PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Italy - 2021

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1 OVERVIEW

1.1 Contextual information

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

List of ACCs 4
- Brindisi ACC
- Milano ACC
- Padova ACC
- Rome ACC

No of airports in the scope of the performance plan:
- **≥80'K** 5
- **<80'K** 0

Exchange rate (1 EUR=)
- 2017: 1 EUR
- 2021: 1 EUR

Share of Union-wide:
- **traffic (TSUs) 2021** 8.6%
- **en route costs 2021** 10.2%

Share en route / terminal costs 2021 87% / 13%

En route charging zone(s)
- Italy

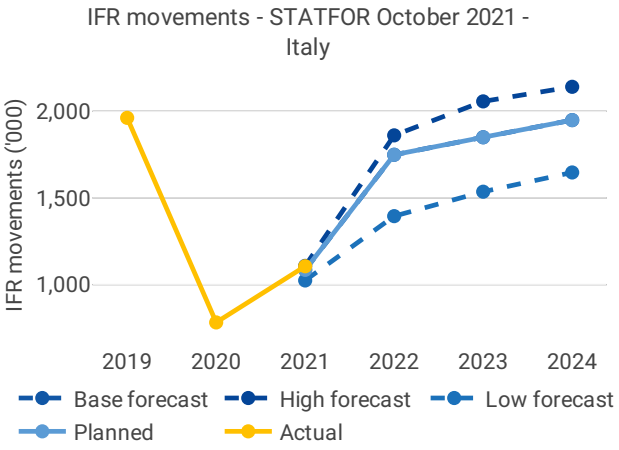
Terminal charging zone(s)
- Italy Zone 1
- Italy Zone 2

Main ANSP
- ENAV

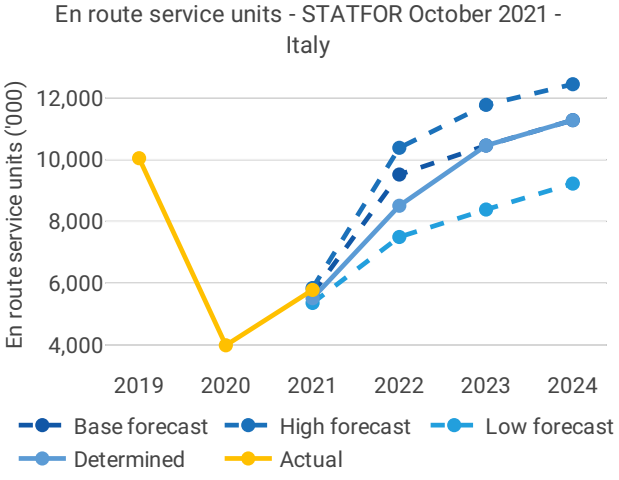
Other ANSPs
- ITAF

MET Providers
–

1.2 Traffic (En route traffic zone)

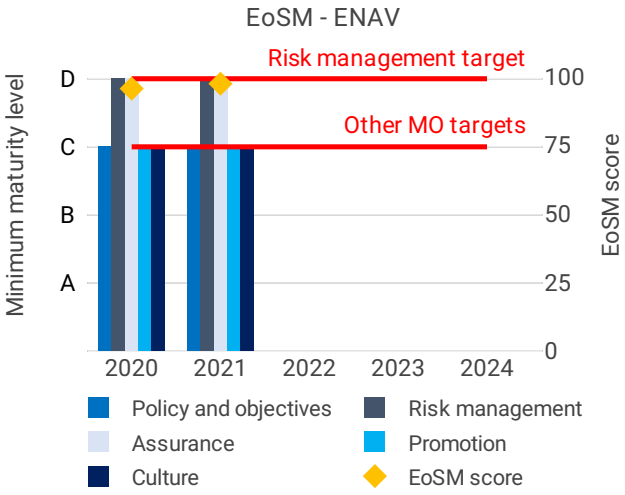


- Italy recorded 1,106K actual IFR movements in 2021, +41% compared to 2020 (782K).
- Actual 2021 IFR movements were +1.9% above the plan (1,085K).
- Actual 2021 IFR movements represent 56% of the actual 2019 level (1,962K).



- Italy recorded 5,783K actual en route service units in 2021, +45% compared to 2020 (3,990K).
- Actual 2021 service units were +4.9% above the plan (5,514K).
- Actual 2021 service units represent 58% of the actual 2019 level (10,046K).

1.3 Safety (Main ANSP)



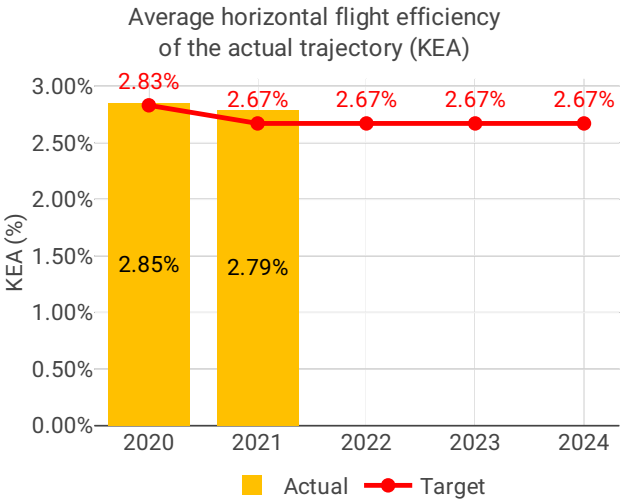
• ENAV has maintained its good safety performance, remaining at the RP3 EoSM target levels in all management objectives. The achieved maturity exceeds the maturity levels planned.

• ENAV has resumed to normal operations after the challenging COVID-19 period and its safety performance is now stable. The oversight activity was conducted during 2021 to ensure compliance with Regulation (EU) 2017/373.

• Italy recorded a decrease of the rates of separation minima infringements and runway incursions in 2021 relative to 2020. Both rates are below the Union-wide average rates.

• ENAV should improve its safety management by implementing automated safety data recording systems.

1.4 Environment (Member State)



• Italy achieved a KEA performance of 2.79% compared to its target of 2.67% and did not contribute positively towards achieving the Union-wide target. KEA improved by 0.06 p.p. from 2020.

• The NSA has requested the recalculation (and this action is currently still in progress) of the output's KPI attributed by PRU/NM.

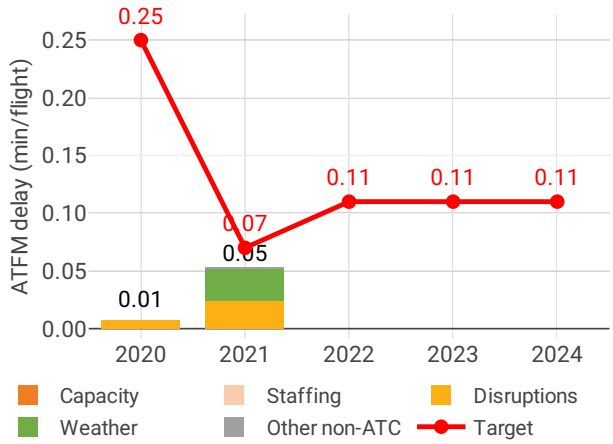
• Both KEP and SCR improved since 2020 and are at their best levels in five years.

• Share of CDO flights is lower compared to 2020, but higher than pre-pandemic levels.

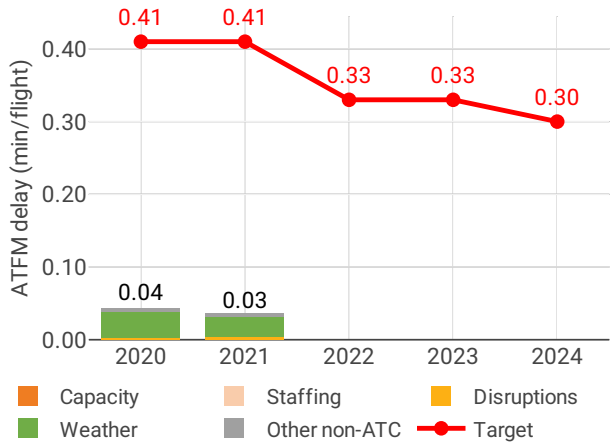
• Additional taxi out time and additional time in terminal airspace remained the same as in 2020.

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 0.05 minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.07.

• En route ATFM delays in Italy were also near zero on average during past years.

• Traffic is expected to grow, with 2019 levels likely being reached in 2023 (in high growth scenario) or 2024 (in base growth scenario). A slight increase in the number of ATOCs in OPS is planned in all ACCs except Rome (slight decrease) by the end of RP3.

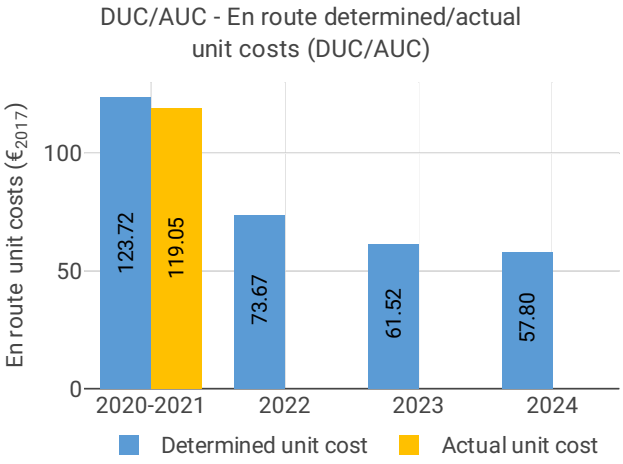
• Delays were highest between August and October, mostly due to adverse weather conditions and industrial actions.

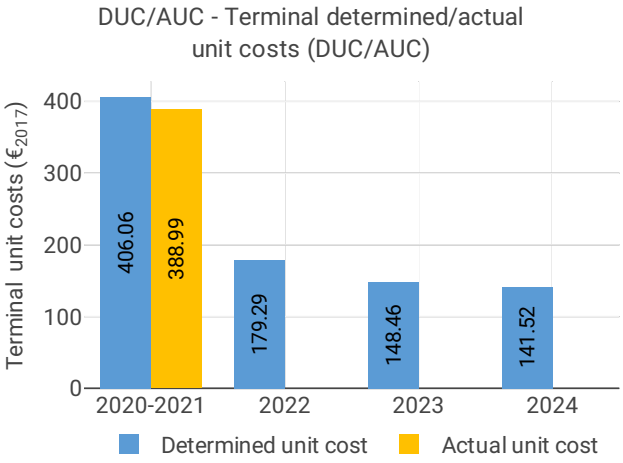
• The share of delayed flights with delays longer than 15 minutes in Italy decreased by 37.15 p.p. compared to 2020 and was lower than 2019 values.

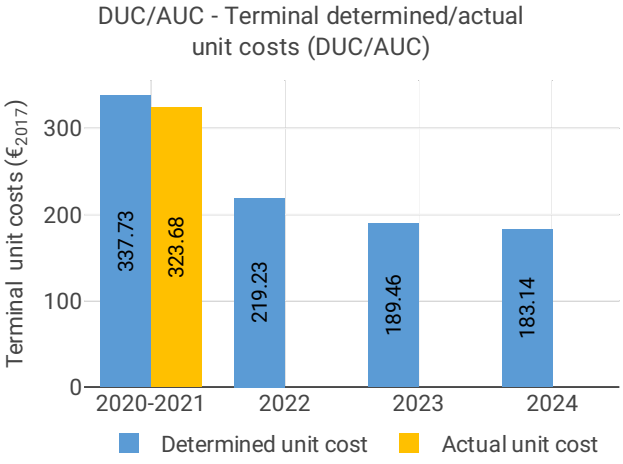
• The yearly total of sector opening hours in Brindisi ACC was 18,626, showing a 49.7% increase compared to 2020. Sector opening hours are 8.1% below 2019 levels. The yearly total of sector opening hours in Milano ACC was 60,868, showing a 34.9% increase compared to 2020. Sector opening hours are 30.0% below 2019 levels. The yearly total of sector opening hours in Padova ACC was 39,789, showing a 44.7% increase compared to 2020. Sector opening hours are 28.6% below 2019 levels. The yearly total of sector opening hours in Rome ACC was 48,248, showing a 20.7% decrease compared to 2020. Sector opening hours are 12.5% below 2019 levels.

