Performance Plan

Poland

Third Reference Period (2020-2024)

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Table of Content

1 INTRODUCTION

1.1 THE SITUATION
1.2 TRAFFIC FORECASTS
1.3 STAKEHOLDER CONSULTATION
1.4 LIST OF AIRPORTS SUBJECT TO THE PERFORMANCE AND CHARGING REGULATION
1.5 SERVICES UNDER MARKET CONDITIONS
1.6 FAB PROCESS
1.7 SIMPLIFIED CHARGING SCHEME

2 INVESTMENTS

3 PERFORMANCE TARGETS AT LOCAL LEVEL

3.1 SAFETY TARGETS
3.1.1 Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs
3.2 ENVIRONMENT TARGETS
3.2.1 Environment KPI #1: Horizontal en route flight efficiency (KEA)
3.3 CAPACITY TARGETS
3.3.1 Capacity KPI #1: En route ATFM delay per flight
3.3.2 Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight
3.4 COST-EFFICIENCY TARGETS
3.4.1 Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS
3.4.2 Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS
3.4.3 Pension assumptions
3.4.4 Interest rate assumptions for loans financing the provision of air navigation services
3.4.5 Restructuring costs
3.5 ADDITIONAL KPIS / TARGETS
3.6 INTERDEPENDENCIES AND TRADE-OFFS

4 CROSS-BORDER INITIATIVES AND SESAR IMPLEMENTATION

4.1 CROSS-BORDER INITIATIVES AND SYNERGIES
4.1.1 Planned or implemented cross-border initiatives at the level of ANSPs
4.1.2 Investment synergies achieved at FAB level or through other cross-border initiatives
4.2 DEPLOYMENT OF SESAR COMMON PROJECT
4.3 CHANGE MANAGEMENT

5 TRAFFIC RISK SHARING ARRANGEMENTS AND INCENTIVE SCHEMES

5.1 TRAFFIC RISK SHARING PARAMETERS
5.2 CAPACITY INCENTIVE SCHEMES
5.2.1 Capacity incentive scheme - Enroute
5.2.2 Capacity incentive scheme - Terminal
5.3 OPTIONAL INCENTIVES

6 IMPLEMENTATION OF THE PERFORMANCE PLAN

6.1 MONITORING OF THE IMPLEMENTATION PLAN
6.2 NON-COMPLIANCE WITH TARGETS DURING THE REFERENCE PERIOD

7 ANNEXES

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX C. CONSULTATION
ANNEX D. LOCAL TRAFFIC FORECASTS
ANNEX E. INVESTMENTS
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING
ANNEX H. RESTRUCTURING MEASURES AND COSTS

ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES
ANNEX J. OPTIONAL KPIs AND TARGETS
ANNEX K. OPTIONAL INCENTIVE SCHEMES
ANNEX L. JUSTIFICATION FOR SIMPLIFIED CHARGING SCHEME
ANNEX M. COST ALLOCATION
ANNEX N. CROSS-BORDER INITIATIVES
ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS
ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS
ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS
ANNEX S. INTERDEPENDENCIES
ANNEX T. OTHER MATERIAL
ANNEX Z. CORRECTIVE MEASURES*
** Only as per Article 15(6) of the Regulation*

Signatories

Performance plan details	
State name	Poland
Status of the Performance Plan	Draft performance plan (Article 12)
Date of issue	18.09.2019
Date of adoption of Draft Performance Plan	
Date of adoption of Final Performance Plan	

We hereby confirm that the present performance plan is consistent with the scope of Regulation (EU) No 2019/317 pursuant to Article 1 of Regulation (EU) No 2019/317 and Article 7 of Regulation (EC) No 549/2004.

Name, title and signature of representative	
Minister of Infrastructure	Z upoważnienia MINISTRA INFRASTRUKTURY Mikołaj Wild Sekretarz Stanu
Director General of Civil Aviation of the Republic of Poland	

Additional comments	

Document change record		
Version	Date	Reason for change
	18 November 2019	Updated draft Performance Plan - Poland, in accordance with the European Commission verification (Ref. Ares(2019)6759404-31/10/2019).

SECTION 1: INTRODUCTION

1.1 The situation

1.1.1 - List of ANSPs and geographical coverage of services

1.1.2 - Other entities in the scope of the Performance and Charging Regulation as per Article 1(2) last para.

1.1.3 - Charging zones (see also 1.4-List of Airports)

1.1.4 - Other general information relevant to the plan

1.2 - Traffic Forecasts

1.2.1 - En route

1.2.2 - Terminal

1.3 - Stakeholder consultation

1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

1.3.3 - Consultation of stakeholder groups on the performance plan

1.4 - List of airports subject to the performance and charging Regulation

1.4.1 - Airports as per Article 1(3) (IFR movements ≥ 80 000)

1.4.2 Other airports added on a voluntary basis as per Article 1(4)

1.5 - Services under market conditions

1.6 - Process followed to develop and adopt a FAB Performance Plan

1.7 - Establishment and application of a simplified charging scheme

1.7.1 - Scope of the simplified charging scheme

1.7.2 - Conditions for the application of the simplified charging scheme

Annexes of relevance to this section

ANNEX C. CONSULTATION

ANNEX D. LOCAL TRAFFIC FORECASTS

ANNEX L. JUSTIFICATION FOR SIMPLIFIED CHARGING SCHEME

1 - INTRODUCTION

1.1 - The situation

NSA(s) responsible for drawing up the Performance Plan	Polish Civil Aviation Authority acting as NSA

1.1.1 - List of ANSPs and geographical coverage and services

Number of ANSPs	5

ANSP name	Services	Geographical scope
Polish Air Navigation Services Agency (PANSA)	ANSP (ATS, CNS, AIS, SAR coordination)	Flight Information Region Warszawa, All Airports concerned
Institute of Meteorology and Water Management - National Research Institute (IMWM)	METEO	Flight Information Region Warszawa (excluding EPRA TMA and CTR/ATZ, EPSY TMA and CTR/ATZ, EPBY TMA and CTR/ATZ)
Radom Meteo sp. z o.o.	METEO	EPRA TMA and CTR
Warmia i Mazury sp. z o.o.	ATS (AFIS), CNS (COM), METEO	EPSY METEO: TMA, CTR and ATZ, AFIS: ATZ
Port Lotniczy Bydgoszcz S.A.	ATS (AFIS), METEO	EPBY METEO: TMA, CTR and ATZ, AFIS: ATZ

Cross-border arrangements for the provision of ANS services

Number CB arrangements where ANSPs provide services in an other State	1

ANSPs providing services in the FIR of another State	
ANSP Name	Description and scope of the cross-border arrangement
PANSA	In order to reduce the number of coordinations for traffic departing from Kraków and Katowice airports via point ADADO and flights from/to the North-Western part of FIR EPWW via points REGLI or AMTEK area named SOUTH OF DESEN was created. This area can be delegated to APP KRAKOW and ACC WARSZAWA and in such case APP KRAKOW and ACC WARSZAWA are responsible for provision of air traffic control and flight information services within this area. It is based on Letter of Agreement between ANS of the Czech Republic and PANSA and AIP POLAND ENR 2.1.2.

Number CB arrangements where ANSPs from another State provide services in the State	3

ANSPs established in another Member State providing services in one or more of the State's FIRs	
ANSP Name	Description and scope of the cross-border arrangement
LVF Group Air Navigation Services (ATCC Malmö)	In order to reduce the number of coordinations over the Baltic high sea, separate area has been established, within the WARSZAWA FIR. This areas named MIDSEA and RÖNNE SOUTH can be delegated to ATCC MALMÖ and in such case ATCC MALMÖ is responsible for the provision of air traffic control and flight information services within this areas. It is based on Letter of Agreement between ATCC MALMÖ and ACC WARSZAWA and AIP POLAND ENR 2.1.2.
ANS of the Czech Republic (ACC Praha)	In order to reduce the number of coordination for traffic in FIR LKAA routes P861, T78, N869 and P96 area WEST of OKX can be delegated to APP PRAHA and ACC PRAHA and in such case APP PRAHA and ACC PRAHA are responsible for the provision of air traffic control and flight information services within this area. In order to reduce the number of coordination for traffic departing from Krakow and Katowice airports via point ADADO area SOUTH of KŁODZKO can be delegated do ACC PRAHA and in such case ACC PRAHA are responsible for the provision of air traffic control and flight information services within this area. It is based on Letter of Agreement between ANS of the Czech Republic and PANSA and AIP POLAND ENR 2.1.2.
Austro Control GmbH via DFS Deutsche Flugsicherung GmbH	In order to reduce the number of coordinations for flights at Heringsdorf Airport (CTR). The area named CTR Heringsdorf can be delegated to ACC BREMEN and in such case ACC BREMEN is responsible for the provision of air traffic control and flight information services within this area. It is based on Letter of Agreement between ACC BREMEN and ACC WARSZAWA. DFS Deutsche Flugsicherung GmbH (ACC BREMEN) delegated provision of air traffic control and flight information services within this area (CTR Heringsdorf) to Austro Control GmbH as stated in AIP POLAND ENR 2.1.2.

1.1.2 - Other entities in the scope of the Performance and Charging Regulation as per Article 1(2) last para.

Number of other entities	2

Entity name	Domain of activity	Rationale for inclusion in the Performance Plan
Civil Aviation Authority of the Republic of Poland (NSA)	Supervision	Only the part of Polish CAA's budget attributable to activities on supervision over Air Navigation Service Providers related to NSA & partially MS obligations are included in the costs bases for air navigation charges. This is in line with Polish Aviation Act and EU Single European Sky Regulations.
EUROCONTROL	Other/Network	Part of EUROCONTROL budget attributable to Poland's cost base.

1.1.3 - Charging zones (see also 1.4-List of Airports)

En-route	Number of en-route charging zones	1

En-route charging zone 1	Poland

Terminal	Number of terminal charging zones	2

Terminal charging zone 1	Poland - EPWA
Terminal charging zone 2	Poland - Other (14 airports - List of airports included is presented in point 1.4.)

1.1.4 - Other general information relevant to the plan

For the description of the macroeconomic situation, see Annex R.

Additional comments

1.2 - Traffic Forecasts

1.2.1 - En route

En route Charging zone 1	**Poland**
En route traffic forecast	Local forecast

Local Forecast	2017A	2018A	2019	2020	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	793	872	909	952	977	1 001	1 022	1 044	2,8%
IFR movements (yearly variation in %)		10,0%	4,2%	4,7%	2,6%	2,5%	2,1%	2,1%	
En route service units (thousands)	4 291	4 666	4 895	5 124	5 271	5 422	5 562	5 703	3,1%
En route service units (yearly variation in %)		8,8%	4,9%	4,7%	2,9%	2,9%	2,6%	2,5%	

Specific local factors justifying not using the STATFOR base forecasts (provide justification below or refer to Annex D for more detailed explanation)
The traffic forecast for RP3 was based on the dynamics of traffic stemming from the arithmetical average of STATFOR FEBRUARY 2019 BASE and HIGH forecasts. For 2019, the additional adjustment was made in order to adapt the latest forecast to the currently observed traffic evolution in 2019. The M3/M2 adjustment factor -0.22% was taken into account. Additionally, it has to be noted that the forecast for 2019 (SU) has been presented in M2 data format and the forecasts for 2020-2024 (SU) have been presented in M3 data format. For details and justification, see Annex D.

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.

