



Performance Review Body Monitoring Report

Poland - 2020

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/779 of 13 April 2022

List of ACCs 1
Warsaw ACC

Exchange rate (1 EUR=)
2017: 4.25483 PLN
2020: 4.43996 PLN

Main ANSP
• PANSA

No of airports in the scope of the performance plan:

- ≥80'K 1
- <80'K 14

Share of Union-wide:
• traffic (TSUs) 2020 4.1%
• en route costs 2020 2.9%

Other ANSPs
• Warmia i Mazury sp. z o.o.
• Port Lotniczy Bydgoszcz S.A.

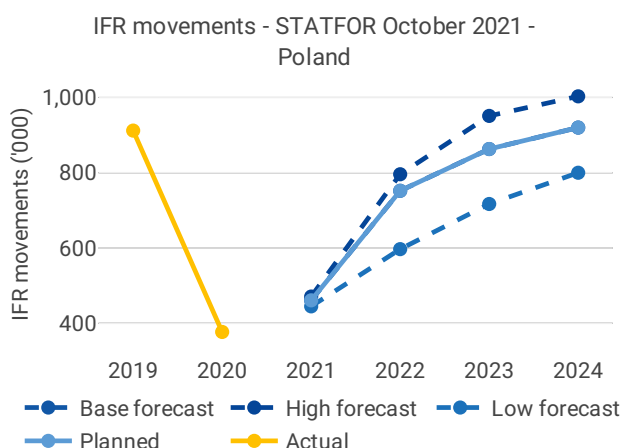
Share en route / terminal costs 2020 85% / 15%

MET Providers
• Institute of Meteorology and Water Management - National Research Institute (IMWM)
• Radom Meteo sp. z o.o.

En route charging zone(s)
Poland

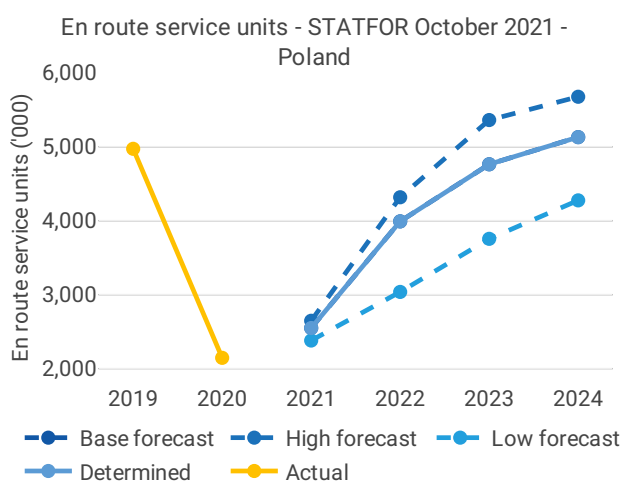
Terminal charging zone(s)
Poland EPWA
Poland Others

1.2 Traffic (En route traffic zone)



• Poland recorded 377K actual IFR movements in 2020, -59% compared to 2019 (912K).

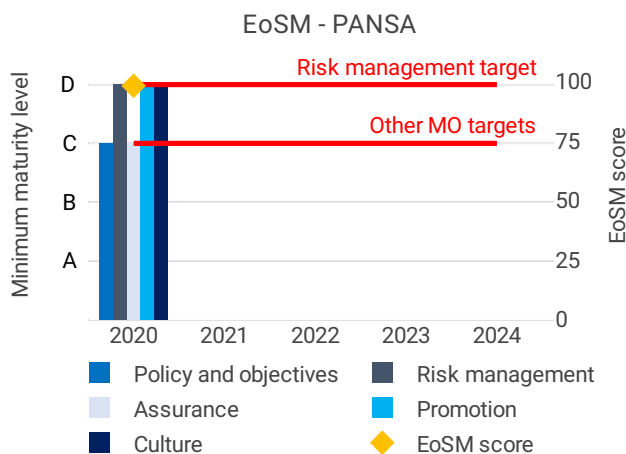
• Poland IFR movements reduced more than the average reduction at Union-wide level (-57%).



• Poland recorded 2,146K actual en route service units in 2020, -57% compared to 2019 (4,972K).

• The reduction in service units for Poland was in line with the average reduction at Union-wide level (-57%).

1.3 Safety (Main ANSP)



- PANSA achieved the RP3 EoS M targets in 2020 and exceeded the target maturity for safety culture and safety promotion.

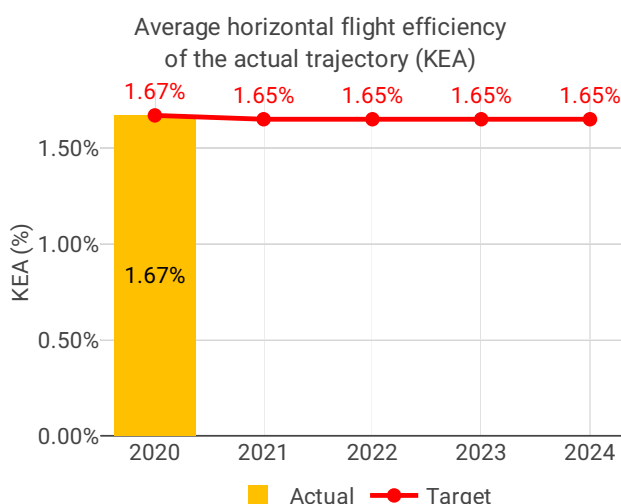
- The achieved levels are better than what was planned for 2020 in the draft 2019 performance plan. PANSA continued to implement the improvements initiated in RP2 and documented in the internal SMS development roadmap.

- Two other ANSPs included in the Poland's draft 2019 performance plan (Warmia i Mazury sp. z o.o. and Port Lotniczy Bydgoszcz S.A.) achieved the target on four out of five safety objectives with both needing to improve in the safety risk management

objective.

- Poland recorded stable performance with respect to safety occurrences with a marginally higher rate of SMIs and a lower rate of RIs in 2020 compared to 2019.

1.4 Environment (Member State)



- Poland achieved a KEA performance of 1.67% compared to its reference value of 1.67% and therefore contributed positively towards the Union-wide target.

- The NSA stated that this performance will not be sustainable as IFR movements continue to grow. Performance in 2020 was affected by airspace users avoiding Ukrainian airspace and the definition of the KEA indicator means that this type of rerouting can significantly affect performance.

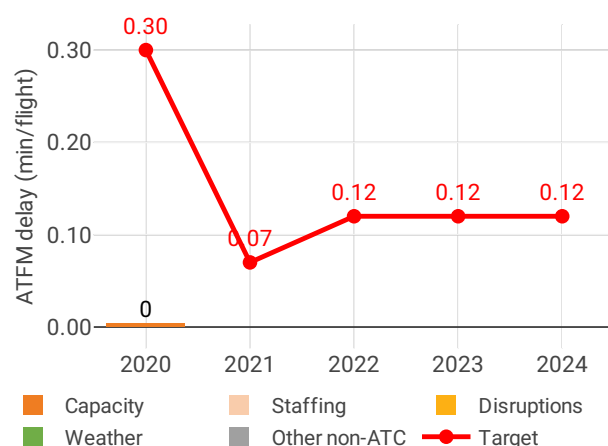
- The PRB believes that if Poland implements cross-border free route airspace in 2022 and restructures its TMA, the performance can be sustained and this should be the ultimate aim of the NSA.

- Only one out of 15 Polish airports that are regulated reported terminal data.

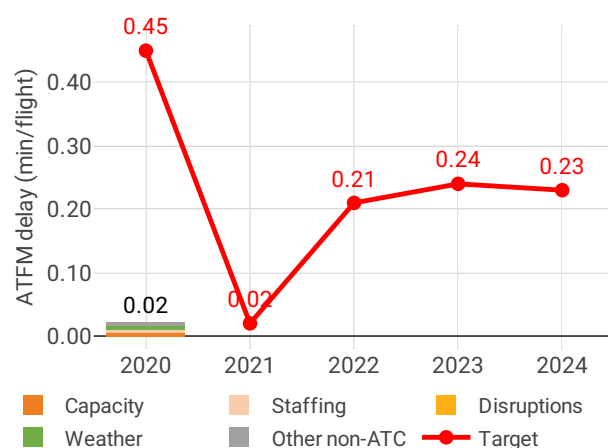
- The share of flights operating CCO/CDO at Polish airports improved in 2020 compared to 2019. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 42% compared to 2019.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



- PANSA registered near to zero minutes of average en route ATFM delay per flight during 2020, thus meeting the local breakdown value of 0.3.

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

- Poland reported no capacity issues and an almost 2% decrease in ATCO FTE numbers in 2020 compared to 2019 values. This represents an almost 8% deficit of ATCO FTEs compared to 2020 planned values and was driven by ATCOs being reallocated to perform other duties, as well as prolonged training due to the low traffic situation.

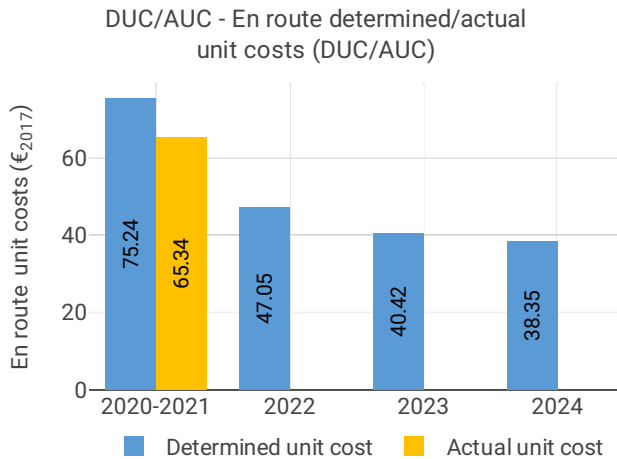
- The NSA reported to have continued all capacity improvement measures.

- The share of delayed flights with delays longer than 15 minutes in Poland decreased by 13.83 p.p. compared to 2019.

- The yearly total of sector opening hours in Warsaw ACC was 21,801, showing a 49.1% decrease compared to 2019.

- Warsaw ACC registered 15.36 IFR movements per one sector opening hour in 2020, being 20.0% below 2019 levels.

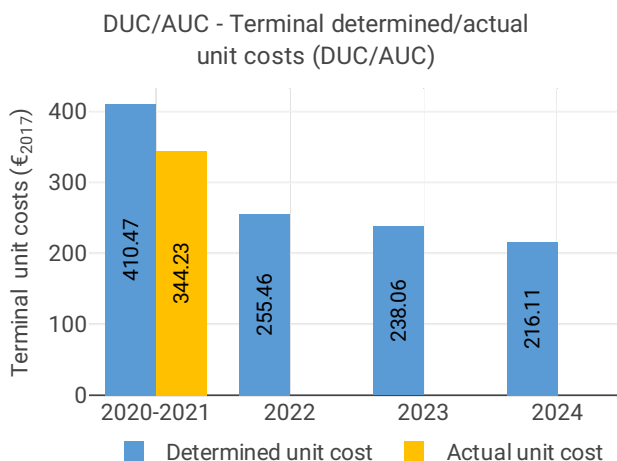
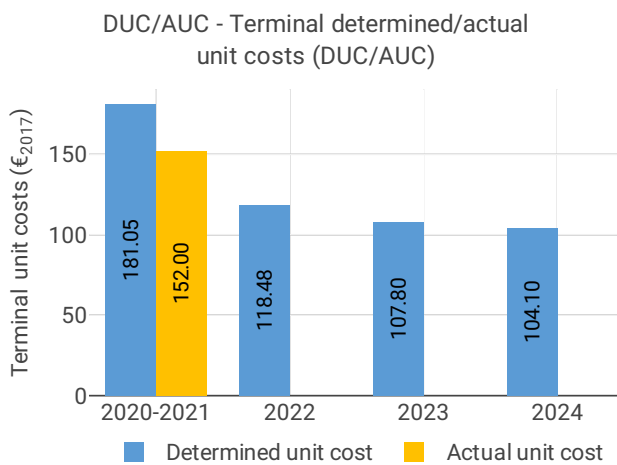
1.6 Cost-efficiency (En route/Terminal charging zone(s))



- The 2020 actual service units (2,146K) were 57% lower than the actual service units in 2019 (4,959K).

- In 2020, Poland reduced total costs by 11 M€2017 (-6%) compared to 2019 actual costs. The reduction was mainly driven by a decrease of 16 M€2017 (-13%) in staff costs due to furloughs, temporary suspension of hiring, contribution to the occupational pension scheme and group insurance, reduction of overtimes and bonuses.

- PANSA spent 43 M€2017 in 2020 related to costs of investments, 10% less than planned in the 2019 draft performance plan (48 M€2017). The NSA reported that this reduction is attributable to both savings to meet financial capabilities and restrictions impacting the ability to execute some investments.



