PERFORMANCE REVIEW BOARD
of the Single European Sky

Performance Review Board

Monitoring Report

Poland - 2024

Performance Review Board of the Single European Sky | Rue de Mot 28, 1040 Etterbeek
MOVE-PRB-SECRETARIAT@ec.europa.eu | eu-single-sky.transport.ec.europa.eu

Contents

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

No of airports in the scope of the performance plan:
- **≥80'K** 1
- **<80'K** 14

Exchange rate (1 EUR=)
2017: 4.25483 PLN
2024: 4.30147 PLN

Share of Union-wide:
- **traffic (TSUs) 2024** 2.9%
- **en route costs 2024** 3.3%

Share en route / terminal costs 2024 79% / 21%

En route charging zone(s)
Poland

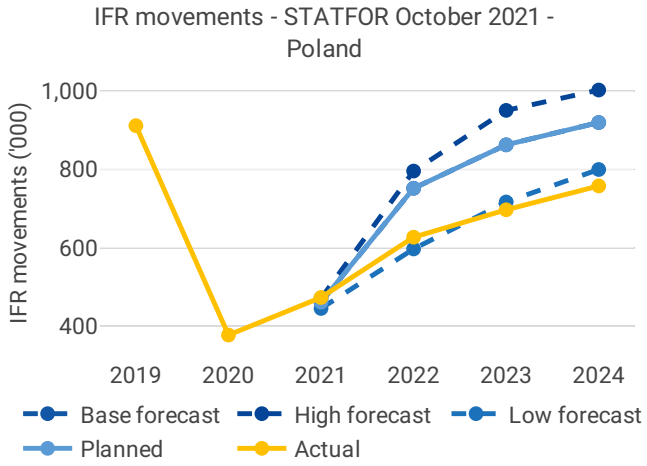
Terminal charging zone(s)
Poland EPWA
Poland Others

Main ANSP
- PANSA

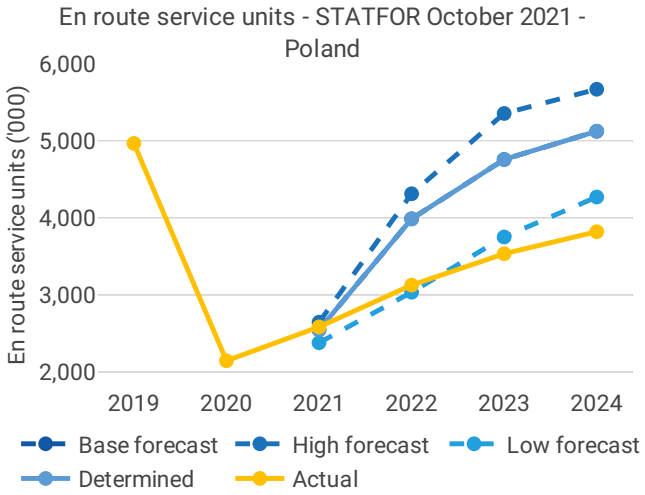
Other ANSPs
- Warmia i Mazury sp. z o.o.
- Port Lotniczy Bydgoszcz S.A.

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

1.2 Traffic (En route traffic zone)

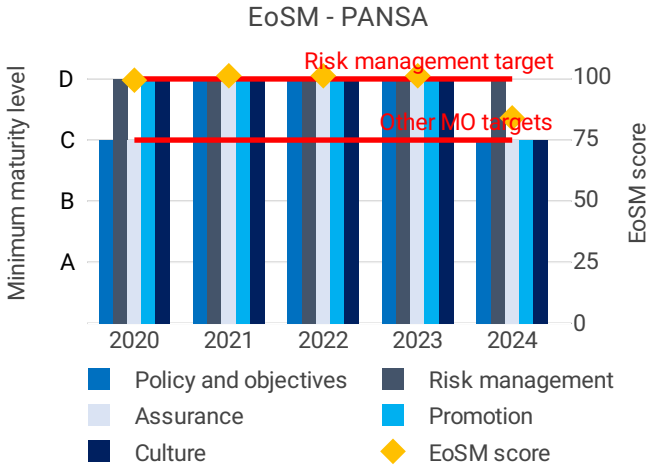


- Poland recorded 758K actual IFR movements in 2024, +8.8% compared to 2023 (697K).
- Actual 2024 IFR movements were -17.6% below the plan (920K).
- Actual 2024 IFR movements represent 83% above the actual 2019 level (912K).



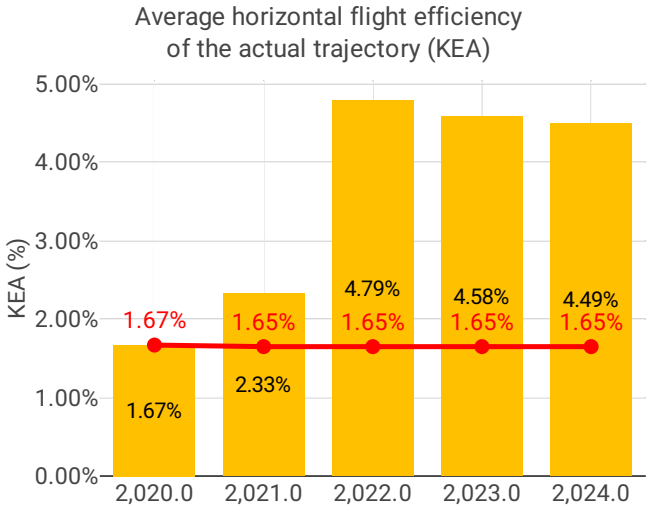
- Poland recorded 3,824K actual service units in 2024, +8.1% compared to 2023 (3,537K).
- Actual 2024 service units were -25.5% below the plan (5,130K).
- Actual 2024 service units represent 77% of the actual 2019 level (4,972K).

1.3 Safety (Main ANSP)



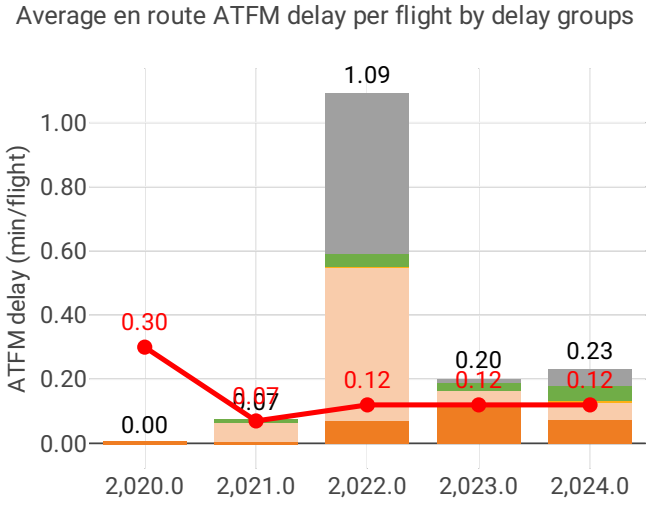
- PANSA exceeded the RP3 targets in 2022 and successfully maintained those performance levels. In 2024, PANSA adopted a revised approach to self-assessment by relying on evidence from non-collaborative sources. This methodological shift resulted in the degradation of 16 questions to maturity level C. Despite this, PANSA continued to achieve RP3 targets. PANSA remains committed to enhancing its safety function and continues to implement improvements, in line with its safety management system strategy established in 2024.
- Port Lotniczy Bydgoszcz S.A. improved in the area of Safety Risk Management in 2024, achieving the RP3 targets for all management objectives.
- Warmia i Mazury sp. z o.o. achieved its RP3 EoSM targets levels already in 2022 and maintained these levels through the remaining years of the period.
- Poland recorded a significant increase in the rates of runway incursions (RIs) and separation minima infringements (SMIs) in 2024 at a Member State level.

1.4 Environment (Member State)



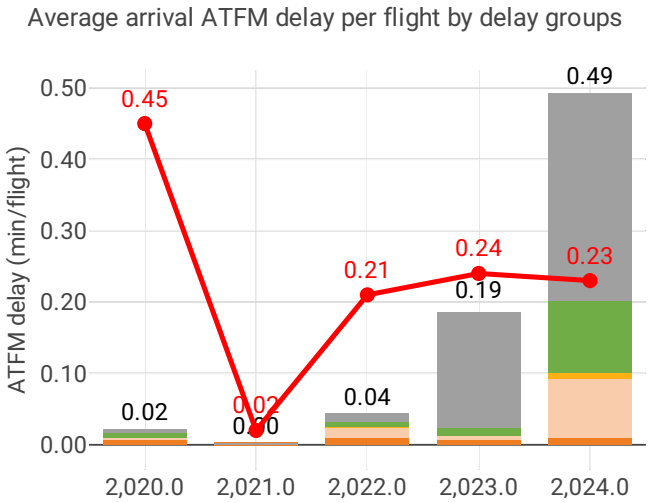
- Poland achieved a KEA performance of 4.49% compared to its target of 1.65% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that the worsening environmental performance was largely due to external factors linked to the geopolitical situation (Belarus and Ukraine), leading to route extensions and increased military activities, and weather conditions.
- Both KEP and SCR improved in comparison with 2023. Despite the KEA target being missed, KEA improved in 2024. Additionally, the improvement in SCR shows that Poland has enhanced the environmental efficiency of its airspace when accounting for impacts outside of its control.
- The share of CDO flights increased from 42.78% to 43.99% in 2024.
- Additional taxi out time increased from 2.59 to 2.78 min/flight, while additional time in terminal airspace increased from 1.19 to 1.33 min/flight in 2024 compared to 2023.

1.5 Capacity (Member State)



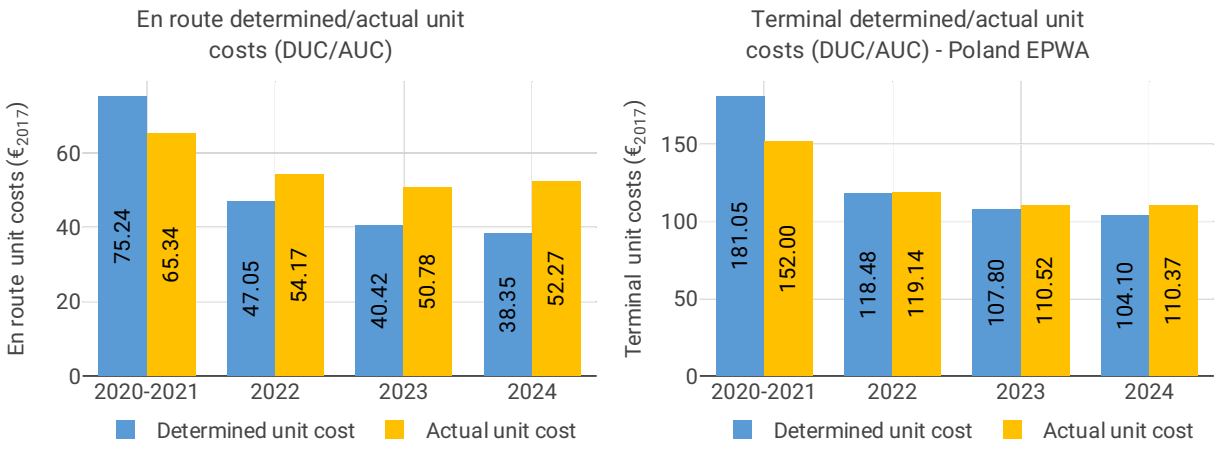
- Poland registered 0.23 minutes of average en route ATFM delay per flight during 2024, which remained 0.23 after the post-ops adjustment process, thus not achieving the local target value of 0.12. Delays in Poland increased by 0.03 minutes per flight year-on-year.

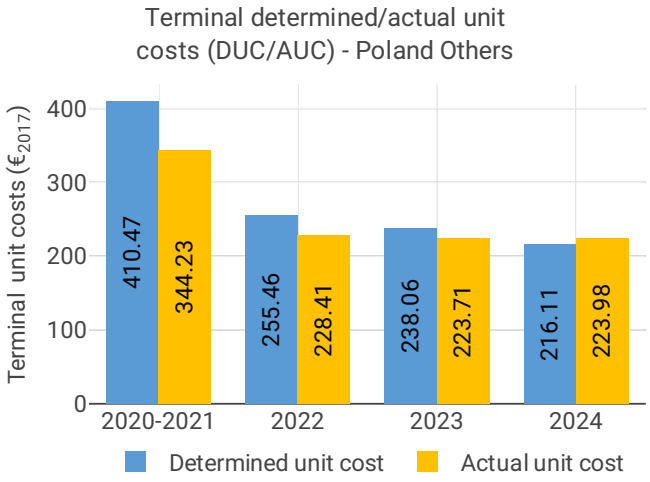
- Most of the delays accumulated between May and July, mainly driven by ATC Capacity and Staffing issues and adverse weather conditions.
- The share of delayed flights with delays longer than 15 minutes in Poland increased by 1 percentage point compared to 2023 and was lower than 2019 values.
- The average number of IFR movements was 16% below 2019 levels in Poland in 2024.
- The number of ATCOs in OPS is 173.17, being below the 2024 plan in Warsaw by 21 FTEs.
- The yearly total of sector opening hours in Warsaw ACC was 35,467, showing a 1.3% increase compared to 2023. Sector opening hours are 17.2% below 2019 levels.
- Warsaw ACC registered 18.17 IFR movements per one sector opening hour in 2024, being 5.4% below 2019 levels.



- Poland registered an average airport arrival ATFM delay of 0.49 minutes per flight in 2024, thus not achieving the local target of 0.23 minutes.
- Compared to 2023, average arrival ATFM delays in Poland were 165% higher in 2024, while the number of IFR arrivals increased by 10%.
- The main drivers of delays were other, non-ATC related causes, accounting for 59% of delays, and weather, responsible for 21%.

