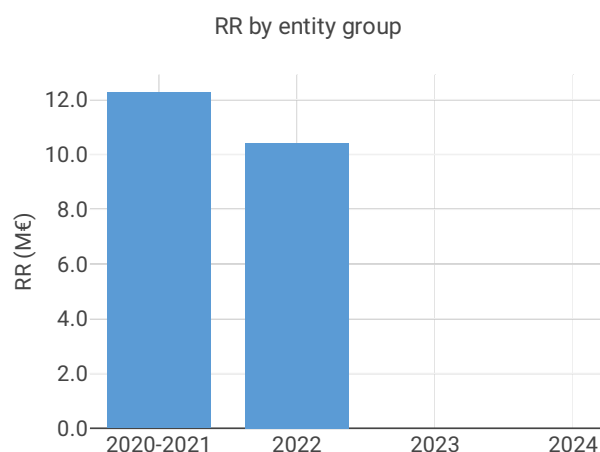
## 5.4.2 Actual unit cost incurred by the users (AUCU) (PI#1)



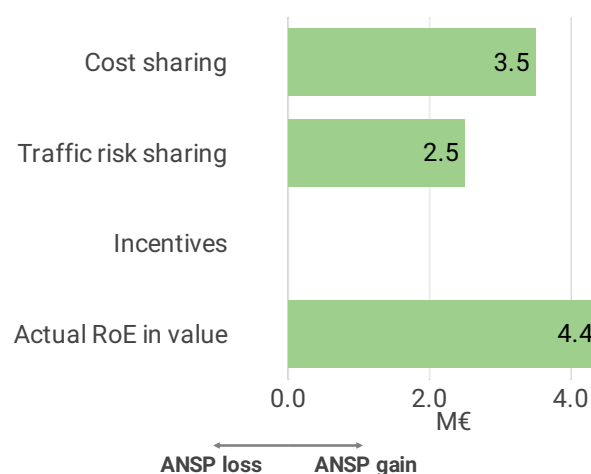


| Cost exempt from cost sharing by item - 2022       | €'000         | €/SU         |
|----------------------------------------------------|---------------|--------------|
| New and existing investments                       | -895.3        | -2.90        |
| Competent authorities and qualified entities costs | 24.0          | 0.08         |
| Eurocontrol costs                                  | 0.0           | 0.00         |
| Pension costs                                      | 0.0           | 0.00         |
| Interest on loans                                  | -38.8         | -0.13        |
| Changes in law                                     | 0.0           | 0.00         |
| <b>Total cost exempt from cost risk sharing</b>    | <b>-910.1</b> | <b>-2.94</b> |

### 5.4.3 Regulatory result (RR)



### Net result from terminal activity - ENAV 2022



### Focus on regulatory result

#### ENAV net gain on activity in the Italy terminal charging zone 2 in the year 2022

ENAV reported a net gain of +6.7 M€, as a combination of a gain of +3.5 M€ arising from the cost sharing mechanism, a gain of +2.5 M€ arising from the traffic risk sharing mechanism and a gain of +0.6 M€ relating to financial incentives. It should be noted that the application of financial incentives for year 2022 is under review by the European Commission, in accordance with Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020.

**ENAV overall regulatory results (RR) for the terminal charging zone 2 activity**

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+6.7 M€) and the actual RoE (+4.4 M€) amounts to +11.0 M€ (16.4% of the terminal revenues of the TCZ2). The resulting ex-post rate of return on equity is +10.9%, which is higher than the +4.4% planned in the PP.