2 SAFETY - POLAND

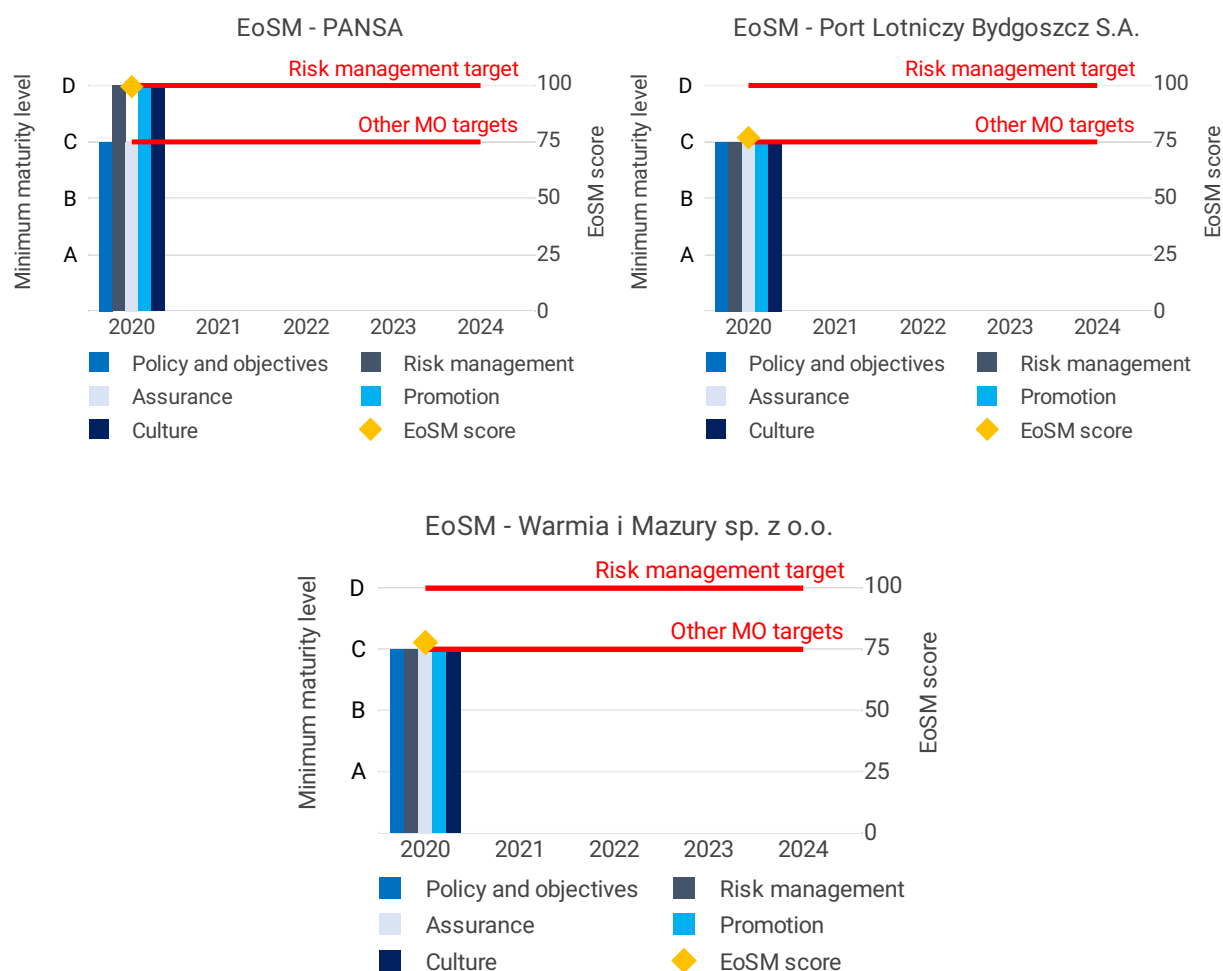
2.1 PRB monitoring

- PANSA achieved the RP3 EoSM targets in 2020 and exceeded the target maturity for safety culture and safety promotion.

- The achieved levels are better than what was planned for 2020 in the draft 2019 performance plan. PANSA continued to implement the improvements initiated in RP2 and documented in the internal SMS development roadmap.

- Two other ANSPs included in the Poland's draft 2019 performance plan (Warmia i Mazury sp. z o.o. and Port Lotniczy Bydgoszcz S.A.) achieved the target on four out of five safety objectives with both needing to improve in the safety risk management objective.
- Poland recorded stable performance with respect to safety occurrences with a marginally higher rate of SMIs and a lower rate of RIs in 2020 compared to 2019.

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



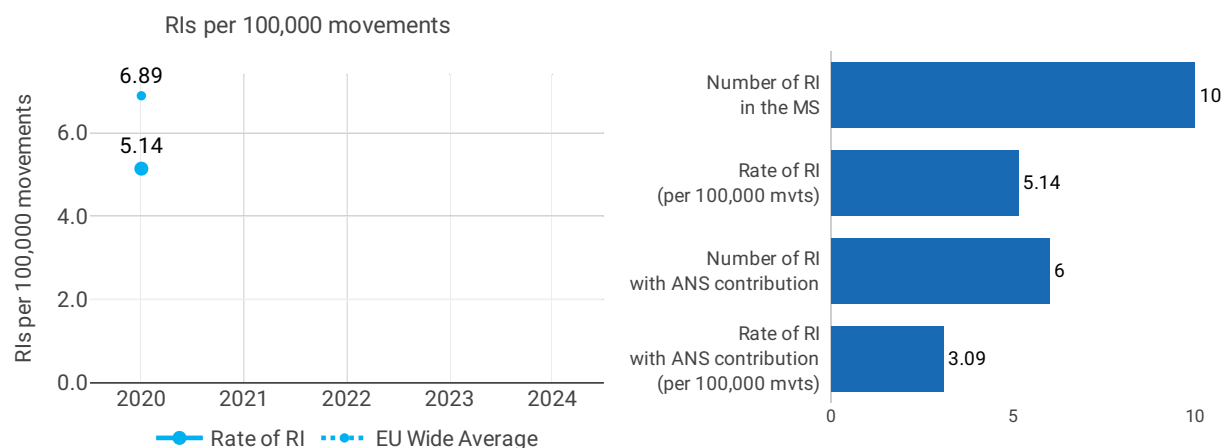
Focus on EoSM

All five EoSM components of PANSA meet, or exceed, already the 2024 target level. Four out of five EoSM components of Port Lotniczy meet already the 2024 target level. Only the component "Safety Risk Management" is below 2024 target level. Improvements in safety risk management are still expected during RP3 to achieve 2024 targets. Same situation is applicable to Warmia i Mazury.

Detailed information on Safety performance monitoring for the year 2020 are included in Performance Review Body Monitoring Report 2020, Annex III – Safety report

2.3 Safety occurrences

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



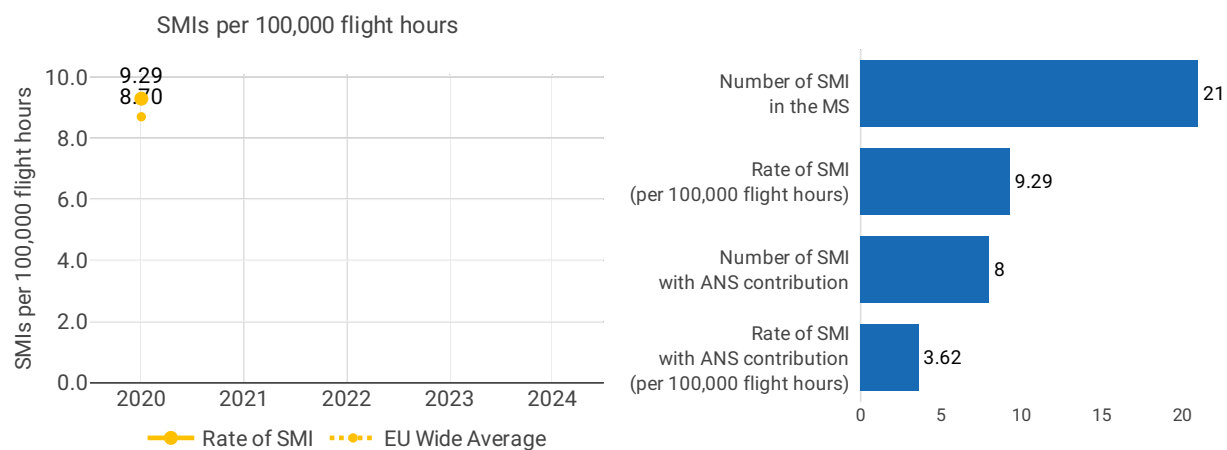
Rate of RIs per 100,000 airport movements - Poland

#	Airport name	APT movements	Number of RI	Rate RI per 100,000
1	Warsaw	79,844	NA	NA
2	Krakow - Balice	27,087	2	7.38
3	Gdansk	21,607	0	0.00
4	Katowice - Pyrzowice	17,318	1	5.77
5	Wroclaw - Strachowice	13,661	0	0.00
6	Poznan - Lawica	10,833	1	9.23
7	Warszawa - Modlin	8,614	0	0.00
8	Rzeszow - Jasionka	4,011	0	0.00
9	Szczecin - Goleniów	3,236	0	0.00
10	Lodz - Lublinek	2,345	0	0.00
11	Bydgoszcz	2,109	2	94.83
12	Lublin	1,684	0	0.00
13	Zielona Gora - Babimost	1,030	0	0.00
14	Olsztyn-Mazury	1,023	0	0.00
15	Radom	1	0	0.00

Focus on runway incursions

Detailed information on Safety performance monitoring for the year 2020 are included in Performance Review Body Monitoring Report 2020, 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	PANSA	221,029	NA	NA	NA	NA	8	NA	NA	NA	NA
2	Port Lotniczy Bydgoszcz S.A.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	Warmia i Mazury sp. z o.o.	NA	NA	NA	NA	NA	NA	NA	NA	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	PANSA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	Port Lotniczy Bydgoszcz S.A.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	Warmia i Mazury sp. z o.o.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Focus on separation minima

Detailed information on Safety performance monitoring for the year 2020 are included in Performance Review Body Monitoring Report 2020, Annex III – Safety report

2.3.3 Quality of occurrences reporting

Detailed information on Safety performance monitoring for the year 2020 are included in Performance Review Body Monitoring Report 2020, Annex III – Safety report

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

2020	
For RIs	For SMIs
X	X

Detailed information on Safety performance monitoring for the year 2020 are included in Performance Review Body Monitoring Report 2020, Annex III – Safety report