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





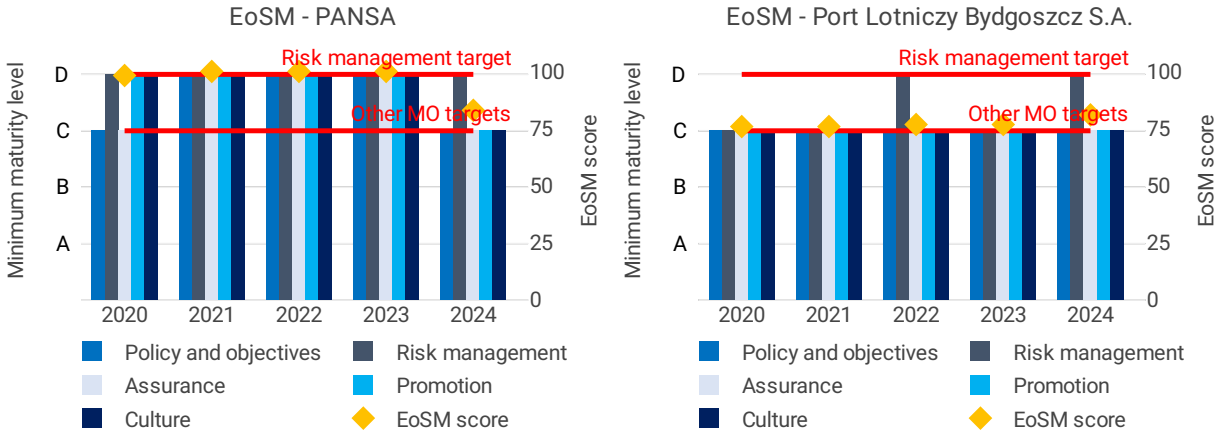
- The en route 2024 actual unit cost of Poland was 52.20€2017, +36% higher than the determined unit cost (38.35€2017). The terminal zone 1 2024 actual unit cost was 110.06€2017, +5.7% higher than the determined unit cost (104.10€2017), while the terminal zone 2 2024 actual unit cost was 223.66€2017, +3.5% higher than the determined unit cost (216.11€2017).
- The en route 2024 actual service units of Poland (3.8M) were -25% lower than the determined service units (5.1M), mainly due to shifted traffic flows caused by Russia's war of aggression against Ukraine.
- The en route 2024 actual total costs were +2.9M€2017, (+1.5%) higher than determined. This difference is driven by higher staff costs for PANSA (+6.4M€2017, or +6.1%) than determined. The NSA noted that it is mainly due to higher salaries driven by changes to remuneration regulations.
- PANSA costs of investments were 49M€2017 in 2024 for both en route and terminal charging zones, almost in line with the determined (-0.8%). This small difference is mainly due to the postponement and revision of some projects.
- The en route actual unit cost incurred by users in 2024 was 61.69€ (+43% higher than the 2024 DUC), while the terminal zone 1 actual unit cost incurred by users in 2024 was 130.59€ (+10% higher than the 2024 DUC) and 228.69€ (-6.8% lower than the 2024 DUC) for terminal zone 2. The differences between the AUCU and the DUC for en route charging zone can be primarily attributed to lower traffic than expected. For terminal zone 1 charging zone, it is mainly resulting from the positive inflation adjustment.
- Poland's RP3 performance plan included justifications for a deviation to achieve the RP3 capacity targets. The main measures included recruiting of new ATCOs. Poland has not submitted a detailed report of the capacity-related measures implemented. However, the number of ATCOs in operation at the end of RP3 is below the plan. Poland should reimburse to airspace users the excess funds received by ANSPs for measures not implemented.

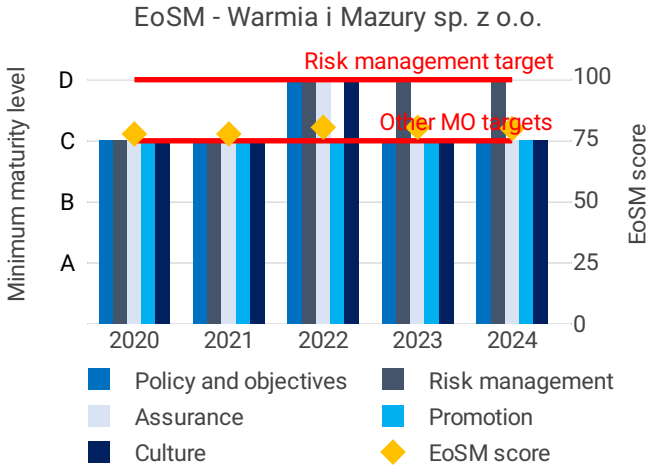
2 SAFETY - POLAND

2.1 PRB monitoring

- PANSA exceeded the RP3 targets in 2022 and successfully maintained those performance levels. In 2024, PANSA adopted a revised approach to self-assessment by relying on evidence from non-collaborative sources. This methodological shift resulted in the degradation of 16 questions to maturity level C. Despite this, PANSA continued to achieve RP3 targets. PANSA remains committed to enhancing its safety function and continues to implement improvements, in line with its safety management system strategy established in 2024.
- Port Lotniczy Bydgoszcz S.A. improved in the area of Safety Risk Management in 2024, achieving the RP3 targets for all management objectives.
- Warmia i Mazury sp. z o.o. achieved its RP3 EoSM targets levels already in 2022 and maintained these levels through the remaining years of the period.
- Poland recorded a significant increase in the rates of runway incursions (RIs) and separation minima infringements (SMIs) in 2024 at a Member State level.

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





Focus on EoSM

All five EoSM components of PANSA meet the RP3 target level. Over 2024, degradation was observed for 16 questions for ”Safety Culture, Safety Policy and Objectives, Safety Assurance and Safety Promotion” reducing the maturity of the components from level D to the level C, but remained on the RP3 target level. All five EoSM components of the Port Lotniczy Bydgoszcz meet the RP3 target level. In 2024, significant improvement was observed for “Safety Risk Management” enabling this area to reach the target level. Warmia i Mazury achieved the RP3 target level for all five EoSM components in 2022 and maintained the levels since then.

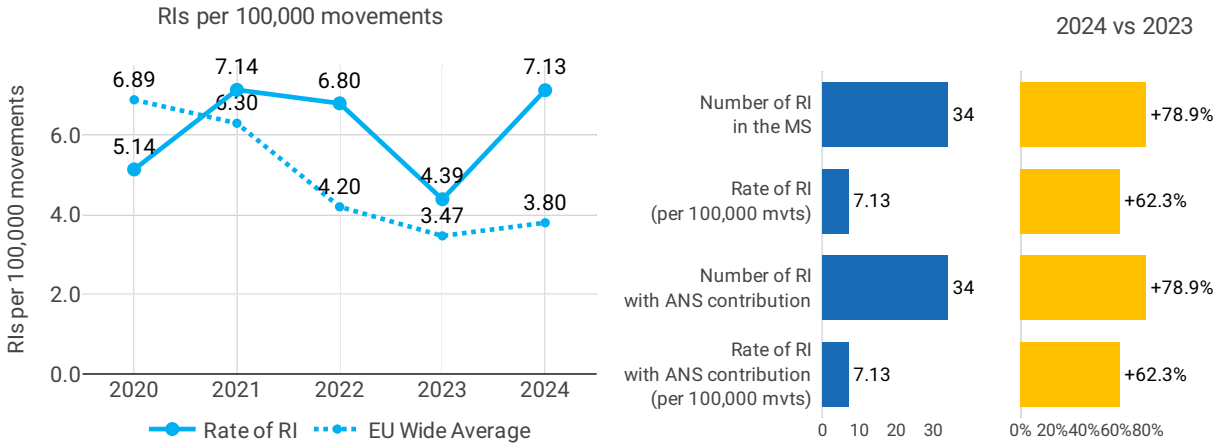
PANSA exceeded the RP3 targets in 2022 ahead of plan. In 2024, while the ANSP continued to meet the RP3 target levels overall, it adopted a revised approach to self-assessment by relying on evidence from non-collaborative sources. This methodological shift resulted in the degradation of 16 questions to maturity level C. PANSA remains committed to enhancing its safety function and continues to implement improvements in line with the safety management system strategy established in 2024.

Port Lotniczy Bydgoszcz S.A. improved in the area of Safety Risk Management in 2024 achieving the targets for all Management Objectives as planned. In 2024 Bydgoszcz Airport (EPBY) continued implementation of measures aiming at maintaining and improving the declared safety levels.

Warmia i Mazury sp. z o.o. achieved its RP3 EoSM targets levels in 2022 ahead of plan and maintained these levels through 2023 and 2024.

2.3 Safety occurrences

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

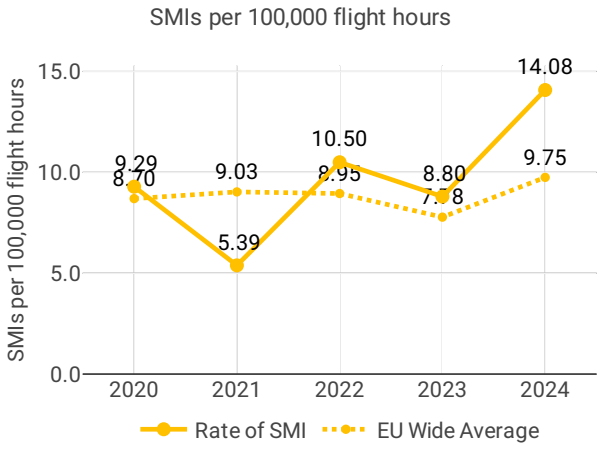


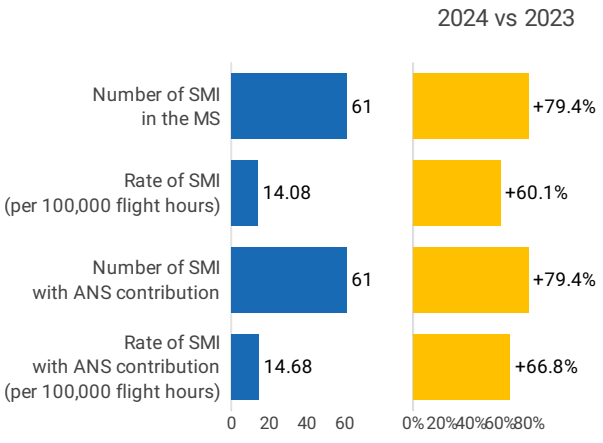
Rate of RIs per 100,000 airport movements - Poland				
#	Airport name	APT movements	Number of RI	Rate RI per 100,000
1	Warsaw	182,862	12	6.56
2	Krakow - Balice	76,235	0	0.00
3	Gdansk	51,369	4	7.79
4	Katowice - Pyrzowice	44,845	1	2.23
5	Wroclaw - Strachowice	36,363	0	0.00
6	Poznan - Lawica	30,425	6	19.72
7	Warszawa - Modlin	17,365	3	17.28
8	Rzeszow - Jasionka	15,545	0	0.00
9	Szczecin - Goleniów	5,173	0	0.00
10	Lodz - Lublinek	5,113	2	39.12
11	Bydgoszcz	4,700	5	106.38
12	Lublin	3,496	0	0.00
13	Zielona Gora - Babimost	1,217	1	82.17
14	Olsztyn-Mazury	1,118	0	0.00
15	Radom	1,068	0	0.00

Focus on runway incursions

Since 2021, Poland recorded a rate of RIs at the Member State level above the Union-wide average. After a decrease in the rate between 2022 and 2023, Poland recorded a significant increase in 2024. In 2024, the total number of runway incursions rose sharply to 34, an increase of 79% compared to 2023, when there were 19 incursions. Despite the increase in traffic, the rate of RIs rose 75% compared with 2023. The increase in most dominant in smaller airports, but also Warsaw contributed to the increase.

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





Rate of SMI with ANS contribution per 100,000 flight hours											
		Flight hours					Number of SMIs				
#	ANSP	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	PANSA	221,029	278,330	361,376	386,507	415,612	8	15	39	34	61
2	Port Lotniczy Bydgoszcz S.A.	NA	NA	0	0	NA	NA	NA	0	0	NA
3	Warmia i Mazury sp. z o.o.	NA	NA	0	0	NA	NA	NA	0	0	NA

		Rate of SMI per 100,000 flight hours					% variation in rate of SMIs				
#	ANSP	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
1	PANSA	4	5	11	9	15		+49%	+100%	-18%	+67%
2	Port Lotniczy Bydgoszcz S.A.	NA	NA	NA	NA	NA					
3	Warmia i Mazury sp. z o.o.	NA	NA	NA	NA	NA					

Focus on separation minima

Poland's rate of SMIs at the Member State level has been similar to the Union-wide average until 2024, when the number of SMIs increased significantly by 79% to 61, up from 34 in 2023. Similarly, the rate of SMIs increased by 67% to the highest level in RP3.

The rate of SMIs with ANS contribution followed the same trend as the rate on the Member State level, with a significant increase of the rate between 2023 and 2024.

The NSA monitors Safety Performance Indicators regularly (on yearly basis) at State level as an element of actions indicated in the State plan for aviation safety (SPAS). ANSPs report SPIs and RIs every quarter – as required by the SPAS. Despite the increase in the occurrences, no specific actions are specified in the monitoring report. Poland and PANSA should continue assessing occurrences and risk mitigate them according to their SMS, if necessary.

2.3.3 Quality of occurences reporting

The number of occurrences reported at Member State level seems consistent with the occurrences reported at the ANSP level for SMIs and RIs.

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

Use of automated safety data recording system - 2024	
For RIs	For SMIs
✗	✗

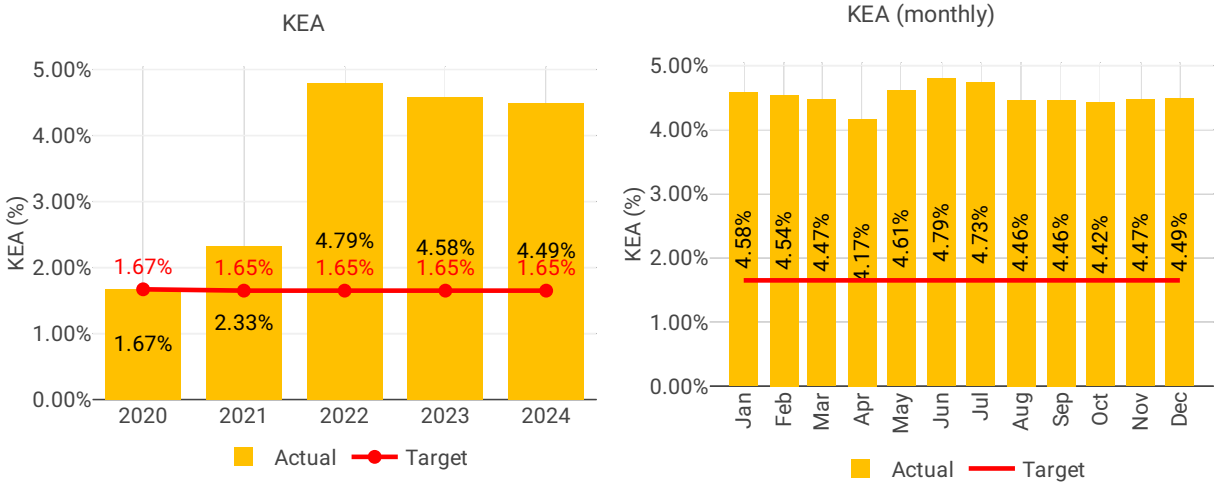
3 ENVIRONMENT - POLAND

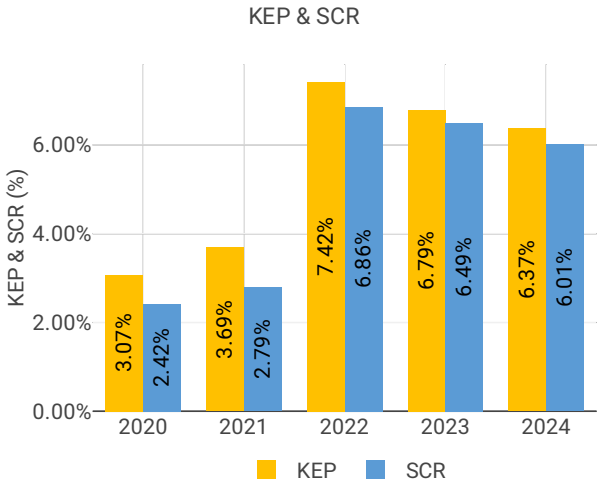
3.1 PRB monitoring

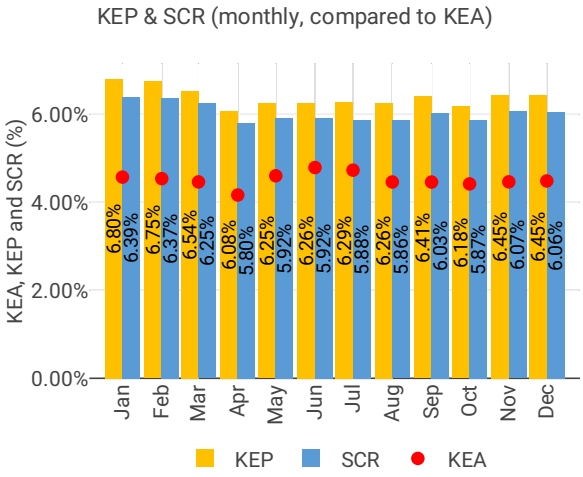
- Poland achieved a KEA performance of 4.49% compared to its target of 1.65% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that the worsening environmental performance was largely due to external factors linked to the geopolitical situation (Belarus and Ukraine), leading to route extensions and increased military activities, and weather conditions.
- Both KEP and SCR improved in comparison with 2023. Despite the KEA target being missed, KEA improved in 2024. Additionally, the improvement in SCR shows that Poland has enhanced the environmental efficiency of its airspace when accounting for impacts outside of its control.
- The share of CDO flights increased from 42.78% to 43.99% in 2024.
- Additional taxi out time increased from 2.59 to 2.78 min/flight, while additional time in terminal airspace increased from 1.19 to 1.33 min/flight in 2024 compared to 2023.