1.2.2 - Terminal

Terminal Charging zone 1	**Poland - EPWA**
Terminal traffic forecast	Local forecast

Local Forecast	2017A	2018A	2019	2020	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	85,6	93,6	101,8	106,9	108,6	109,7	109,9	109,8	1,5%
IFR movements (yearly variation in %)		9,4%	8,7%	5,0%	1,6%	1,0%	0,1%	0,0%	
Terminal service units (thousands)	90,7	101,9	113,5	120,1	122,4	124,5	125,3	125,8	2,1%
Terminal service units (yearly variation in %)		12,3%	11,4%	5,8%	1,9%	1,7%	0,7%	0,3%	

Specific local factors justifying not using the STATFOR base forecasts (provide justification below or refer to Annex D for more detailed explanation)
The traffic forecast was based on the arithmetical average of STATFOR FEBRUARY 2019 BASE and HIGH forecasts. For details and justification, see Annex D.

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.

Terminal Charging zone 2	**Poland - Other (14 airports - List of airports included is presented in point 1.4.)**
Terminal traffic forecast	Local forecast

Local Forecast	2017A	2018A	2019	2020	2021	2022	2023	2024	CAGR 2019-2024
IFR movements (thousands)	106,6	119,5	127,1	133,4	137,8	141,7	145,4	149,3	3,3%
IFR movements (yearly variation in %)		12,1%	6,4%	4,9%	3,3%	2,9%	2,6%	2,7%	
Terminal service units (thousands)	113,7	132,5	139,5	146,9	152,1	156,6	160,9	165,3	3,4%
Terminal service units (yearly variation in %)		16,5%	5,3%	5,3%	3,6%	3,0%	2,7%	2,7%	

Specific local factors justifying not using the STATFOR base forecasts (provide justification below or refer to Annex D for more detailed explanation)
The traffic forecast was based on the arithmetical average of STATFOR FEBRUARY 2019 BASE and HIGH forecasts. For details and justification, see Annex D.

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives and ANSPs concerned on the rationale for not using the STATFOR base forecasts.

1.3 - Stakeholder consultation

1.3.1 - Overall outcome of the consultation of stakeholders on the performance plan

Description of main points raised by stakeholders and explanation of how they were taken into account in developing the performance plan
The development of the Polish Performance Plan for RP3 was conducted by Polish NSA in cooperation with stakeholders and bodies including the ANSPs, airspace users, airline associations, individual airlines, military AUs and representatives of airport operators. During the development of the plan, Polish NSA was presenting initial values of the targets and essential elements of the operational and economic parts of the Polish Performance Plan. It was the way to exchange ideas and opinions concerning target values and also to capture the needs and expectations of all stakeholders. Discussions were focused on Key Performance Areas of environment, safety, capacity, cost-efficiency and the incentive scheme. Through the consultation the priorities and requirements were discussed and there was opportunity to incorporate them in the plan. Stakeholders agreed with many of NSA proposals, however there were also areas of disagreement. Polish NSA conducted the following meetings: - 18 March 2019; - 16 May 2019; - 24 June 2019; - 27 June 2019; - 11 July 2019; - 22 August 2019; Details concerning the meetings are attached in Annex C.

1.3.2 - Specific consultation requirements of ANSPs and airspace users on the performance plan

Topic of consultation	Applicable	Results of consultation
Where applicable, decision to diverge from the STATFOR base forecast	Yes	The proposed local traffic forecast basing on arithmetical average of STATFOR BASE/HIGH scenarios was supported by Airspace Users, what was reflected in the position papers by IATA and Ryanair. In Annex D to the Draft PP and at the Consultation Meeting, CAA has underlined that the careful analysis of traffic evolution in 2019 will be performed. After this analysis, CAA decided to lower the 2019 traffic forecast which has resulted also in slight changes in traffic evolution in 2020-2024. The details have been described in the updated Annex D. CAA has not received any negative feedback on this topic.
Charging policy	Yes	The charging policy in RP3 will be in line with Regulation 2019/317. The details about adjustments were presented in Annexes A (reporting tables for charging zones). No modulation of charges is planned to be implemented. CAA has not received any negative feedback on this topic.
Maximum financial advantages and disadvantages for the mandatory incentive scheme on capacity	Yes	For both en-route and terminal CAPACITY the incentive scheme provides similar advantages and disadvantages: - Max Bonus - 0.50% of DC - Max Penalty - 0.50% of DC
Where applicable, decision to modulate performance targets for the purpose of pivot values to be used for the mandatory incentive scheme on capacity	Yes	For en-route CAPACITY - based on NOP; For terminal CAPACITY - based on delays causes related to ATC (ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual).
Symmetric range ("dead band") for the purpose of the mandatory incentive scheme on capacity	Yes	Dead Band was set to ensure that slight deviations in ATFM delays around the Pivot Value will not lead to the application of penalties or bonuses. In case of Poland the value of the Dead Band is: - 0.02 min for en-route CAPACITY, - 20% for terminal CAPACITY.

Establishment or modification of charging zones	Yes	Poland has decided to maintain the RP2 configuration of charging zones. The decision upon its establishment was taken by the Polish Ministry of Infrastructure and delivered to EC. Polish CAA, while preparing the opinion on this topic for the Ministry, has taken into account the AUs statements (IATA, Lufthansa) at 28th March 2019 meeting, written statements of all airport managing bodies concerned and also internal analysis. CAA has received not-supportive feedback from several airport managing bodies. What is more, IATA has suggested that Poland should further pursue site-specific model of TCZ. However, the final decision was supported i.a. by some other airport operators and PLL LOT.
Establishment of determined costs included in the cost base for charges	Yes	The proposed cost bases were presented in the draft Performance Plan and at the consultation meeting. The inconsistency between the local and EU-wide cost-efficiency target was explained by the additional capacity expenses, which is in line with Regulation 2019/317. In general, CAA has not received any strongly negative feedback. Ryanair has underlined the lack of ambition in the cost-efficiency KPA, while PLL LOT has express understanding for the higher cost-base planned for the future development and improvement in other KPAs. Additional remarks were taken towards the level of the cost of capital (PLL LOT, IATA and Lufthansa), both positive and negative.
Where applicable, values of the modulated parameters for the traffic risk sharing mechanism	No	CAA does not plan to modulate the traffic risk sharing mechanism parameters.
Where applicable, decision to apply the simplified charging scheme	No	CAA does not plan to implement simplified charging scheme.
New and existing investments, and in particular new major investments, including their expected benefits	Yes	No final negative statements have been received by the CAA. For details, see Annex C, E and table below (1.3.3.).

1.3.3 - Consultation of stakeholder groups on the performance plan

#1 - ANSPs	
Stakeholder group composition	PANSA (ATS, CNS, AIS, SAR coordination provider), Warmia i Mazury sp. z o.o. (AFIS, COM, MET provider), Port Lotniczy Bydgoszcz S.A. (AFIS, MET provider), Radom METEO (MET provider) and the Institute of Meteorology and Water Management – National Research Institute (MET provider).
Dates of main meetings / correspondence	18th March 2019, 16th May 2019, 24th June 2019, 11th July 2019, 22nd August 2019
Main issues discussed	Presentation of the local targets values for the RP3 within KPAs of Safety, Environment, Capacity, Cost Efficiency and Incentive Scheme. Disscussion concerning ANSPs development including investment plan and ATCO training plan. Presentation of the implementation and monitoring of the performance plans.
Actions agreed upon	ANSPs will take all necessary efforts to provide required capabilities to fullfill obligations and meet targest in all performance areas.
Points of disagreement and reasons	The values of the targets of KPA Environment in PANSA opinion are unrealistic. In Agency’s opinion procedures for cooperation with the military are optimized in Poland, and the implementation of FRA (POLFRA) has been finalized. The Agency has very limited room for improvement of the KEA indicator depending only on factors beyond the Agency's influence. In the Agency's opinion, no decrease of the indicator in Polish airspace should be expected in the coming years.
Final outcome of the consultation	The values of Safety and Capacity have been agreed. NSA took note of the PANSA opinion, however the targets values in the Environment KPA have been maintained. CAA has not received any final negative opinion upon the cost-efficiency target from any ANSP.

Additional comments

#2 - Airspace Users	
Stakeholder group composition	IATA, LOT Polish Airlines, Lufthansa, Ryanair, AMC Aviation, Polish Medical Air Rescue.
Dates of main meetings / correspondence	22 August 2019 / Correspondence: IATA (13th August 2019, 26th August 2019), PLL LOT (26th August 2019), Ryanair (28th August 2019).
Main issues discussed	1. Reference values for Environment KPA. 2. Staff development: methodology used to estimate the number of ATCOs, results of ATCO training, the success rate and question of retirements/drop-outs prediction. 3. Justification for the investments in Warsaw Chopin Airport in connection with the construction of the Solidarity Transport Hub and justification for the U-Space (see tab 2.1. Major investment #8). 4. AU double-charging in connection with PANSA's investments plans for RP2 and RP3. 5. Allocation keys regarding PANSA's new Campus (see tab 2.1. - Major investment #1) and other investments connected with Campus, especially regarding the rTWR systems that are planned to be implemented in it. 6. Allocation key for new tower in Warsaw (see tab 2.1. - Major investment #7) 7. Future of the Radom-Sadków Airport (EPRA) and the scope of airports covered by SES. 8. Impact of the air shows and military parades on commercial flights. 9. Timeframe of the benefit analyses for the major investments. 10. MET services costs allocation 11. Incentive scheme in capacity area. 12. Baseline value calculation.
Actions agreed upon	1. FUA concept will be widely optimised in Poland, contributing to reduce KEA values, further refinements are planned over RP3 to offer possibly shortest routes to civil flights. 2. PANSA has changed ATCO recruitment process increasing the initial requirement for candidates to ensure that more students qualified will pass simulation phase, and go to OPS-room for the OJT-training. The employment plan of ATCO was established following detailed analysis of sector opening hours required following the forecasted traffic increase and optimising capacity of Polish airspace to meet the expected demand of airspace users. Regarding retirement, parties agreed that, in accordance with Polish law, retirement is a right, not an obligation. Following the consultation, a number of ATCOs reaching retirement age was assumed to leave operations, impacting the net value of ATCO in OPS in RP3 (see table under point 3.3.1 on ER capacity). 3. IATA asked whether once the Solidarity Transport Hub (STH) is being taken into operation, Warsaw Airport is expected to continue providing services or is it supposed to be replaced by the STH – in connection with the costs that AUs have to incur by now in EPWA. CAA informed that since the STH is planned to be opened in 2027, investments in Warsaw are inevitable in order to accommodate growing traffic in Poland and keep the safety at the appropriate level. The transport strategy for Poland is being reviewed and the decision concerning the future of the Warsaw Chopin Airport will be made in 2020. IATA was concerned about the inclusion of U-Space investment and asked for clarification whether all of the costs of this investment were put into cost-bases or only a part. 4. It was clarified that distinction needs to be made between expenditures for investments and costs related to investments included in charges' cost base - any discussion on possible reimbursements should consider not CAPEX, but related costs, specifically depreciation. PANSA informed that the amounts that were already paid by the airspace users over RP2 for not realised investments need to be considered as total. Some investments that have been made in RP2 are parts of larger projects. Any assessment concerning potential reimbursement will be possible, when the final values for 2019 (and therefore whole RP2) will be available. PANSA has declared to provide the necessary information after the end of RP2. Additionally it was clarified that distinction needs to be made between expenditures for investments and costs related to investments included in charges' cost base - any discussion on possible reimbursements should consider not CAPEX, but related costs, specifically depreciation. 5. PANSA informed that this is an investment task that had already been foreseen in RP2 Revised Performance Plan and is a continuation which uses the same allocation keys, established before at that time. Nevertheless, PANSA and CAA agreed to review the allocation keys for this investment. As far as the rTWR project is concerned, PANSA has reserved the space in the new Campus and as compared to the whole investment this is such minor that they couldn't exclude it exactly until full construction project is available. The investments concerning the rTWR is a separate project, allocated mainly to the terminal part. AUs also asked for the broader clarification in the PP. 6. Regarding Warsaw tower allocation costs allocation, PANSA informed that the issue is complicated as the current tower building is a part of a larger infrastructure (current Campus), used by PANSA for various purposes. At the time when the new tower project was initially planned, exactly the same allocation key was used as for the current building complex, which incorporates more than just the Warsaw tower (i.e. the ACC and APP infrastructure). It means that the TWR is a part of a current Campus and like all infrastructure elements in this location, it is apportioned using the same, global allocation keys which was also used to the new tower building. Nevertheless, PANSA declared to revise the allocation keys. 7. CAA explained that the Radom Airport was closed because of the need for runway extension. Reopening of Radom Airport is planned at the turn of 2020 and 2021. CAA informed about the transport strategy document, prepared by the Ministry of Infrastructure. The decision on the future of airports in Poland is going to be presented in this strategic document – presumably in the next year. 8. The volume of the parades is marginal in the context of all military activities. 9. PANSA replied that decided to use the described period for the CBA, because the large part of the investment is infrastructure and this is being depreciated over a long time. The used timeframe was also the period for which STATFOR provides long-term traffic forecasts. PANSA explained that shorter periods were not considered, but informed that they believe the perspective of 20 to 40 years was a proper one. 10. The MET costs were allocated according to two publications: WMO Document No. 904 'Guide to Aeronautical Meteorological Services Cost Recovery' and ICAO Document No. 9161 'Manual on air navigation services economics'. Such approach is widely used across Europe. Additionally, the proposition for product allocation keys for RP3 does not differ from RP2 methodology, which was accepted at the time. There are no major changes that has been spotted that would justify the need to change the proposed methodology. After analysis and consultation within Polish MET services providers, CAA would like to maintain the current solution based on the official WMO documents. 11. PANSA is fully committed to reach the capacity target equal to reference values. Over RP2 Poland delivered the required capacity – a lot of effort is being put to minimise the level of delays in Warsaw FIR, especially when considering the high traffic increase in 2018 and eNM/ANSPs measures in 2019. The unexpected operational circumstances in the network or unforeseeable changes to traffic patterns can negatively impact the delay values. 12. AUs asked about the further clarification of the baseline value calculation. Polish CAA has explained the used methodology and provided more details about the final result.