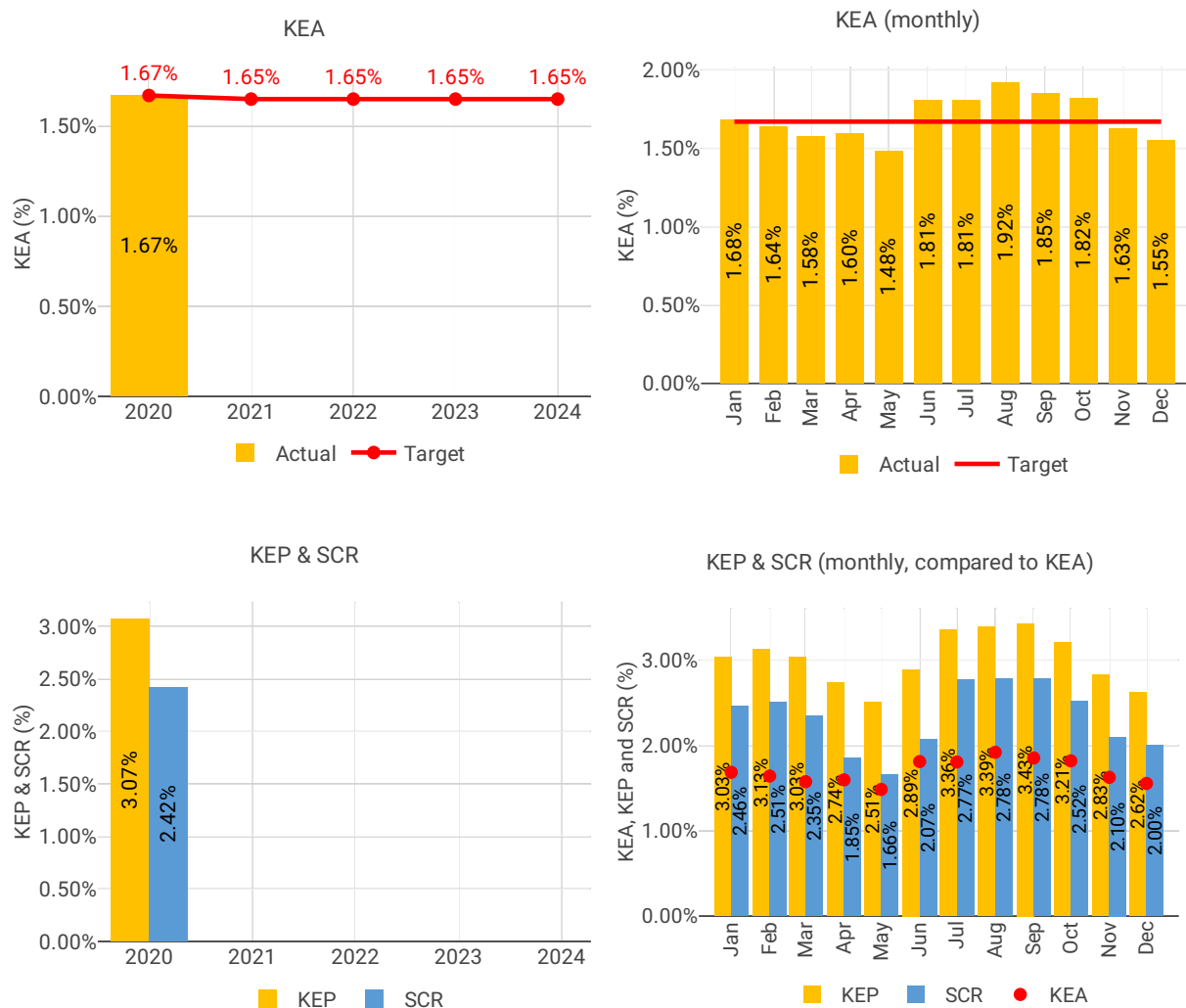
3 ENVIRONMENT - POLAND

3.1 PRB monitoring

- Poland achieved a KEA performance of 1.67% compared to its reference value of 1.67% and therefore contributed positively towards the Union-wide target.
- The NSA stated that this performance will not be sustainable as IFR movements continue to grow. Performance in 2020 was affected by airspace users avoiding Ukrainian airspace and the definition of the KEA indicator means that this type of rerouting can significantly affect performance.
- The PRB believes that if Poland implements cross-border free route airspace in 2022 and restructures its TMA, the performance can be sustained and this should be the ultimate aim of the NSA.
- Only one out of 15 Polish airports that are regulated reported terminal data.
- The share of flights operating CCO/CDO at Polish airports improved in 2020 compared to 2019. The additional time airspace users spent taxiing or holding in terminal airspace reduced by 42% compared to 2019.

3.2 En route performance

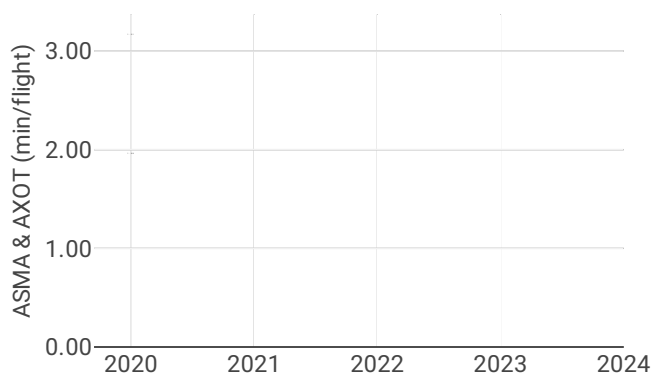
3.2.1 Horizontal flight efficiency of the actual trajectory (KEA) (KPI#1), of the last filed flight plan (KEP) (PI#1) & shortest constrained route (SCR) (PI#2)

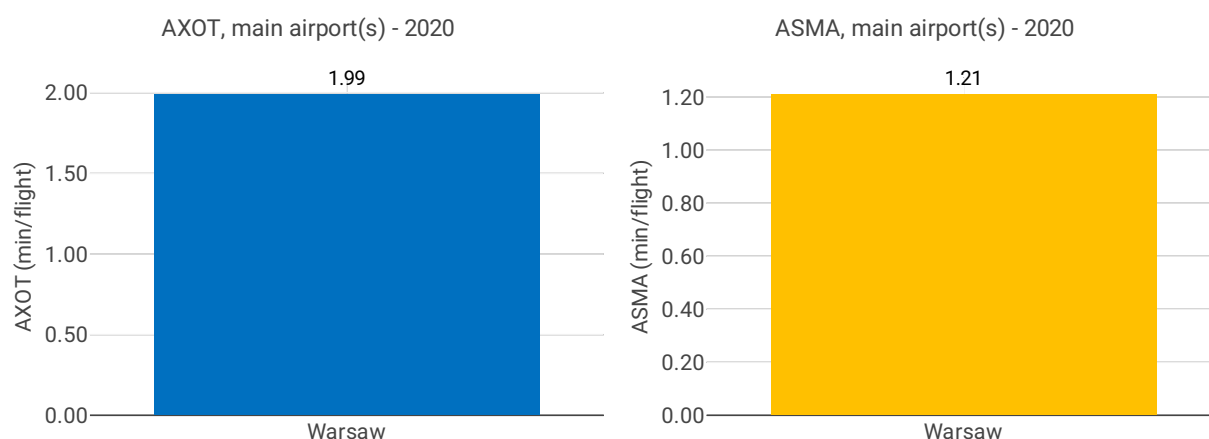


3.3 Terminal performance

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

ASMA & AXOT





Focus on ASMA & AXOT

AXOT

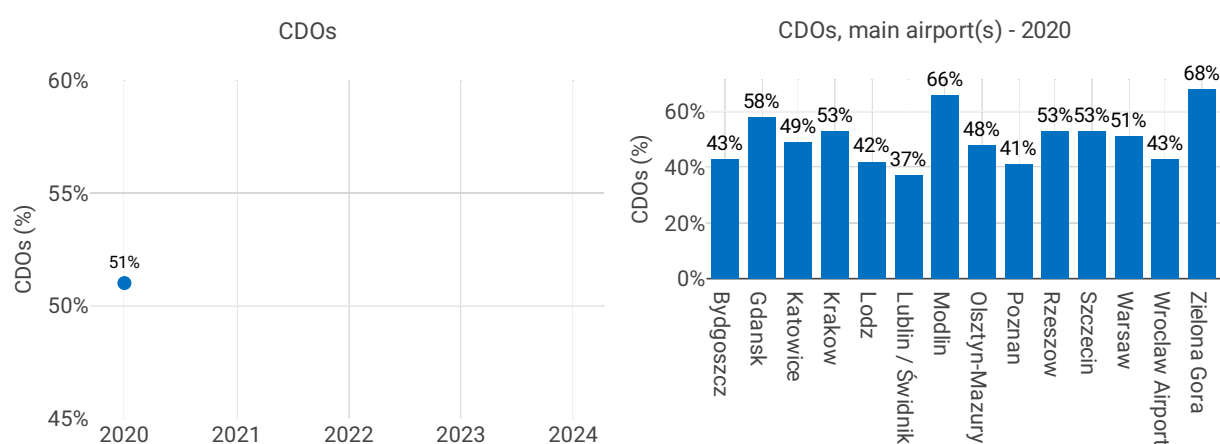
Additional taxi-out times at Warsaw (EPWA; 2019: 3.43 min/dep.; 2020: 1.99 min/dep.) notably decreased thanks to the traffic reduction but it is also the effect of the longer taxi-out times in 2019 associated with works on the runways and taxiways. From April until November these times averaged 1.04 min/dep. although in December they went back to 2.34 min/dep. probably associated with de-icing procedures. The Polish NSA reports that A-CDM was implemented in 2020 at Warsaw, which should also help reduce these additional taxi-out times. In addition, it is planned to implement a Traffic Complexity tool by 2021 and A-SMGCS by 2024.

ASMA

Additional times in the terminal airspace of Warsaw (EPWA; 2019: 2.09 min/arr.; 2020: 1.21 min/arr.) follow a similar pattern to the additional taxi-out times, with much lower times as of April, averaging 0.49 min/arr. in the period April-December 2020.

The Polish NSA reports that Arrival Manager (AMAN) (2019) was implemented in 2019 and that a TMA reconfiguration & resectorization, including new SID/STAR procedures is planned for 2021.

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



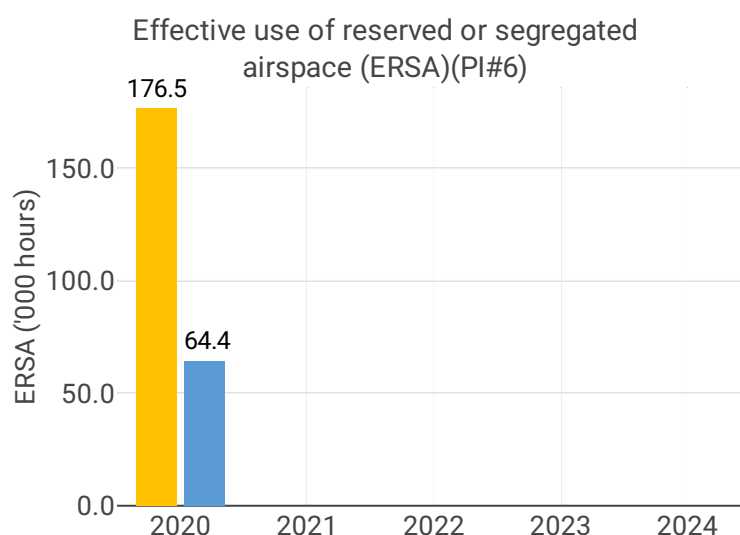
Focus CDOs

All airports have shares of CDO flights (well) above the overall RP3 value in 2020 (32.5%) with values ranging from 36.3% to 68.1%. The use of Arrival Manager since 2019 at EPWA probably contributed to the high share of CDO flights for Warsaw (EPWA: 51.1%).

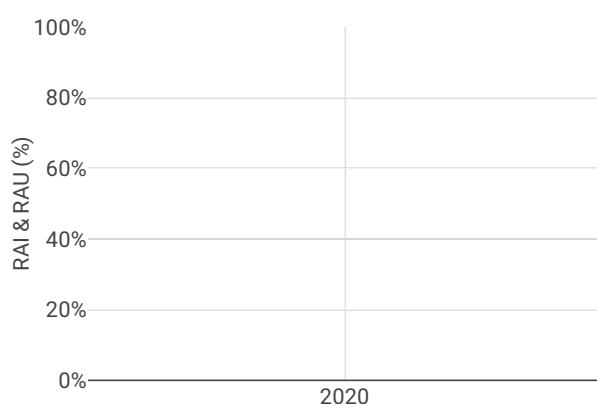
Airport level

Airport Name	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Warsaw	1.99	NA	NA	NA	NA	1.21	NA	NA	NA	NA	51%	NA	NA	NA	NA
Bydgoszcz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43%	NA	NA	NA	NA
Gdansk	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58%	NA	NA	NA	NA
Krakow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	NA	NA	NA	NA
Katowice	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49%	NA	NA	NA	NA
Lublin / Świdnik	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37%	NA	NA	NA	NA
Lodz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42%	NA	NA	NA	NA
Modlin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	66%	NA	NA	NA	NA
Poznan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41%	NA	NA	NA	NA
Rzeszow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	NA	NA	NA	NA
Szczecin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	NA	NA	NA	NA
Olsztyn-Mazury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	48%	NA	NA	NA	NA
Wroclaw Airport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43%	NA	NA	NA	NA
Zielona Gora	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68%	NA	NA	NA	NA
Radom	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

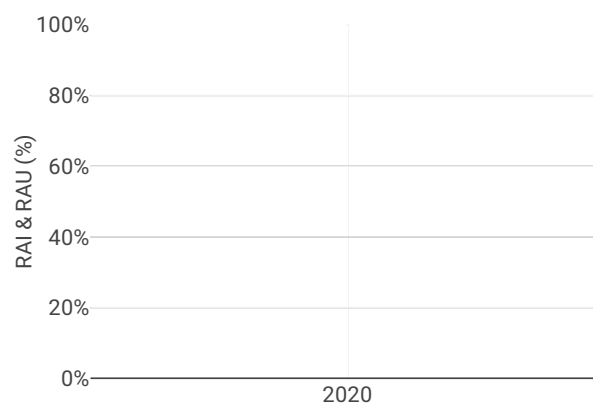
3.4 Civil-Military dimension



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



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



Focus on Civil-Military dimension

Update on Military dimension of the plan

There are over 20 permanent military areas extending over FL95 in FIR EPWW that have impact on civil traffic flows and thereby can influence the horizontal flight efficiency indicator. Additionally in FIR EPWW

recurring significant multinational NATO military exercises are held including: Anakonda, Astral Knight, AV-DET Rotation, Baltops, Defender, Dragon, Rammstein Guard, Tobruq Legacy. Due to large scale of those exercises there are aircraft stopovers and regroupings on military aerodromes in FIR EPWW that increase the load on ACC GAT and OAT Warszawa that might impact the route efficiency of civil aircrafts. Military aerodromes, including EPLK, EPKS, EPPW, EPMM, are located nearby the main civil aerodromes.

There are agreed procedures and LoA signed between PANSa and the Military side describing the process of airspace management at pre-tactical and tactical level in order to optimise its use. The procedures are continuously updated according to the current needs of both the civilian and military sides. The local ASM system (CAT) automatically exchanges the data with the Network Manager system. ASM information is available in ATM system, additionally published on website.