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)

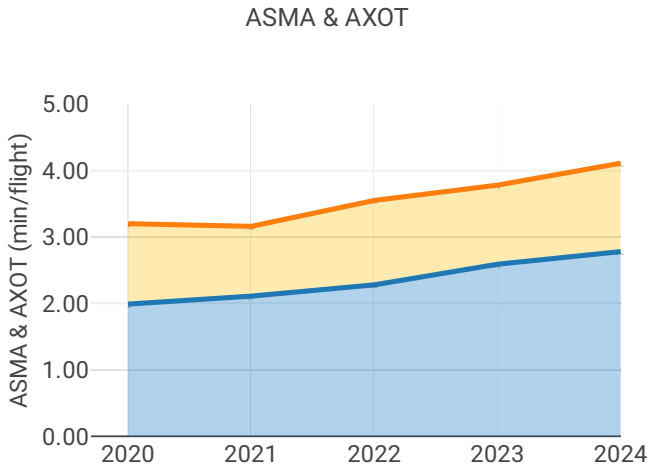


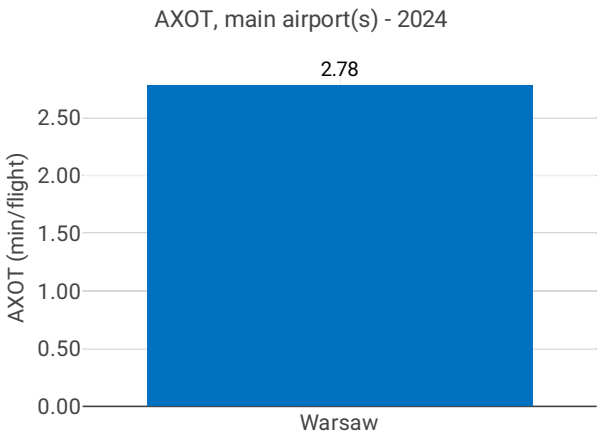


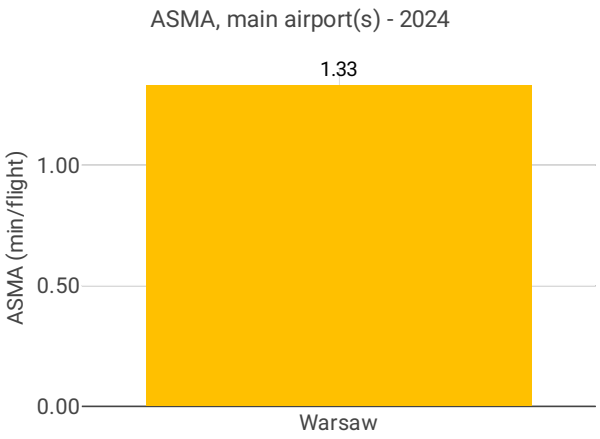


3.3 Terminal performance

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 Warsaw (EPWA; 2019: 3.43 min/dep.; 2020: 1.99 min/dep.; 2021: 2.11 min/dep.; 2022: 2.28 min/dep.; 2023: 2.59 min/dep.; 2024: 2.78 min/dep.) increased for the 4th year in a row, although remained under the SES average for 2024 (2.91 min/dep.).

According to the Polish monitoring report: *PANSA continues to work with the airport authority on revalidation of A-CDM. GND planner position is planned to be implemented in 2026 in order to increase effectiveness of GND operations.*

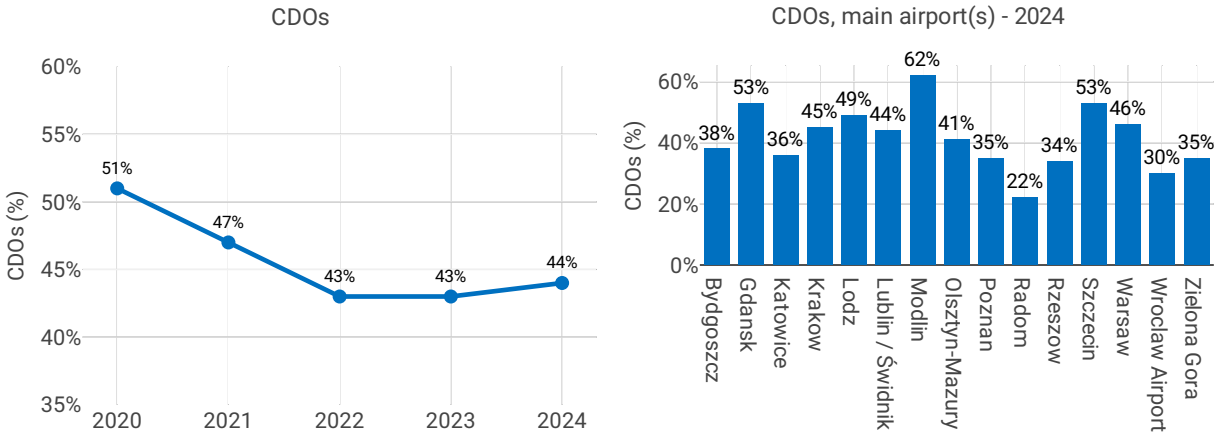
The NSA receives the list of planned changes in the ATM functional system on regular basis. Once a change is notified the relevant monitoring is implemented.

ASMA

Additional times in the terminal airspace of Warsaw (EPWA; 2019: 2.09 min/arr.; 2020: 1.21 min/arr.; 2021: 1.05 min/arr.; 2022: 1.27 min/arr.; 2023: 1.19 min/arr.; 2024: 1.33 min/arr.) in 2024 increased and exceeded again the SES average of 1.28 min/arr. For information on measures implemented over 2020-2023, the Polish monitoring report refers to the respective Annual Monitoring Reports.

For 2024, the Polish monitoring report mentions: *RECAT-EU was partially implemented for departures and arrivals from/to EPWA. In JUL 2025 the radar separation minimum applicable in Warszawa TMA is planned to be changed from 5 NM to 3 NM, which shall allow for more efficient traffic flow through that airspace. Moreover, RRSM are to be implemented for EPWA in 2025, and that will reduce the additional time spent in the terminal airspace for that airport. Furthermore, more efficient coordination procedures are being validated for APP and TWR, including reduction of the spacing on final approach. The NSA receives the list of planned changes in the ATM functional system on regular basis. Once a change is notified the relevant monitoring is implemented.*

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



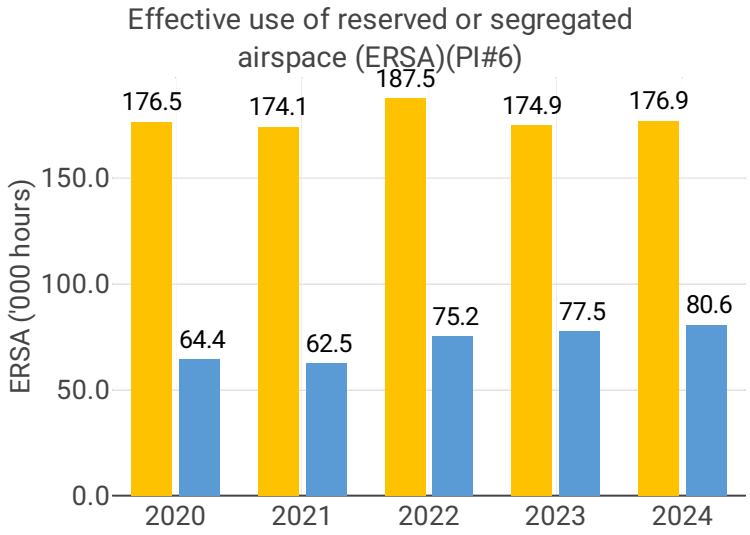
Focus CDOs

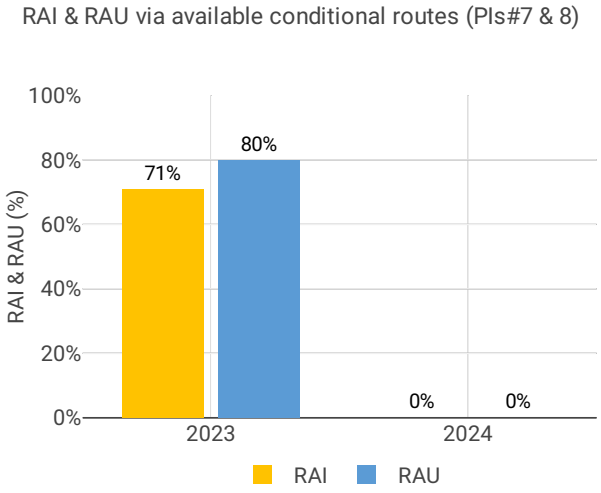
All airports have shares of CDO flights (well) above the overall RP3 value in 2024 (29.3%) except for Warszawa-Radom (EPRA - 21.9%). Gdańsk and Łódź had (significantly) higher values than in 2023 (EPGD: +5.2 percentage points; EPLL: +16.5 percentage points) while the values for the other airports stayed relatively stable.

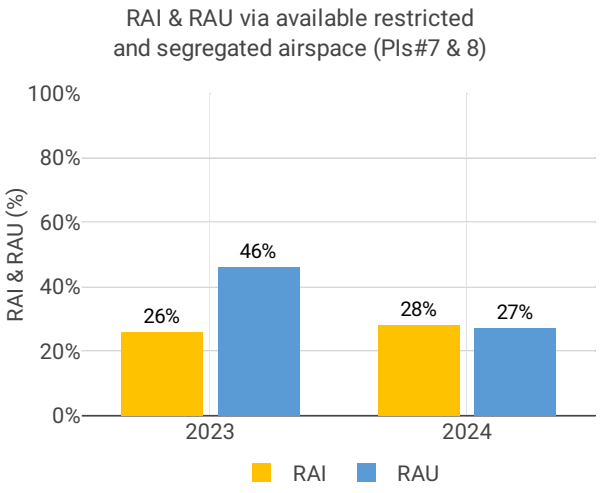
According to the Polish monitoring report: *For information on measures implemented over 2020-2023 please see the respective Annual Monitoring Reports. RNAV procedures and airspace allowing continuous descent operations are available for all airports where PANSA provides ATS. Additional analysis is planned to be conducted for TMA Kraków to see if any further improvements are possible with regard to CDAs. Planned reduction of radar separation minimum in Warszawa TMA is expected to allow a greater percentage of arrivals to EPWA and EPMO to utilise the CDO. The change is planned to be implemented in JUL 2025. Relevant monitoring will be conducted when necessary.*

Airport level															
	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
Airport	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Warsaw	1.99	2.11	2.28	2.59	2.78	1.21	1.05	1.27	1.19	1.33	51%	49%	45%	44%	46%
Bydgoszcz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43%	42%	39%	37%	38%
Gdansk	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58%	49%	51%	48%	53%
Krakow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	45%	45%	45%	45%
Katowice	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49%	46%	39%	38%	36%
Lublin / Świdnik	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37%	39%	37%	40%	44%
Lodz	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42%	35%	34%	33%	49%
Modlin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	66%	61%	55%	60%	62%
Poznan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41%	36%	36%	35%	35%
Rzeszow	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	49%	27%	33%	34%
Szczecin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53%	58%	51%	52%	53%
Olsztyn-Mazury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	48%	54%	39%	41%	41%
Wroclaw Airport	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43%	40%	35%	32%	30%
Zielona Gora	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68%	61%	63%	37%	35%
Radom	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				23%	22%

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

There are over 30 permanent military areas extending over FL95 in FIR EPWW that have the 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 Warszawa that might impact the route efficiency of civil aircraft. 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 aimed at optimisation of its use. The procedures are continuously updated according to the current needs of both the civil 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 PANSA website.

At the same time, the military's need to conduct training, which is not subject to the same coordination as exercises, may have a significant impact on delays in civil aviation. The change in the Polish Aviation Law act in 2025 regarding RPAS should have a positive impact on the fluidity of air traffic.

Military - related measures implemented or planned to improve capacity

On strategic airspace management level, all significant military exercises and permanent military areas are evaluated and analysed considering 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 BALTIC FRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the 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 include:

- update of local ASM system/radar data added to visualize military activity in segregated areas. As a result update of coordination procedures to reduce the time required to release segregated areas back to civil traffic;
- implementation of closer cooperation between AMC Poland and FMP Warszawa to reduce the negative influence of segregated areas on civil traffic as much as possible;
- implementation of new coordination procedures (NPZ management) considering forecasted demand of civil traffic on segregated airspace allocation in time on the 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 analysed taking into account historic civil traffic flows and civil traffic predictions. The impact, depending on the scale, is consulted with the key stakeholders including neighboring 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 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 FRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible, class C TRA airspace is implemented to minimise the impact on civil routing. When the areas excess 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 minimise the horizontal flight inefficiency.

Further measures include:

- update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic;
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce the negative influence of segregated areas on civil traffic as much as possible;
- implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

Annual review of the efficiency of airspace utilisation is conducted.

Initiatives implemented or planned to improve PI#7

The available flight planning options are constantly updated to allow Aircraft Operator (AO) to plan the most horizontally effective trajectory - even when the areas are active. Except ATS network and DCTs, the AOs have the possibility to plan in the Free Route Airspace environment (FRA). Implementation of cross-border free route airspace operations within Lithuanian and Polish airspace (BALTIC FRA) and the cross-border operations between BALTIC FRA and South East Europe FRA were implemented in 1Q 2022 which could further increase the planning opportunities. Second step of cross-border FRA operation between Poland, Czechia and Sweden was implemented in November 2024, further expanding benefits for AUs.