• Brindisi ACC registered 12.03 IFR movements per one sector opening hour in 2021, being 33.1% below 2019 levels. Milano ACC registered 8.76 IFR movements per one sector opening hour in 2021, being 16.5% below 2019 levels. Padova ACC registered 10.55 IFR movements per one sector opening hour in 2021, being 22.8% below 2019 levels. Rome ACC registered 10.60 IFR movements per one sector opening hour in 2021, being 35.4% below 2019 levels.

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







• The en route 2020/2021 actual unit cost of Italy was 119.35 €2017, -3.5% lower than the determined unit cost (123.72 €2017). The terminal zone 1 actual unit cost was 390.28 €2017, -3.9% lower than the determined unit cost (406.06 €2017) and the terminal zone 2 actual unit cost was 324.60 €2017, -3.9% lower than the determined unit cost (337.73 €2017).

• The en route 2021 actual service units (5,783K) were +4.9% higher than determined (5,514K).

• In 2021, actual total costs were -9.4 M€2017 lower (-1.6%) than determined. Italy decreased all cost categories except cost of capi-tal. The reduction was mainly due to lower other operating costs (-8.4 M€2017, or -6.3%). The NSA justifies the difference due to difficulties to predict the recovery from COVID-19 while drafting the performance plan.

• Cost of capital increased by +2.1 M€2017 (+4.4%), due to an increase in the average interest on debt (from 1.9% to 3.0%).

• ENAV spent 138 M€2017 in 2021 related to costs of investments, -2.4% less than determined (141 M€2017). This was mainly driven by a decrease in depreciation costs due to a reduction of the revenues through funding, which should however be deducted from the unit rate instead of the cost base.

• The en route actual unit cost incurred by users in 2020/2021 was 123.86€, while the terminal zone 1 actual unit cost incurred by users was 410.81€ and 338.47€ for terminal zone 2.

2 SAFETY - ITALY

2.1 PRB monitoring

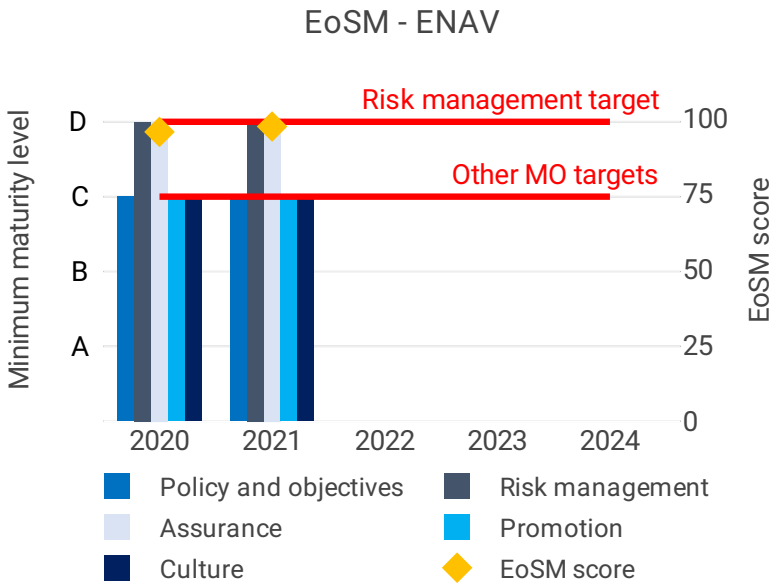
• ENAV has maintained its good safety performance, remaining at the RP3 EoSM target levels in all management objectives. The achieved maturity exceeds the maturity levels planned.

• ENAV has resumed to normal operations after the challenging COVID-19 period and its safety performance is now stable. The oversight activity was conducted during 2021 to ensure compliance with Regulation (EU) 2017/373.

• Italy recorded a decrease of the rates of separation minima infringements and runway incursions in 2021 relative to 2020. Both rates are below the Union-wide average rates.

• ENAV should improve its safety management by implementing automated safety data recording systems.

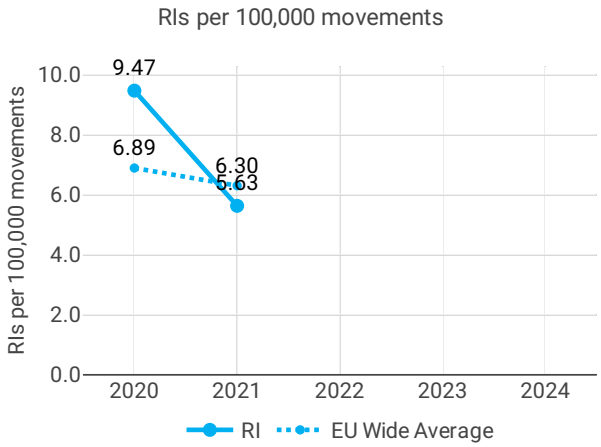
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

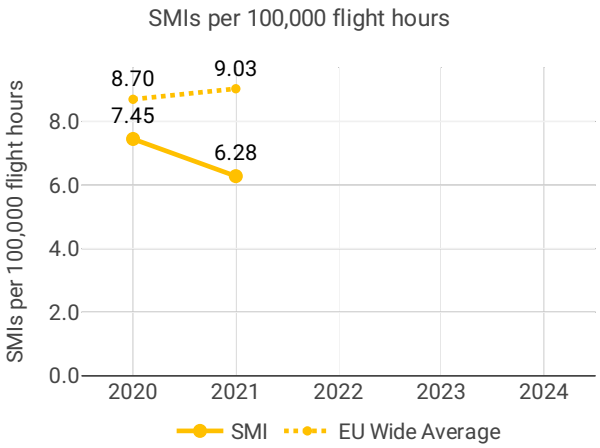


Focus on EoSM

All five EoSM components of the ANSP meet, or exceed, already the 2024 target level. Slight increase in maturity is observed from 2020 figures.

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





3 ENVIRONMENT - ITALY

3.1 PRB monitoring

• Italy achieved a KEA performance of 2.79% compared to its target of 2.67% and did not contribute positively towards achieving the Union-wide target. KEA improved by 0.06 p.p. from 2020.

• The NSA has requested the recalculation (and this action is currently still in progress) of the output's KPI attributed by PRU/NM.

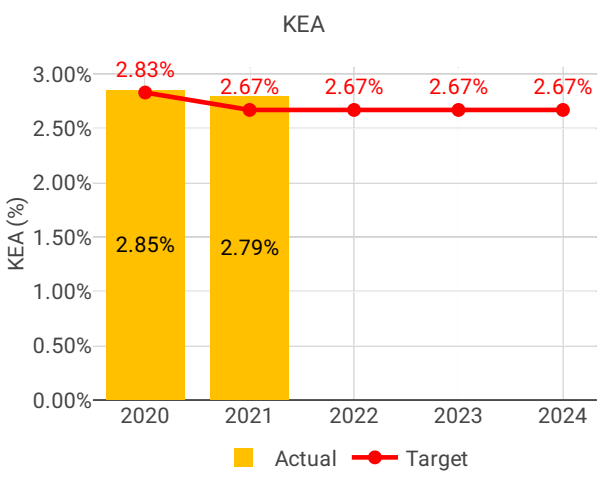
• Both KEP and SCR improved since 2020 and are at their best levels in five years.

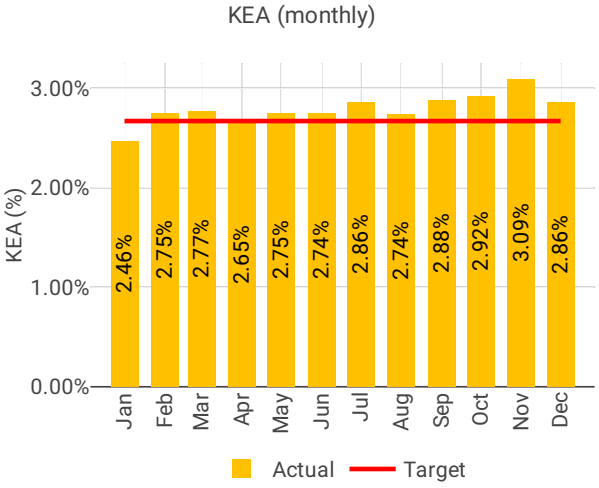
• Share of CDO flights is lower compared to 2020, but higher than pre-pandemic levels.

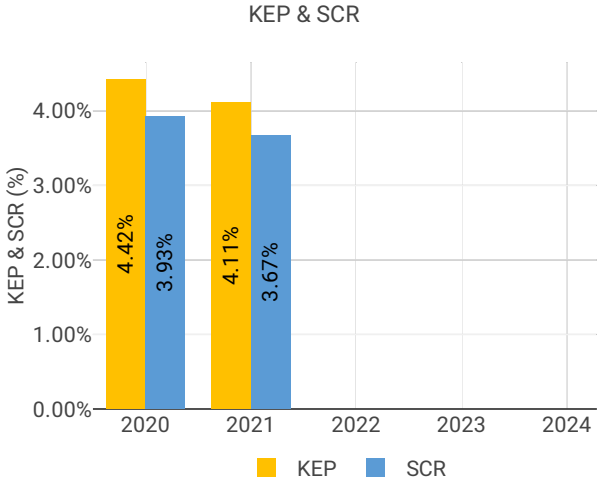
• Additional taxi out time and additional time in terminal airspace remained the same as in 2020.