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

On strategic airspace management level all significant military exercises and permanent military areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions. The impact is consulted with the key stakeholders including neighbouring states, aerodrome operators, aircraft operators, ATS, the military, EUROCONTROL NM.

The locations of the military activities are, whenever possible, designed to not affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing.

Military areas are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular military activities without necessity to activate the whole area to perform specific military training assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency.

Special procedures are prepared including dynamic change of level or segment and creation of new temporary routings for avoidance of military traffic. Special coordination points are prepared in advance to improve the cooperation between military aircrafts and ATC arriving/departing to/from military areas. The information flow is guaranteed by internal procedures and Supporting Self Check-in Documents System.

Further measures planned to be implemented include:

- improvement/automation of exchange of information about military activity in segregated areas, especially on tactical level. Update of coordination procedures and local ASM support tool/system, which will reduce time required to release segregated areas back to civil traffic.
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations.

Initiatives implemented or planned to improve PI#6

On strategic airspace management level all significant exercises and permanent areas are evaluated and analyzed taking into account historic civil traffic flows and civil traffic predictions. The impact, depending on scale, is consulted with the key stakeholders including neighbouring states, aerodrome operators, aircraft operators, ATS, military, EUROCONTROL NM.

The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the time period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods.

The locations of the activities are designed not to affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing.

When the areas exceed the set scale they are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular activities without necessity to activate the whole area to perform specific assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency.

Further measures planned to be implemented include:

- improvement/automation of exchange of information about military activity in segregated areas, especially on tactical level. Update of coordination procedures and local ASM support tool/system which will reduce time required to release segregated areas back to civil traffic.
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations.

Annual review of the efficiency of airspace utilization is conducted.

Initiatives implemented or planned to improve PI#7

Initiatives implemented or planned to improve PI#8

The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods.

Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Special procedures are prepared including dynamic change of level or area segment.

Further improvements planned to be implemented include:

- improvement/automation of exchange of information about military activity in segregated areas, especially on tactical level. Update of coordination procedures and local ASM support tool/system which will reduce time required to release segregated areas back to civil traffic.
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures taking into account forecasted demand of civil traffic on segregated airspace allocation in time on day of the operations.

4 CAPACITY - POLAND

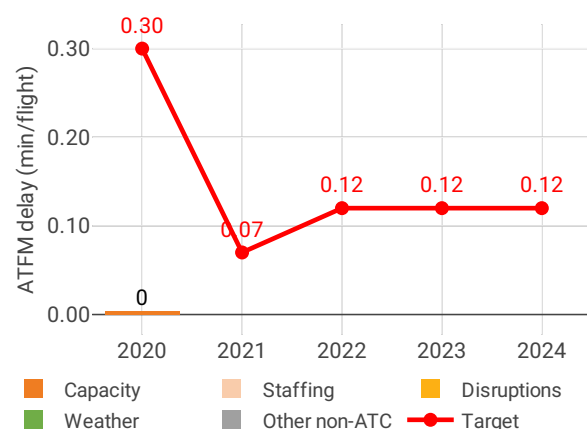
4.1 PRB monitoring

- PANSO registered near to zero minutes of average en route ATFM delay per flight during 2020, thus meeting the local breakdown value of 0.3.
- Delays must be considered in the context of the traffic evolution: IFR movements in 2020 were 59% below the 2019 levels in Poland.
- Poland reported no capacity issues and an almost 2% decrease in ATCO FTE numbers in 2020 compared to 2019 values. This represents an almost 8% deficit of ATCO FTEs compared to 2020 planned values and was driven by ATCOs being reallocated to perform other duties, as well as prolonged training due to the low traffic situation.
- The NSA reported to have continued all capacity improvement measures.
- The share of delayed flights with delays longer than 15 minutes in Poland decreased by 13.83 p.p. compared to 2019.
- The yearly total of sector opening hours in Warsaw ACC was 21,801, showing a 49.1% decrease compared to 2019.
- Warsaw ACC registered 15.36 IFR movements per one sector opening hour in 2020, being 20.0% below 2019 levels.

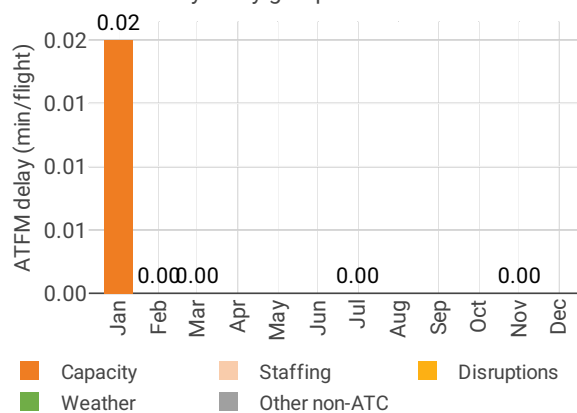
4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)

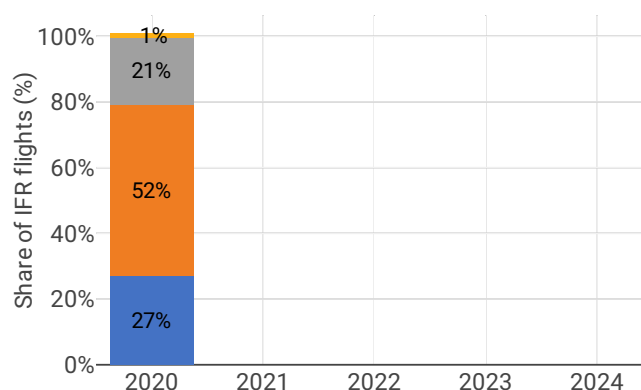
Average en route ATFM delay per flight by delay groups



Monthly distribution of en route ATFM delay by delay groups - 2020



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



Focus on en route ATFM delay

Summary of capacity performance

Poland experienced a traffic reduction of 59% from 2019 levels, to 377k flights. The traffic level was accommodated with negligible en route ATFM delays to airspace users, 83% of which occurred in January and February before the traffic declined.

NSA's assessment of capacity performance

Over 2020 delays in the Polish airspace were minimal (1,404 minutes in total) and were recorded in large majority in Q1 2020 (Jan-Feb, before the pandemic, when the traffic was higher compared to the same period in 2019: Jan +5.5%, Feb +7.2% according to PRU data). They were attributed to ATC Capacity. Since mid-March 2020, following the traffic drop, en-route delays were noted only on a single day in July and were related to approach to Kraków airport (demand exceeding the declared capacity).

The extraordinary traffic reduction related to COVID-19 pandemic and actions undertaken by PANSa to mitigate risks related to possible infection spread among employees as well as flexible roster planning responding to expected traffic evolution under the rolling NOP planning allowed for achieving the value of delays close to 0 minutes per flight.

Monitoring process for capacity performance

The process of continuous monitoring of ANSPs was conducted based on the Regulation (EU) 2019/317 and Regulation 2017/373. The monitoring process in 2020 was conducted based on the information received from ANSPs. Including ANSP's business and annual plans and their consistency with the PP.

Despite the fact that the monitoring process was affected by COVID-19 pandemic, the monitoring activities of KPA CAPACITY were conducted systematically and were covering, among the others, the following areas:

- implementation of major projects aimed at increasing capacity and enhancing flight efficiency,
- execution of employment plan, especially operational personnel,
- execution of training plan,
- ATCO productivity.

The scope of the selected areas was chosen taking into account airspace users' remarks, as well as CAA own assessment. All the above supervision exercise was providing the CAA the knowledge on the ANSPs Performance. The monitoring of progress in achieving performance targets set in Performance Plan for RP3 was performed also by dedicated Polish NSA inspectors during routine inspections .

Important part of the monitoring was preparation of data for the Interim Monitoring Report executed in accordance with the Commission Implementing Regulation (EU) 2020/1627 of 3 November 2020 on exceptional measures for the third reference period (2020-2024) of the single European sky performance and charging scheme due to the COVID-19 pandemic.

Capacity planning

Due to COVID-19 pandemic and related traffic drop, year 2020 was exceptional - also in terms of capacity planning. Capacity planning focused on mid and long-term planning based on Statfor forecasts, NM data, PANSA simulations and internal recovery plan prepared by PANSA as well as short term planning (up to 4-6 weeks) under the NOP rolling planning initiative coordinated by the Network Manager. Rostering at PANSA also had to consider implementation of measures aimed at limiting the risk of virus spread among ATCOs.

Despite the traffic drop and along with the above mentioned flexible rolling short-term capacity planning, PANSA continued to implement initiatives aimed at improving capacity in Warsaw FIR to meet challenges related to traffic increase after the crisis as well as potential changes in traffic flows.

These included the following:

- continuation of new ATCOs training (continued training process for trainees employed before the pandemic breakout, while plans for additional recruitments to start 2020+ were suspended/revised, considering lower traffic levels expected by end of RP3 as well as difficulties related to training caused by low levels of traffic and COVID restrictions),
- continued adaptation of the air traffic management system (Pegasus_21) to operational needs and modernisation of the ATM system,
- development of tools supporting ATCOs and flow management optimisation (including Traffic Complexity Tool and update of CAT system),
- continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting contingency (although due to COVID pandemic and related liquidity issues investment plan had to be reviewed - see the chapter on Investments),
- finalisation of A-CDM implementation at EPWA airport as well as continued improvement of AMAN in Warsaw TMA.

Plans for the following years of RP3 include, among others:

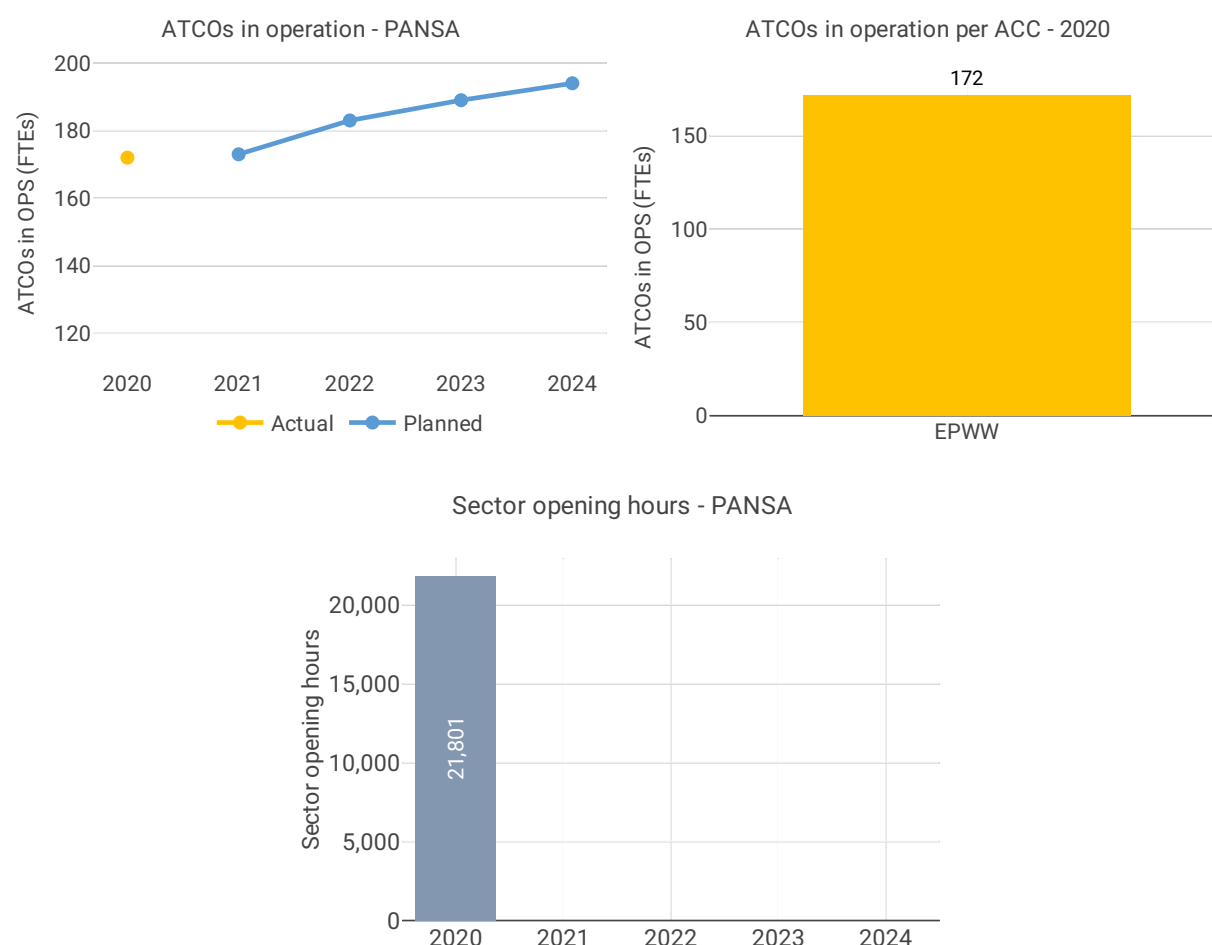
- reorganisation of TMA Warszawa in 2021 – new sectors, new SID/STAR procedures,
- reorganisation of ACC Warszawa sector configuration - three layer vertical division - to be implemented under staged approach with the start in 2022/2023 (implementation postponed as compared to earlier plans due to traffic reduction following COVID-19 pandemic),
- reorganisation of TMA Kraków in 2022 – new sectors, new SID/STAR procedures,
- continuation of training process for new ATCOs (required increase in ATCO numbers as a result of planned airspace changes),
- refreshment training for current ATCOs to maintain their competence following the 2020-2021 significant traffic drop,

- continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting resilience, scalability and flexibility of service provision,
- continuation of flexible rostering,
- evolving ACC sector configurations and management to cope with updated traffic forecasts,
- continued FMP dynamic management,
- improvement of comprehensive airspace management.