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

Further measures include:

- update of local ASM system/radar data added to visualise military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic,
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce the negative impact of segregated areas on civil traffic as much as possible;

- implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

Due to the war in Ukraine and significantly increased number of NATO flights in Polish airspace special procedures were implemented in order to ease flight planning process for AUs. For some areas FUA restrictions are dynamically managed and, if possible, are not activated on a given days.

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 the day. If possible, class C TRA airspace is implemented to minimise the impact on civil routing. Special procedures are prepared including dynamic change of level or area segment.

Further measures include:

- update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic;
- implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce the negative influence of segregated areas on civil traffic as much as possible;
- implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

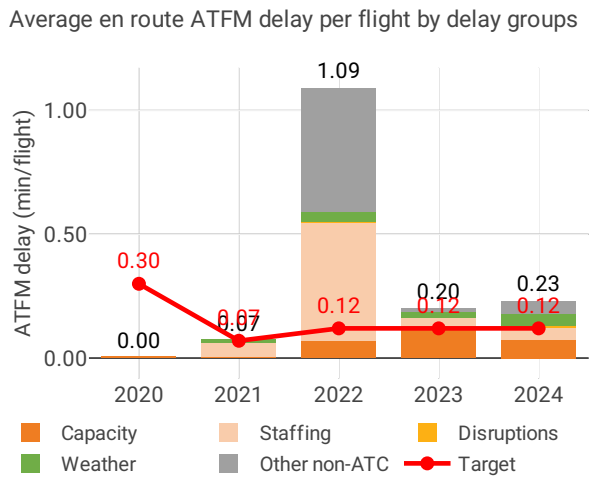
4 CAPACITY - POLAND

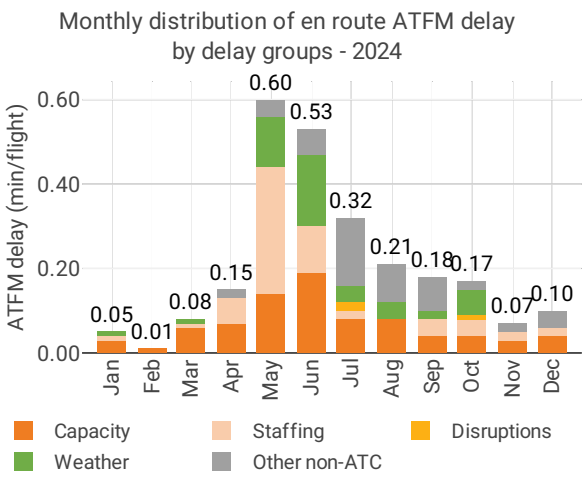
4.1 PRB monitoring

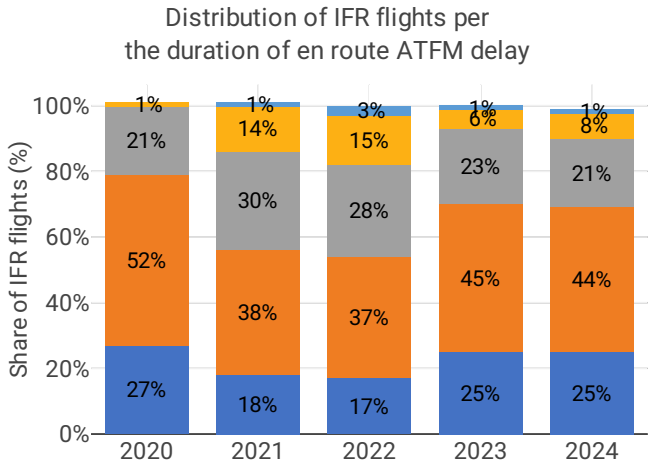
- Poland registered 0.23 minutes of average en route ATFM delay per flight during 2024, which remained 0.23 after the post-ops adjustment process, thus not achieving the local target value of 0.12. Delays in Poland increased by 0.03 minutes per flight year-on-year.
- Most of the delays accumulated between May and July, mainly driven by ATC Capacity and Staffing issues and adverse weather conditions.
- The share of delayed flights with delays longer than 15 minutes in Poland increased by 1 percentage point compared to 2023 and was lower than 2019 values.
- The average number of IFR movements was 16% below 2019 levels in Poland in 2024.
- The number of ATCOs in OPS is 173.17, being below the 2024 plan in Warsaw by 21 FTEs.
- The yearly total of sector opening hours in Warsaw ACC was 35,467, showing a 1.3% increase compared to 2023. Sector opening hours are 17.2% below 2019 levels.
- Warsaw ACC registered 18.17 IFR movements per one sector opening hour in 2024, being 5.4% below 2019 levels.
- Poland registered an average airport arrival ATFM delay of 0.49 minutes per flight in 2024, thus not achieving the local target of 0.23 minutes.
- Compared to 2023, average arrival ATFM delays in Poland were 165% higher in 2024, while the number of IFR arrivals increased by 10%.
- The main drivers of delays were other, non-ATC related causes, accounting for 59% of delays, and weather, responsible for 21%.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Poland experienced an increase in traffic from 697k flights in 2023 with 136k minutes of en-route ATFM delay to 758k flights in 2024 with 172k minutes of en route ATFM delay.

There were an additional 3k minutes of delay originating in Poland that were re-attributed to DFS via the NM post operations delay attribution process, according to the NMB agreement for eNM/S24 measures, to ameliorate capacity shortfalls in Karlsruhe UAC.

NSA's assessment of capacity performance

Similarly as in 2023, performance over 2024 was strongly impacted by the consequence of the military aggression of the Russian Federation on Ukraine, a war right behind Poland's eastern border. The resulting closure of the Ukrainian airspace and further restrictions imposed on traffic flows on east-western axis (as a consequence of sanctions and reciprocal actions) led to significant changes to traffic flows in the Polish airspace (including drop in overflights and new traffic flows on the north-southern axis along Poland's eastern border circumnavigating the closed airspace of Ukraine). At the same time a direct consequence of the war was significant increase in military activity (including NATO) in FIR Warszawa, still visible in 2024, what impacted airspace availability for civil traffic. All this had an impact on capacity and increased complexity. The environmental performance (HFE/KEA) was also determined by the geopolitical situation and closed airspace beyond Poland's eastern border.

The target set in the KPA of en route Capacity was not met in 2024. En-route ATFM delay per flight indicator achieved value was 0,23 minutes/flight with the target – 0,12 minutes/flight, set in the PP.

As the incentive scheme is obligatory in the KPA of Capacity, taking into account the actual performance achieved in this area, maximum penalty will be imposed on PANSA in en-route.

The Russian aggression against Ukraine strongly affects Polish airspace in terms of its availability, together with adverse weather conditions. Both factors are described in more details in the following parts of the Monitoring Report. However, ATC Staffing and Capacity, responsible for more than half of the en-route delays must also be addressed.

Monitoring process for capacity performance

At PANSA, the evaluation of the capacity situation and delays is performed on daily basis using its own OPS data as well as NM data. Monthly monitoring is implemented based on EUROCONTROL (ANS performance) data. The results in the CAPACITY KPA at the end of 2024 year for Poland (PANSA) was 0,23 minutes/flight with a target of 0,12 minutes/flight.

The 2024 results were significantly impacted by the war in Ukraine and its consequences (21% of all 2024 en-route are attributed to the war – coded as "O") and by meteorological conditions (weather-related delays account for 20% of 2024 delays). However, ATC Capacity (32% of all 2024 en-route delays) and ATC Staffing (24% of all 2024 en-route delays) also play and essential role in the delay. The NSA monitored ATCO numbers and training in 2024 in a regular manner.

Capacity planning

Capacity planning over 2024 focused on mid to long-term planning based on STATFOR forecasts, NM data, PANSA simulations as well as short term planning (up to 8 weeks) under the NOP rolling planning initiative coordinated by the Network Manager. Capacity planning remained challenging due to higher than pre-RP3 uncertainty regarding traffic levels as well as military activity resulting from the geopolitical developments.

Despite the war in Ukraine and challenges related thereto, PANSA continued the implementation of initiatives aimed at improving capacity in FIR Warszawa in order to meet challenges related to traffic increase after the crisis as well as potential changes in traffic flows.

These included, among others, the following:

- continuation of new ATCOs training (continued training process for trainees employed before 2024, as well as new recruitment process for ATCO started in 2024 – in total (all ATCO units, ACC, APP and TWR) 88 candidates started the training process in 2024; a number of measures were implemented in the recruitment area (continuous recruitment, modified forms, internal organisational changes to optimise processes) and training area (simulator development, digitalisation of documents, improvements in trainers selection process) to support increased efficiency of the processes;
- continued adaptation of the air traffic management system (Pegasus_21) to operational needs and modernisation of the ATM system as well as works – under international iTEC cooperation – on new ATM system to be implemented in the future;
- use of tools supporting ATCOs and flow management optimisation (including use of Traffic Complexity Tool and NMP Flow as well as Arrival Manager for EPWA airport);
- 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;
- preparations for implementation of subsequent stages of airspace three-layer vertical split (planned implementation in Q3 2025);
- sector capacity analysis based on new CAPAN (Capacity Analysis) studies, including both the verification of the capacity of existing sectors as well as those newly established as a result of the implementation of vertical split within the EPWW FIR (CAPAN planned in May 2025);

- preparation for Dynamic RAD implementation (implemented in February 2025);
- works on implementation of Radar Control in EPRZ TMA (implemented in January 2025);
- continued harmonisation of GAT and OAT traffic leading to implementation of EUROAT;
- refreshment trainings for current ATCOs to maintain their competence;
- continuation of flexible rostering;
- evolving ACC sector configurations and management to cope with updated traffic forecasts;
- continued FMP dynamic management and ATFCM techniques including STAM;
- post-ops analyses taking into account traffic levels, delays, sector configurations;
- traffic analyses under hypothetical scenarios assuming unblocking of Ukrainian and Belarussian airspace;
- improvement of comprehensive airspace management.

PANSA also actively contributed to the implementation of Summer 2024 NM/ANSPs measures aimed at limiting delays in the mostly congested parts of the Network (aimed to reduce network ATFM delays by removing traffic from congested areas). Following this contribution, 3.4k minutes of delays were reattributed from PANSA to another ANSP.

Further improvements are planned for RP4 as listed in the RP4 PP for Poland.

Application of Corrective Measures for Capacity (if applicable)

2024 results were significantly impacted by:

1. ATC Capacity - actual demand exceeded capacity available based on traffic predictions or capacity available in TMAs (especially for Warsaw TMA), which caused 32% of all en-route delays in FIR Warszawa in 2024. Due to Poland's location on the map the capacity planning was challenging.
2. ATC Staffing issues, which caused 24% of all en-route delays in 2024 and were clearly visible especially over May-June period. ATCO recruitment and trainig processes have been significantly modernised in 2024, however, as the training process in a long one, it will take same time till the results are clearly visible. Moreover, during the entire RP3 more ATCOs than planned, have stopped working in the OPS room.
3. Military aggression of the Russian Federation on Ukraine – this element was not factored in when the RP3 targets (based on reference values developed by the PRB/NM) were developed. The Russian aggression against Ukraine resulted in significant changes to traffic flows in FIR Warszawa, leading to increase of traffic in south-eastern sectors. Increased traffic levels are visible in certain periods of time due to flights circumnavigating around closed Ukrainian airspace (on the south-north axis). At the same time the war led to the introduction of restrictions in FIR Warszawa (specifically, along Poland's eastern border), impacting availability of the airspace for civil traffic. Much wider military activities are visible, also linked to increased number of NATO flights in eastern part of the Polish airspace. Significant portion of this part of the airspace is reserved for military flights (performed H24) thus unavailable for civil traffic. The limited capacity (caused directly by the political circumstances),

coupled with increased demand in sectors group J (due to the traffic flows circumnavigation around Ukrainian airspace and limited possibilities of planning through sector R, caused by NPZ), has an impact on delays in the Polish airspace. Moreover, unpredictability of certain military operations (including NATO ad hoc operations) results in difficulties for strategic planning of traffic flows, requiring implementation of tactical measures. The impact on delays can be especially visible during the period of higher traffic levels (when the traffic demand exceeds the available capacity in the parts of FIR Warszawa which were impacted by the restrictions). Over 2024 the delays related to the war (code O) generated delay at 0.05 minute per flight (21% of all en-route delays generated in FIR Warszawa in 2024). Without them the result would be more advantageous (0,18 minute/flight), but still the target would not be met.

4. Weather conditions – these are becoming more severe, what has not been sufficiently factored in in the RP3 targets. Over 2024 the delays related to weather (code W) amounted to 0.05 minute per light (20% of all en-route delays generated in FIR Warszawa in 2024).

Recommendations for improvements: Weather cincumstances as well as the effects of the war going on in Ukraine just beyond the Polish border are in most part out of ANSPs control. For those reasons it is difficult to suggest any further recommendations. What is recommended is to improve traffic flow management as well as to continue with the recruitment and training processes, as new ATCOs are needed, whilst their start of operational work requires time. At the same time discontinuation of operational work by a particular number of people must also be taken into account. Analysis of available ATCOs should be continued.

Remedial measures

3 measures were already implemented:

- Improved sectorisation of ACC - implemented first stage of 3 layer vertical split; subsequent stage ongoing;
- Traffic flow management and development of sectorisation - regular evaluations of traffic flows to move from congested areas to volumes of airspace where spare capacity can be found. Flexible use of ATFM regulations including implementation of dynamic RAD, occupancy trial testing. Planned increase in maximum number of sectors open, as well as flexible use of available sectors.
- Training of new ATCOs - new ATCOs training aimed at increasing the number of ATCOs for ACC and APP, in line with plan included for RP4 performance plan - ongoing with new courses planned for 2025+.

Additional remedial measures being implemented include:

- Coorperation with NM and other stakeholders to develop scenarios to prepare for possible reopening of airspace beyond Poland's eastern border.
- Consultation with Airspace Management Committee to assess changes to existing airspace structure for example the establishment of new Prohibited or Restricted areas.

However, the national monitoring report highlights that several issues will continue:

As indicated in Annex Q to the RP4 PP, it should be noticed that due to the unstable geopolitical situation beyond Poland's eastern border, including the ongoing war in Ukraine, en-route delays generated on the "O" code may appear during the RP4 period. Their share in the total number of en-route delays, or the number of delays dedicated exclusively to non-ATC, is difficult to predict due to the inability to assess the intensity of military activity, especially in exceptional situations in terms of traffic volume, operational support capabilities and declared airspace capacity in a given period. It is also impossible to predict how the ongoing warfare and its monitoring will affect subsequent, possible changes in traffic flows in FIR EPWW, which may further complicate traffic management at the ACC level and negatively affect the level of en-route delays.

The possible increase in delays caused by weather factors (code "W") should also be borne in mind. Attention to this tendency was also paid at the level of the entire network in the PRB report on the proposed EU-wide targets for the RP4 period (see chapter 6 of the report "Performance Review Body Advice on the Union-wide targets for RP4" from March 2024 – including statements such as: "Considering the increasing unpredictability of weather phenomena and their impact on capacity performance […]", "The PRB understands that uncertainty around weather is increasing, as the occurrence and severity of weather phenomena affecting aviation in general").