Points of disagreement and reasons	1. IATA is not fully satisfied with the fact that the CAA PL did not adopt the national reference values proposed by the Network Manager. Ryanair proposes the following KEA targets: 2020 – 1,67%, 2021 – 1,66%, 2022 – 1,64%, 2023 – 1,64%, 2024 – 1,64%. Poland insists that its proposal is fully in line with EUROCONTROL/NM estimates provided to the CAA, according to which Baltic FAB/Poland can be expected to reduce KEA by around 0.05 percentage point between the value reached in 2019 (about 1,87%) and until the end of RP3. Due to growing air traffic, the weather phenomenaand the increasing activity of the military, the level of the key environmental area indicator will not be significantly changed. The eNM/ANSPs measures have a significant impact on HFE values for Poland and while such measures are expected to be continued it would not be realistic to assume that the value of the indicator could improve. 2. IATA considers the ratio between ATCO and support staff in FTE terms planned for 2024 unacceptably high and urge PANSA to identify efficiency measures in admin functions. PANSA will improve the ratio between ATCO and support staff in FTE terms from 1:3.2 in 2020 to 1:2.8 by the end of 2024. According to Lufthansa, the Performance Plan should predict number of retirements or drop-outs. According to Polish CAA and PANSA, this number is close to zero. If ATCOs have no legal obligations to retire, the remuneration should be planned for all employees. Following the consultation, a number of ATCOs reaching retirement age was assumed to leave operations, impacting the net value of ATCO in OPS in RP3 (see table under point 3.3.1 on ER capacity). 3. No further disagreements. 4. No further disagreements. 5. No further disagreements. 6. No further disagreements. 7. No further disagreements. 8. No further disagreements. 9. No further disagreements. 10. According to IATA and Lufthansa, some of MET products should be allocated between ER and TNC differently than it is stated in official WMO and ICAO documents - adjusted to the real usage of these products. 11. IATA does not support the symmetric incentive scheme and considers it a necessity to introduce meaningful penalties that exceed bonuses by a factor of 3. RYANAIR states that the bonus/penalty rate for both en-route and terminal schemes should be set at 0.5% for bonuses and 2% for penalties to compensate for the high cost of delays borne by airlines generated by service provider failures. Poland is of the opinion that symmetric incentive scheme in the capacity area should be pursued. 12. The baseline value calculation methodology (especially additional adjustments) was not fully supported because of the potential problems with comparability of the effective cost-efficiency trends between states. What is more, the different approach for ER and TNC baseline value calculation was also unsupported by IATA.
Final outcome of the consultation	1. Polish CAA is convinced that the targets need to be realistic. Therefore Poland insists on that proposal. 2. Additional clarification on ATCOs' retirements was provided in written response to Stakeholders (see Annex C). In the final PP it was assumed that part of ATCOs reaching retirement age will leave operations. 3. Clarification was done and accepted. Additional information were provided in the answer to AUs statements. 4. Clarification was done and accepted. PANSA was obliged to provide detailed information after the end of RP2. 5. Clarification was done and accepted. PANSA has reviewed the allocation keys for Campus from ER:TNC 100%:0% to 93%:7%. 6. Clarification was done and accepted. PANSA has reviewed the allocation keys for TWR Warszawa from ER:TNC 87%:13% to 30%:70%. 7. Clarification was done and accepted. 8. Clarification that geographical position of Poland is the reason of serious number of military activities, including classified, was done and accepted. 9. Clarification was done and accepted. It was agreed to put additional information about the CBA results in the PP. Additional information on benefits expected already in RP3 timeframe was presented in written response to Stakeholders (see Annex C). 10. CAA has once again gone through the documents and the cost allocation methodology presented by all MET service providers. After consultation it was stated that such approach as described in the Polish PP is used widely across other countries. Polish MET SP would like to stick to the WMO and ICAO recommendations stemming from its official documents (see Annex B). 11. Poland maintained symmetric approach regarding incentive scheme. 12. CAA states that the inclusion of adjustments has to be done in order to be fully in line with the provisions of Regulation 2019/317. The different approaches towards en-route and terminal part is necessary to provide representative levels of baseline values for each charging zone (see Annex F).

Additional comments

#3 - Professional staff representative bodies	
Stakeholder group composition	Polish Air Traffic Controllers Trade Union
Dates of main meetings / correspondence	22 August 2019 / 14 August 2019
Main issues discussed	1. Traffic Forecast, 2. Investments, 3. Capacity Targets, 4. Cost Efficiency Targets.
Actions agreed upon	1. The forecast for RP3 has beed adopted at the level above STATFOR BASE. 2. The development of the new EPWA tower is essential (see PANSA's major investments).
Points of disagreement and reasons	Not applicable.
Final outcome of the consultation	During the consultation meeting dated 22nd August 2019, it has been said that: 1. After analysis concerning the traffic forecasts CAA decided to adopt values at a level higher than the BASE STATFOR forecast for RP3. 2. The development of technical infrastructure increasing the operational capabilities of air navigation services is treated as a priority. The PANSA investment plan is monitored on the monthly basis by the CAA as a part of the supervision process over PANSA. 3. The number of ATCO is essential for PANSA ability to provide required CAPACITY. The CAA-is in direct contact with the PANSA authorities and monitors the process of training of controllers for the needs of the air traffic management system. 4. The staff costs will be one of the areas monitored by CAA during the RP3.

Additional comments
The representatives of the Polish Air Traffic Controllers Trade Union were present at the consultation meeting dated 22nd August 2019. No additional questions/comments were raised.

#4 - Airport operators	
Stakeholder group composition	Airport operators of the following airports: Poznań-Ławica, Lublin, Łódź, Wrocław-Strachowice, Olsztyn-Mazury, Gdańsk im. Lecha Wałęsy, Bydgoszcz, Kraków-Balice, Radom-Sadków (PPL representative), Katowice-Pyrzowice, Warszawa/Modlin.
Dates of main meetings / correspondence	22nd August 2019 / 24th April 2019
Main issues discussed	The whole proposal of RP3 PP was presented. The main issue discussed was the configuration of the terminal charging zones for RP3. The correspondence upon this topic was held with all Airport operators concerned.
Actions agreed upon	Some of Airport operators supported the two charging zones configuration as presented in the PP.
Points of disagreement and reasons	Some of Airport operators did not support the two charging zones configuration as presented in the PP. The Airport operator at EPKK has provided its statement to the draft PP concerning the disagreement with configuration of TCZs.
Final outcome of the consultation	Some of Airport operators did not support the two charging zones configuration as presented in the PP. The Airport operator at EPKK has provided its statement to the draft PP.

Additional comments

#5 - Airport coordinator	
Stakeholder group composition	Airport Coordination Limited (ACL)
Dates of main meetings / correspondence	Not applicable.
Main issues discussed	Not applicable.
Actions agreed upon	Not applicable.
Points of disagreement and reasons	Not applicable.
Final outcome of the consultation	Not applicable.

Additional comments
The ACL (Airport coordinator at EPWA and EPPO) was invited to the meeting and provided with the draft PP, yet CAA has received no comments nor statements.

#6 - Other (specify)	
Stakeholder group composition	European Comission / PRB representatives
Dates of main meetings / correspondence	31st January 2019, 27th June 2019, 22nd August 2019, 9th September 2019
Main issues discussed	The local factors and proposals of the performance targets and the national conditions influencing the process of development of the preformance plan for RP3. General guidance for the Polish RP3 PP.
Actions agreed upon	Not applicable. The detailed explanation were presented to PRB and EC. Any final agreement was discussed.
Points of disagreement and reasons	Not applicable. The detailed explanation were presented to PRB and EC. Any final agreement was discussed.
Final outcome of the consultation	The Commission has taken remarks towards Poland's preparations for RP3.