Application of Corrective Measures for Capacity (if applicable)

No data available.

4.2.2 Other indicators

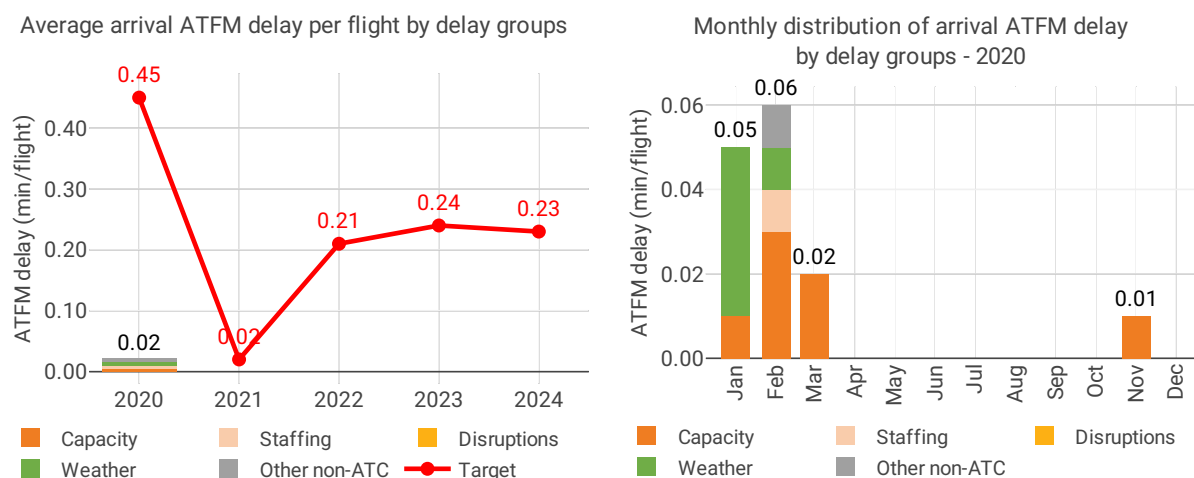


Focus on ATCOs in operations

Warsaw ACC: Data presented in table above include SUP ATM. COVID-19 pandemic and related traffic drop resulted in delay in the planned increase of ATCO as compared to initial 2019 draft RP3 PP (low traffic levels led to prolonged OJT training process). Moreover, over 2020 3 ATCOs were moved to other duties (due to internal needs) and are now disclosed under PRU category 2 (ATCOs on other duties), although they continue to support OPS working part-time on duty (not included in the FTEs numbers in the table above).

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)



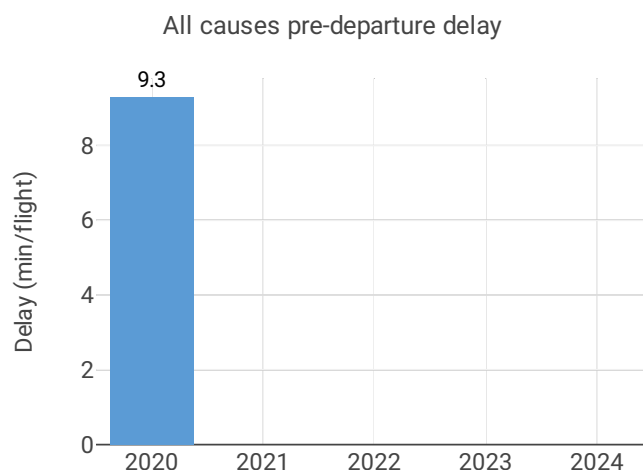
Focus on arrival ATFM delay

For Poland the scope of the RP3 monitoring comprises a total of 15 airports. However, in accordance with IR (EU) 2019/317 and the traffic figures, only the main airport Warsaw (EPWA) must be monitored for the pre-departure delay indicators. The Airport Operator Data Flow, necessary for the monitoring of the pre-departure delays, is correctly established where required and the monitoring of these indicators can be performed. Nevertheless, the quality of the reporting does not allow for the calculation of the ATC pre-departure delay, with more than 60% of the reported delay not allocated to any cause. Traffic at the ensemble of these 15 airports decreased in 2020 by 56%. At Warsaw this reduction was 59%. Arrival ATFM delays decreased by 80% with respect to 2019 following the reduction in traffic and slot adherence at national level was 95.3%.

The national average arrival ATFM delay at Polish airports in 2020 was 0.02 min/arr, significantly lower than the 0.39 min/arr in 2019 (-95%). At airport level, only Warsaw-Chopin, Krakow and Warsaw-Modlin registered delays, all in the first trimester of the year. At Warsaw-Chopin (EPWA; 2019: 0.86 min/arr; 2020: 0.04 min/arr), delays in this first trimester were not high compared with those observed in 2019. 43% of the delays were attributed to ATC capacity issues, 41% to weather, 12% to aerodrome capacity and 3% to ATC staffing. At Krakow (EPKK; 2019: 0.03 min/arr; 2020: 0.04 min/arr) 48% of the delays were attributed to weather, 27% to ATC capacity issues and 25% to ATC staffing.

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

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



Airport level

Airport name	Avg arrival ATFM delay (KPI#2)					Slot adherence (PI#1)				
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Bydgoszcz	NA	NA	NA	NA	NA	94.0%	NA%	NA%	NA%	NA%
Gdansk	NA	NA	NA	NA	NA	93.3%	NA%	NA%	NA%	NA%
Katowice	NA	NA	NA	NA	NA	89.6%	NA%	NA%	NA%	NA%
Krakow	0.04	NA	NA	NA	NA	95.9%	NA%	NA%	NA%	NA%
Lodz	NA	NA	NA	NA	NA	100.0%	NA%	NA%	NA%	NA%
Lublin / Świdnik	NA	NA	NA	NA	NA	91.7%	NA%	NA%	NA%	NA%
Modlin	0.01	NA	NA	NA	NA	96.4%	NA%	NA%	NA%	NA%
Olsztyn-Mazury	NA	NA	NA	NA	NA	88.9%	NA%	NA%	NA%	NA%
Poznan	NA	NA	NA	NA	NA	97.9%	NA%	NA%	NA%	NA%
Radom	NA	NA	NA	NA	NA	NA	NA	NA	NA%	NA%
Rzeszow	NA	NA	NA	NA	NA	93.3%	NA%	NA%	NA%	NA%
Szczecin	NA	NA	NA	NA	NA	95.7%	NA%	NA%	NA%	NA%
Warsaw	0.04	NA	NA	NA	NA	97.5%	NA%	NA%	NA%	NA%
Wroclaw Airport	NA	NA	NA	NA	NA	88.9%	NA%	NA%	NA%	NA%
Zielona Gora	NA	NA	NA	NA	NA	100.0%	NA%	NA%	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
Bydgoszcz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gdansk	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Katowice	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Krakow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lodz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lublin / Świdnik	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Modlin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Olsztyn-Mazury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Poznan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radom	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rzeszow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Szczecin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Warsaw	0.32	NA	NA	NA	NA	9.3	NA	NA	NA	NA
Wroclaw Airport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zielona Gora	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, the share of regulated departures from Polish airports virtually disappeared as of April. The annual figures are therefore driven by the performance in the first trimester. All 15 Polish airports showed adherence at or above 85% and 7 of them (including Warsaw) above 95%. The national average was 95.3%. With regard to the 4.7% of flights that did not adhere, 3.4% was early and 1.3% was late. The Polish monitoring report adds that the following measures were/will be implemented at Warsaw

(EPWA):

- *implemented: A-CDM (2020)*
- *planned: Traffic Complexity Tool (2021), A-SMGCS (2024)*

ATC pre-departure delay

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 Warsaw (the only Polish airport subject to monitoring of this indicator). However, there are several quality checks before EUROCONTROL can produce the final value which is established as the average minutes of pre-departure delay (delay in the actual off block time) associated to the IATA delay code 89 (through the APDF, for each delayed flight, the reasons for that delay have to be transmitted and coded according to IATA delay codes. However, sometimes the airport operator has no information concerning the reasons for the delay in the off block, or they cannot convert the reasons to the IATA delay codes. In those cases, the airport operator might:

- Not report any information about the reasons for the delay for that flight (unreported delay)
- Report a special code to indicate they do not have the information (code ZZZ)
- Report a special code to indicate they do not have the means to collect and/or translate the information (code 999)

To be able to calculate with a minimum of accuracy the PI for a given month, the minutes of delay that are not attributed to any IATA code reason should not exceed 40% of the total minutes of pre-departure delay observed at the airport. Finally, to be able to produce the annual figure, at least 10 months of valid data is requested by EUROCONTROL.

The share of unidentified delay reported by Warsaw was above 40% every month since April 2020 (preventing the calculation of this indicator) due to the special traffic composition during the months of the pandemic. Warsaw had proper reporting before April 2020.

All causes pre-departure delay

Warsaw is the only Polish airport subject to the monitoring of this indicator. The total (all causes) delay in the actual off block time at Warsaw in 2020 was 9.32 min/dep. The higher delays per flight were observed in the first half of the year. This performance indicator has been introduced in the performance scheme for the first time this year, so no evolution with respect to 2019 can be analysed.

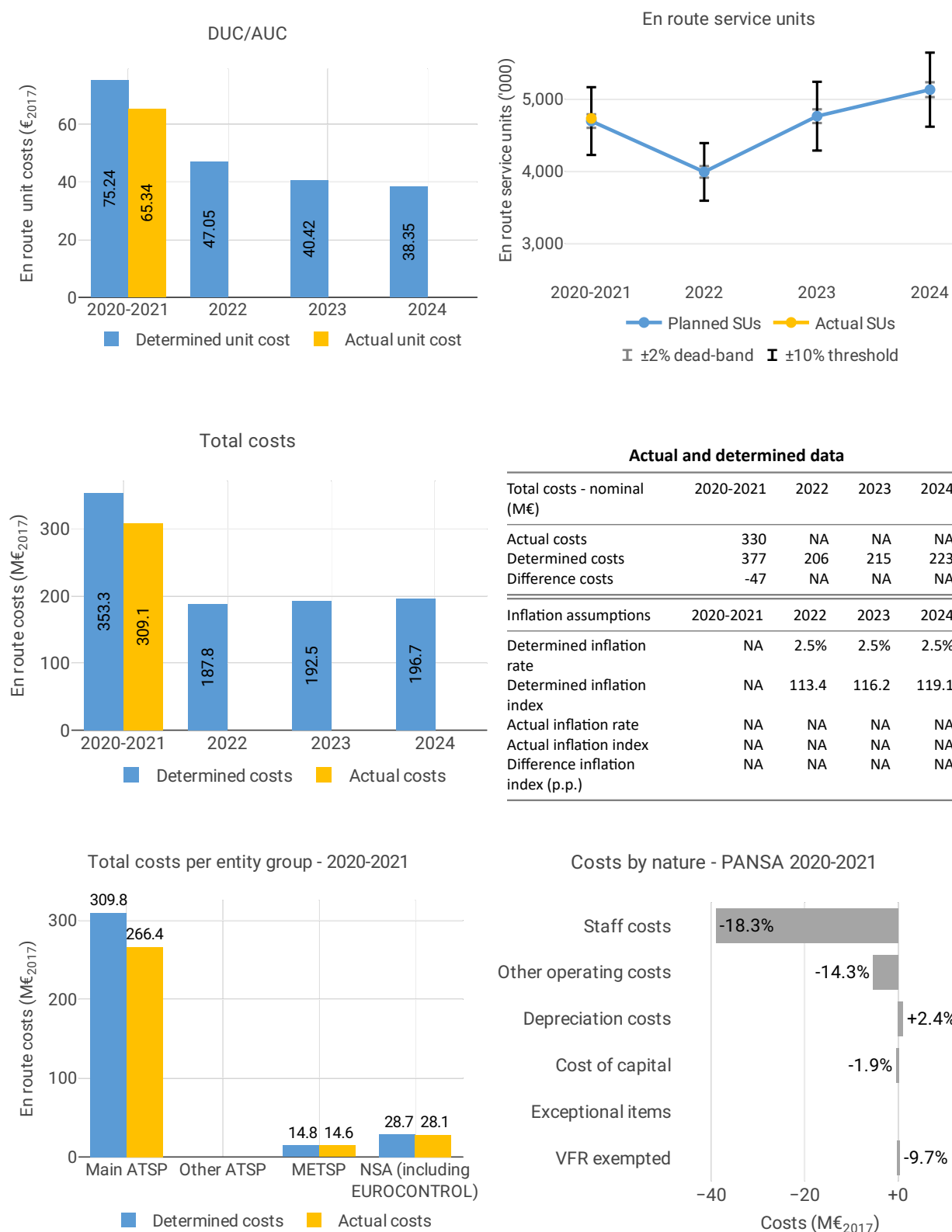
5 COST-EFFICIENCY - POLAND

5.1 PRB monitoring

- The 2020 actual service units (2,146K) were 57% lower than the actual service units in 2019 (4,959K).
- In 2020, Poland reduced total costs by 11 M€2017 (-6%) compared to 2019 actual costs. The reduction was mainly driven by a decrease of 16 M€2017 (-13%) in staff costs due to furloughs, temporary suspension of hiring, contribution to the occupational pension scheme and group insurance, reduction of overtime and bonuses.
- PANSA spent 43 M€2017 in 2020 related to costs of investments, 10% less than planned in the 2019 draft performance plan (48 M€2017). The NSA reported that this reduction is attributable to both savings to meet financial capabilities and restrictions impacting the ability to execute some investments.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)



Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the en route AUC was lower by -13.2% (or -42.15 PLN2017 or -9.91 €2017) comparing to the DUC. This was in particular, the effect of the lower than planned en route costs in real terms (-12.5%, -187.7 MPLN2017 or -44.1 M€2017).