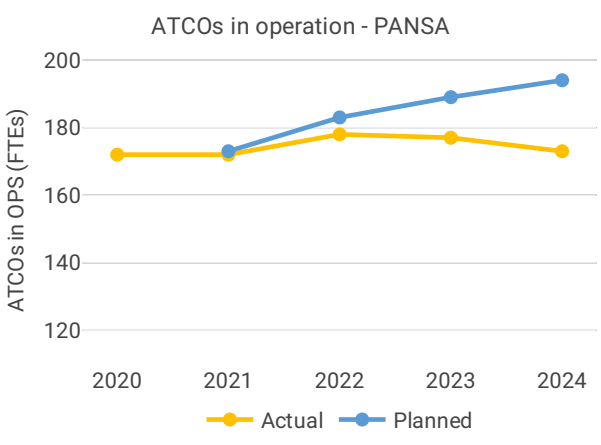
Moreover, the RP4 delay results may be further impacted if the airspace beyond Poland's eastern border is reopened – both in the case of Ukraine (if the war is over) and in case of Belarus and Russia (if respective sanctions are lifted). This may lead to traffic flows changes and significant traffic increase in FIR Warszawa, having possible impact on delays (especially as the impact of such airspace reopening on traffic volumes and flows is for the time being not predictable).

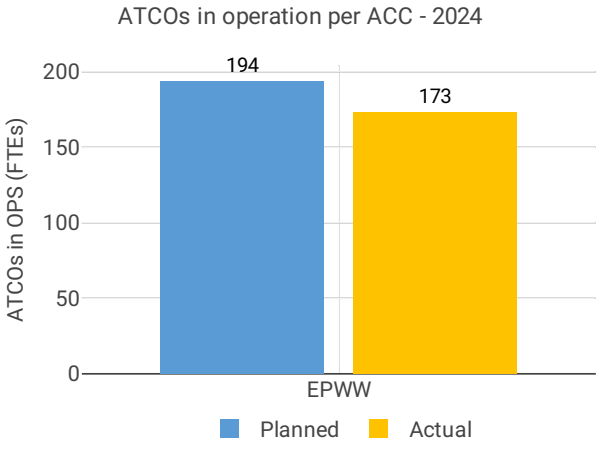
En route Capacity Incentive Scheme

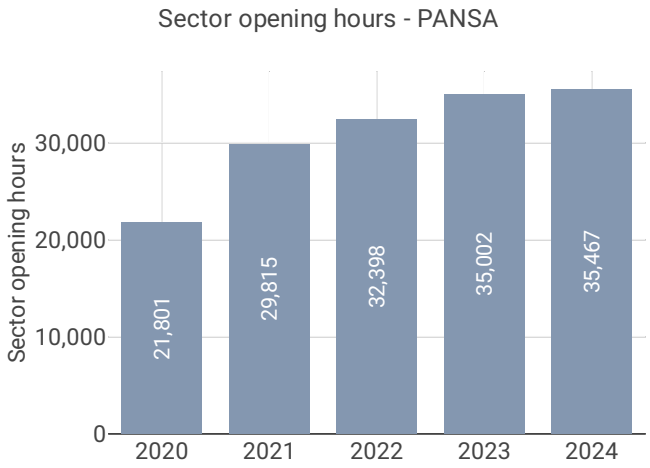
Polish Air Navigation Services Agency (PANSA): According to incentive scheme defined in monitoring report a penalty of PLN 16 942 314.53 is due.

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.

4.2.2 Other indicators







Focus on ATCOs in operations

Number of additional ATCOs in OPS who have started working in the OPS room (FTEs): 4.25 consists of:

4 - new licenses,

0.25 - increase of working time on the requsts of employee.

Number of ATCOs in OPS who have stopped working in the OPS room (FTEs): 8.30 consists of:

1 – termination of the contract,

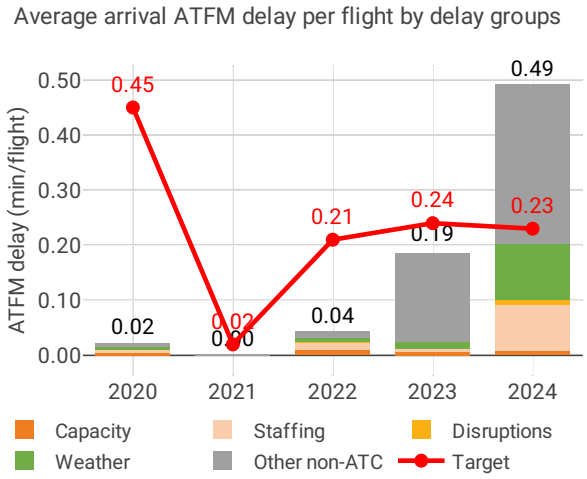
7 – shifts from PRU1 (ATCOs in OPS) category to other PRU categories,

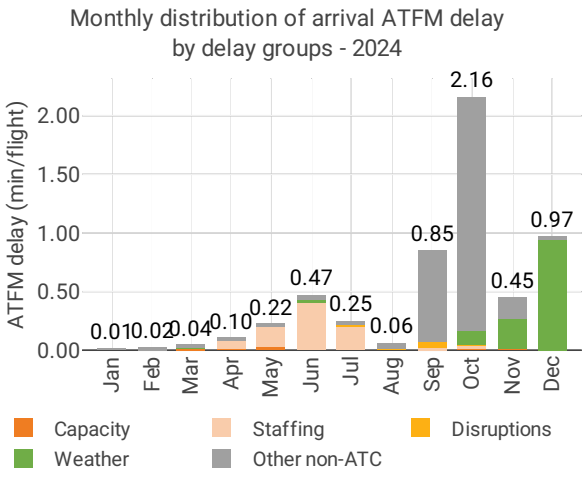
0.30 – reduction of working time on the request of employee.

NSA reports that 30 ATCOs stopped working in the OPS room over the period 2021-2024 a much greater number than the 4 ATCOs forecasted in the RP3 performance plan to do so.

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. Traffic at the ensemble of these 15 airports in 2024, after a 10% increase with respect to 2023, surpassed pre-Covid levels (+7% with respect to 2019).

Average arrival ATFM delay in 2024 was 0.49 min/arr, compared to 0.19 min/arr in 2023. National target was not met. ATFM slot adherence was slightly better than the previous year (2023: 96.6%; 2024: 96.8%).

On average, arrival ATFM delays have increased at Polish airports, with most delays concentrated at Warsaw (EPWA; 2024: 0.8 min/arr) but also important delays recorded also at Gdansk and Krakow. The national average arrival ATFM delay in 2024 was 0.49 min/arr. 56% of all delays at Polish airports were attributed to Aerodrome Capacity, followed by 21% attributed to Weather and 17% attributed to ATC Staffing.

According to the Polish monitoring report: *Large majority of 2024 terminal delays was generated by non-ATC causes. Non-ATC delay per flight in 2024 accounted for 0.38 minute (77% of all terminal delays in 2024), while ATC (CRSTMP) only for 0.11 minute. It should be noted that actual traffic (IFR MVS) at regional airports (terminal zone II) in 2024 was 15.5% higher than the forecast underlying the adopted RP3 PP.*

**Underlying reasons: *Majority of 2024 terminal delays was generated by non-ATC causes. Non-ATC delay per flight in 2024 accounted for 0.38 minute (77% of all terminal delays in 2024), while ATC (CRSTMP) for 0.11 minute. The largest value of delay per flight is visible for EPWA, where it is caused almost fully by non-ATC reasons (runway maintenance over September-December, which is responsible for 88% of delays at this airport, generated in these months, and weather phenomena over Q4). Weather conditions were also responsible for 2024 delays in EPKK - 79% of delays on that airport.*

As regards ATC delays, these were visible in EPRZ and are responsible for 71% of all delays at this airport (due to the war in Ukraine – see further details below) and EPGD - staffing issues responsible for 98% of 2024 delays at this airport.

**Recommendations to ANSP from NSA: *The NSA monitored ATCO numbers on regular basis. As a result staffing organisational changes were implemented. No further recommendations issued.*

Planned measures to support achievement of the capacity targets in RP4 have been listed in the RP4 PP for Poland.

Further measures: *Monitoring of the ATCO training plans.The target takes into account all delay causes – both ATC as well as non-ATC. As shown by the past years' data, terminal delays are significantly impacted by non-ATC elements that are beyond control of PANSA. This has been considered when defining the incentive scheme for RP4, however still due to this fact there is a significant risk that the actual delay indicator (based on all delay causes) might be different than the target. Another element that can influence the actual performance over the coming years is the level of traffic. The RP4 traffic forecast is, in principle, based on STATFOR predictions. Past years' experience has shown that – especially in the case of regional airports –*

actual traffic can develop more dynamically than forecasted, what could also impact the delay indicator.

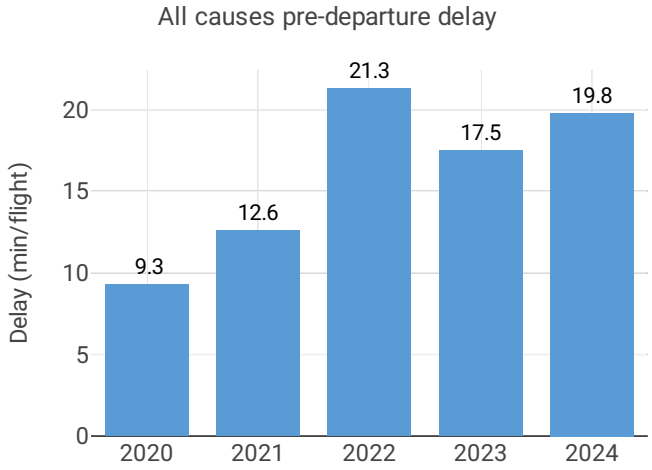
**Additional information related to Russia's war of aggression against Ukraine:*The outbreak of the war in Ukraine impacted traffic to/from Rzeszów-Jasionka (EPRZ) airport, which became kind of a transportation hub for Ukraine. As a consequence, significant traffic increase at this airport, as compared to both previous years as well as the assumptions underlying the adopted RP3 PP, was observed. Moreover, military exercises are being organized at/around the airport and military operations are performed at the airport - causing also temporary closure of the airport. Similar as in 2022 and 2023, increased military activity, following the outbreak of the war, had some impact on delays in Rzeszów-Jasionka (EPRZ) airport over 2024.*

Below are the airport arrival ATFM delays for Rzeszów-Jasionka (EPRZ) airport over 2024 related to the war in Ukraine - delays coded "O" in total relate to the war, while as regards those coded "M" significant part is also considered to be linked to the war.

Remedial actions to mitigate impact of Russia's war: In 2024 the Approach Control Surveillance was introduced in CTA 09, where the responsibility for the provision of ATS services may be delegated from Rzeszów TWR to Kraków APP. CTA 09 limits are coincident with those of Rzeszów TMA.

Poland's performance plan sets a national target on arrival ATFM delay for 2024 of 0.23 min/arr. This target was missed with an actual performance of 0.49 min/arr. The incentive scheme uses modulated pivot values limited to CRSTMP delay causes. According to the Polish monitoring report, this pivot value for CRSTMP is 0.04 min/arr in 2024 and based on the attribution of the regulation reason, the actual CRSTMP value for 2024 was 0.11 min/arr. The NSA calculates a penalty of PLN 3 311 517.51.

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	2024	2020	2021	2022	2023	2024
Bydgoszcz	NA	NA	NA	NA	NA	94.0%	100.0%	97.0%	98.2%	97.7%
Gdansk	NA	NA	0.12	0.04	0.74	93.3%	97.0%	96.6%	97.1%	97.1%
Katowice	NA	NA	0.05	0.01	0.09	89.6%	92.3%	92.1%	93.1%	93.3%
Krakow	0.04	NA	0.11	0.04	0.49	95.9%	97.9%	97.5%	98.2%	98.2%
Lodz	NA	NA	0.04	NA	NA	100.0%	92.0%	95.6%	93.9%	95.0%
Lublin / Świdnik	NA	NA	NA	NA	NA	91.7%	96.2%	98.1%	98.1%	99.4%
Modlin	0.01	NA	0.00	0.58	0.00	96.4%	98.3%	98.1%	98.0%	98.3%
Olsztyn-Mazury	NA	NA	NA	NA	NA	88.9%	100.0%	97.9%	97.1%	92.0%
Poznan	NA	0.01	0.00	0.03	0.00	97.9%	97.3%	97.7%	96.8%	97.0%
Radom				NA	NA				97.8%	98.3%
Rzeszow	NA	NA	0.04	0.19	0.51	93.3%	98.4%	97.3%	96.9%	97.2%
Szczecin	NA	NA	0.02	NA	NA	95.7%	100.0%	97.6%	94.5%	97.9%
Warsaw	0.04	0.00	0.02	0.36	0.80	97.5%	97.4%	97.1%	97.5%	97.7%
Wroclaw Airport	NA	0.00	0.01	0.00	0.00	88.9%	92.1%	93.9%	92.8%	94.4%
Zielona Gora	NA	NA	NA	NA	NA	100.0%	100.0%	89.9%	93.2%	97.8%

	ATC pre departure delay (PI#2)					All causes pre departure delay (PI#3)				
Airport name	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
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	0.54	0.56	0.61	0.74	9.3	12.6	21.3	17.5	19.8
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

Polish airports showed adherence between 92% and 99.4% and Warsaw (EPWA) reached 97.7%. The national average was 96.8%, similar to the previous year (96.6%). With regard to the 3.2% of flights that did not adhere, 1.9% was early and 1.3% was late.

According to the Polish monitoring report: *Regular ATFCM training for TWR ATCOs, reminding the personnel about the rules of procedure for allocated slot time and the related limitations of NM systems. The conducted monitoring indicated that there were no airports in Poland where adherence to ATFM departure slots in year 2024 was less than 80%. The level of adherence to ATFM departure slots in 2024 was similar as in 2023 with the highest percentage value of departures outside ATFM window noted at Olsztyn-Mazury airport – EPSY (8%), but still definitely not exceeding the 20% limit value.*

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 annual value for 2024 was higher than in previous years but lower than pre-COVID (EPWA: 2019: 0.87 min/dep; 2021: 0.59 min/dep; 2022: 0.6 min/dep; 2023: 0.61 min/dep; 2024: 0.74 min/dep)

According to the Polish monitoring report: *Higher pre-departure delay may be attributed to returning or, in some cases, exceeding pre-COVID traffic levels which in return increases apron and terminal congestion. GND planner position is planned to be implemented in 2026 in order to increase effectiveness of GND operations. The NSA receives the list of planned changes in ATM functional system on regular basis. Once the GND planner position is notified the relevant monitoring will be proceeded.*

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 increased in 2024 (EPWA: 2020: 9.32 min/dep.; 2021: 12.61 min/dep.; 2022: 21.26 min/dep.; 2023: 17.53 min/dep.; 2024: 19.76 min/dep.)