Additional comments

1.4 - List of airports subject to the performance and charging Regulation

1.4.1 - Airports as per Article 1(3) (IFR movements ≥ 80 000)

ICAO code	Airport name	Charging Zone	IFR air transport movements			
			2016	2017	2018	Average
EPWA	Chopina w Warszawie	Poland - EPWA	153 805	171 059	187 235	170 700

1.4.2 Other airports added on a voluntary basis as per Article 1(4)

Number of airports	14		
ICAO code	Airport name	Charging Zone	Additional information
EPKK	Kraków-Balice	Poland - Others	Average IFR movements in 2016-2018: 49 897
EPGD	Gdańsk im. Lecha Wałęsy	Poland - Others	Average IFR movements in 2016-2018: 40 394
EPKT	Katowice-Pyrzowice	Poland - Others	Average IFR movements in 2016-2018: 32 499
EPWR	Wrocław-Strachowice	Poland - Others	Average IFR movements in 2016-2018: 27 247
EPPO	Poznań-Ławica	Poland - Others	Average IFR movements in 2016-2018: 20 750
EPRZ	Rzeszów-Jasionka	Poland - Others	Average IFR movements in 2016-2018: 8 467
EPSC	Szczecin-Goleniów	Poland - Others	Average IFR movements in 2016-2018: 5 701
EPBY	Bydgoszcz	Poland - Others	Average IFR movements in 2016-2018: 3 598
EPMO	Warszawa/Modlin	Poland - Others	Average IFR movements in 2016-2018: 19 196
EPLL	Łódź	Poland - Others	Average IFR movements in 2016-2018: 4 139
EPLB	Lublin	Poland - Others	Average IFR movements in 2016-2018: 3 856
EPZG	Zielona Góra-Babimost	Poland - Others	Average IFR movements in 2016-2018: 855
EPRA	Radom-Sadków	Poland - Others	Average IFR movements in 2016-2018: 1 031
EPSY	Olsztyn-Mazury	Poland - Others	Average IFR movements in 2016-2018: 1 349

Additional comments
The scope of airports and configuration of terminal charging zones remains unchanged comparing to the current situation in RP2. The administrative decision was taken by the Minister of Infrastructure no. DL-1.471.10.2019 dated 21st June 2019 and sent immediately to EC. Additionally, it has to be noted that in Poland only Warsaw Chopin airport (EPWA) has more than 80.000 IFR movements per year, so the Performance and Charging Regulation (Implementing Regulation 2019/317) directly applies to this airport. In addition, based on the decision of the Ministry of Infrastructure Poland acted in line with the Article 1.4. of the Regulation 2019/317, it was decided to apply the provisions of the Regulation to the terminal ANS at fourteen regional airports (Kraków-Balice, Gdańsk im. Lecha Wałęsy, Katowice-Pyrzowice, Wrocław-Strachowice, Poznań-Ławica, Rzeszów-Jasionka, Szczecin-Goleniów, Bydgoszcz, Warszawa/Modlin, Łódź, Lublin, Zielona Góra-Babimost, Radom-Sadków and Olsztyn-Mazury) with fewer than 80.000 IFR movements per year, as they are part of the common Terminal Charging Zone - TNC-Other. For actual figures of IFR MVS for regional airports in 2016-2018, see: EUROPEAN ANS Performance Data Repository http://ansperformance.eu/data/performancearea/.

1.5 - Services under market conditions

Number of services under market conditions	0

1.6 - Process followed to develop and adopt a FAB Performance Plan

Description of the process
Not applicable

1.7 - Establishment and application of a simplified charging scheme

Is the State intending to establish and apply a simplified charging scheme for any charging zone/ANSP?	No

SECTION 2: INVESTMENTS

2.1 - Investments - Polish Air Navigation Services Agency (PANSA)
- 2.1.1 - Summary of investments
- 2.1.2 - Detail of new major investments
- 2.1.3 - Other new and existing investments

2.2 - Investments - Institute of Meteorology and Water Management - National Research Institute (IMWM)
- 2.2.1 - Summary of investments
- 2.2.2 - Detail of new major investments
- 2.2.3 - Other new and existing investments

2.3 - Investments - Radom Meteo sp. z o.o.
- 2.3.1 - Summary of investments
- 2.3.2 - Detail of new major investments
- 2.3.3 - Other new and existing investments

2.4 - Investments - Warmia i Mazury sp. z o.o.
- 2.4.1 - Summary of investments
- 2.4.2 - Detail of new major investments
- 2.4.3 - Other new and existing investments

2.5 - Investments - Port Lotniczy Bydgoszcz S.A.
- 2.5.1 - Summary of investments
- 2.5.2 - Detail of new major investments
- 2.5.3 - Other new and existing investments

Annexes of relevance to this section

ANNEX E. INVESTMENTS

NOTE: The requirements as per Annex II, 2.2.(c) are addressed in item 4.1.2

2.1 - Investments - Polish Air Navigation Services Agency (PANSA)

2.1.1 - Summary of investments

Number of new major investments	18

#	Name of new major investment (i.e. above 5 M€)	Total value of the asset (capex or contractual leasing value)	Value of the assets allocated to ANS in the scope of the PP	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation
				2020	2021	2022	2023	2024		Enroute	Terminal	
1	01440701_Campus - construction and design	425 259 915	373 708 567	807 268	901 622	2 171 376	9 670 876	19 958 304	10/15/20/40	93%	7%	2024
2	02440701_Communication systems	29 427 538	18 208 853	869 534	1 640 195	2 938 824	2 943 918	2 847 890	10/15/20/40	100%	0%	2021
3	03440701_ATM system with a simulator	130 825 787	73 847 766	122 271	994 737	1 858 488	4 947 594	7 922 728	10/15/20/40	100%	0%	2023
4	06440701_ VCS system	47 547 021	22 547 021	163 523	984 290	2 832 854	2 741 051	2 655 851	10/15/20/40	100%	0%	2021
5	21440701_ATM OPS Centre Poznań	88 856 944	7 752 202	5 524 592	7 729 018	7 589 290	7 449 563	7 309 835	10/15/20/40	100%	0%	2020
6	IA480139_ASMGCS	23 737 670	23 737 670	287 484	996 925	2 190 577	2 914 565	2 819 153	20/15	0%	100%	2022
7	IO450701_Warszawa Tower	40 205 677	39 303 177	53 225	791 026	2 306 714	4 256 784	4 143 346	15/40	30%	70%	2022
8	IP470701_UAV environment development (U-Space Programme)	25 008 526	21 747 108	565 661	1 384 402	2 663 888	2 836 826	3 038 643	10	0%	100%	after RP3
9	IR470208_Virtualization of ATS airport services	45 455 557	45 210 902	5 652	330 688	2 272 473	5 265 609	7 072 925	10	85%	15%	2023
10	IT170202_Tower at the Central Hub Airport	61 742 903	38 742 903	376	752	752	254 930	1 473 018	15/40	30%	70%	after RP3
11	IT410120_Radar PSR/MSSR Warsaw ASR-10	23 410 970	23 314 511	3 773	174 763	904 232	2 592 079	2 744 099	15/20	100%	0%	2022
12	IT430803_Radar PSR/MSSR Gdańsk	24 824 530	24 819 274	7 316	188 541	962 122	2 526 875	2 946 885	15/20	100%	0%	2023
13	IT430900_Modernization of the ATM system	90 324 483	26 417 245	645 622	1 682 048	3 009 452	3 592 608	3 465 742	15/10/5	85%	15%	2022
14	IT440732_MLAT system for FIR Warsaw	35 289 101	30 071 187	881 542	2 602 386	4 376 565	5 266 601	5 299 262	10	90%	10%	2023
15	IT460706_System ATIS smartMET/NAV EPLL, EPMO, EPSY, EPRA and EPLB	27 719 674	16 225 891	1 866 861	3 038 311	3 936 455	4 082 257	3 908 259	10	81%	19%	2022
16	IT470203_Radar PSR / MSSR for Central Hub Airport	50 135 812	535 812	376	752	1 138	2 691	18 781	15/20	100%	0%	after RP3
17	IT470405_A-SMGCS for Central Hub Airport	34 538 201	5 678 201	334	669	669	1 302	179 548	15/20	0%	100%	after RP3
18	IT480904_A/V Recording FIR Warsaw	23 202 510	23 202 510	728 681	2 769 313	3 621 583	3 475 639	3 329 696	10	85%	15%	2021
Sub-total of **new major investments** above (1)		1 227 512 819	815 070 800	12 534 091	26 210 439	43 637 454	64 821 770	81 133 964				
Sub-total **other new investments** (2)		1 026 745 359	438 833 028	35 284 193	60 880 992	81 428 536	92 856 940	95 797 193				
Sub-total **existing investments** (3)				154 344 849	140 070 846	130 309 884	115 230 271	104 390 977				
Total new and existing investments (1) + (2) + (3)		2 254 258 178	1 253 903 828	202 163 133	227 162 277	255 375 875	272 908 981	281 322 134				

** The total % enroute+terminal should be equal to 100%.*

2.1.2 - Detail of new major investments

NOTE: Section 1.3 (Stakeholder Consultation) should include details on the consultation with airspace users' representatives on new major investments.

Name of new major investment 1	***01440701_Campus - construction and design***	Total value of the asset	***425 259 915 PLN***

Description of the asset	The project concerns construction of a site that will become the new PANSA headquarters with a new ACC and APP OPS room to take over all operational functions of the facility in Warsaw (excluding EPWA TWR and Training Center). The campus will become the place from which the majority of air traffic (ACC, APP) and auxiliary services for Poland will be performed. The following main functionalities are planned at the campus: • Creation of significantly larger ACC OPS room enabling installation of new ATCO workstations necessary to open more sectors. • Creation of new autonomous APP OPS rooms. • Construction allowing for installation of technical equipment outside of OPS room – improving ATCO working conditions. • Infrastructure for creation of a Big Data Centre - application of solutions ensuring data security. • Providing space for future virtual airport control towers (rTWR). • Creating infrastructure for development of other technologies. • Facilities for crisis management. • Solutions supporting new technologies and required level of safety and security, as well as energy savings.	
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No	
Level of impact of the investment	Network	Yes
	Local	Yes
	Non-performance	
Quantitative impact per KPA	Safety	Improving safety in FIR Warsaw through elimination of “single points of failure” and prevention of any possible failures in the main ATM system (reduced risk of ATM system and database failure). Ensuring the continuity of ANS provision and security along the increase in air traffic. Improving safety through increased system resilience to cybersecurity threat. Improvement of work standards in CWP, including improvement of ATCO working conditions
	Environment	Possibility of opening additional sectors will have positive impact on flight trajectories (shorter routes and optimisation of flight profile) with subsequent reduction of emissions and related costs (eg. ETS) and operating (non-fuel) costs for aircraft operators.
	Capacity	Allowing for uninterrupted air operations - reduced risk of irregularities (reduced cost of delays). Improved ability to adapt to air traffic flows and increase of airspace capacity through additional workstations (possibility to open additional ACC sectors).
	Cost Efficiency	Cost-effectiveness, obtained from the implementation of solutions for new infrastructure (e.g. energy saving infrastructure). For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.
Results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	No	The campus construction itself does not constitute investment in ATM system. However, new campus is a compulsory element for iTEC implementation in PANSA - the current HQ does not meet the infrastructure requirements for system installation. Therefore campus should be considered as enabler to the new ATM system implementation.
If investment in ATM system, type?	Click to select	n/a
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a

Name of new major investment 2	***02440701_Communication systems***		Total value of the asset	***29 427 538 PLN***
Description of the asset	The project is directly related to new ATC centres: Campus and ATM OPS Centre Poznań aimed at providing ACC and APP services. The project aims at providing the newly-built air traffic control centres with the necessary communication infrastructure/systems (G-G, A-G) for both voice and data transmission. A part of the project is building new radio-communication centres for ATS (ACC). The project covers only COM system for en-route services – does not include TWR units. The following main functionalities are planned: • Creation of infrastructure necessary for digital data transmission, • Creation of reliable, professional voice and data transmission systems, improving efficiency of ATCO work and enabling reducing reaction time, • Enabling implementation of new technologies and system solutions, including satellite communication. The communication systems are precondition for operational implementation of the new ATC centres - current ATC facilities in Warsaw do not provide sufficient space for installation of new technologies.			
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No			
Level of impact of the investment	Network			
	Local	Yes		
	Non-performance			
Quantitative impact per KPA	Safety	Securing continued access to services. Ensuring the safety of operations by securing ground and air-to-ground communication. Safety level maintained along traffic growth. Improving safety through reduction of reaction time to operational events and increasing situational awareness of ATCOs.		
	Environment	No impact		
	Capacity	Ensuring continuity of ANS in case of ATC centre in Warsaw failure (contingency provision). Increased airspace capacity through enabling operational implementation of new ATC centres. Reduced risk of irregularities resulting in lower cost of delays.		
	Cost Efficiency	For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.		
Results of the consultation of airspace users' representatives	Please see Annex E.			
Joint investment / partnership	No			
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select			
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	Although the investment does not constitute investment in ATM system, the following links to ATM MP can be identified: ATM MP/LSSIP: COM11; ITY-AGVCS2		