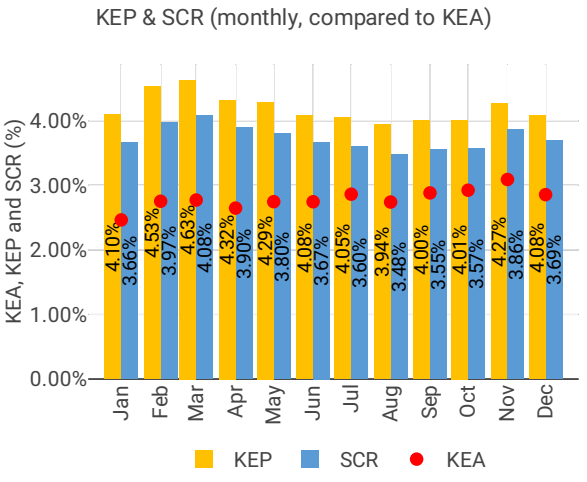
3.2 En route performance

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)



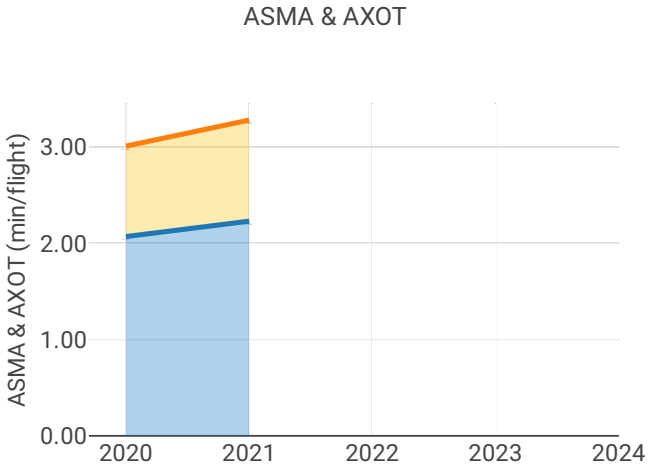


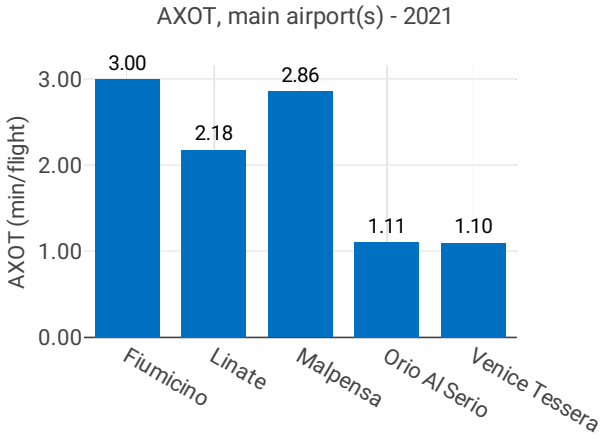


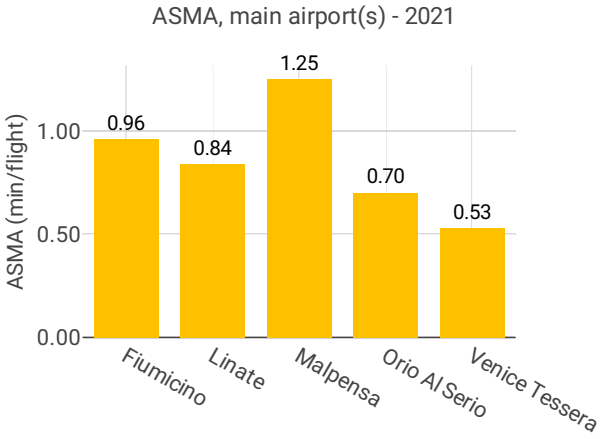


3.3 Terminal performance

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 Fiumiccino (LIRF; 2019: 7.87 min/dep.; 2020: 3.1 min/dep.; 2020: 3 min/dep.) averaged 2.83 min/dep. in the first trimester, maybe influenced by de-icing operations. These additional times were below 2 mi/dep. only in April and May, and then increased again in the rest of the year averaging 3.21 min/dep. in line with the traffic recovery.

This increase of the additional taxi-out times with the recovery of traffic was observed as well at the rest of airports. Only the two Milan airports, Malpensa and Linate, showed higher additional taxi-out times in January related to de-icing procedures.

According to the Italian monitoring report: A*s in previous years and also for RP2, ENAV SpA is unable to comment or assess the data submitted by PRU, as ENAV SpA and the other ANSPs do not have access to part of the data used by PRU to process the output, and therefore not able to replicate the processing and to verify the correct analysis of the information.*

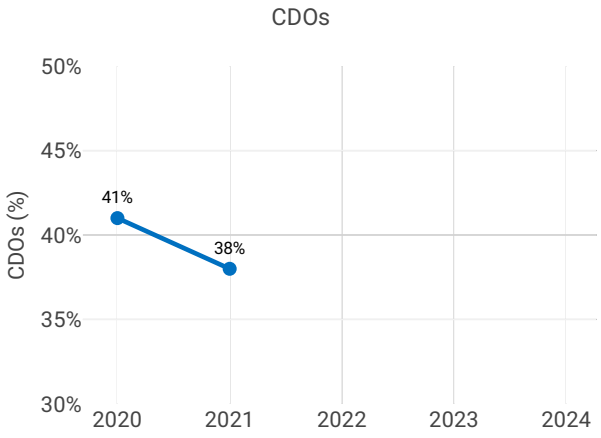
As in the past, also for this year access was requested at least to the processed file from which the output is obtained; but without the possibility of access.

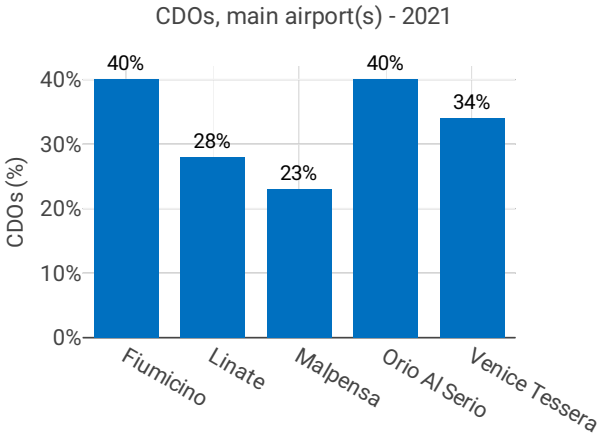
Taking into account the above concerns, both for 2021 and 2022, it is necessary to evaluate the impact caused by the temporary aerodrome infrastructure changes derived by the Airport Operators activity implemented to tackle the traffic reduction associated to the pandemic COVID19 risk reduction (i.g. terminal closure) and/or associated with the booster in restructuring of airside infrastructure that was affected by works involving the aerodrome manouvring area (i.g. heavy maintenance and WIP affecting runways, taxiways and aprons).

ASMA

The additional ASMA times at both Rome Fiumicino and Venice further decreased in 2021, while Milan Malpensa observed a significant increase driven by the higher additional times in September, October and December (averaging those months 1.98min/arr.)
According to the Italian monitoring report: *As in previous years and also for RP2, and similar as for the Taxi Time, ENAV SpA is unable to comment or assess the data submitted by PRU, as ENAV SpA and the other ANSPs 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 processing and therefore to verify the correct analysis of the information.*
As in the past, also for this year access was requested at least to the processed file from which the output is obtained; but without the possibility of access.
ENAC complements the information by adding: *That counted higher additional time is ascribable to the preparatory Operational Scenario to handle the traffic on that airport (and the other 2 involved in the Milano Area) in preparation to the closure and the limitation planned and completed in November 2021, as also reported within the Italian AIP as a Supplement Publication. The ATCOs on duty were involved to manage the traffic with limitations and by applying additional spacing between Arrivals and Arrivals and Departures due to the unavailability of the fully Operational Scenario on the Milano Malpensa Airport and parallelly for Bergamo and Linate too.*

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





Focus CDOs

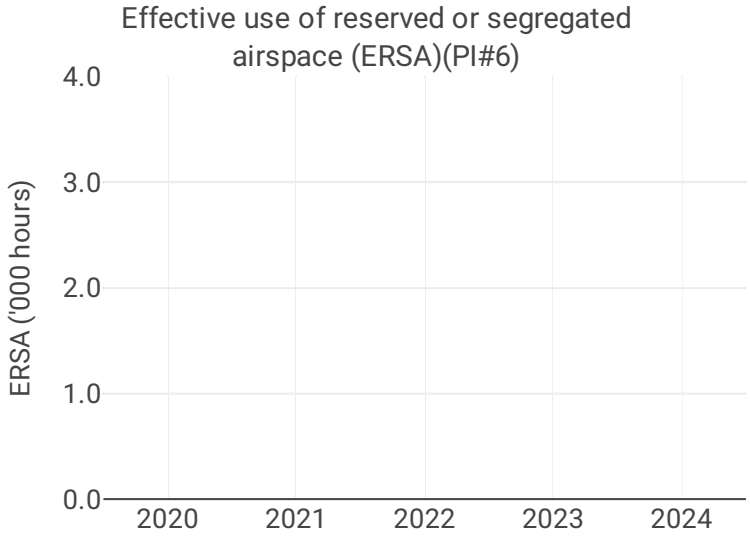
The share of CDO flights increased slightly at Bergamo while it recorded the same value of the 2020 both in Milano Linate and Venice, and it slightly decreased at both Milano Malpensa and Rome according to the Table at the bottom of the page. Bergamo, Rome and Venice had shares of CDO flights above the overall RP3 value in 2021 - 30.5% - (LIME: 39.9%; LIRF: 39.7%; LIPZ: 34.1%).
All airports had an almost continuous decrease of the monthly values as from April. From April to December, the decreases are in the order of magnitude of 10 percentage points.
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 a series of coordination between members of the PRU, Eurocontrol and representatives of the ANSPs which took place in recent years.*
Even if further cooperation was requested, at the time relating to the analysis of the outputs downstream of the application of the metrics and sources described in the methodology to refine the output in relation to the actual performances of the AUs, this sharing was not carried out and the processed output file was not shared.
For this reason, as for 2020, also for 2021 it was not possible to analyze the details of the data (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 it is therefore not possible once again to validate or comment/assess the value presented.

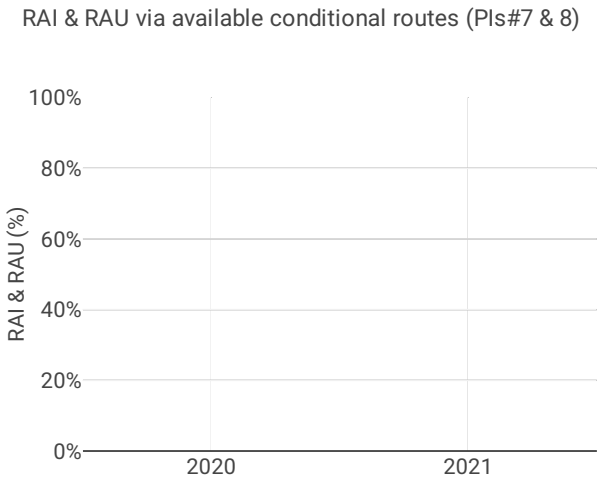
However, as has been repeatedly highlighted, ENAV SpA disagrees with the value presented in the Performance Plan and this is due to both the CDO procedures carried out by the ATCOs and based on an efficient Route and Terminal NTW that has been implemented, together with the other implementations introduced in the Airspace, in order to favor the Flight efficiency of operations even in the Arrival phases at National airports.
This value represents, according to the interpretation of the values extracted from the PRU metric, 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) without having been affected by an interruption, a leveling due to any reason, which caused it to be counted in the list of inefficient flights from the point of view of the VFE.
It therefore intends to represent that only 40% of the flights landed at LIRF in 2021 were compliant with a continuous descent from TOD to touch down!
However, as has been done for other KPIs and PIs in the KPA ENV area, there is currently a coordination between ENAV SpA and PRU in order to have, following the analysis of an extract of the output received upon request by PRU, an effective view of the calculation and output for each flight and therefore correct more or less evident inconsistencies in the management of the "Level Segments" and to better define the parameters for which any interruption of the continuous descent can and it must be considered an inefficiency, and this both in terms of revision of the methodology and setting of the algorithm.