According to the Polish monitoring report: *2024 performance may be attributed to significant airside work in progress. No significant actions were taken by PANSA to improve this indicator in 2024. Relevant monitoring will be implemented when necessary.*

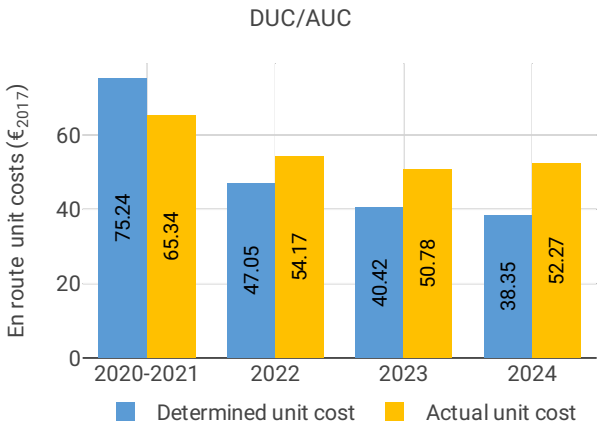
5 COST-EFFICIENCY - POLAND

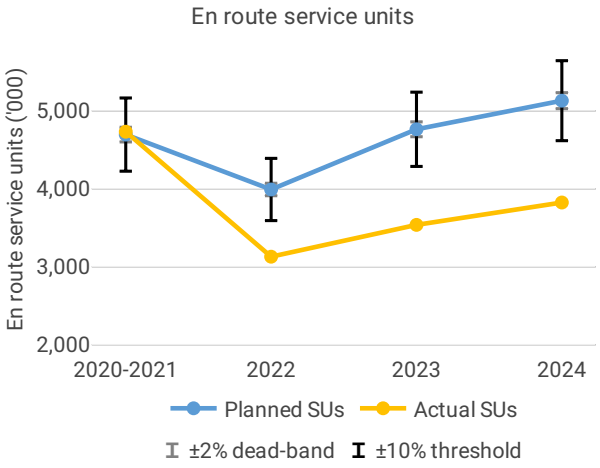
5.1 PRB monitoring

- The en route 2024 actual unit cost of Poland was 52.20€2017, +36% higher than the determined unit cost (38.35€2017). The terminal zone 1 2024 actual unit cost was 110.06€2017, +5.7% higher than the determined unit cost (104.10€2017), while the terminal zone 2 2024 actual unit cost was 223.66€2017, +3.5% higher than the determined unit cost (216.11€2017).
- The en route 2024 actual service units of Poland (3.8M) were -25% lower than the determined service units (5.1M), mainly due to shifted traffic flows caused by Russia's war of aggression against Ukraine.
- The en route 2024 actual total costs were +2.9M€2017, (+1.5%) higher than determined. This difference is driven by higher staff costs for PANSA (+6.4M€2017, or +6.1%) than determined. The NSA noted that it is mainly due to higher salaries driven by changes to remuneration regulations.
- PANSA costs of investments were 49M€2017 in 2024 for both en route and terminal charging zones, almost in line with the determined (-0.8%). This small difference is mainly due to the postponement and revision of some projects.
- The en route actual unit cost incurred by users in 2024 was 61.69€ (+43% higher than the 2024 DUC), while the terminal zone 1 actual unit cost incurred by users in 2024 was 130.59€ (+10% higher than the 2024 DUC) and 228.69€ (-6.8% lower than the 2024 DUC) for terminal zone 2. The differences between the AUCU and the DUC for en route charging zone can be primarily attributed to lower traffic than expected. For terminal zone 1 charging zone, it is mainly resulting from the positive inflation adjustment.
- Poland's RP3 performance plan included justifications for a deviation to achieve the RP3 capacity targets. The main measures included recruiting of new ATCOs. Poland has not submitted a detailed report of the capacity-related measures implemented. However, the number of ATCOs in operation at the end of RP3 is below the plan. Poland should reimburse to airspace users the excess funds received by ANSPs for measures not implemented.

5.2 En route charging zone

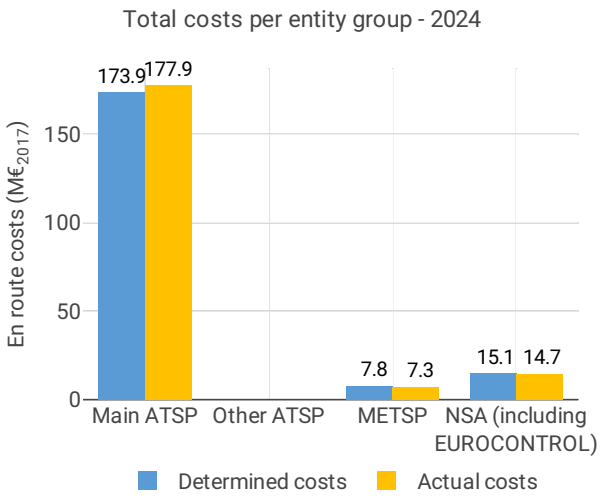
5.2.1 Unit cost (KPI#1)

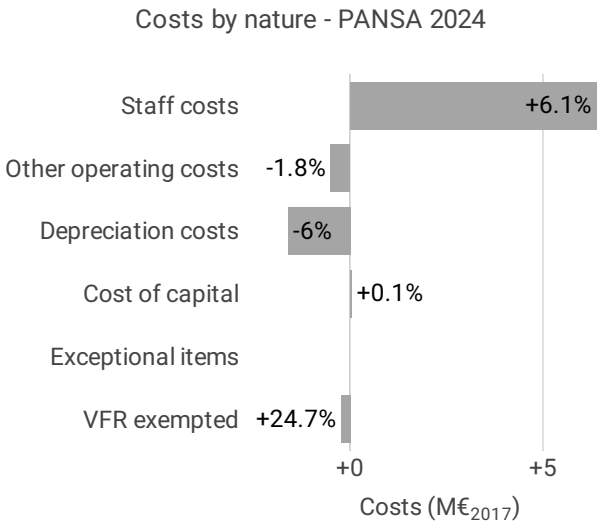




Actual and determined data				
Total costs - nominal (M€)	**2020-2021**	**2022**	**2023**	**2024**
Actual costs	330	202	233	267
Determined costs	377	206	215	223
Difference costs	-47	-4	18	44

Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	2.5%	2.5%	2.5%
Determined inflation index	NA	113.4	116.2	119.1
Actual inflation rate	NA	13.2%	10.9%	3.7%
Actual inflation index	NA	127.6	141.5	146.7
Difference inflation index (p.p.)	NA	+14.2	+25.3	+27.6





Focus on unit cost

AUC vs. DUC

In 2024, the en route AUC was +36.1% (or +59.22 PLN2017, +13.92 €2017) higher than the planned DUC. This results from the combination of significantly lower than planned TSUs (-25.4%) and higher than planned en route costs in real terms (+1.6%, or +13.5 MPLN2017, +3.2 M€2017). It should be noted that the actual inflation index in 2024 was +27.6 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (-25.4%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en route revenues is therefore shared between the ANSP and the airspace users (see the main ANSP loss in Box 11).

En route costs by entity

Actual real en route costs are +1.6% (+3.2 M€2017) higher than planned. This is the result of higher costs for the main ANSP, PANSA (+2.3%, or +4.1 M€2017) and lower costs for the NSA/EUROCONTROL (-2.4%, or -0.4 M€2017), and the MET service providers (-6.9%, or -0.5 M€2017).

En route costs for the main ANSP at charging zone level

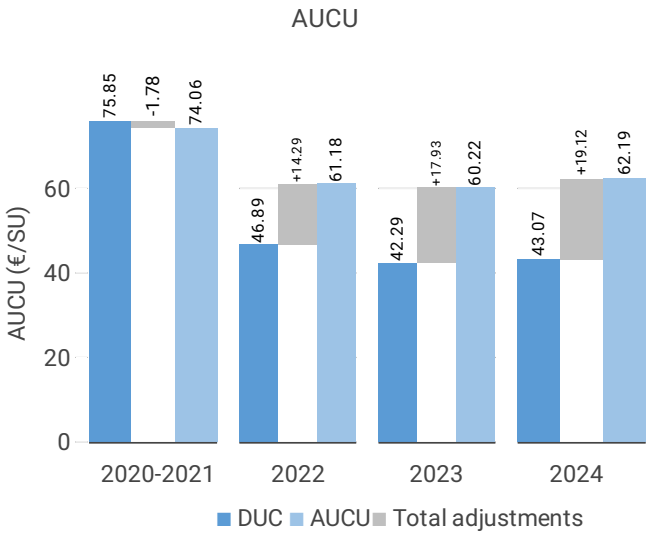
Higher than planned en route costs in real terms for PANSA in 2024 (+2.3%, or +4.1 M€2017) result mainly from:

- Higher staff costs (+6.1%) explained by "*salary increases to maintain PANSA competitiveness, which followed from labour market developments in the Polish economy, and additional staff costs driven by significant increase in inflation rates*".
- Lower other operating costs (-1.8%) in real terms due to the impact of the inflation index (+27.6 p.p.) since, in nominal terms, operating costs were significantly above the plan (+20.9%) reflecting higher costs of materials, energy, maintenance, training and travel.
- Lower depreciation (-6.0%) reflecting slower than planned execution of the investment plan over the previous years.
- Slightly higher cost of capital (+0.1%) resulting from significant increase in interest rate on debt which compensated lower than planned level of asset base.

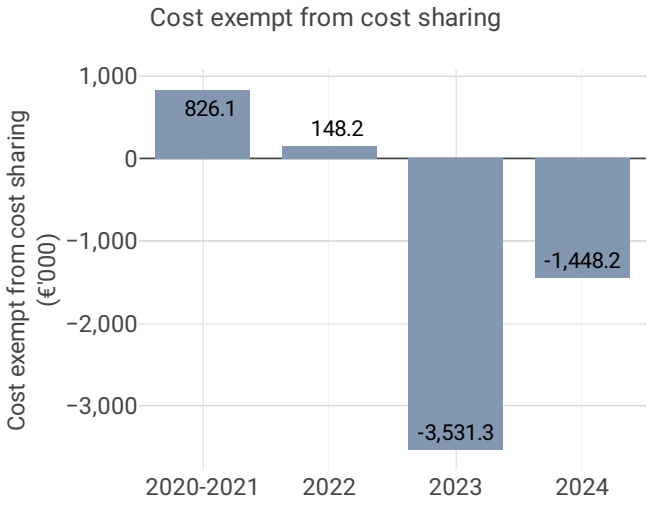
RP3 summary

When considering the whole of RP3 (2020-2024) for Poland en route charging zone, actual TSUs are -18.1% lower than planned, while actual costs in real terms are -7.8% lower than the determined costs (some -306.8 MPLN2017 or -72.1 M€2017). As a result, the weighted average actual unit cost over RP3 (239.87 PLN2017 or 56.38 €2017) is +12.6% higher than planned in the PP (213.05 PLN2017 or 50.07 €2017).

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

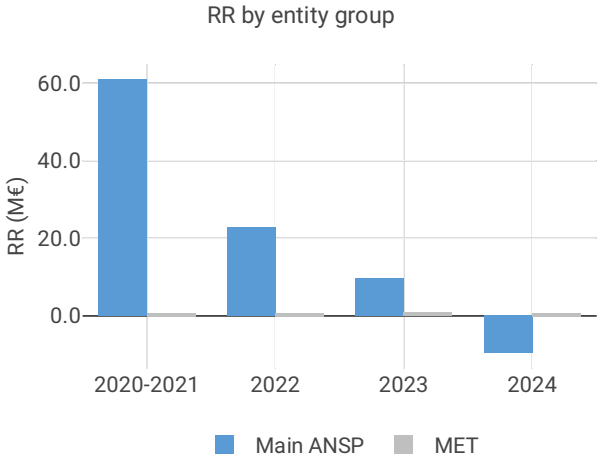


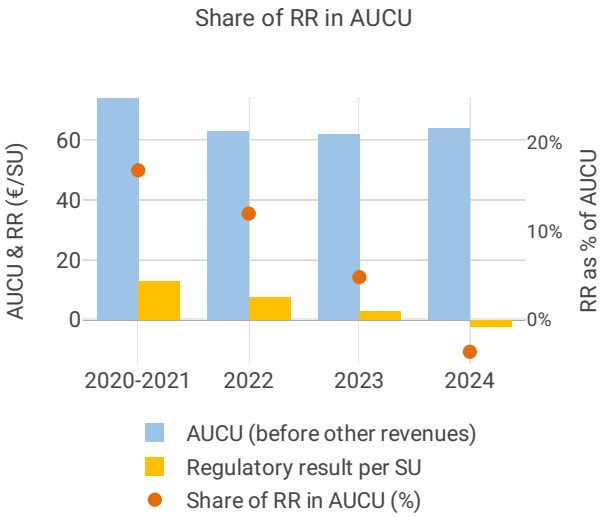
AUCU components (€/SU) – 2024	
Components of the AUCU in 2024	**€/SU**
DUC	**43.07**
Inflation adjustment	9.93
Cost exempt from cost-sharing	-0.38
Traffic risk sharing adjustment	10.84
Traffic adj. (costs not TRS)	1.60
Finantial incentives	-1.03
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-1.84
Application of lower unit rate	0.00
Total adjustments	19.12
AUCU	**62.19**
AUCU vs. DUC	**+ 44.4%**

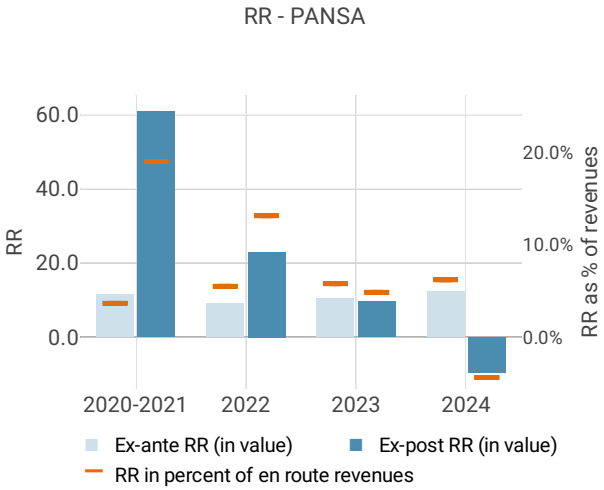


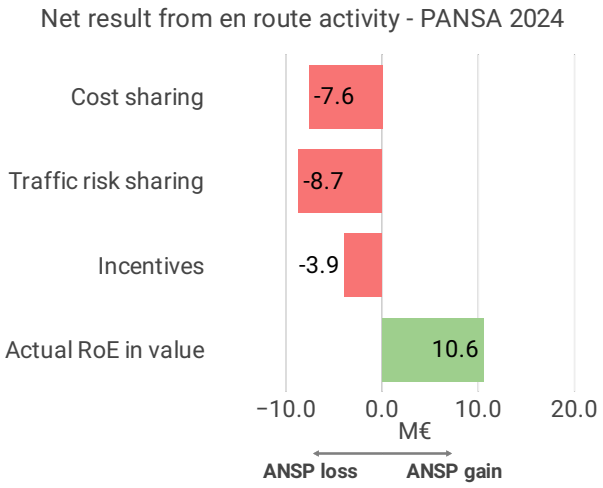
Cost exempt from cost sharing – 2024		
Cost exempt from cost sharing by item - 2024	**€'000**	**€/SU**
New and existing investments	-1,329.4	-0.35
Competent authorities and qualified entities costs	721.3	0.19
Eurocontrol costs	-1,074.9	-0.28
Pension costs	0.0	0.00
Interest on loans	234.9	0.06
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-1,448.2**	**-0.38**

5.2.3 Regulatory result (RR)









Focus on regulatory result

PANSA net gain/loss on activity in the Poland en route charging zone in the year 2024

PANSA reported a net loss of -87.0 MPLN, as a combination of a loss of -32.8 MPLN arising from the cost sharing mechanism, with a loss of -37.3 MPLN arising from the traffic risk sharing mechanism and a loss of -16.9 MPLN relating to financial incentives.