Name of new major investment 3	***03440701_ATM system with a simulator***		Total value of the asset	***130 825 787 PLN***
Description of the asset	The project covers new iTEC core ATM system planned to be installed in the new ATM OPS Center in Poznan and new Campus. iTEC system will be based on the system platform PEGASUS_21 and key components acquired as part of iTEC cooperation, which are jointly developed and financed by a group of leading ANSPs in Europe. Currently, the scope of cooperation includes iFDP modules (Flight Plan Data Processing), iCWP (Controller Working Position) and iMAS (Middleware), but further convergence is foreseen to elaborate a single operational concept and uniform ATM system. iTEC will be primarily dedicated to ACC and APP units – TWR units are to be supported by other systems (following implementation of Electronic Flight progrEss Strips and Virtualization of ATS airport services). The following main functionalities are planned: • Modern system, based on common, uniform open code standards (easier development and extension than P_21), • Full interoperability (incl. Flight Object Interoperability, SWIM), • Flexible airspace structures management with increased number of elementary structures, • Advanced trajectory modelling /management algorithm, enabling full cross-border FRA implementation, • Virtualization (independent of equipment and facilities), • Increased reliability, • Test/validation environment for SESAR2020 R&D solutions.			
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No			
Level of impact of the investment	Network	Yes, Medium. Final deployment in the new Campus might be related with transitional capacity regulations.		
	Local	Yes, High. Enterprise architecture affected.		
	Non-performance	Yes, High. Availability of a georedundant centre is critical for medium to long-term continuity of operations after a critical breakdown.		
Quantitative impact per KPA	Safety	Maintenance of safety level along the increasing traffic through high system reliability with reduced time for possible failure identification and elimination and reduction of risk of ATM system failure. Improving safety through improving situational awareness of ATCOs and better potential aircraft conflict detection.		
	Environment	Shorter flight trajectories (increased number of elementary structures with optimised shape, flexible sectors management, cross-border FRA) will allow to reduce operating (non-fuel) costs for aircraft operators and reduce CO2 and other emissions, positively influencing related costs for the aircraft operators (e.g. ETS).		
	Capacity	System development offers better operational efficiency. Increased airspace capacity through increased number of elementary structures and flexible sectors management. Allowing for increased number of ATCO workstations/sectors open. Reduced leadtime for implementation of changes. Further capacity increase through implementation of SESAR2020 solutions.		
	Cost Efficiency	Improving cost-efficiency through: sharing the costs of development and maintenance of the ATM systems, sharing server maintenance costs. Better control over costs in the event of a change in the system (as compared to P_21). Reduction of costs through lower system modernisation costs (as compared to P_21), reduction cost of new workstations (no costs for a single seat license), reduction of infrastructure (hardware) costs due to virtualisation. Avoidance of exponentially rising costs in case of P_21 maintenance after RP3. For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.		
Results of the consultation of airspace users' representatives	Please see Annex E.			

Joint investment / partnership	Yes	The system deployed in the new centers will have the core components upgraded to the versions developed within the iTEC alliance. Common project executed within the Baltic FAB (PANSA and SE OroNavigacija) resulting in iTEC systems located in Poland and Lithuania.
Investment in ATM systems	Yes	
If investment in ATM system, type?	New system	iTEC system will be based on the system platform PEGASUS_21 currently used by PANSA.
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	iTEC core components are enablers for the medium to long-term Master Plan subjects, especially: • ATC15.2 - Arrival Management Extended to En-route Airspace • ATC17 - Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer • ATC18 - Multi Sector Planning En-route - 1P2T • OD-5 – Virtual Centre concept, CWP and service interface • FCM08 - Extended Flight Plan • AF#5 - Initial SWIM o Sub-AF 5.3 Aeronautical information exchange o Sub-AF 5.4 Meteorological information exchange o Sub-AF 5.5 Cooperative network information exchange o Sub-AF 5.6 Flight information exchange (FO) • AF#6: Initial Trajectory Information Sharing; • AF#6.1: Initial Trajectory Information Sharing;

Name of new major investment 4	***06440701_ VCS system***	Total value of the asset	***47 547 021 PLN***
Description of the asset	VCS system (technical devices) for FIR Warsaw (directly related to PANSA new ATC centres: in Poznan and the new Campus, aimed at providing ACC and APP services) with dedicated communication infrastructure. The project consists of equipping the air traffic controller stations in these two new OPS centres with the VCS (Voice Communication System) system, integrating all available communication systems. The following main functionalities are planned: • Integration of aeronautical communication networks (radio and fixed) with access from all ATCO workstations, • Recording of all communication at ATCO workplace – required for occurrence investigation, • VCS system in ATC OPS Centre Poznań reflecting system implemented in current ATC OPS room in Warsaw to facilitate prompt shifting of operations in case of Warsaw location unavailability (contingency), • Additional functionalities in OPS room in Campus – integration of VCS with ATM system, • Implementation of Voice over IP functionality supporting flexible access management. The VCS system is required for operational implementation of the new ATC (ACC, APP) centres.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes (as the new Campus)	
	Local	Yes (as the new Campus)	
	Non-performance		
Quantitative impact per KPA	Safety	Maintenance of safety-level through availability of modern, reliable communication systems, providing good situational awareness of ATCOs.	
	Environment	No impact.	
	Capacity	Ensuring the continuity of ANS in case of ATC centre in Warsaw failure (contingency provision) . Increasing airspace capacity through enabling operational implementation of new ATC centres and reduction of risk of irregularities, which results in lower cost of delays.	

	Cost Efficiency	No impact. For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.
Results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	n/a
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a

Name of new major investment 5	***21440701_ATM OPS Centre Poznań***	Total value of the asset	***88 856 944 PLN***
Description of the asset	Construction of an ATC Centre Poznań with required operational and technical infrastructure. ATC Centre Poznan will be the contingency centre for Warsaw FIR, including for EPWW ACC and other regional APP centres. The project consists of building a backup center for air traffic control services located in Warsaw and main center for the approach control services (APP) for Poznan TMA. The project includes preparation of design documentation, demolition of existing facilities and construction of a new ATC Centre in Poznan together with technical infrastructure allowing further development of ATM system. The following main functionalities are planned: • primary location for Poznań APP services and Poznań FIS services, • backup center for EPWW ACC and other regional APP centres (Warsaw, Kraków, Gdańsk) enabling services continuity up to 100% (current EPWW contingency abilities: up to 60-65% or - in case of major failure at Warsaw location preventing use of Training Facilities in Warsaw - up to 30-35%), • environment for testing/validating and developing of new iTEC ATM system enabling acceleration of iTEC implementation as PANSA main ATM system.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes	
	Local	Yes	
	Non-performance		
Quantitative impact per KPA	Safety	Improving safety in FIR Warsaw through elimination of “single points of failure” and ensuring the continuity of ANS provision (contingency centre).	
	Environment	Avoiding negative impact of possible Warsaw ACC center closure on flight trajectories and thereby avoiding higher emissions and related costs and increased operating (non-fuel) costs for aircraft operators.	
	Capacity	Ensuring continuity of ANS in FIR EPWW, including preventing significant limitation of EPWW capacity in case of ACC OPS room failure (contingency). Reduced risk of irregularities (lower cost of potential delays).	
	Cost Efficiency	Lower future iTEC implementation costs as the main PANSA ATM system. For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.	
Results of the consultation of airspace users' representatives	Please see Annex E.		
Joint investment / partnership	No		
Investment in ATM systems	No	Enabler for testing/validating the new iTEC system before its installation in the new Campus.	
If investment in ATM system, type?	Click to select	n/a	

If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a

Name of new major investment 6	***IA480139_ASMGCS***		Total value of the asset	***23 737 670 PLN***
Description of the asset	New Radar SMR-2 at Warsaw Chopin Airport with supporting infrastructure, ASMGCS system (level 2+) with working positions for ATCOs at new Warsaw Tower building, integration with other systems used by PANSA. The following main functionalities are planned: • improved surveillance at Warsaw Chopin Airport – surface movement surveillance based on data from 2 SMRs, supported by MLAT, integrated with information on air traffic around the airport, • permanent aircraft identification, • automatic airport safety support service, identification of closed areas at the airport, • support to ATCO choice of optimum taxiing route, • supporting potential future implementation of follow-the-green solutions, • possible integration of A-SMGCS and A-CDM information on one screen. A-SMGCS implementation requires construction of new Warsaw Tower - current EPWA TWR facilities do not provide sufficient space for installation.			
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No			
Level of impact of the investment	Network	Yes		
	Local	Yes		
	Non-performance			
Quantitative impact per KPA	Safety	Improving safety at the airport manoeuvring area through implementation of early detection and resolution of conflicts solutions. Improving safety through increased situational awareness of ATCOs supported by automatic alerts and through increased situational awareness of airport manoeuvring area users. Reduced risk of incursion of aircraft onto designated restricted areas and increased safety through implementation of safety nets.		
	Environment	Potentially reduced taxi times by optimised scheduling through integration with TERMINUS (DMAN - TSAT generation). Reduced fuel costs by conflict-free, continuous taxiing without unnecessary taxiing breaks. Potentially reduced (optimised) routes and time for taxiing enabling reduced fuel consumption and related costs.		
	Capacity	Improving airport capacity in reduced visibility conditions by improving situational awareness, operational processes and procedures. Increased capacity through higher number of possible movements in adverse weather conditions (up to 28). As a consequence system will contribute to minimizing delays and reducing cancellations. Increased capacity through more efficient flow management allowed by improved identification of aircraft and other vehicles' position.		
	Cost Efficiency	For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.		
Results of the consultation of airspace users' representatives	Please see Annex E.			
Joint investment / partnership	Yes	Investment executed in cooperation with Polish Airports State Enterprise (Warsaw Chopin Airport managing body)		
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select			

If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	Although the investment does not constitute investment in ATM system, the following links to ATM MP can be identified: AOP04.1, AOP04.2

Name of new major investment 7	***IO450701_Warszawa Tower***	Total value of the asset	***40 205 677 PLN***
Description of the asset	New Tower for Warsaw Chopin Airport with related facilities and systems. New TWR Warsaw is required to provide improved capacity at the airport - limitations of current TWR do not allow for installations of new systems and ATCO workstations (there is no place to add new technical equipment) and do not provide full visibility of the airport manoeuvring area. Renovation of the current TWR in Warsaw is not possible during its operational work because of safety and capacity issues. The construction of the new TWR building aims at ensuring continuity of ATS provision at least until the new Solidarity Transport Hub is open (currently no definitive decision is taken on the future of Warsaw Chopin Airport after STH opening). The following main functionalities are planned: • improved visibility of airport manoeuvring area (higher tower building), • enables installation of new systems key for airport air traffic control, • transferring technical/IT equipment outside of OPS room, improving ATCO working conditions, • more space in OPS room – additional workstations – for ground and backup positions, • improved flexibility of changing ATC position roles, • improved reliability of infrastructure and systems, • current tower to be used as contingency. New tower is an enabler for A-SMGCS installation at Warsaw Chopin Airport.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes	
	Local	Yes	
	Non-performance		
Quantitative impact per KPA	Safety	Increased situational awareness of ATCOs and reduced workload through improved visibility of airport manoeuvring area and A-SMGCS implementation. Improved working conditions for ATCOs through transferring technical equipment outside of OPS room and providing required social facilities. Improved safety through backup and contingency solutions. Improved fire-fighting protection.	
	Environment	Limited risk of negative operational consequences (diversions, holdings) in case of current, outdated infrastructure failure – reduced fuel burn and related costs in case of holdings.	
	Capacity	Increased ATC capacity at the airport – capacity increase up to above 44 mvs/hour through new ATCO workstations/positions (more CWPs offer also better staff management flexibility) and improved situational awareness of ATCOs. Reduced risk of irregularities due to provision of backup positions and more reliable infrastructure.	
	Cost Efficiency	For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.	
Results of the consultation of airspace users' representatives	Please see Annex E.		
Joint investment / partnership	No		
Investment in ATM systems	No		
If investment in ATM system, type?	Click to select	n/a	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a	