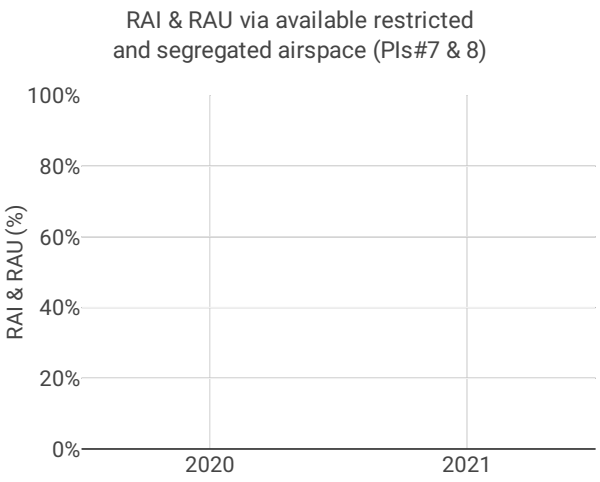
Airport level

	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
Orio Al Serio	1.02	1.11	NA	NA	NA	0.45	0.70	NA	NA	NA	39%	40%	NA	NA	NA
Linate	1.93	2.18	NA	NA	NA	0.78	0.84	NA	NA	NA	28%	28%	NA	NA	NA
Malpensa	2.66	2.86	NA	NA	NA	0.85	1.25	NA	NA	NA	24%	23%	NA	NA	NA
Fiumicino	3.10	3.00	NA	NA	NA	1.25	0.96	NA	NA	NA	43%	40%	NA	NA	NA
Venice Tessera	1.38	1.10	NA	NA	NA	1.06	0.53	NA	NA	NA	34%	34%	NA	NA	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

A continuous review of the airspace structure is in progress, in the framework of National Airspace Strategy initiative, conducted by ENAC, ENAV and IATA, with the participation of Italian Air Force.
The action is aimed to review the design of TSA and TRA utilised for military training in order to better fit with the changed flows of traffic in the new Free Route Airspace Environment.
This action is beneficial for the three parameters ENC, CAP and CEF.

Military - related measures implemented or planned to improve capacity

The process was not replicated in 2021 due to the basic uncertainity about traffic flows following pandemics.
In 2022 the Ukrainian crisis is generating further uncertainty about traffic flows, so for the moment actions are suspended, while attention is focued on Civil Use of Released Area (CURA) during weekends.

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 0.05 minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.07.

• En route ATFM delays in Italy were also near zero on average during past years.

• Traffic is expected to grow, with 2019 levels likely being reached in 2023 (in high growth scenario) or 2024 (in base growth scenario). A slight increase in the number of ATOCs in OPS is planned in all ACCs except Rome (slight decrease) by the end of RP3.

• Delays were highest between August and October, mostly due to adverse weather conditions and industrial actions.

• The share of delayed flights with delays longer than 15 minutes in Italy decreased by 37.15 p.p. compared to 2020 and was lower than 2019 values.

• The yearly total of sector opening hours in Brindisi ACC was 18,626, showing a 49.7% increase compared to 2020. Sector opening hours are 8.1% below 2019 levels. The yearly total of sector opening hours in Milano ACC was 60,868, showing a 34.9% increase compared to 2020. Sector opening hours are 30.0% below 2019 levels. The yearly total of sector opening hours in Padova ACC was 39,789, showing a 44.7% increase compared to 2020. Sector opening hours are 28.6% below 2019 levels. The yearly total of sector opening hours in Rome ACC was 48,248, showing a 20.7% decrease compared to 2020. Sector opening hours are 12.5% below 2019 levels.

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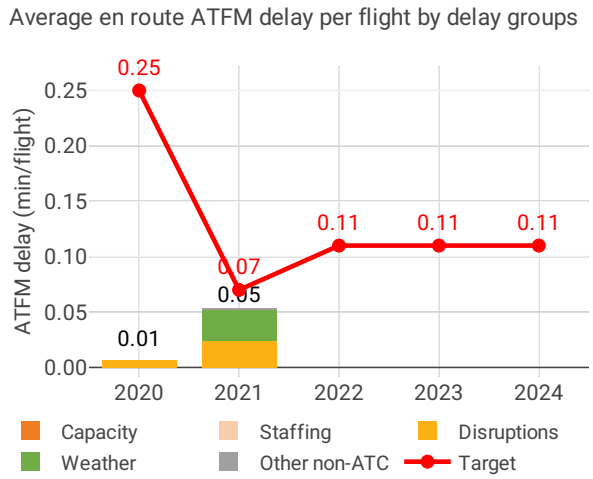
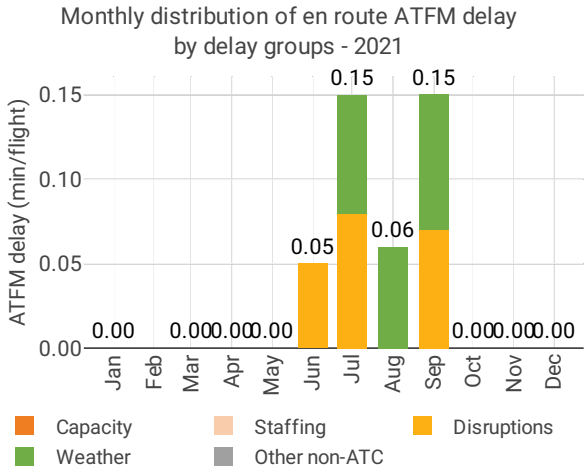
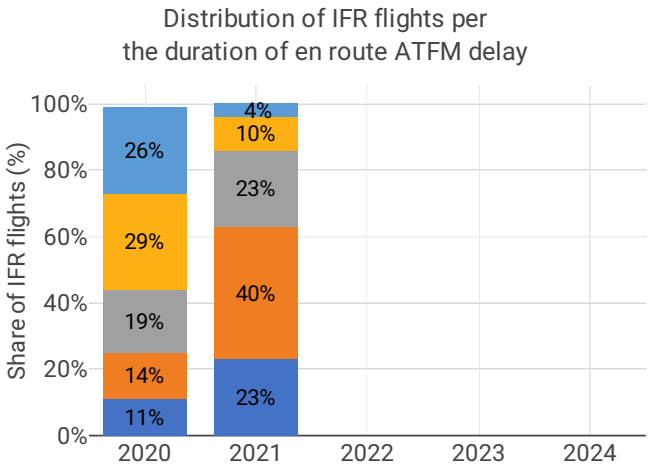
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Italy experienced an increase in traffic from 782k flights in 2020 to 1,106k flights in 2021, with 54k minutes of en route ATFM delays. The ATFM delays in 2021 were attributed to industrial action (45%) and adverse weather. (55%)
However, traffic levels were still substantially below the 1,962k flights in 2019, for which there were 32k minutes of en route ATFM delay.

NSA's assessment of capacity performance

The two most significant reasons of ATFM Enroute ATFM delay were Industrial Action (45% of total) and Weather (the remaning 55%). As such, there is no "ATM responsibility" in the generation of the delay.

Monitoring process for capacity performance

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

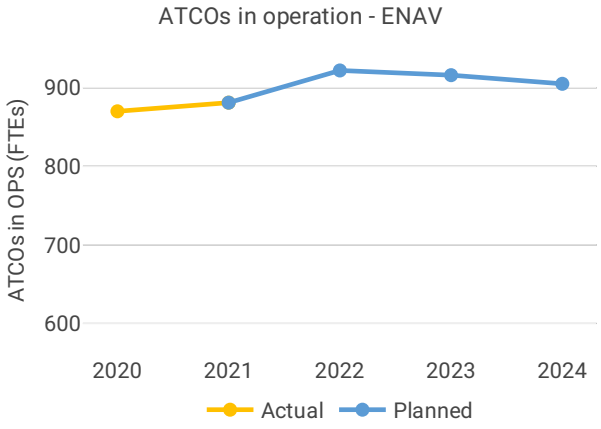
Capacity planning

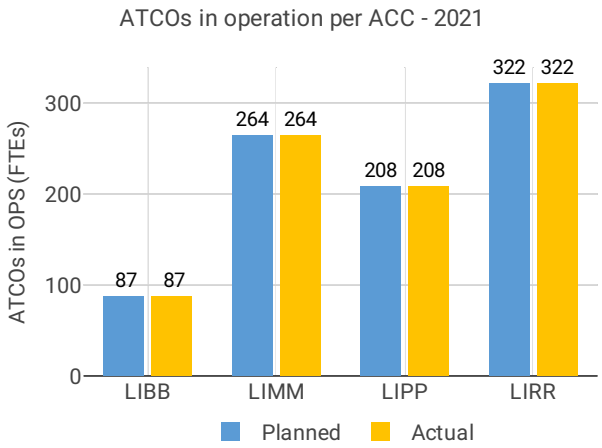
No capacity issues. The FTEs planned in the Performance Plan were consistent with the maximum configurations needed and coordinated with NM and published in the Rolling NOP.

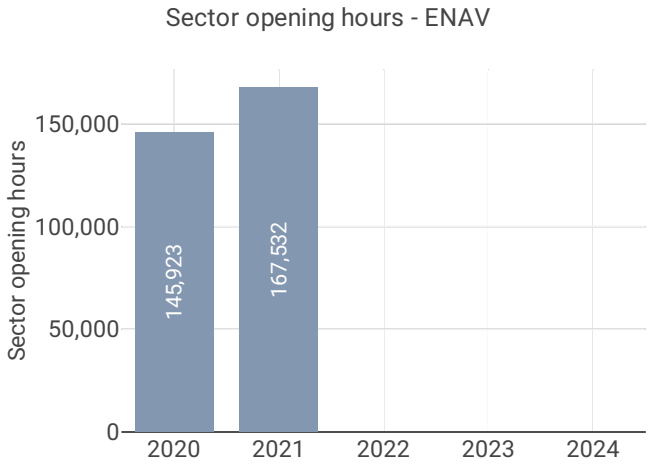
Application of Corrective Measures for Capacity (if applicable)

No data available

4.2.2 Other indicators





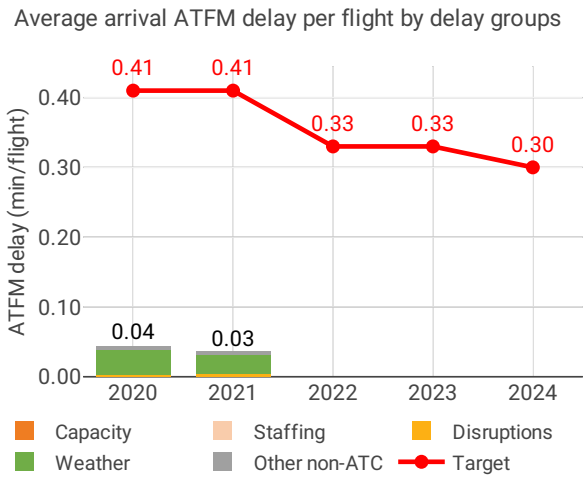


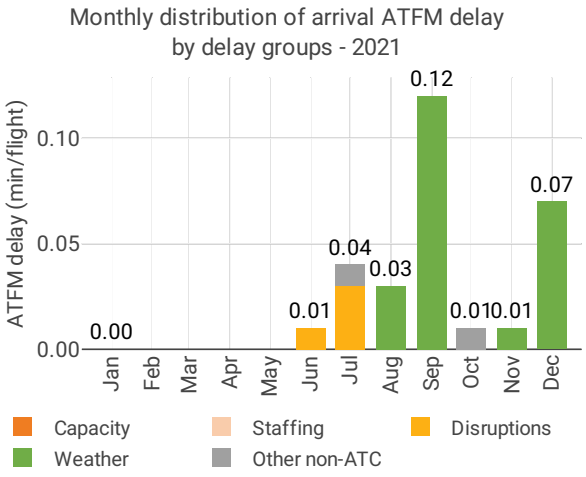
Focus on ATCOs in operations

N/A

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





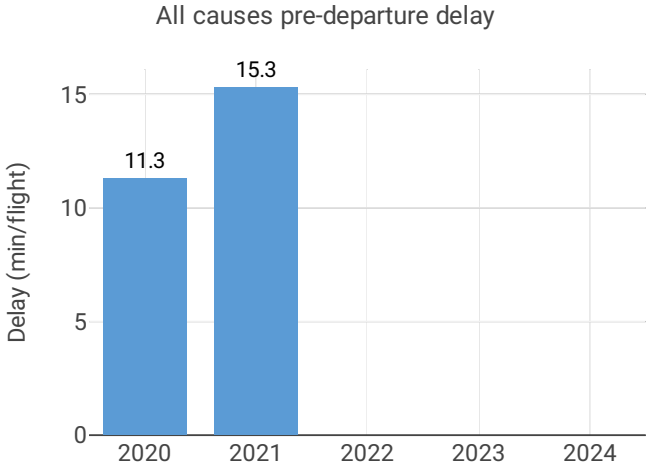
Focus on arrival ATFM delay

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 both Milan airports, with more than 60% of the reported delay not allocated to any cause.
Traffic at the ensemble of these Italian airports in 2021 is still 52% lower than in 2019.
Average arrival ATFM delays in 2021 was 0.03 min/arr, compared to 0.04 min/arr in 2020.
ATFM slot adherence has improved (2021: 96.8%; 2020: 95.9%).