PANSA overall regulatory result (RR) for the en route activity

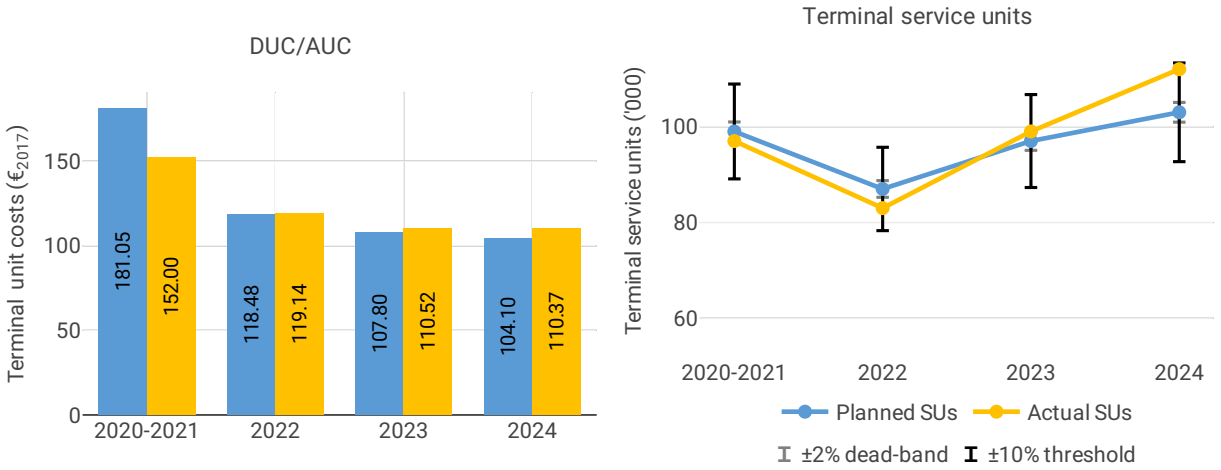
Ex-post, the overall RR taking into account the net loss from the en route activity mentioned above (-87.0 MPLN) and the actual RoE (+45.8 MPLN) amounts to -41.2 MPLN (-4.4% of the en route revenues). The resulting ex-post rate of return on equity is negative (-4.6%).

RP3 summary

When considering the whole of RP3 (2020-2024), PANSA generated a cumulative gain in respect of cost sharing of +329.4 MPLN, as actual total costs for RP3 were lower than planned. The traffic risk sharing mechanism generated loss of -96.2 MPLN. Adding the loss of -33.2 MPLN to be retained by the ATSP in respect of financial incentives and the actual RoE (+186.2 MPLN over RP3) leads to an overall regulatory result of +386.2 MPLN, which corresponds to an average ex-post return on equity of 8.0% (compared to 3.9% initially planned in the PP).

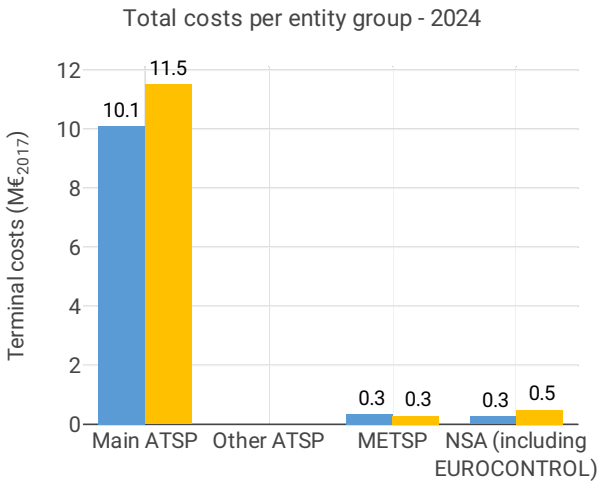
5.3 Terminal charging zone - Poland EPWA

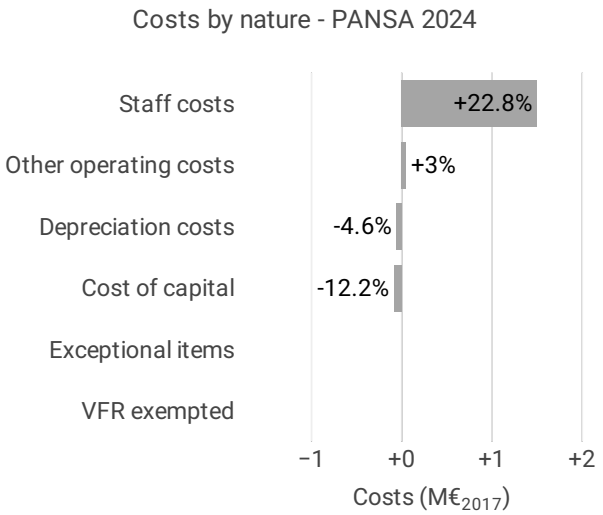
5.3.1 Unit cost (KPI#1)



Actual and determined data				
Total costs - nominal (M€)	**2020-2021**	**2022**	**2023**	**2024**
Actual costs	16	12	15	17
Determined costs	19	11	12	12
Difference costs	-3	1	3	5

Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	2.5%	2.5%	2.5%
Determined inflation index	NA	113.4	116.2	119.1
Actual inflation rate	NA	13.2%	10.9%	3.7%
Actual inflation index	NA	127.6	141.5	146.7
Difference inflation index (p.p.)	NA	+14.2	+25.3	+27.6





Focus on unit cost

AUC vs. DUC

In 2024, the terminal AUC was +6.0% (or +26.70 PLN2017, +6.27 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+14.7%, or +6.7 MPLN2017, +1.6 M€2017) and significantly higher than planned TNSUs (+8.2%). It should be noted that the actual inflation index in 2024 was +27.6 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (+8.2%) falls outside the ±2% dead-band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ANSP and the airspace users (see the main ANSP gain in Box 11).

Terminal costs by entity

Actual real terminal costs are +14.7% (+1.6 M€2017) higher than planned. This is the result of higher costs for the main ANSP, PANSA (+13.9%, or +1.4 M€2017) and the NSA (+88.0%, or +0.2 M€2017) and lower costs for the MET service provider (-16.9%, or -0.1 M€2017).

Terminal costs for the main ANSP at charging zone level

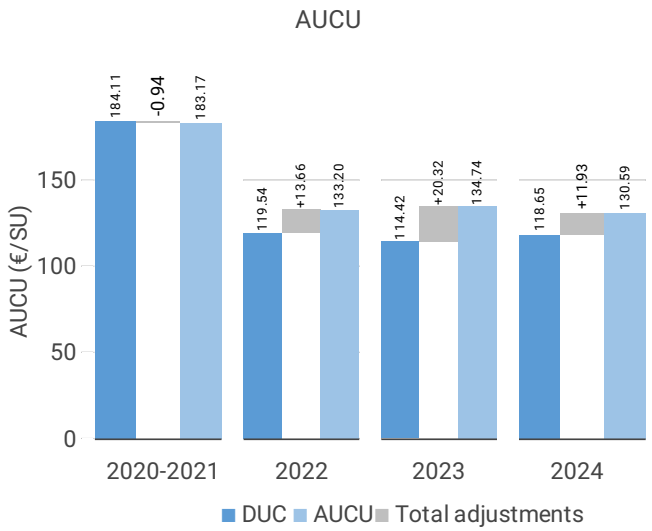
Significantly higher than planned terminal costs in real terms for PANSA in 2024 (+13.9%, or +1.4 M€2017) result from:

- Significantly higher staff costs (+22.8%) which are explained by "*salary increases to maintain PANSA competitiveness, which followed from labour market developments in the Polish economy, and additional staff costs driven by significant increase in inflation rates*".
- Slightly higher other operating costs (+3.0%) reflecting higher costs of materials, energy, maintenance, training and travel.
- Lower depreciation (-4.6%) reflecting mainly slower than planned execution of the investment plan over the previous years.
- Significantly lower cost of capital (-12.2%) resulting from much lower than planned asset base.

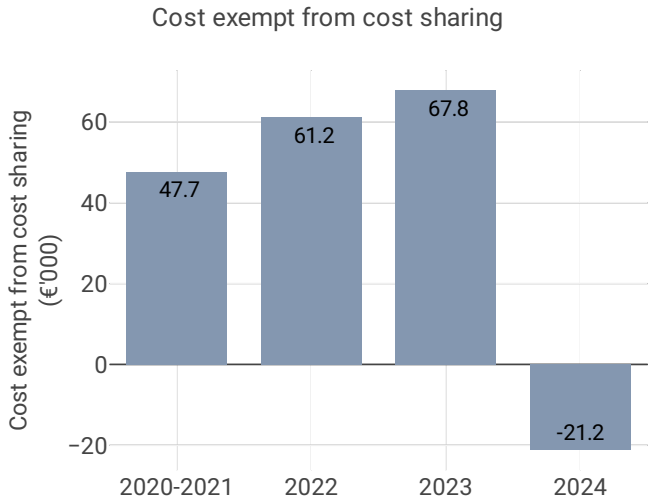
RP3 summary

When considering the whole of RP3 (2020-2024) for Poland terminal charging zone 1 , actual TNSUs are +1.3% higher than planned, while actual costs in real terms are -2.9% lower than the determined costs (some -6.1 MPLN2017 or -1.4 M€2017). As a result, the weighted average actual unit cost over RP3 (521.66 PLN2017 or 122.61 €2017) is -4.2% lower than planned in the PP (544.37 PLN2017 or 127.94 €2017).

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

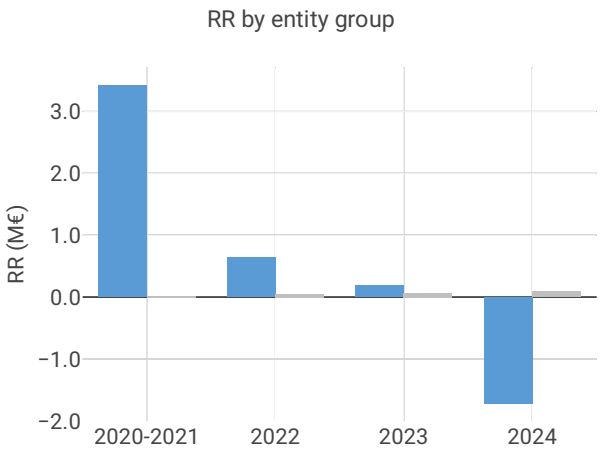


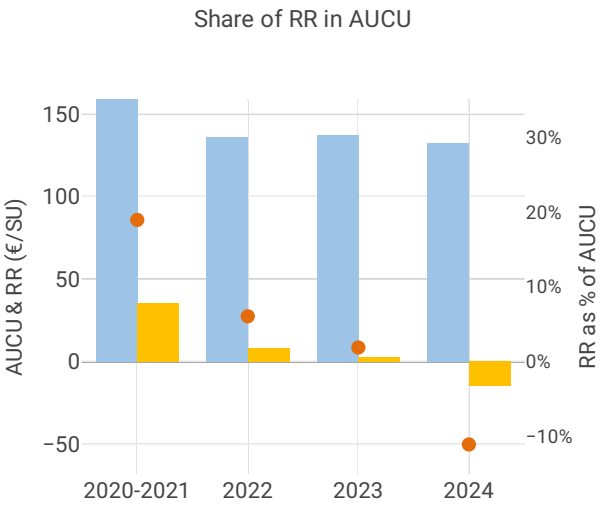
AUCU components (€/SU) – 2024	
Components of the AUCU in 2024	**€/SU**
DUC	**118.65**
Inflation adjustment	20.89
Cost exempt from cost-sharing	-0.19
Traffic risk sharing adjustment	-4.50
Traffic adj. (costs not TRS)	-0.50
Finantial incentives	-2.07
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-1.69
Application of lower unit rate	0.00
Total adjustments	11.93
AUCU	**130.59**
AUCU vs. DUC	**+ 10.1%**

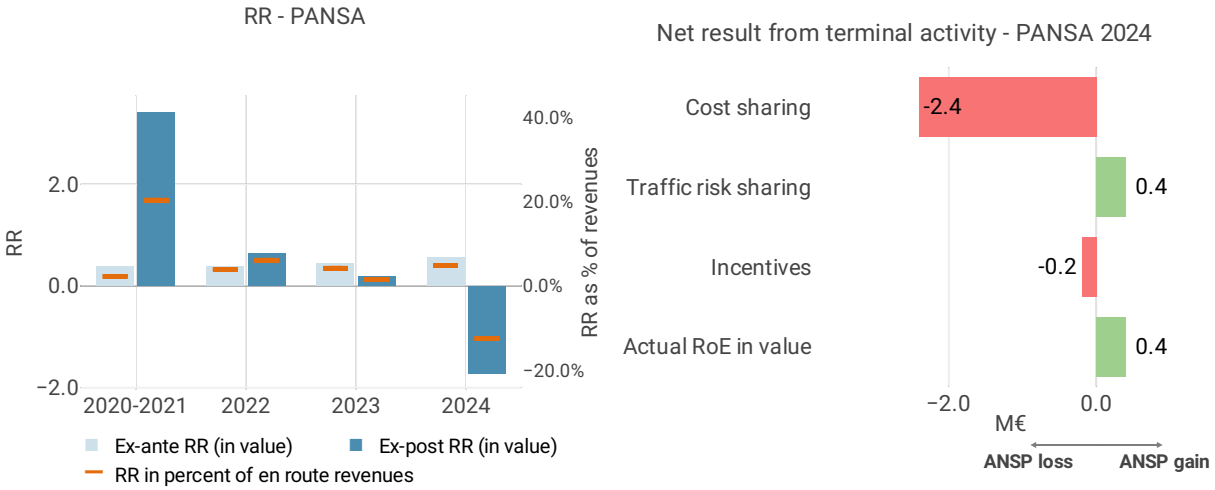


Cost exempt from cost sharing – 2024		
Cost exempt from cost sharing by item - 2024	**€'000**	**€/SU**
New and existing investments	-267.3	-2.40
Competent authorities and qualified entities costs	232.6	2.08
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	13.6	0.12
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-21.2**	**-0.19**

5.3.3 Regulatory result (RR)







Focus on regulatory result

PANSA net gain/loss on activity in the Poland terminal charging zone 1 in the year 2024

PANSA reported a net loss of -9.2 MPLN, as a combination of a loss of -10.2 MPLN arising from the cost sharing mechanism, with a gain of +1.9 MPLN arising from the traffic risk sharing mechanism and a loss of -1.0 MPLN relating to financial incentives.