Name of new major investment 8	***IP470701_UAV environment development (U-Space Programme)***	Total value of the asset	***25 008 526 PLN***
Description of the asset	The name of the investment refers to U-Space/UAV environment for ease of internal processes in PANSA – despite this name, the scope of the investment does not cover full set of functionalities related to U-Space/UAV environment, but only those related to ensuring efficient interface with ATC/ATM, as covered by PANSA ANS/ATM certificate. The investment aims at deployment of the ATC interfacing system in line with the SESAR U-space Blueprint and the investment predictions expected from ANSPs on basis of the document European ATM Master Plan: Roadmap for the safe integration of drones into all classes of airspace. This is reflected in the new edition of ATM Master Plan, which is currently finalised and under approval process. The U-space programme at PANSA includes two projects: "Unmanned Traffic Management integration with ATM systems" and "Tracking of UAVs". Growing number of UAV flights in Controlled Zones (CTRs) showed the need for digitisation of the coordination process and the simplification of flight approval process. The system's primary goal is to support Air Traffic Controllers in providing safe air navigation services to manned aircraft and ensuring separation. The project constitutes a support to PANSA Tower Systems Development (TWR) programme, as well as a requirement and service to aerodrome control services. PansaUTM system – developed in partnership with HAWK-E/ Droneradar - along with the other interoperable systems for ATCOs like the Electronic Flight progrEss Strips (EFES) system and PANDORA aeronautical information display system, is considered to play a significant role in ensuring safe, continuous, smooth and efficient air navigation in Polish airspace for all airspace users. The investment project will cover the following assets: • The system (intangible asset), which supports interface with existing ATM system to facilitate coordination of manned traffic and support ATS work providing required additional information on UAVs, • Infrastructure and systems for UAVs tracking (excluding detection). The following main functionalities are planned: • Digitisation and automation of UAV flight coordination with PANSA digitising the procedural interface with ATC, • Visualisation of UAV operations on display supporting the provision of air navigation services for manned aircraft, • Potential conflict situation identification and emergency management function informing non-verbally on ie. loss of control of the UAV which minimizes the risk of separation minima infringement to manned aircraft. Investment is necessitated by dynamic increase of UAV operations especially in controlled zones and safety concerns regarding unattended drones which might interfere with safe air navigation services provision. The project does not include UAV traffic management services (understood as those outside of the scope of ATM/ANS definition in SES Regulations), as well as UAV detection and drone defence systems, which are currently out of scope ANSPs agenda and function		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes	
	Local	Yes	
	Non-performance		
	Safety	Maintaining level of safety along the dynamic increase in UAV traffic through improved situational awareness of ATCOs (more accurate prediction of potential collisions through identification of UAV position and visualisation of flight trajectory). Reduced workload for ATCOs through automation and digitalisation of procedural ATC interface. The system will be a core element of U-space concept implementation, in line with the latest edition of ATM Master Plan (already finalised, to be finally approved in the coming weeks), as a single point of truth which will provide the reliable information to Air Traffic Controllers to support air navigation service provision as defined in Article 2 (4) of Regulation (EC) No 549/2004. It would help to obtain information on cooperative and help to identify non-cooperative drones, which occasionally are reported to ATC by manned aircraft air crew and might endanger the existing level of safety of manned aircraft operators (current airspace users). The system is aimed at minimisation of number of incidents related to drones and potential hazard of uncooperative drones by providing the interface to ATC from expected different U-space service providers on the market. Tracking would help preserve the airspace infringements in the airports' controlled zones, decreasing number of potential incidents, which might cause missed approaches and delays and related unnecessary costs for impacted stakeholders. The project excludes UAV detection and drone defence systems, which are currently out of scope ANSPs agenda and function.	

Quantitative impact per KPA	Environment	UAVs tracking would bring additional information on current position of the UAV, which would be an asset in decision making process of the ATCO concerning the possibly impacted manned traffic in controlled airspace, limiting potential holdings on approach/go-arounds (missed approaches) or waiting time before departure and thereby leading to lower emissions. Limiting risk of negative operational consequences (diversions, holdings) in case of incursion of aircraft into controlled zones – reduced fuel burn and related costs in case of holdings.
	Capacity	Digitisation of the UAV flight coordination process at Controlled Zones (CTRs) would reduce time needed for granting the permission, increase the number of possible flights and lower the workload of the ATCOs due to introduction of 2-way non-verbal communication between ATCO and the UAV operator. It would eliminate the voice coordination. The tracking methods to be eventually introduced to the system would help to increase capacity and to identify the true location of the UAVs. Greater awareness of UAV traffic around airports and interface with ATM systems will preserve the airspace infringements in the controlled zones and separation minima infringements, and in the result would decrease potential incidents which might cause missed approaches and delays. Limiting risk of negative operational consequences (diversions, holdings) in case of incursion of aircraft into controlled zones – reduced delays.
	Cost Efficiency	Lower workload related to the flight coordination process – both for TWR ATCO and for PANSA staff issuing permissions for UAV operations in Controlled Zones. Avoiding potential ATCO number increase dedicated to UAV traffic services. For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.
Results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	Yes	Partnership with HAWK-E/ Droneradar until the end of 2020.
Investment in ATM systems	No	Partly as the Interface with the ATC and integration with ATM systems.
If investment in ATM system, type?	Click to select	n/a
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	Investment in line with investment predictions expected from ANSPs on basis of the document European ATM Master Plan: Roadmap for the safe integration of drones into all classes of airspace as incorporated to the latest edition of the ATM Master Plan (interface with ATC service).

Name of new major investment 9	***IR470208_Virtualization of ATS airport services***	Total value of the asset	***45 455 557 PLN***
Description of the asset	The investment, covering intangible assets and supporting facilities, aims at integration of the existing systems operating independently and other new systems (planned to be implemented in the future) within one system (integration, processing and display of data from various sources). The system will provide data exchange necessary for ATCO/FIS work with technical and operational infrastructure. It will further enable data sharing outside (initially data exchange with airports, later on with the Network Manager) as well as Integration of manned and unmanned aircraft operations around airports. The following main functionalities are planned: • Data integration and standardisation - creation of universal data centre, gathering data from various sources and in different format, • Allowing data exchange with dependant systems and external systems, • Data availability independent of location (cloud solutions) enabling data replication and increased redundancy, • Flexibility of ATCO interface configuration, based on unified data for all ATC units, • Improved resilience to cybersecurity threats – improved data protection.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes – possibly at a later stage after implementing of potential data sharing with the NM	
	Local	Yes	
	Non-performance		

Quantitative impact per KPA	Safety	Improved safety through improved ergonomics and situational awareness and reducing workload for ATCOs. Maintaining safety levels along increasing traffic through provision of redundancy and limiting risk due to data dispersal and its simultaneous processing. Improved resilience to cybersecurity threats and elimination of single points of failure.
	Environment	
	Capacity	Improved capacity through supporting use of already implemented systems (electronic flight strips) reducing ATCO workload. Increased efficiency of air traffic flow through improved operational planning for all services at airport. Improved traffic predictability (departure time) limiting ATC restrictions for aircraft operators (ATFCM slots). Possible further capacity increase through implementation of SESAR2020 solutions, improved operation planning for all services at an airport.
	Cost Efficiency	Shortened period for ATCO training due to unified graphical interfaces. Limited cost of maintenance of larger number of systems and lower workload related to systems maintenance. Avoiding potential ATCO number increase through reduced ATCO workload. For quantitative impact of RP3 major investments (result of CBA analysis expressed in NPV) please see Annex E.
Results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	Yes	
If investment in ATM system, type?	New system	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	ATM MP - Cooperative network information exchange (SWIM); in the draft new ATM MP – linked to Virtualisation of service provision PCP – linked to AF#5: Initial System Wide Information Management

Name of new major investment 10	***IT170202_Tower at the Central Hub Airport***	Total value of the asset	***61 742 903 PLN***
Description of the asset	New Tower for Central Hub - construction of a new Tower building with supporting facilities and systems.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No		
Level of impact of the investment	Network	Yes	
	Local	Yes	
	Non-performance		
Quantitative impact per KPA	Safety	The tower will contribute to the overall safety at the airport.	
	Environment		
	Capacity	TWR is necessary to provide ATS Services for the airport. The airport is planned to provide required capacity in the light of air traffic increase in the region. Therefore the TWR infrastructure needs to be considered as an integral element of providing capacity to accommodate growing traffic to/from Poland/Region. Enabling aircraft operations at new hub airport to be built in the light of limited Warsaw Chopin Airport capacity.	
	Cost Efficiency		

Results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	n/a
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a

Name of new major investment 11	***IT410120_Radar PSR/MSSR Warsaw ASR-10***	Total value of the asset	***23 410 970 PLN***
Description of the asset	New radar ASR-10 (replacement of currently used radar ASR-10) with associated infrastructure. New Mode-S functionality is planned to be introduced. The project includes the construction of radar facilities for the needs of approach control (with the possibility of using it also for area control). The following main functionalities are planned: • PSR/MSSR surveillance in Warsaw TMA, • Mode-S functionality. Replacement required to ensure reliability of SUR infrastructure and service continuity.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky	
Benefits for airspace users and results of the consultation of airspace users' representatives	Please see Annex E.		
Joint investment / partnership	No		
Investment in ATM systems	No		
If investment in ATM system, type?	Click to select	n/a	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a	

Name of new major investment 12	***IT430803_Radar PSR/MSSR Gdańsk***	Total value of the asset	***24 824 530 PLN***
Description of the asset	New radar PSR/MSSR (replacement of currently used radar PSR/MSSR) with associated infrastructure. New Mode-S functionality is planned to be introduced. The project includes the construction of radar facilities for the needs of approach control (with the possibility of using it also for area control). The following main functionalities are planned: • PSR/MSSR surveillance in Gdańsk TMA, • Mode-S functionality. Replacement required to ensure reliability of SUR infrastructure and service continuity.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the Single European Sky.	
Benefits for airspace users and results of the consultation of airspace users' representatives	Please see Annex E.		
Joint investment / partnership	No		
Investment in ATM systems	No		
If investment in ATM system, type?	Click to select	n/a	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a	

Name of new major investment 13	***IT430900_Modernization of the ATM system***	Total value of the asset	***90 324 483 PLN***

Description of the asset	Continuation of maintenance and development of Pegasus_21 ATM system installed in 2013 (the existing core ATM system in PANSA). Scope of changes foreseen for RP3 covers, i.a. implementation of third layer of vertical split, increasing number of ATCO workstations, support to full Mode-S implementation, ongoing implementation of recommendations following incident investigation, implementation of functionalities supporting coordination with TWR electronic flight strips system and implementation of changes supporting cross-border OLDI shortcuts (precondition for cross-border FRA). The following main functionalities are planned: • implementation of multilayer vertical split with increased number of ACC sectors open, • possible activation of larger number of areas and functionalities supporting tactical shortcuts, • improved activation and visualisation of alerts on ATCO display, following safety recommendations, supporting early conflict detection and resolution, • support to aircraft identification using Mode-S functionalities, • integration with TWR systems (electronic strips, remote TWR).	
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	The scope of the upgrade project includes support for, but is not limited to, the following regulations: Regulation No 1207/2011, 1028/2014 and 2017/386 - Surveillance Performance & Interoperability (SPI) Regulation No 1206/2011 - Aircraft Identification (ACID)
Benefits for airspace users and results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	Yes	
If investment in ATM system, type?	Overhaul of existing system	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Master Plan (non-PCP)	AOM21.2 - Free Route Airspace - improved cross-border support ITY-ACID - Aircraft Identification (related to reg. 1206/2011) AF#6: Initial Trajectory Information Sharing - AF#6.1: Initial Trajectory Information Sharing - 6.1.2: ATN B2 based services in ATSP domain;