The national average arrival ATFM delay at Italian airports in 2021 was 0.03 min/arr and most delays were recorded in the second half of the year.
81% of all delays at Italian airports were attributed to weather and 13% associated with industrial action in Milan Malpensa and Venice in the summer.
At airport level, the worst delays were observed at Bergamo (LIME) were regulations issued resulted in 1833 minutes of delay, of which only 14' were attributable to industrial actions and the remaining 1819 were determined by regulations issued due to adverse weather conditions.

The provisional national target on arrival ATFM delay in 2021 was met.
In accordance with Article 3 (3) (a) of Implementing Regulation (EU) 2020/1627: The incentive scheme shall cover only the calendar years 2022 to 2024.

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



Airport level

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

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Fiumicino	0.64	0.89	NA	NA	6.4	9.2	NA	NA
Linate	0.05	0.06	NA	NA	5.1	7.8	NA	NA
Malpensa	0.36	0.64	NA	NA	17.8	20.1	NA	NA
Orio Al Serio	0.52	0.77	NA	NA	8.0	12.5	NA	NA
Venice Tessera	0.85	0.68	NA	NA	9.8	12.0	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, the share of regulated departures from Italian airports virtually disappeared until July 2021.
All Italian airports showed adherence above 94% and the national average was 96.8%, an improvement with respect to 2020 (95.9%). With regard to the 3.2% of flights that did not adhere, 1.9% was early and 1.4% was late.
The Italian NSA reports: *Slightly worse performance is reported in the prefilled tables for year 2021 with respect to the values elaborated by ENAV for the same year, which are based upon NM/NMIR tool. The decimal digits should be two/three units higher. Such a difference is likely to happen because the flight sample granted from the ATFM standard slot time window, as reported by PRB, is different from what was counted in by the ANSPs. Anyhow values are very still very good and show improvement in respect of 2020 ones.*

ATC pre-departure delay

The performance at all three Italian airports where this indicator can be calculated had notably improved in 2020 with respect to 2019, but it deteriorated alongside the traffic recovery in the second half of 2021 at Fiumicino and Bergamo (LIRF; 2019: 1.47 min/dep.; 2020: 0.64 min/dep.; 2021: 0.89 min/dep.; LIME: 2019: 0.99 min/dep.; 2020: 0.53 min/dep.; 2021: 0.77 min/dep.; LIPZ; 2019: 1.75 min/dep.; 2020: 0.86 min/dep.; 2021: 0.75 min/dep.)
The quality of the airport data reported by Milan Linate and Milan Malpensa 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.
Both Milan airports had proper reporting before April 2020, but the special traffic composition since then resulted in the share of unidentified delay exceeding the 40%.

All causes pre-departure delay

The total (all causes) delay in the actual off block time at Italian airports in 2020 was between 7.79 min/dep for Milan Linate (LIML) and 20.14 min/dep. for Milan Malpensa (LIMC) which are, respectively, the 3rd lowest and the 3rd highest among the RP3 monitored airports.
Malpensa and Bergamo (LIME) observed the highest delays in February and December, while the other airports observed higher delays during the Summer season.

5 COST-EFFIENCY - ITALY

5.1 PRB monitoring

• The en route 2020/2021 actual unit cost of Italy was 119.35 €2017, -3.5% lower than the determined unit cost (123.72 €2017). The terminal zone 1 actual unit cost was 390.28 €2017, -3.9% lower than the determined unit cost (406.06 €2017) and the terminal zone 2 actual unit cost was 324.60 €2017, -3.9% lower than the determined unit cost (337.73 €2017).

• The en route 2021 actual service units (5,783K) were +4.9% higher than determined (5,514K).

• In 2021, actual total costs were -9.4 M€2017 lower (-1.6%) than determined. Italy decreased all cost categories except cost of capi-tal. The reduction was mainly due to lower other operating costs (-8.4 M€2017, or -6.3%). The NSA justifies the difference due to difficulties to predict the recovery from COVID-19 while drafting the performance plan.

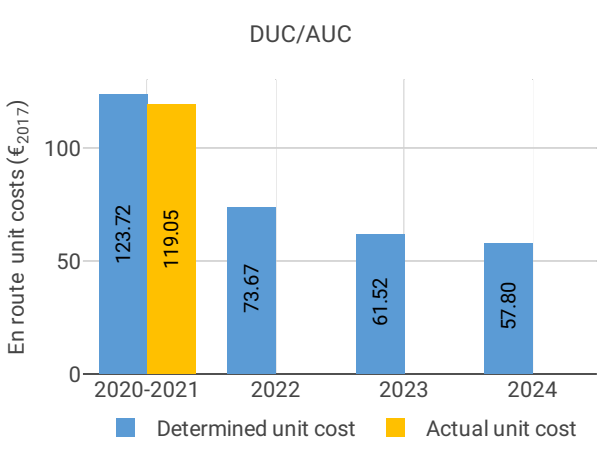
• Cost of capital increased by +2.1 M€2017 (+4.4%), due to an increase in the average interest on debt (from 1.9% to 3.0%).

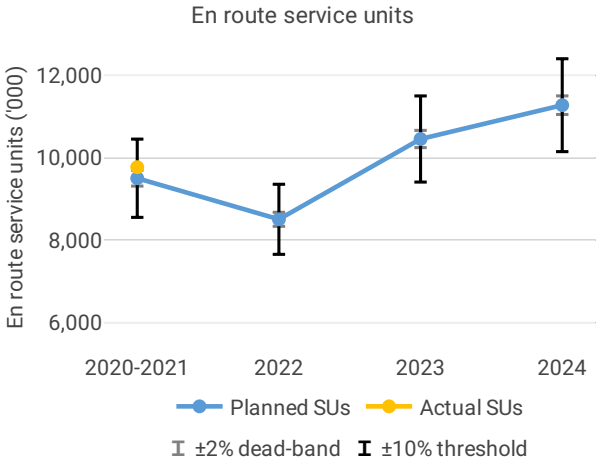
• ENAV spent 138 M€2017 in 2021 related to costs of investments, -2.4% less than determined (141 M€2017). This was mainly driven by a decrease in depreciation costs due to a reduction of the revenues through funding, which should however be deducted from the unit rate instead of the cost base.

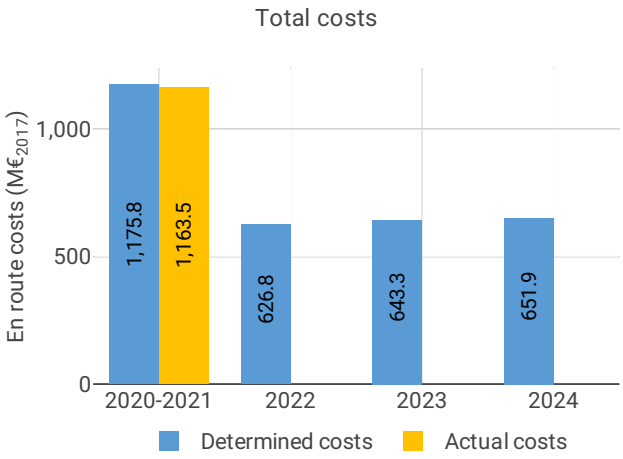
• The en route actual unit cost incurred by users in 2020/2021 was 123.86€, while the terminal zone 1 actual unit cost incurred by users was 410.81€ and 338.47€ for terminal zone 2.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

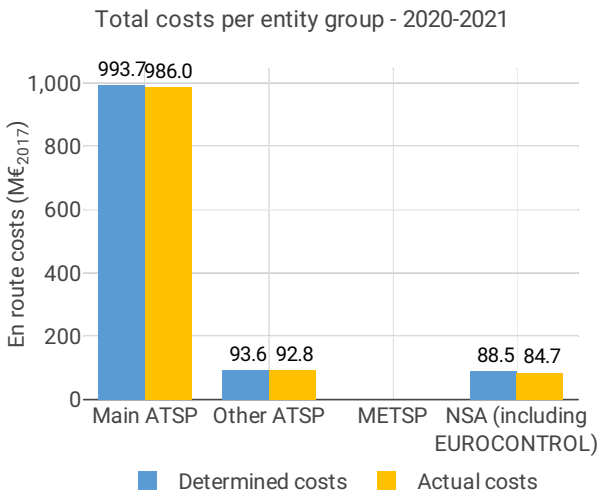


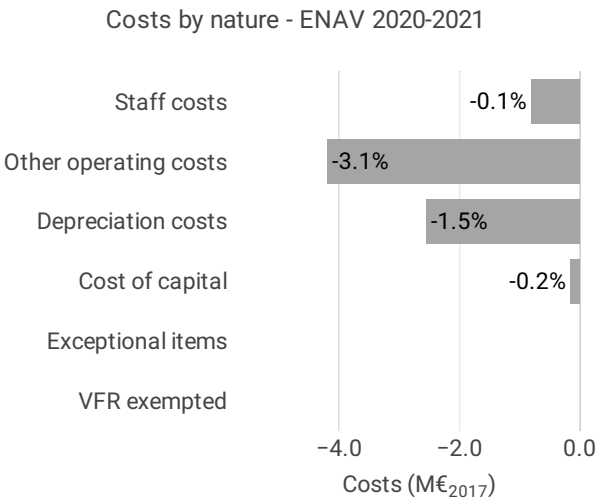




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	1,186	NA	NA	NA
Determined costs	1,197	651	674	689
Difference costs	-12	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.8%	1.2%	1.2%
Determined inflation index	NA	105.3	106.6	107.9
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the AUC was lower than the planned DUC (-3.5%, or -4.36€2017). This results from the combination of higher than planned TSUs (+2.8%) and lower than planned en route costs in real terms (-0.8%, or -9.4 M€2017).

En route service units

The difference between actual and planned TSUs (+2.8%) falls outside of the ±2% dead band. Hence, the resulting gain is shared between the ANSP and airspace users, with the ANSP retaining an amount of 22.2 M€ (see items 10 to 14).