En route service units

The difference between actual and planned TSU (+0.8%) is within the $\pm 2\%$ dead-band which results in additional revenues kept by the ANSPs.

En route costs by entity

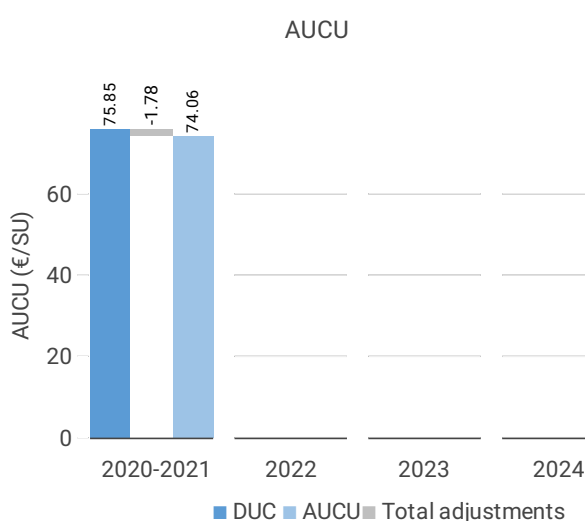
Actual en route costs are -12.5% lower than planned (-44.1 M€2017) which is mainly driven by the lower costs for PANSA (-14.0% or -43.4 M€2017). Slightly lower actual costs are observed for NSA/EUROCONTROL, -2.1% (or -0.6 M€2017) and the METSPs, -1.0% (or -0.1 M€2017).

En route costs for the main ANSP at charging zone level

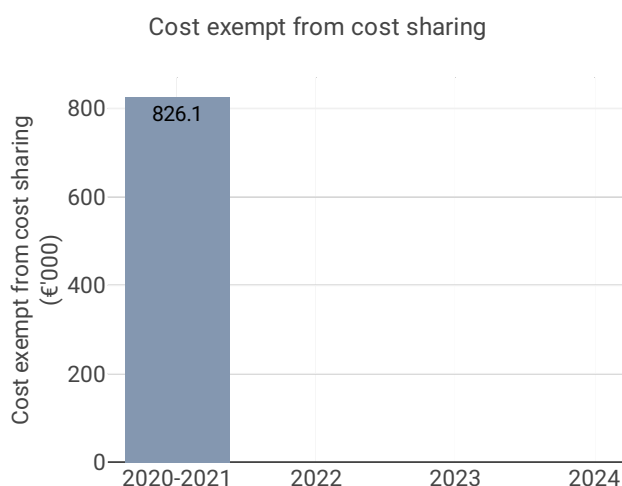
The lower than planned en route costs in real terms for PANSA (-14.0%, or -43.4 M€2017) result from:

- lower en route staff costs (by -18.3% or -39.0 M€2017), “resulting from a number of factors, including evolution of provisions also those for one-off elements of staff benefits reflected in the RP3 determined cost”, lower remuneration costs (due to lower employment level) and lower actual level of bonuses and rewards;
- lower en-route other operating costs (by -14.3% or -5.3 M€2017) resulting from costs cutting measures in 2021;
- higher, by +2.4% (or +1.1 M€2017) depreciation due to the difference in the useful life of some assets;
- lower, by -1.9% (or -0.3 M€2017) actual cost of capital due to slightly lower value of asset base;
- lower deduction for the costs of exempted VFR flights (-9.7%).

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

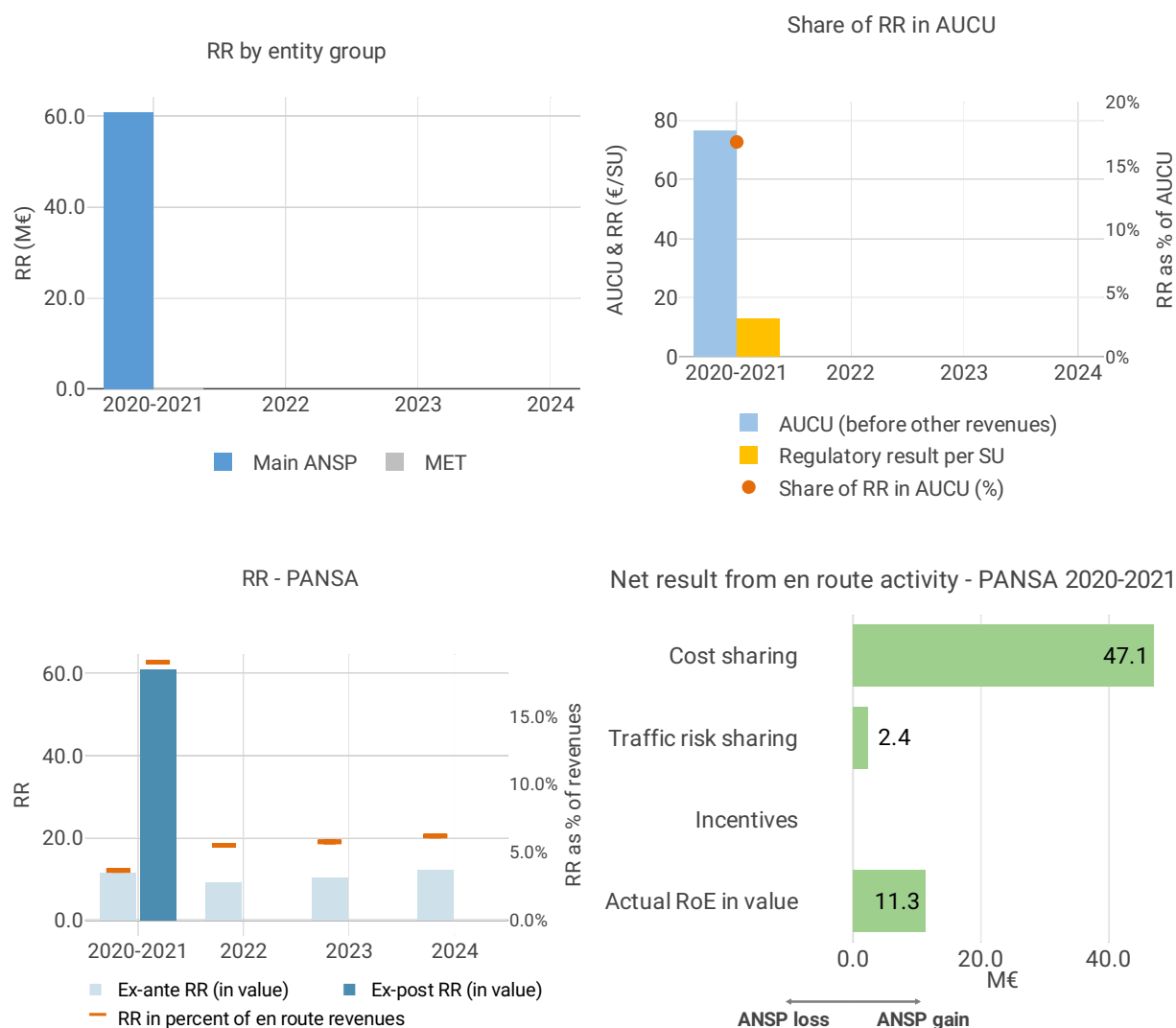


AUCU components (€/SU) – 2020-2021	
Components of the AUCU in 2020-2021	€/SU
DUC	75.85
Inflation adjustment	0.57
Cost exempt from cost-sharing	0.17
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	-0.07
Financial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-2.46
Application of lower unit rate	0.00
Total adjustments	-1.78
AUCU	74.06
AUCU vs. DUC	-2.3%



Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	1,217.6	0.26
Competent authorities and qualified entities costs	33.5	0.01
Eurocontrol costs	-602.8	-0.13
Pension costs	0.0	0.00
Interest on loans	177.8	0.04
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	826.1	0.17

5.2.3 Regulatory result (RR)



Focus on regulatory result

PANSAs net gain on activity in the en route charging zone in the combined year 2020-2021

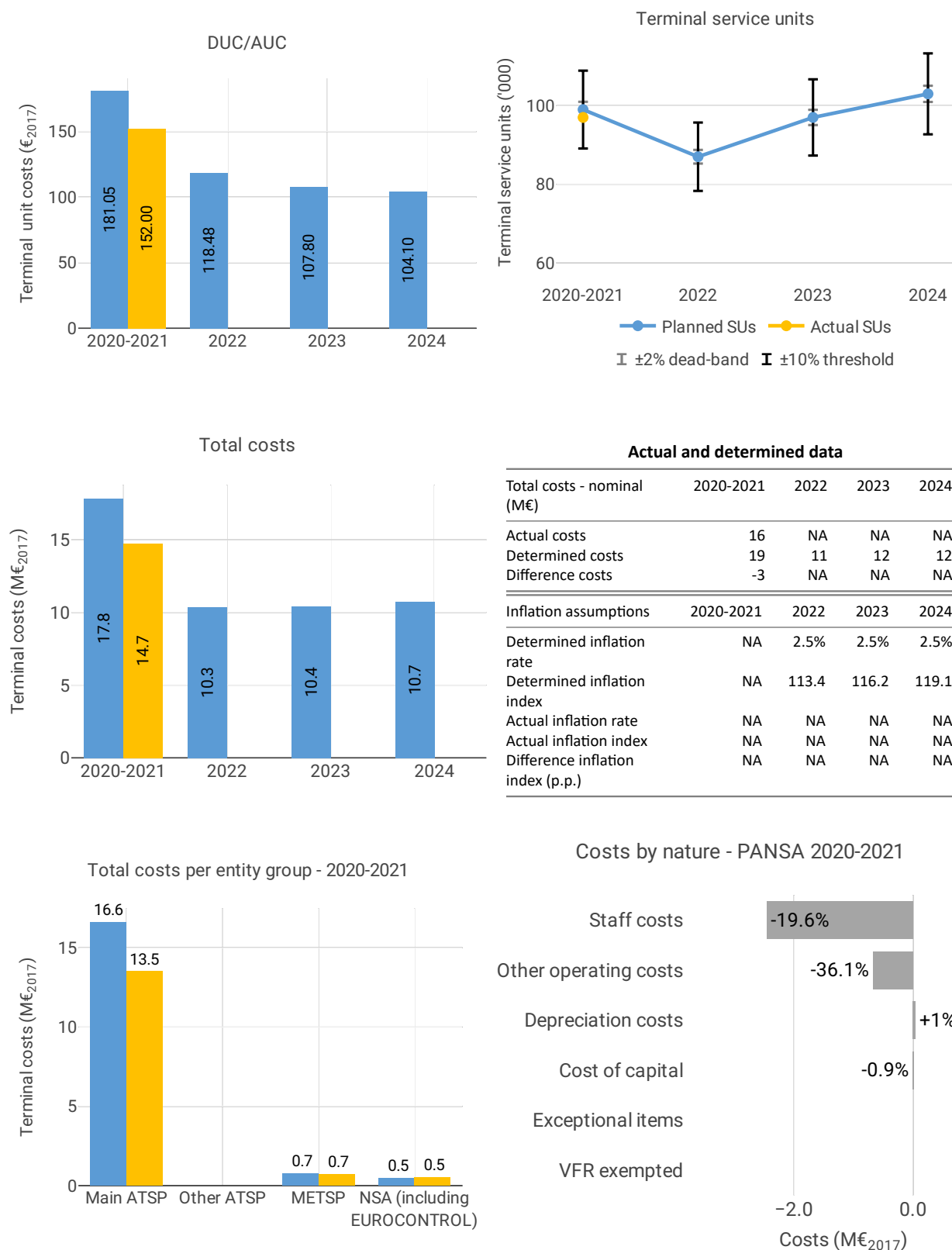
PANSAs net gain amounts to +225.9 MPLN (or +49.5 M€), mainly due to the gains of +214.9 MPLN from the cost sharing mechanism, and of +11.0 MPLN from the traffic risk sharing mechanism.