Name of new major investment 14	***IT440732_MLAT system for FIR Warsaw***	Total value of the asset	***35 289 101 PLN***
Description of the asset	Implementation of MLAT system for FIR Warsaw - investment is an element of SUR modernisation and development in PANSA to ensure continuity of ANS through multiple radiolocation coverage in FIR Warsaw (in particular SUR for APP and better coverage for ACC) and to implement Mode-S functionalities. The following main functionalities are planned: • improvement of SUR coverage, especially for APP control at major airports, with required redundancy level (minimum of double coverage, supporting service continuity in case of radar failure or service/replacement activities), • Mode-S implementation, • support to ADS-B implementation in line with SESAR programme, optimising SUR infrastructure, • improved resilience to wind-farms interference, • improved coverage at lower altitude in hilly areas, • enabler for reduced separation in TMAs.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky	
Level of impact of the investment	Network		
	Local	Yes	
	Non-performance		
	Safety	Improving safety through the possibility of providing a surveillance service at a potentially greater reliability (including higher level of radiolocation coverage) and higher level of accuracy than conventional SSR. Maintaining level of safety in case of radar failure or service activities and in the light of dynamic increase of traffic through improved situational awareness of ATCOs (improved reliability – reduced risk of equipment failure – and availability of Mode-S-based data). Limiting risk of transponder overload.	

Quantitative impact per KPA	Environment	The flight distance might be shortened through smaller aircraft separation. Limiting risk of negative operational consequences (diversions, holdings) in case of equipment failure and lack of SUR coverage which results in reduction of fuel burn and related costs in case of holdings.
	Capacity	Limiting risk of negative operational consequences (diversions, holdings) in case of equipment failure and lack of SUR coverage which results in reduction of delays. Benefits stemming from implementation of Mode-S.
	Cost Efficiency	
Benefits for airspace users and results of the consultation of airspace users' representatives	Please see Annex E.	
Joint investment / partnership	No	
Investment in ATM systems	No	
If investment in ATM system, type?	Click to select	n/a
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a

Name of new major investment 15	***IT460706_System ATIS smartMET/NAV EPLL, EPMO, EPSY, EPRA and EPLB***	Total value of the asset	***27 719 674 PLN***
Description of the asset	Intangible assets and supporting facilities. The project covers: • installation of smartMET/NAV/ATIS at EPLL, EPMO, EPSY, EPRA and EPLB to unify systems used at all Polish airports where PANSA provides ATS, • integration of ATIS with AWOS systems at all airports*, • integration of 3 systems: ATIS, AWOS and NAVaids information (ILS, DVOR, DME) with information provided at a single display unified at all ATC units in Poland. Will allow for automation of data transmission and data interoperability in all TWRs in FIR EPWW and will improve CWP ergonomic. The following main functionalities are planned: • presentation of data from 3 systems (AWOS, ILS/DVOR/DME, ATIS) on a single TWR and APP ATCO display, • facilitated monitoring of integrated systems by PANSA technical staff, • reduced amount of transmissions at airports currently without ATIS and reduced frequency occupancy, • automated information delivered to air crew reducing time for voice communication with ATCO, • earlier provision of information to air crew allowing for optimisation of decision on descent, • reduced risk of data errors and human errors, • unified HMI simplifying ATCO training, irrespectively of location of ATC unit, • enabler for future data digitalisation and implementation of D-ATIS. ** except for EPWA where AWOS is owned by PANSA and the integration is already proceeded.*		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)? Ref. to the Regulation and, if funded through Union assistance programmes, ref. to the relevant grant agreement.)	Yes	AF5 – Initial SWIM	
Benefits for airspace users and results of the consultation of airspace users' representatives	* Ensuring fully-automated meteorological information to aircraft operators (MET REPORT/SPECIAL communique), which will reduce radio-transmission time – reduced workload for flight crew. * Faster provision of meteorological information. * Reduced controller workload through integration of 3 different systems into one system which gives an overview of multiple meteorological data and consequently positively impacts safety. * Possible capacity increase due to reduction of voice communication between ATCO and flight crew. * Possible reduction of fuel consumption and related emissions/costs due to possible optimisation of decision on descent. * Middle step for D-ATIS implementation. Please see Annex E for consultation results.		
Joint investment / partnership	No		
Investment in ATM systems	No		
If investment in ATM system, type?	Click to select	n/a	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a	

Name of new major investment 16	***IT470203_Radar PSR / MSSR for Central Hub Airport***		Total value of the asset	***50 135 812 PLN***
Description of the asset	Construction of a new radar facility for approach control and its operational implementation.			
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No			
Level of impact of the investment	Network			
	Local	Yes		
	Non-performance			
Quantitative impact per KPA	Safety	Improved ATCO situational awareness.		
	Environment	Potentially reduce fuel consumption and emissions due to flight optimisation.		
	Capacity	Increase of throughput. Enabling aircraft operations at new hub airport to be built in the light of limited Warsaw Chopin Airport capacity.		
	Cost Efficiency			
Results of the consultation of airspace users' representatives	Please see Annex E.			
Joint investment / partnership	No			
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select	n/a		
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a		

Name of new major investment 17	***IT470405_A-SMGCS for Central Hub Airport***		Total value of the asset	***34 538 201 PLN***
Description of the asset	ASMGCS system, including new SMRs, with working positions for ATCOs at new Solidarity Transport Hub Tower building and integration with other systems used by PANSA. Implementation of tools supporting TWR ATCOs and airport operational personnel in surface movements management and traffic management in the vicinity of the airport.			
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No			
Level of impact of the investment	Network	Yes		
	Local	Yes		
	Non-performance			
Quantitative impact per KPA	Safety	Improving safety on the runway through provision of a safety net for runway operations, smooth distribution of the load on the taxiways and early detection and resolution of conflicts.		
	Environment	Reducing taxi times by optimised scheduling through integration with TERMINUS (DMAN - TSAT generation) Reducing fuel costs by conflict-free, continuous taxiing without unnecessary taxiing breaks.		
	Capacity	Improving airport capacity in reduced visibility conditions by improving situational awareness, operational processes and procedures. Enabling aircraft operations at new hub airport to be built in the light of limited Warsaw Chopin Airport capacity.		
	Cost Efficiency			
Results of the consultation of airspace users' representatives	Please see Annex E.			
Joint investment / partnership	No			
Investment in ATM systems	No			
If investment in ATM system, type?	Click to select	n/a		
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a		

Name of new major investment 18	*IT480904_A/V Recording FIR Warsaw*	Total value of the asset	***23 202 510 PLN***
Description of the asset	Technical facilities and intangible assets - new Audio/ Video - Record Playback System (AV-RPS) for voice and video recording for the operational purpose with new network infrastructure (IP) enabling integration of all audio and visual data recording at locations where such synchronisation is currently not provided. System allowing for recording of voice communication at ATCO workstation and ATM system display with synchronised voice and vision, facilitating data analysis by safety team and technical personnel, meeting requirements of ICAO Annex 10. * In GDN, there is no technical possibility of expanding the system and connecting additional new ATCO positions to the recording system. * SZZ, BZG, POZ, IEG, WRO, LCJ, WMI, RZE, LUZ units are equipped only with voice recording systems without synchronization of ATM system imaging recordings - the latter require urgent modernization. The project also includes newly prepared system for operation in RDO airport. The installation of the new A / V recorder significantly increases the technological potential (new infrastructure) and functional (new tools, mainly for the SMS Service). The following main functionalities are planned: • visual registration of ATM system data, • integration of voice with vision to facilitate investigation of occurrences and technical performance, • enabling integration of additional workstations needed in the light of increasing traffic due to extended technical infrastructure.		
The investment is mandated by a SES Regulation (i.e. PCP/Interoperability)?	No	Annex 10 to the Convention on International Civil Aviation "Aeronautical Telecommunications" point 3.5.	
Level of impact of the investment	Network		
	Local	Yes	
	Non-performance		
Quantitative impact per KPA	Safety	* Increasing the level of safety due to system unification in FIR Warsaw with respect of cybersecurity and ensuring audio and video recording in all operational centres in FIR Warsaw * Maintaining level of safety in the light of traffic increase through possible analysis of all (potential) irregularities and occurrences and reducing risk of future potential incidents. * Supporting occurrence investigation and safety cases analysis through voice and video records of CWPs; improved investigation due to larger database and unified data format.	
	Environment		
	Capacity		
	Cost Efficiency	Lower costs of maintenance and technical reviewing resulting from system unification in FIR Warsaw (one system supplier). Additionally ensuring local and central management of system and database. Possibly lower maintenance costs resulting from unified and modern systems instead of various, largely outdated, systems. Lower workload related to data read-outs and analysis during incident investigations.	
Results of the consultation of airspace users' representatives	Please see Annex E.		
Joint investment / partnership	No		
Investment in ATM systems	No		
If investment in ATM system, type?	Click to select	n/a	
If investment in ATM system, Reference to European ATM Master Plan / PCP	Click to select	n/a	

2.1.3 - Other new and existing investments

Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period	These cover a number of investments aimed at capacity increase in FIR Warsaw, both for ER operations and airport operations. These include communication ground stations necessary for increasing ER capacity, MLAT installations, Traffic Complexity Tool development, DVOR/DMEs, ILs/DMEs, voice communication systems, investments related to cybersecurity, radars etc. Large majority of these investments is related to capacity increase - either for ER traffic or in terminal airspace (90% of total PANSA RP3 CAPEX is related to the capacity KPA). Number of investments is related to safety in the Polish airspace. The planned investment projects include functionalities foreseen by the Pilot Common Project.

2.2 - Investments - Institute of Meteorology and Water Management - National Research Institute (IMWM)

2.2.1 - Summary of investments

Number of new major investments	0

2.2.3 - Other new and existing investments

Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period	**IMWM does not plan any investments above 5M EUR in RP3.** Other investments planned for RP3: New investments will help adjust the current requirements of meteo services in Europe to the standards of data transfer in appropriate unified formats, which will unify the products used by carriers. Investing in AWOS backup systems at selected airports will increase the safety of performing air operations in difficult weather conditions and will increase the safety of the continuity of tasks related to the meteorological services. The purchase of additional infrastructure (spare parts for AWOS) increase their reliability, which in a significant way will affect the security and continuity of the meteorological service. Involvement in new products dedicated to the meteorological services used by air control services will result in the possibility for the meteorological services to be developed earlier and in consequence help to take correct operational decisions. This will significantly reduce the delays associated with dynamic changes in the weather conditions. IMWM plans to invest and develop the SWIM/IWXXM software, equipment (computers), devices for collecting databases and devices for maintaining the network. For VENTO, IMWM plans include investing in equipment (computers) and devices for collecting databases. Additionally, IMWM plans to invest in AWOS-R at EPWR in 2020, at EPLL in 2021 and at EPSC in 2020. The total value of investments foreseen for RP3 (and described above) equals to 12.3 mln PLN.

2.3 - Investments - Radom Meteo sp. z o.o.