PANSA overall regulatory result (RR) for the terminal charging zone 1 activity

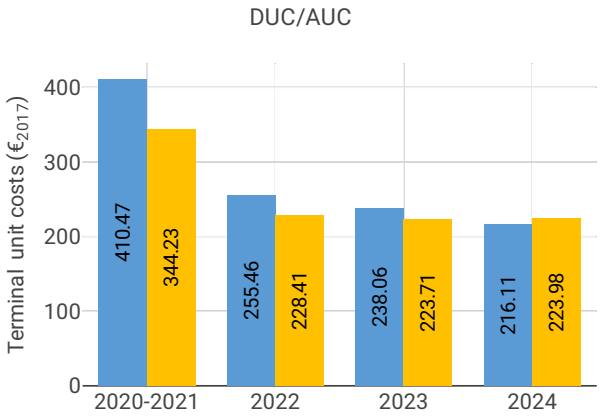
Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-9.2 MPLN) and the actual RoE (+1.8 MPLN) amounts to -7.4 MPLN (-12.5% of the terminal revenues). The resulting ex-post rate of return on equity is negative (-20.7%).

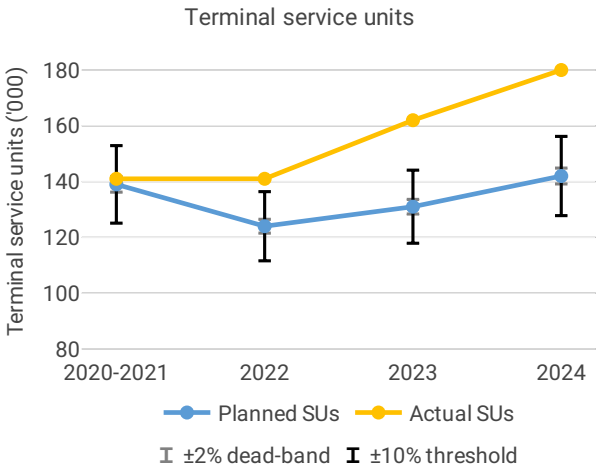
RP3 summary

When considering the whole of RP3 (2020-2024), PANSA generated a cumulative gain in respect of cost sharing of +4.4 MPLN, as actual total costs for RP3 were lower than planned. The traffic risk sharing mechanism generated gain of +0.4 MPLN. Adding the actual RoE (+7.3 MPLN over RP3) leads to an overall regulatory result of +12.1 MPLN, which corresponds to an average ex-post return on equity of 6.6% (compared to 4.1% initially planned in the PP).

5.4 Terminal charging zone - Poland Others

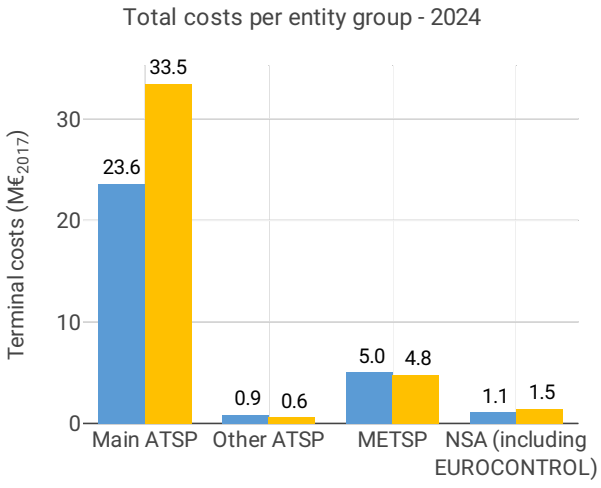
5.4.1 Unit cost (KPI#1)

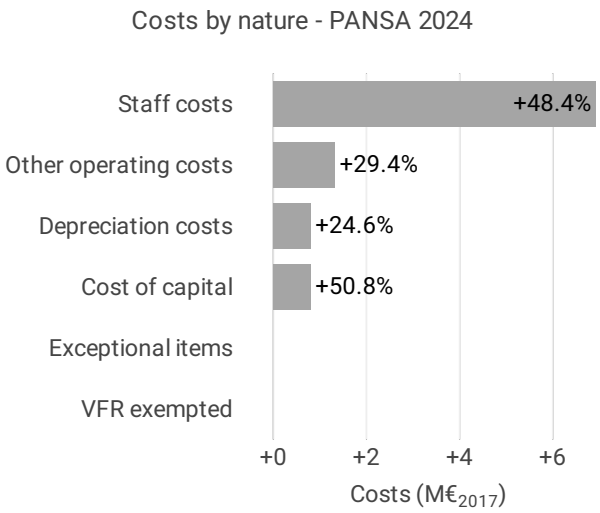




Actual and determined data				
Total costs - nominal (M€)	**2020-2021**	**2022**	**2023**	**2024**
Actual costs	52	39	48	55
Determined costs	61	35	35	35
Difference costs	-9	4	13	20

Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	2.5%	2.5%	2.5%
Determined inflation index	NA	113.4	116.2	119.1
Actual inflation rate	NA	13.2%	10.9%	3.7%
Actual inflation index	NA	127.6	141.5	146.7
Difference inflation index (p.p.)	NA	+14.2	+25.3	+27.6





Focus on unit cost

AUC vs. DUC

In 2024, the terminal AUC was +3.6% (or +33.47 PLN2017, +7.87 €2017) higher than the planned DUC. This results from the combination of significantly higher than planned terminal costs in real terms (+31.6%, or +41.2 MPLN2017, +9.7 M€2017) and significantly higher than planned TNSUs (+26.9%). It should be noted that the actual inflation index in 2024 was +27.6 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (+26.9%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting gain of additional terminal revenues is therefore shared between the ANSP and the airspace users (see the main ANSP gain in Box 11).

Terminal costs by entity

Actual real terminal costs are +31.6% (+9.7 M€2017) higher than planned. This is the result of higher costs for the main ANSP, PANSA (+41.7%, or +9.9 M€2017) and the NSA (+28.4%, or +0.3 M€2017) and lower costs for the MET service provider (-4.6%, or -0.2 M€2017) and the other ANSPs (Bydgoszcz and Warmia-Mazury, -30.4%, or -0.3 M€2017).

Terminal costs for the main ANSP at charging zone level

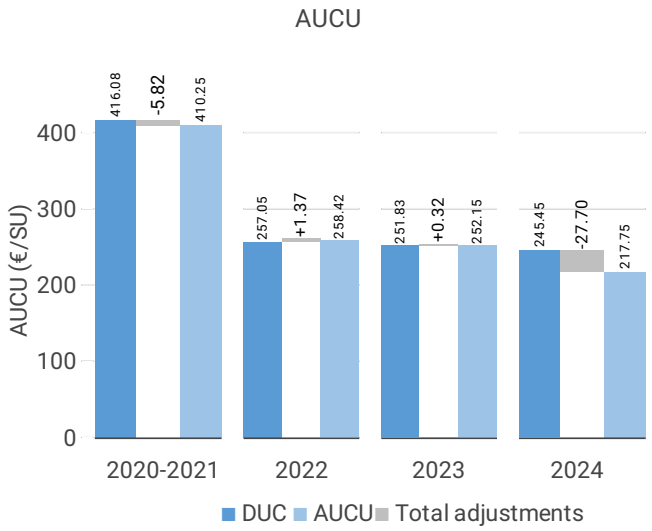
Significantly higher than planned terminal costs in real terms for PANSA in 2024 (+41.7%, or +9.9 M€2017) result from:

- Significantly higher staff costs (+48.4%) which are explained by "*salary increases to maintain PANSA competitiveness, which followed from labour market developments in the Polish economy, and additional staff costs driven by significant increase in inflation rates*" as well as "*additional payment for overtime in regional units connected with terminal traffic increase*".
- Significantly higher other operating costs (+29.4%), reflecting higher costs of materials, energy, maintenance, training and travel.
- Significantly higher depreciation costs (+24.6%) reflecting the use of "*so called "dynamic allocation keys" in PANSA cost allocation process*" which resulted in higher portion of costs being allocated to zone 2 due to higher traffic.
- Significantly higher cost of capital (+50.8%) reflecting a much higher than planned asset base.

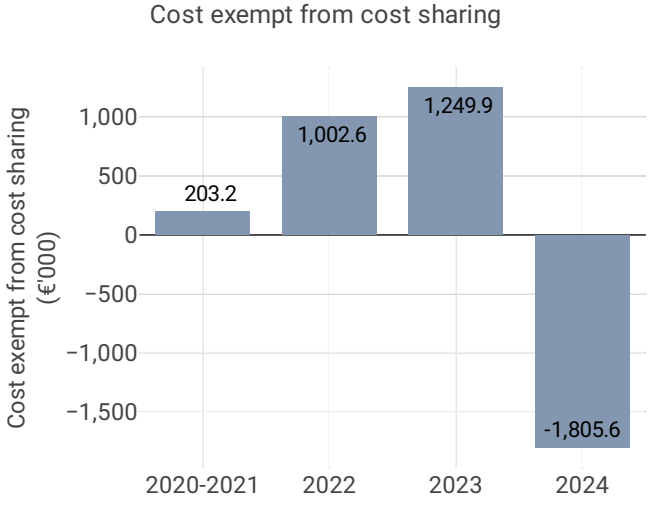
RP3 summary

When considering the whole of RP3 (2020-2024) for Poland terminal charging zone 2, actual TNSUs are +16.6% higher than planned, while actual costs in real terms are +4.6% higher than the determined costs (some +29.5 MPLN2017 or +6.9 M€2017). As a result, the weighted average actual unit cost over RP3 (1 072.56 PLN2017 or 252.08 €2017) is -10.3% lower than planned in the PP (1 195.16 PLN2017 or 280.89 €2017).

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

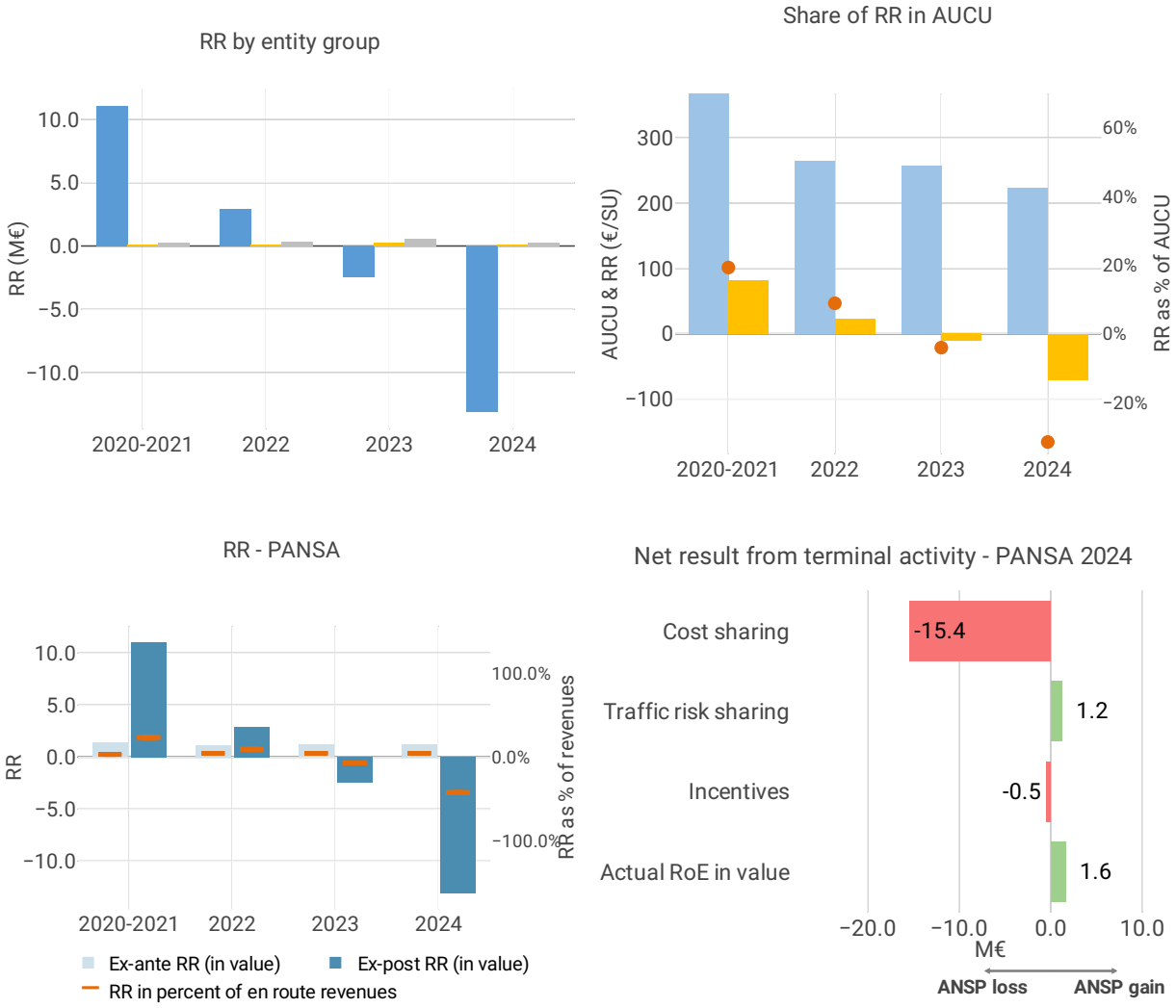


AUCU components (€/SU) – 2024	
Components of the AUCU in 2024	**€/SU**
DUC	**245.45**
Inflation adjustment	35.98
Cost exempt from cost-sharing	-10.02
Traffic risk sharing adjustment	-34.90
Traffic adj. (costs not TRS)	-10.38
Finantial incentives	-2.99
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-5.39
Application of lower unit rate	0.00
Total adjustments	-27.70
AUCU	**217.75**
AUCU vs. DUC	**-11.3%**



Cost exempt from cost sharing – 2024		
Cost exempt from cost sharing by item - 2024	**€'000**	**€/SU**
New and existing investments	-2,174.1	-12.07
Competent authorities and qualified entities costs	320.9	1.78
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	47.6	0.26
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-1,805.6**	**-10.02**

5.4.3 Regulatory result (RR)



Focus on regulatory result

PANSA net gain/loss on activity in the Poland terminal charging zone 2 in the year 2024

PANSA reported a net loss of -63.3 MPLN, as a combination of a loss of -66.1 MPLN arising from the cost sharing mechanism, with a gain of +5.1 MPLN arising from the traffic risk sharing mechanism and a loss of -2.3 MPLN relating to financial incentives.

PANSA overall regulatory result (RR) for the terminal charging zone 2 activity

Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-63.3 MPLN) and the actual RoE (+7.0 MPLN) amounts to -56.3 MPLN (-42.3% of the terminal revenues). The resulting ex-post rate of return on equity is negative (-41.5%).

RP3 summary

When considering the whole of RP3 (2020-2024), PANSA generated a cumulative loss in respect of cost sharing of -49.8 MPLN, as actual total costs for RP3 were higher than planned. The traffic risk sharing mechanism generated a gain of +19.3 MPLN. Adding the gain of +0.1 MPLN to be retained by the ATSP in respect of financial incentives and the actual RoE (+26.9 MPLN over RP3) leads to an overall regulatory result of -3.5 MPLN, which corresponds to an average ex-post rate of return on equity of -0.5% (compared to 3.8% initially planned in the PP).