PANSAs 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 (+49.5 M€) and the actual RoE (+50.8 MPLN or +11.2 M€) amounts to +276.8 MPLN or +60.9 M€ (19.2% of the en route revenues). The resulting ex-post rate of return on equity is 13.0%, which is significantly higher than the 2.4% planned in the PP.

5.3 Terminal charging zone - Poland EPWA

5.3.1 Unit cost (KPI#1)



Focus on unit cost

AUC vs. DUC

In the combined year 2020-2021, the terminal AUC for TCZ1 was lower by -16.0% (-123.61 PLN or -29.05€₂₀₁₇) comparing to the DUC. This was in particular the effect of the lower than planned terminal costs in real terms (-17.4%, -13.2 MPLN₂₀₁₇ or -3.1 M€₂₀₁₇) for TCZ1.

Terminal service units

The difference between actual and planned TNSU for the zone (-1.6%) is within the $\pm 2\%$ dead-band, which results in a loss borne by ANSPs.

Terminal costs by entity

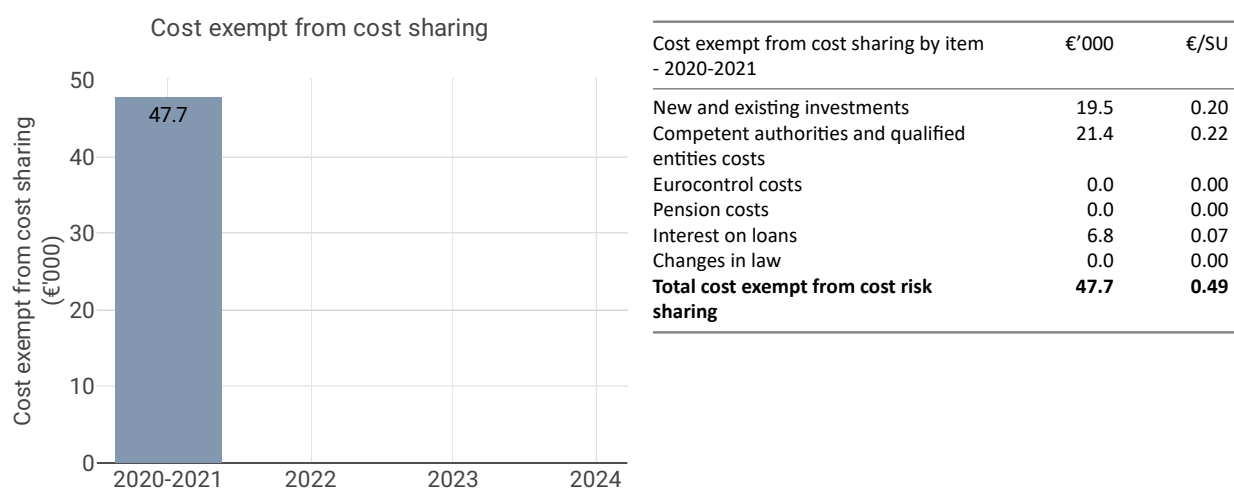
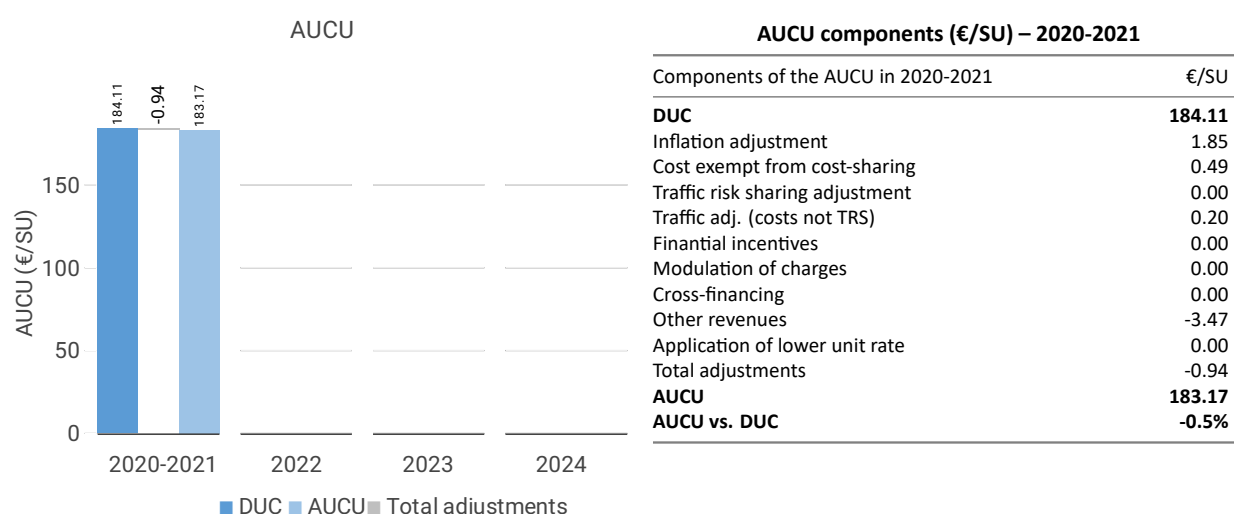
Actual terminal costs are -17.4% lower than planned (-3.1 M€2017) which is mainly driven by the lower costs for PANSA (-18.8% or -3.1 M€2017). Slightly lower actual costs are observed in the IMWM (METSP), -0.8%. For the NSA costs are higher by +4.8%.

Terminal costs for the main ANSP at charging zone level

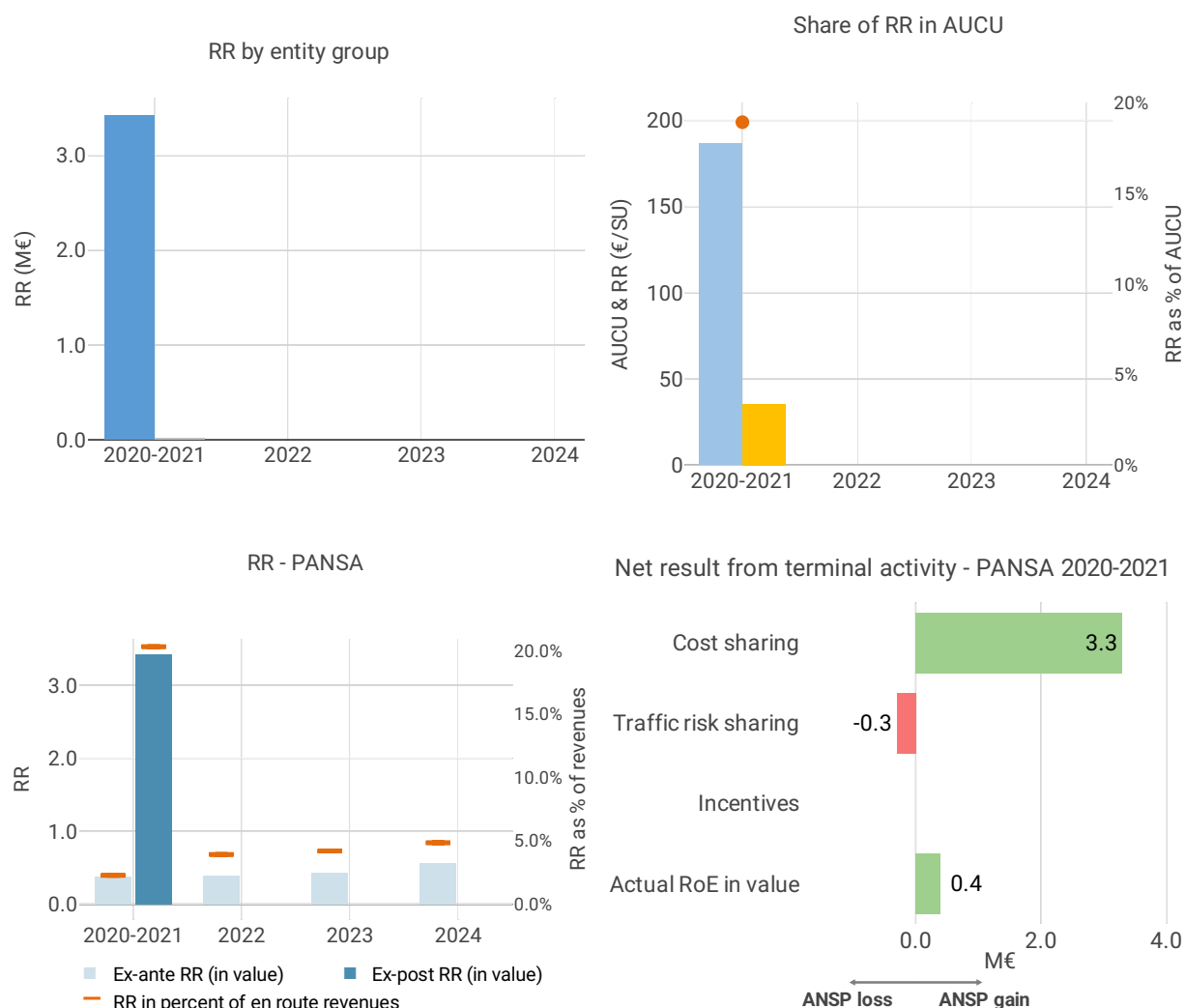
The lower than planned terminal costs for TCZ1 in real terms for PANSA (-18.8%, or -3.1 M€2017) result from:

- lower en route staff costs for TCZ1 (by -19.6% or -2.5 M€2017), “resulting from a number of factors, including evolution of provisions also those for one-off elements of staff benefits reflected in the RP3 determined cost”, lower remuneration costs (due to lower employment level) and lower actual level of bonuses and rewards;
- lower terminal other operating costs for the zone (by -36.1% or -0.7 M€2017), resulting from costs cutting measures in 2021;
- higher, by +1.0% (or +0.02 M€2017) depreciation costs due to the difference in the useful life of some assets;
- lower, by -0.9% cost of capital due to slightly lower value of asset base.

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



5.3.3 Regulatory result (RR)



Focus on regulatory result

PANSA net gain on activity in the TCZ1 in the combined year 2020-2021

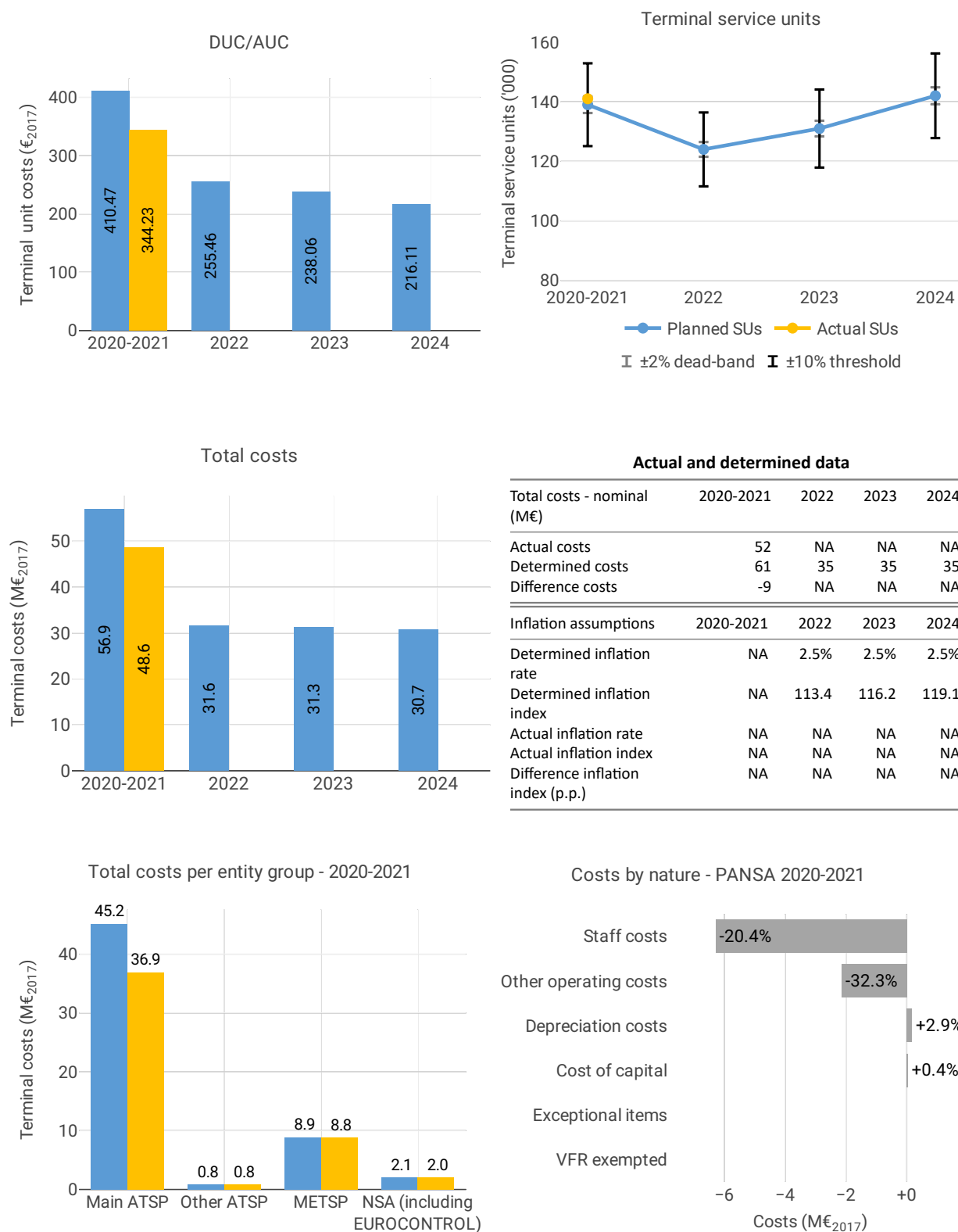
PANSA's net gain amounts to +13.9 MPLN (or +3.0 M€), as a result of gains of +15.1 MPLN from the cost sharing mechanism, and the loss of -1.2 MPLN from the traffic risk sharing mechanism.