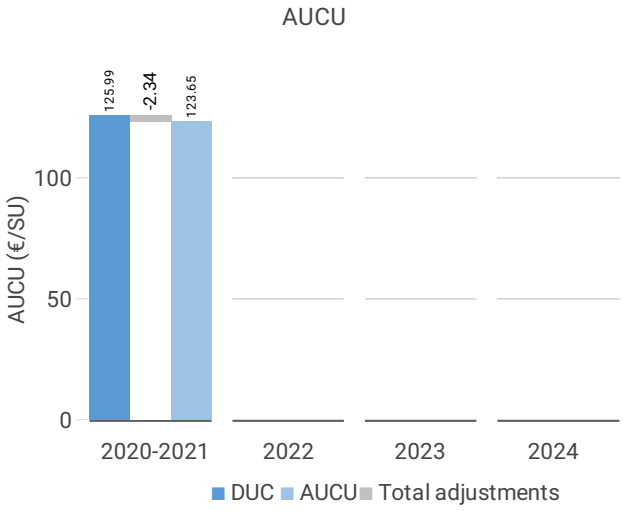
En route costs by entity

Actual real en route costs for 2020-2021 are -0.8% (-9.4 M€2017) lower than planned. This reflects the results across all the entities in the charging zone: main ANSP - ENAV (-0.6%, or -5.5 M€2017), other ANSP - ITAF (-0.9%, or -0.8 M€2017) and the NSA/EUROCONTROL (-3.5%, or -3.1 M€2017).

En route costs for the main ANSP at charging zone level

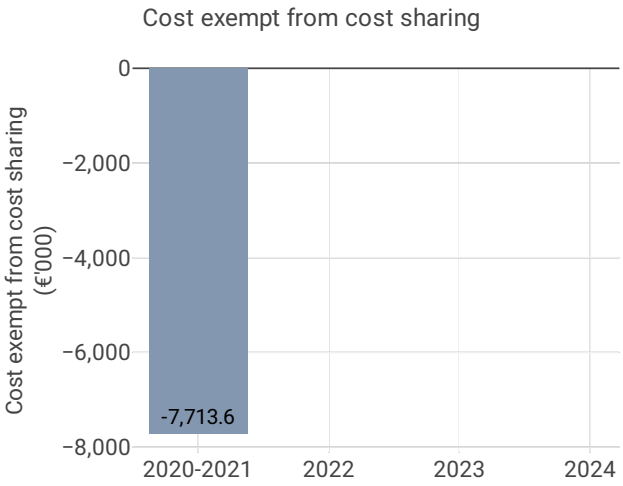
The lower than planed en route costs in real terms for ENAV in 2020-2021 reflects a combination of:
- slightly lower staff costs (-0.1%);
- lower other operating costs (-3.1%), which are understood to reflect costs savings for utilities and communications, external services and maintenance of non-operational equipment;
- lower depreciation costs (-1.5%); and,
- higher cost of capital (+2.2%), resulting from the use of higher than planned average interest rate on debts (from 1.9% to 3.04%) to compute the WACC.

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



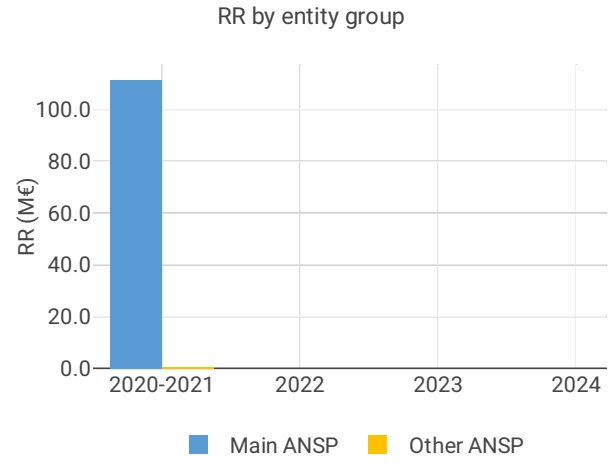
AUCU components (€/SU) – 2020-2021

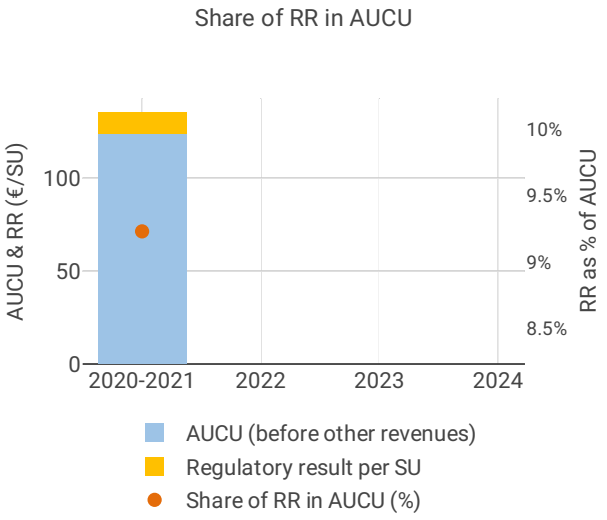
Components of the AUCU in 2020-2021	€/SU
DUC	**125.99**
Inflation adjustment	0.10
Cost exempt from cost-sharing	-0.79
Traffic risk sharing adjustment	-0.59
Traffic adj. (costs not TRS)	-0.61
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-0.46
Application of lower unit rate	0.00
Total adjustments	-2.34
AUCU	**123.65**
AUCU vs. DUC	**-1.9%**

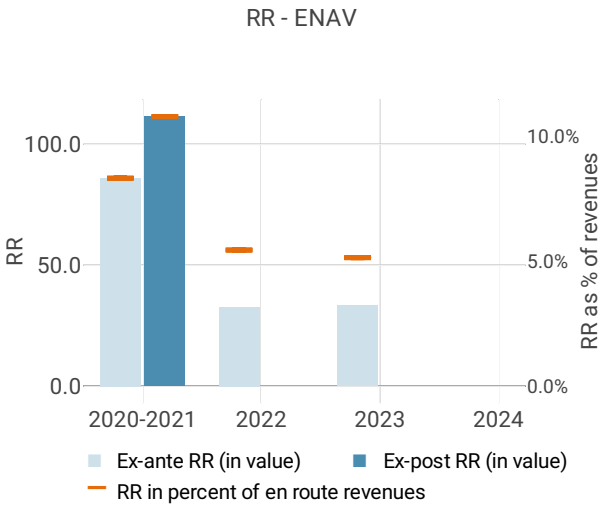


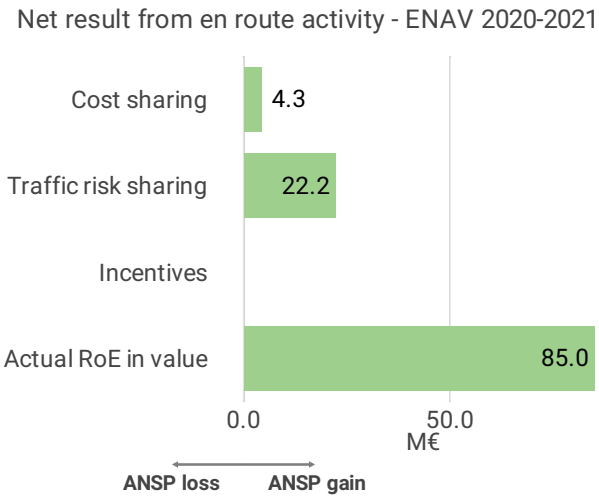
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	-4,376.8	-0.45
Competent authorities and qualified entities costs	-718.0	-0.07
Eurocontrol costs	-3,075.2	-0.31
Pension costs	0.0	0.00
Interest on loans	456.4	0.05
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-7,713.6**	**-0.79**

5.2.3 Regulatory result (RR)







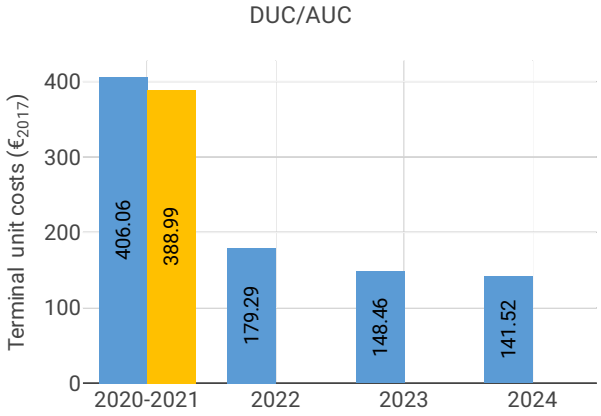


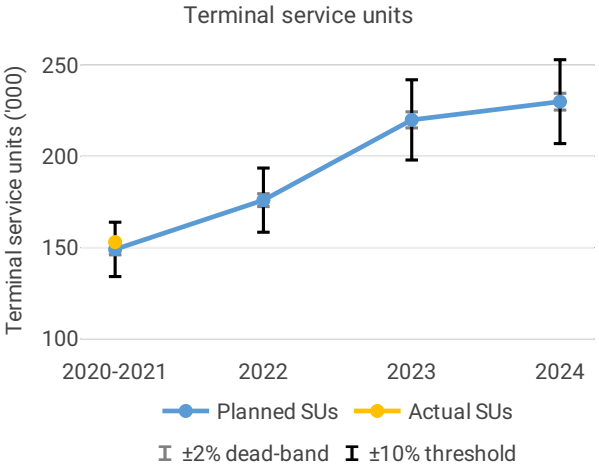
Focus on regulatory result

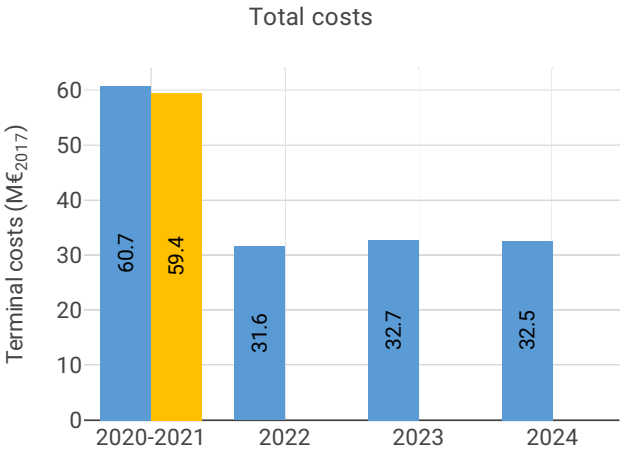
ENAV net gain on en route activity in the Italian charging zone in the combined year 2020-2021
ENAV's net gain amounts to +25.3 M€, as a combination of a gain of +3.1 M€ arising from the cost sharing mechanism and a gain of +22.2 M€ arising from the traffic risk sharing mechanism.
ENAV overall regulatory results (RR) for the en route activity
Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+25.3 M€) and the actual RoE (+85.0 M€) amounts to +110.3 M€ (10.7% of the en route revenues). The resulting ex-post rate of return on equity is 7.4%, which is higher than the 5.7% planned in the PP.