PANSA overall regulatory results (RR) for the terminal activity in TCZ1

Ex-post, the overall RR taking into account the net gain from the activity mentioned above (+3.0 M€) and the actual RoE (+1.7 MPLN or +0.4 M€) amounts to +15.6 MPLN or +3.4 M€ (20.5% of the terminal revenues for TCZ1). The resulting ex-post rate of return on equity is 21.6% which is higher than the 2.4% planned in the PP.

5.4 Terminal charging zone - Poland Others

5.4.1 Unit cost (KPI#1)



Focus on unit cost

AUC vs. DUC

In combined year 2020-2021, the terminal AUC for TCZ2 was lower by -16.1% (-281.85 PLN₂₀₁₇ or -66.24 €₂₀₁₇) comparing to the DUC. This was in particular the effect of the lower than planned terminal costs in real terms (-14.7%, -35.5 MPLN₂₀₁₇ or -8.3 M€₂₀₁₇) for TCZ2.

Terminal service units

The difference between actual and planned TNSU for the zone (+1.8%) is within the $\pm 2\%$ dead-band, which results in additional revenues kept by the ANSPs.

Terminal costs by entity

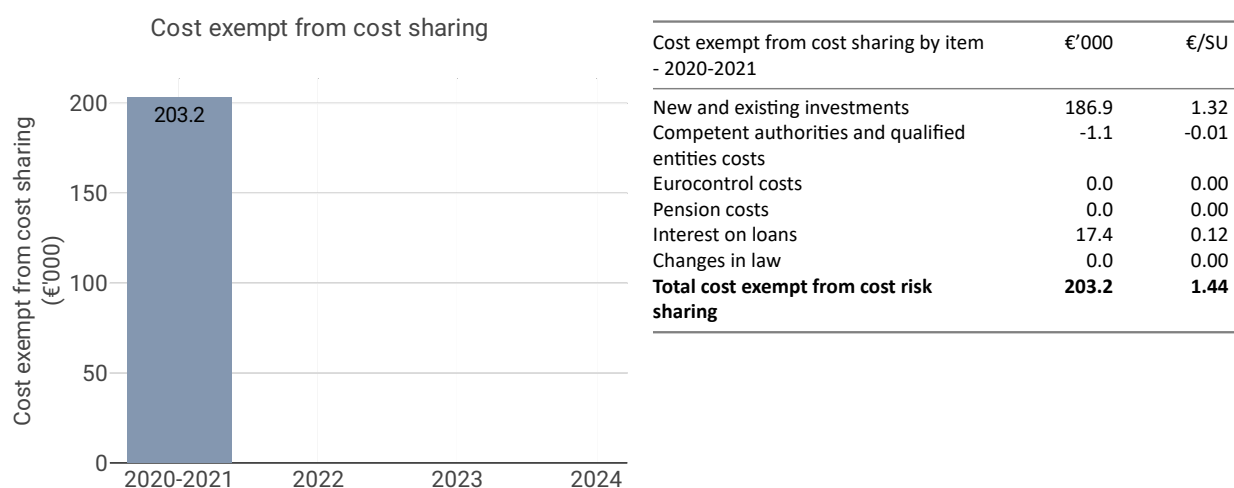
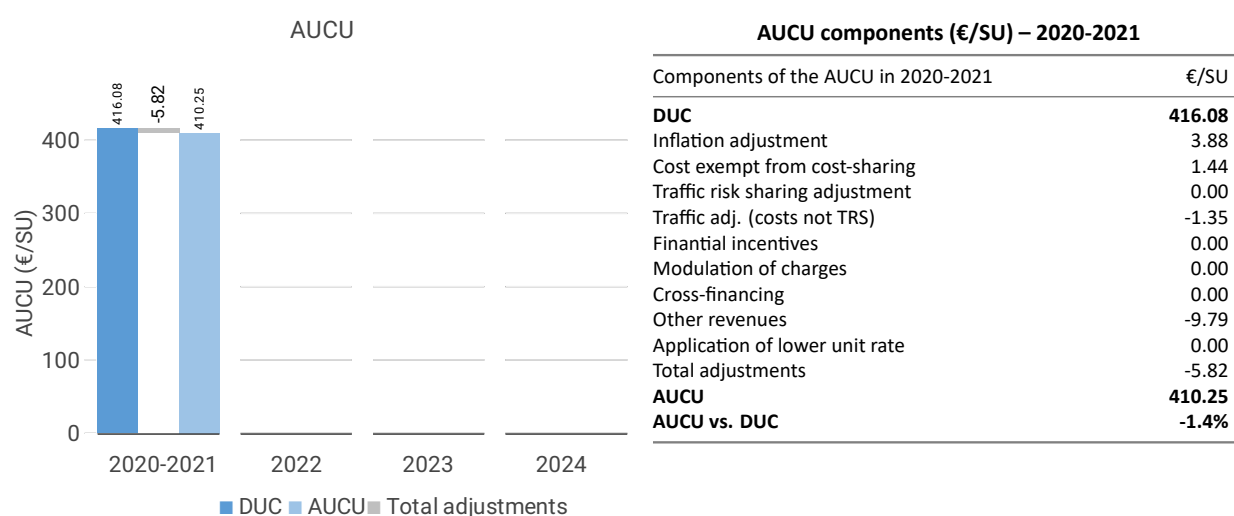
Actual terminal costs are -14.7% lower than planned (-8.3 M€2017) which is mainly driven by the lower costs for PANSA (-18.2% or -8.2 M€2017). Slightly lower actual costs were observed for the METSPs in the zone (-1.0% or -0.09 M€2017), other ATSPs in the zone (-3.4% or -0.03 M€2017) and the NSA (-0.1%).

Terminal costs for the main ANSP at charging zone level

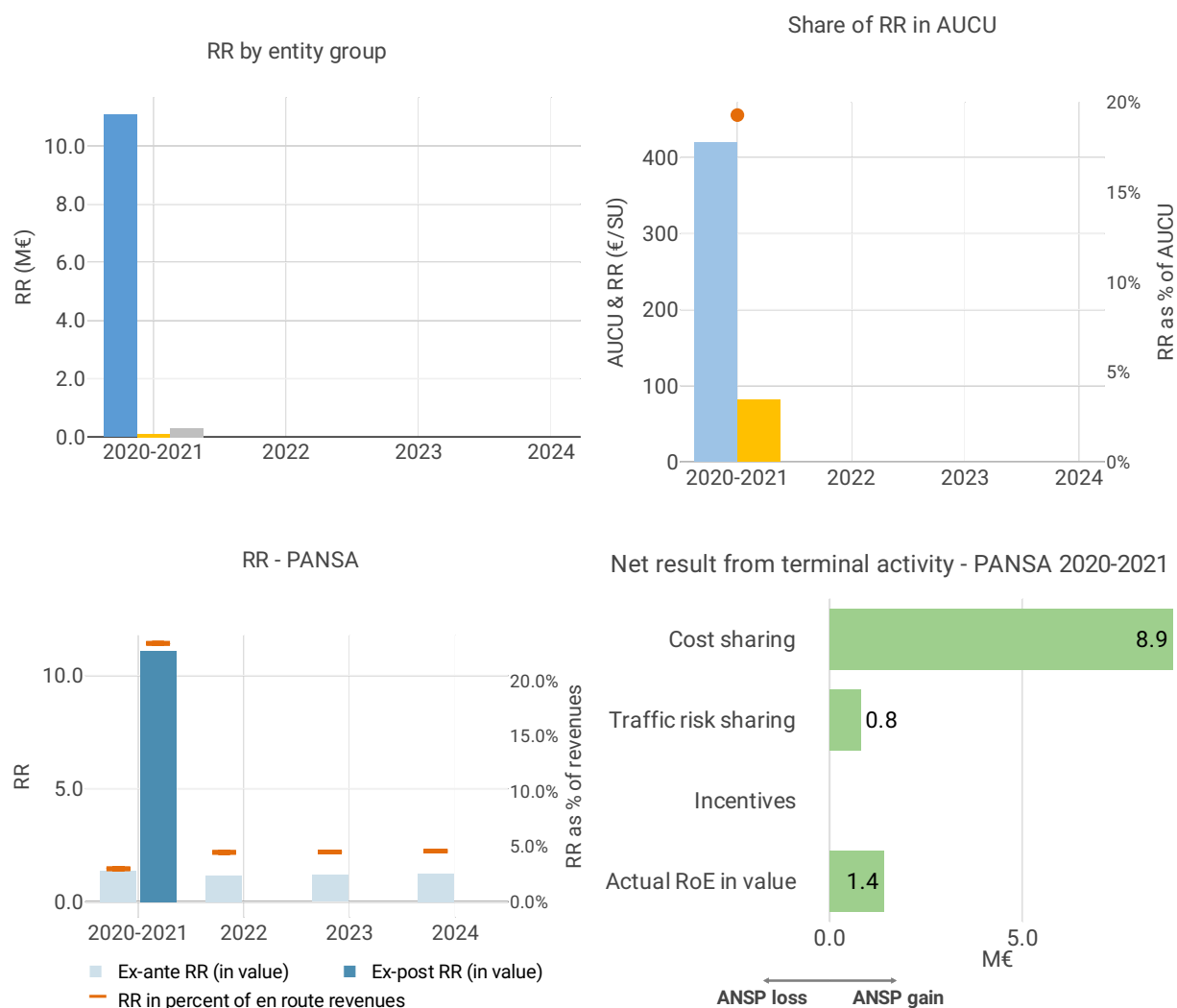
The lower than planned TCZ2 costs in real terms for PANSA (-18.2%, or -8.2M €2017) result from:

- lower en route staff costs for TCZ2 (by -20.4% or -6.3 M€2017), “resulting from a number of factors, including evolution of provisions also those for one-off elements of staff benefits reflected in the RP3 determined cost”, lower remuneration costs (due to lower employment level) and lower actual level of bonuses and rewards;
- lower terminal other operating costs for the zone (by -32.3% or -2.1 M€2017), resulting from costs cutting measures in 2021;
- higher, by +2.9% (or +0.2 M€2017) depreciation costs due to the difference in the useful life of some assets;
- slightly higher, by +0.4% costs of capital due to slightly lower value of asset base.

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



5.4.3 Regulatory result (RR)



Focus on regulatory result

PANSA net gain on activity in the TCZ2 in the combined year 2020-2021

PANSA's net gain amounts to +44.2 MPLN (or +9.7 M€), due to gains of +40.6 MPLN from the cost sharing mechanism, and gains of +3.6 MPLN from the traffic risk sharing mechanism.

PANSA overall regulatory results (RR) for the terminal activity in TCZ2

Ex-post, the overall RR taking into account the net gain from the activity mentioned above (+9.7 M€) and the actual RoE (+6.2 MPLN or +1.4 M€) amounts to +50.4 MPLN or +11.1 M€ (23.6% of the terminal revenues for TCZ2). The resulting ex-post rate of return on equity is 19.3% which is higher than the 2.4% planned in the PP.