5.3 Terminal charging zone - Italy Zone 1

5.3.1 Unit cost (KPI#1)

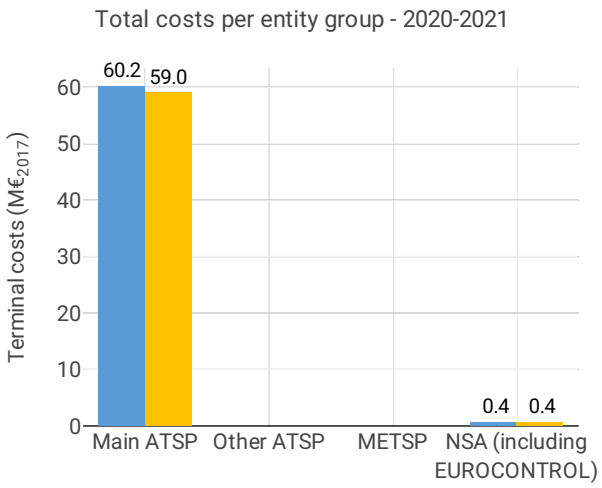


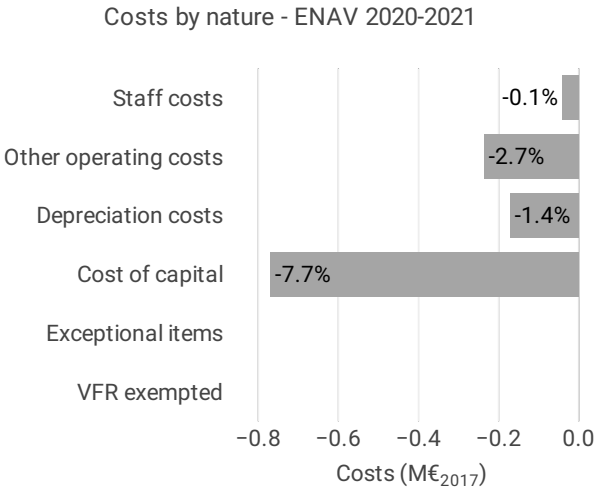




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	60	NA	NA	NA
Determined costs	62	33	34	34
Difference costs	-1	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.8%	1.2%	1.2%
Determined inflation index	NA	105.3	106.6	107.9
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the AUC for Italy TCZ1 was lower than the planned DUC (-3.9%, or -15.78€). This results from the combination of higher than planned TNSUs (+2.2%) and lower than planned terminal costs in real terms (-1.7%, or -1.1 M€2017).

Terminal service units

The difference between actual and planned TNSUs (+2.2%) falls outside of the ±2% dead band. Hence, the resulting gain is shared between the ANSP and airspace users, with the ANSP retaining an amount of 1.2 M€.

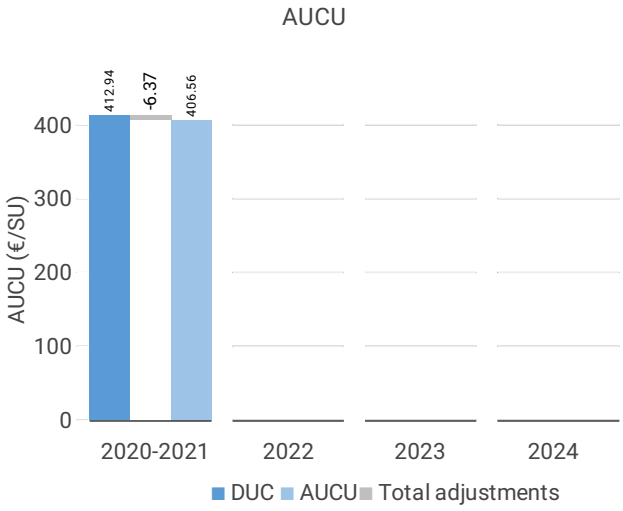
Terminal costs by entity

Actual real terminal costs for 2020-2021 in the Italian TCZ1 are -1.7% (-1.1 M€2017) lower than planned. This mainly reflects lower than planned costs for the main ANSP - ENAV (-1.8%, or -1.1 M€2017), while the costs for the NSA were in line with the plan.

Terminal costs for the main ANSP at charging zone level

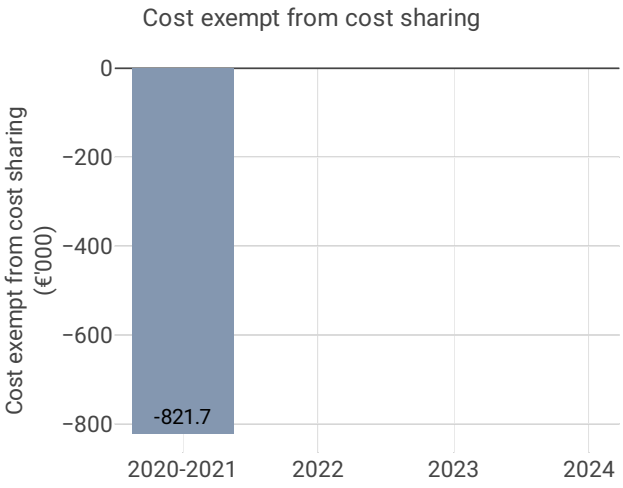
The lower than planed terminal costs in real terms for ENAV in 2020-2021 reflects a combination of:
- slightly lower staff costs (-0.1%);
- lower other operating costs (-2.7%), which are understood to reflect costs savings for utilities and communications, external services and maintenance of non-operational equipment;
- lower depreciation costs (-1.4%); and,
- lower cost of capital (-6.0%), which are understood to reflect lower than planned asset base used to compute the cost of capital.

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



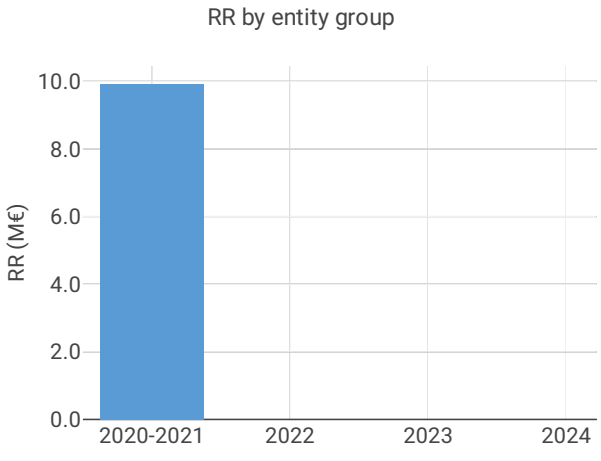
AUCU components (€/SU) – 2020-2021

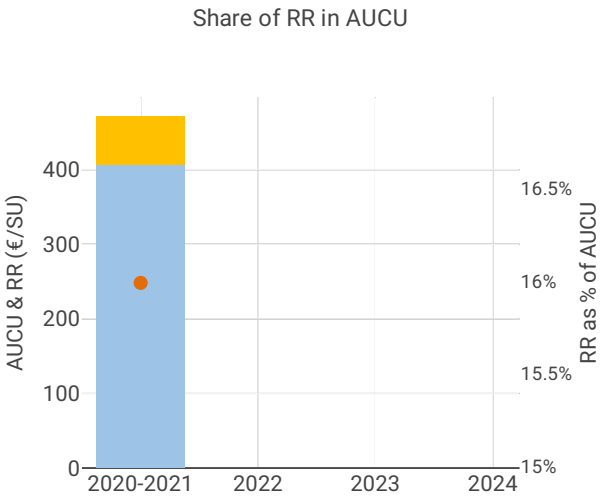
Components of the AUCU in 2020-2021	€/SU
DUC	**412.94**
Inflation adjustment	0.32
Cost exempt from cost-sharing	-5.38
Traffic risk sharing adjustment	-0.61
Traffic adj. (costs not TRS)	-0.70
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	-6.37
AUCU	**406.56**
AUCU vs. DUC	**-1.5%**

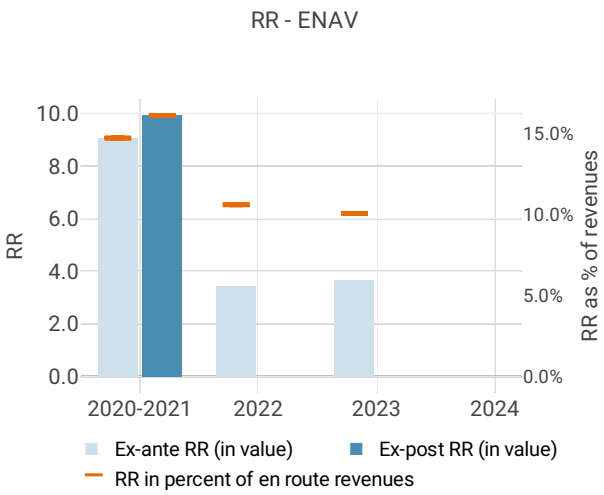


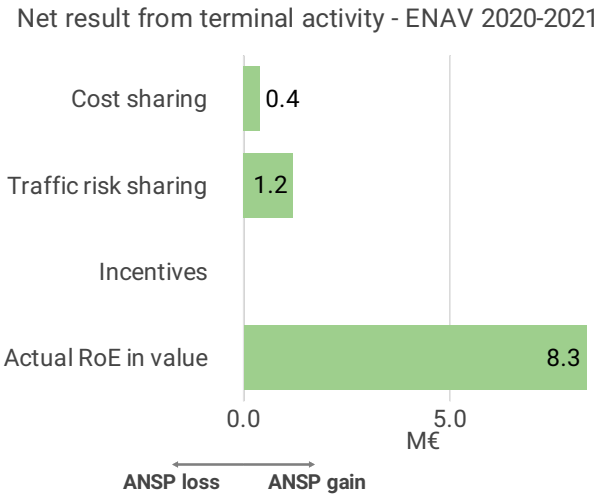
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	-808.0	-5.29
Competent authorities and qualified entities costs	-32.5	-0.21
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	18.8	0.12
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-821.7**	**-5.38**

5.3.3 Regulatory result (RR)







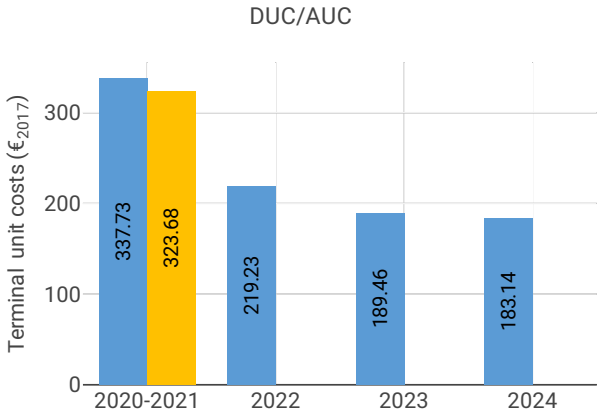


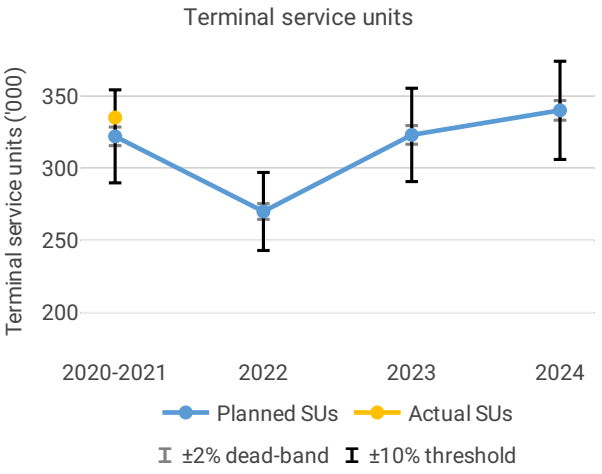
Focus on regulatory result

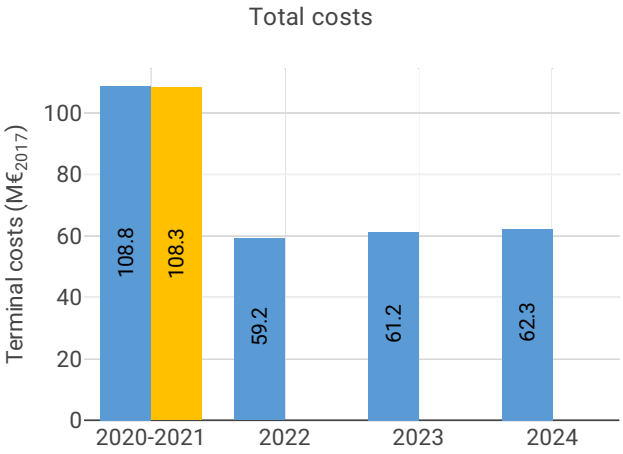
ENAV net gain on terminal activity in the Italian TCZ1 in the combined year 2020-2021
ENAV's net gain amounts to +2.1 M€, as a combination of a gain of +0.9 M€ arising from the cost sharing mechanism and a gain of +1.2 M€ arising from the traffic risk sharing mechanism.
ENAV overall regulatory results (RR) for terminal activity
Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+2.1 M€) and the actual RoE (+8.3 M€) amounts to +10.4 M€ (16.7% of the terminal revenues in TCZ1). The resulting ex-post rate of return on equity is 7.4%, which is higher than the 5.8% planned in the PP.

5.4 Terminal charging zone - Italy Zone 2

5.4.1 Unit cost (KPI#1)

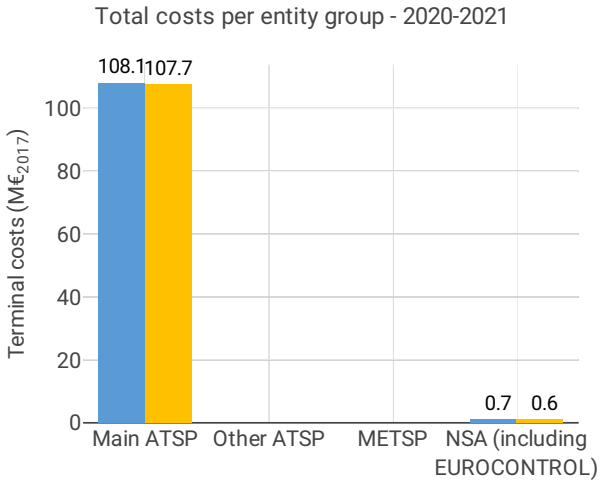


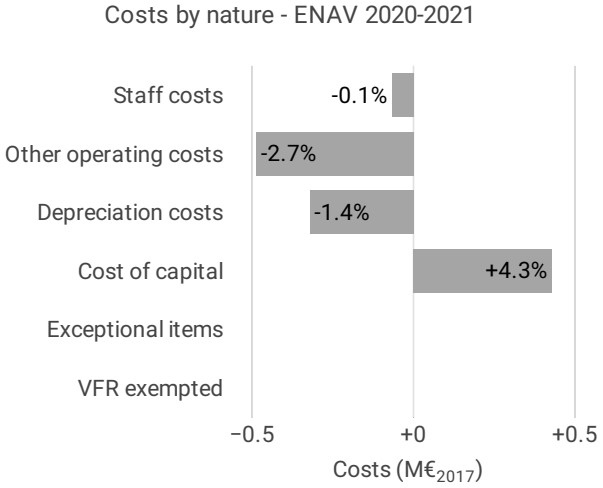




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	110	NA	NA	NA
Determined costs	111	61	64	66
Difference costs	0	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.8%	1.2%	1.2%
Determined inflation index	NA	105.3	106.6	107.9
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the AUC for Italy TCZ2 was lower than the planned DUC (-3.9%, or -13.14€). This results from the combination of higher than planned TNSUs (+3.9%) and slightly lower than planned terminal costs in real terms (-0.2%, or -0.2 M€2017).

Terminal service units

The difference between actual and planned TNSUs (+3.9%) falls outside of the ±2% dead band. Hence, the resulting gain is shared between the ANSP and airspace users, with the ANSP retaining an amount of 2.6 M€.

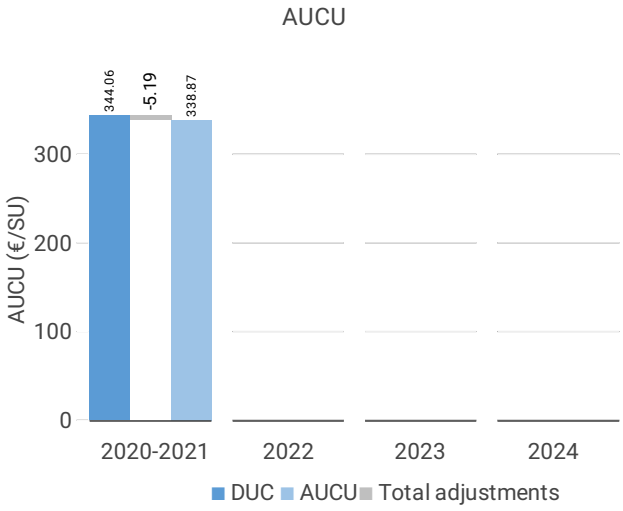
Terminal costs by entity

Actual real terminal costs for 2020-2021 in the Italian TCZ2 are -0.2% (-0.2 M€2017) lower than planned. This mainly reflects lower than planned costs for the main ANSP - ENAV (-0.2%, or -0.2 M€2017), while the costs for the NSA were in line with the plan.

Terminal costs for the main ANSP at charging zone level

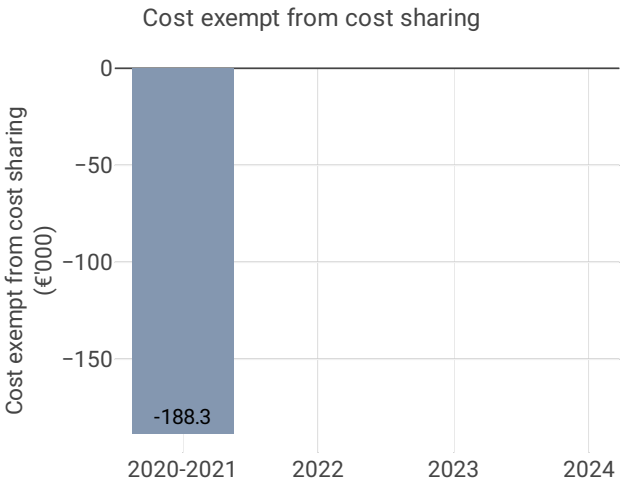
The lower than planed terminal costs in real terms for ENAV in 2020-2021 reflects a combination of:
- slightly lower staff costs (-0.1%);
- lower other operating costs (-2.7%), which are understood to reflect costs savings for utilities and communications, external services and maintenance of non-operational equipment;
- lower depreciation costs (-1.4%); and,
- higher cost of capital (+6.8%), which are understood to reflect a combination of slightly higher actual asset base as well as the use of higher than planned average interest rate on debts (from 1.9% to 3.04%) to compute the WACC.

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



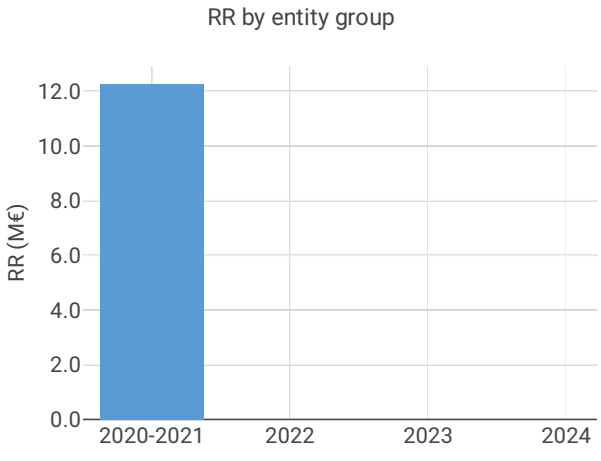
AUCU components (€/SU) – 2020-2021

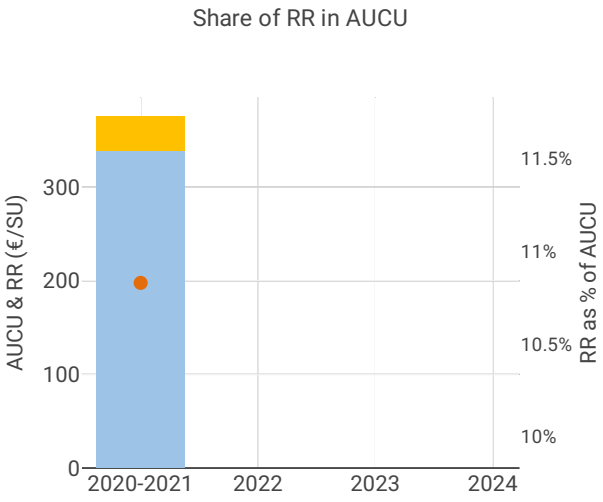
Components of the AUCU in 2020-2021	€/SU
DUC	**344.06**
Inflation adjustment	0.29
Cost exempt from cost-sharing	-0.56
Traffic risk sharing adjustment	-4.01
Traffic adj. (costs not TRS)	-0.91
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	0.00
Application of lower unit rate	0.00
Total adjustments	-5.19
AUCU	**338.87**
AUCU vs. DUC	**-1.5%**

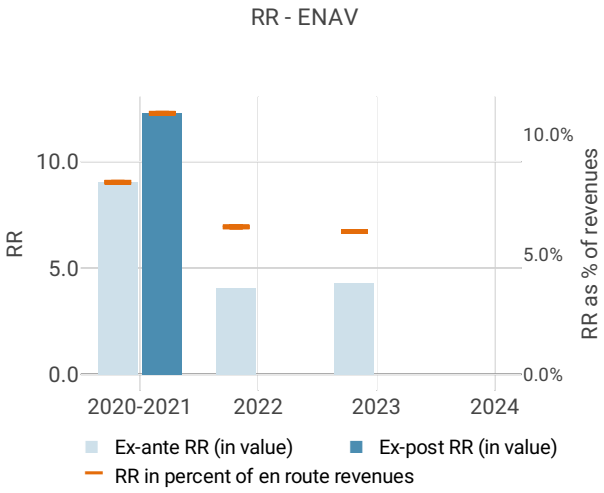


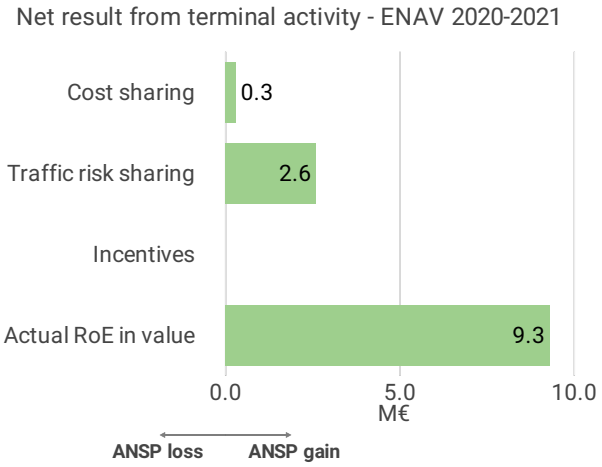
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	-187.4	-0.56
Competent authorities and qualified entities costs	-50.6	-0.15
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	49.8	0.15
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-188.3**	**-0.56**

5.4.3 Regulatory result (RR)









Focus on regulatory result

ENAV net gain on terminal activity in the Italian TCZ2 in the combined year 2020-2021

ENAV's net gain amounts to +2.5 M€, as a combination of a loss of -0.1 M€ arising from the cost sharing mechanism and a gain of +2.6 M€ arising from the traffic risk sharing mechanism.

ENAV overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+2.5 M€) and the actual RoE (+9.3 M€) amounts to +11.8 M€ (10.5% of the terminal revenues in TCZ2). The resulting ex-post rate of return on equity is 7.2%, which is higher than the 5.7% planned in the PP.