2.3.1 - Summary of investments

Number of new major investments	0

2.3.3 - Other new and existing investments

Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period	**Radom Meteo does not plan any investments above 5M EUR in RP3.** Other investments planned for RP3: Extension of the meteorological parameters measurement system AWOS to category II with the option of parameters measurement in 3 points - 3 point in the center of the runway measuring RVR. This investment will allow the operations to be carried out in accordance with Category II of ILS. After the extension, the AWOS system will measure among other things wind speed and direction, height of the cloud base and visibility along the whole runway. This type of solution will significantly increase the safety of air traffic at the airport and it is necessary for the airport to receive higher security categories (CAT II). The planned extension of the AWOS system is compatible with the general plan for the development of the Radom-Sadkow airport.

2.4 - Investments - Warmia i Mazury sp. z o.o.

2.4.1 - Summary of investments

Number of new major investments	0

2.4.3 - Other new and existing investments

Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period	**Warmia i Mazury does not plan any investments above 5M EUR in RP3.** Other investments planed for RP3: 1) Modernization of the existing teleinformation infrastructure - Due to the technological progress and requirements concerning the installation of more modern, technologically advanced and guaranteeing broadly understood security of radio communication systems for the Air Navigation Services, it will be necessary to modernize the existing teleinformation infrastructure at the Olsztyn-Mazury Airport Control Tower. Replacement of the active devices (switches) will increase the level of reliability and availability of necessary network services, thus ensuring the security of the L2 layer at a higher level. Due to the increased number of end devices (PC, Laptop, VoIP Phone, printers, scanners, BMS, etc.) that are already in the operation and concerning newly added in the ICT network, it is also necessary to increase the number of active devices giving the possibility of connecting these terminal devices. It is also planned to purchase a separate NGFW (Next Generation Firewall) device, which allows to ensure protection of IT systems at the highest possible level against attacks from both inside and outside of the IT network. In addition, NGFW has mechanisms such as Antivirus, DLP (Data Leak Prevention), content and application filtering, anti-spam, dns filtering, etc. This device also provides the ability to connect two independent ISPs (Internet Service Provider) to increase the availability of services to the Services and eliminate gaps in accessing network services. 2) Purchase of two technical vehicles - For the purpose of proper implementation of tasks related to the provision of air navigation services, it is planned to purchase two technical vehicles with service equipment, which is necessary for radiocommunication measurements in "traffic" in the entire manoeuvring area and outside the airport area, including systems distributed between TWR buildings and the Terminal. The rationale for the purchase of two technical vehicles is also the fact that the server rooms are located in two different places at the Olsztyn-Mazury Airport (ATC server room and permanent server room), which directly results from the need to ensure the security of data storage. Two vehicles will allow to quickly response in the event of simultaneous breakdowns. One vehicle will be adapted and equipped to remove radio communication failures and perform measurements, while the second one will be adapted to remove and perform permanent (IT) communications.

2.5 - Investments - Port Lotniczy Bydgoszcz S.A.

2.5.1 - Summary of investments

Number of new major investments	0

2.5.3 - Other new and existing investments

Description and justification of the costs nature and benefits of other new and existing investments in fixed assets planned over the reference period	**PL Bydgoszcz does not plan any investments above 5M EUR in RP3.** Other investments planed for RP3: Investment name: Renovation and modernization of the tower of the former Military Airport with furniture, terrestrial communication equipment, teletechnical lines, water supply connection, as well as protection and access control system. Total cost on Bydgoszcz Airport side 3 mln PLN (investment is partially financed by Bydgoszcz Airport and partially by PANSA). Investment justification: Air traffic control services (and ultimately AFIS services) currently work in a place that is only temporarily adapted to this type of functions, which was reflected in non-conformities resulting from inspections carried out by Polish CAA inspectors. The new tower will fulfill the requirements of supervision and control of air operations provided by air navigation services, i.e. AFIS, MET, which will increase the level of safety of the provided above services. It will enable the introduction of new technologies and procedures as a part of the efforts to integrate the services provided. PL Bydgoszcz plans to recover the costs incurred for the construction of the tower over a time of several reference periods. In connection with the above, as well as the fact that PL Bydgoszcz as an entity is legally responsible for ensuring the smooth and safe operation of the airport plans to carry out the above investment. As this building will be also used for ATC services provided by PANSA, it was agreed that PANSA will cover part of the total costs, while PL Bydgoszcz will cover the rest which amounts to 3 mln PLN.

SECTION 3: PERFORMANCE TARGETS AND MEASURES FOR THEIR ACHIEVEMENT

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #x

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #x

3.4.3 - Pension assumptions

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

3.4.5 - Restructuring costs

3.5 - Additional KPIs / Targets

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

3.6.1 - Interdependencies and trade-offs between safety and other KPAs

3.6.2 - Interdependencies and trade-offs between capacity and environment

3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

3.6.4 - Other interdependencies and trade-offs

Annexes of relevance to this section

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX H. RESTRUCTURING MEASURES AND COSTS
ANNEX M. COST ALLOCATION
ANNEX J. OPTIONAL KPIs AND TARGETS
ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS
ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS
ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

SECTION 3.1: SAFETY KPA

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety national performance targets

b) Detailed justifications in case of inconsistency between local and Union-wide safety targets

c) Main measures put in place to achieve the safety performance targets

Annexes of relevance to this section

ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS

3 - PERFORMANCE TARGETS AT LOCAL LEVEL

3.1 - Safety targets

3.1.1 - Safety KPI #1: Level of Effectiveness of Safety Management achieved by ANSPs

a) Safety performance targets

	Number of Air Traffic Service Providers	3				
		2020	2021	2022	2023	2024
PANSA	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
	Additional comments					
Warmia i Mazury sp. z o.o.	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
	Additional comments					
Port Lotniczy Bydgoszcz S.A.	Safety policy and objectives	C	C	C	C	C
	Safety risk management	C	C	C	C	D
	Safety assurance	C	C	C	C	C
	Safety promotion	C	C	C	C	C
	Safety culture	C	C	C	C	C
	Additional comments					

b) Detailed justifications in case of inconsistency between local and Union-wide safety targets

There is no inconsistency between local and Union-wide safety targets.

c) Main measures put in place to achieve the safety performance targets

Since the beginning of RP2 PANSA consequently and continuously improves safety, what can be observed in the Effectiveness of Safety Management (EoSM) indicator, which is still rising to reach the RP2 targets by the end of 2019. As indicated by EASA and PRB during RP3 Union-wide targets setting, the RP3 EoSM levels, based on CANSO Standard of Excellence, will be higher than respective levels based on RP2 EASA questionnaire. Neither the new EoSM questionnaire for ANSP nor AMC and GM are available for the time being. However, PANSA has been evaluated by CANSO Standard of Excellence since 2018. Taking into account the RP2 PANSA results, the non-availability of new AMC and GM for RP3 as well as adopting cost-efficient approach in further safety improvement beyond C level, it is assumed that for Safety Risk Management the level D is to be reached by the end of RP3 (2024). This is fully in line with article 2 of Commission Implementing Decision (EU) 2019/903 of 29 May 2019 setting the Union-wide performance targets for the air traffic management network for the third reference period starting on 1 January 2020 and ending on 31 December 2024, which states that the defined RP3 performance levels are to be achieved by the end of 2024 by air navigation service providers certified to provide services.
General action supporting the achievement of the targets for RP3 by PANSA will be updating of the existing PANSA SMS Development Road Map prepared for RP2. It will be based on results and feedback from CANSO exercises as well as new AMC and GM requirements when they will be prepared for new EoSM questionnaire. The main planning activities in SMS area are: reinforcement of Safety, implementation of program related to fatigue risk management, continuous improvement of risk management and improving communication with staff and increase awareness of safety within PANSA and with external stakeholders like airlines and airports.
The same levels of the EoSM indicator as for PANSA were adopted for the other ANSPs, however they will be established for the first time during RP3.

SECTION 3.2: ENVIRONMENT KPA

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

a) Environment national performance targets

b) Detailed justifications in case of inconsistency between national targets and national reference values

c) Main measures put in place to achieve the environment performance targets

Annexes of relevance to this section

ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS

3.2 - Environment targets

3.2.1 - Environment KPI #1: Horizontal en route flight efficiency (KEA)

a) National environment performance targets

	2020	2021	2022	2023	2024
	Target	Target	Target	Target	Target
National reference values	1,67%	1,66%	1,64%	1,64%	1,64%
National targets	1,85%	1,84%	1,83%	1,82%	1,81%

b) Detailed justifications in case of inconsistency between national targets and national reference values

Poland is fully committed to environmental sustainability, however the progress in this area was not satisfactory during RP2. Horizontal en-route Flight Efficiency (HFE) indicator of Baltic FAB and FIR Warsaw was below the target set for the RP2. This was the result of factors beyond control of Polish ANSP. The essential factors negatively influencing the situation were:
- the difference between the STATFOR forecast and the actual growth of the air traffic;
- traffic from/to Russia bypassing Ukrainian airspace;
- route choice of aircraft operators, taking into account cost-optimisation approach (including significant differences in the level of unit rates in Germany and Poland);
- congestion in parts of European airspace, forcing aircraft operators to fly longer routes to avoid delays – including delay optimisation approach undertaken by the Network Manager (4ACCs initiative and eNM Measures);
- increasing military activity, including large military exercises;
- weather phenomena.

The negative impact on the situation has been still caused by unstable situation in Ukraine and air traffic disturbance related to the ongoing conflict in this country.
The main assumptions related to the target values for RP3 were based on the guidelines and preliminary NM assessment, which provides for a slight improvement of the Horizontal Flight Efficiency. According to this NM assessment, Baltic FAB/Poland can be expected to reduce KEA by around 0.05 percentage point between the value reached in 2019 until the end of RP3. The value is due to successful implementation of FRA in Poland. For further work on RP3 targets actual performance in past months of 2019 (Jan-Aug 2019, based on data published by the PRU) was evaluated and reference was made to 2018 actuals. Looking at current HFE figures for 2019 it is clearly visible that the indicator deteriorates. More detailed analysis (presented also during bilateral consultation meeting on 22 August 2019) proves that this is mostly linked to factors beyond Polish ANSP control and this situation is expected to persist over RP3, including capacity situation in the European Network and related NM measures (eNM/ANSPs measures have a significant impact on KEA values for Poland).
Taking into account 2019 actual performance level (starting point for evaluating possible improvements in RP3) and the expected improvement over RP3 as estimated by the Network Manager and reference values for Poland the target should be established as proposed by Poland in this performance plan: 1.81% for 2024 with gradual improvement of 0.01 pp per year over RP3.
It needs to be underlined that Poland already has one of the lowest KEA values in Europe. Procedures and processes for cooperation with the military are already optimised in Poland and FRA (POLFRA) was implemented in February 2019. Therefore there is very limited possibility for any further improvements in the KEA indicator.

The progress in this area will mostly depend on factors outside of the ANSP's control such as:
- Airspace users' decision making and route choices,
- Weather: the experience from RP2 has shown that there has been a strong correlation between the observed weather phenomena (especially CBs during summer period),
- military activities in the Polish airspace,
- any possible disruptions in other parts of the European network and geopolitical situation in the European Region,
- NM measures aimed at offloading the most congested parts of European airspace.

c) Main measures put in place to achieve the environment performance targets

FRA implementation within Warsaw FIR (as from February 2019) is considered as a major step in the progressing the environment KPA, however there will be limited scope for additional improvement of the horizontal en-route flight efficiency within the RP3.
The measures put in place to achieve the environment performance targets may include:
- Further implementation of AFUA concept in FIR Warszawa:
a. Reducing the size of FBZs (Flight buffer zones) from 5NM to 2,5NM – Q3 2020.
b. Reducing the required tactical distance between segregated areas and GAT in en-route controlled airspace from 3,5NM to 2,5NM – Q3 2020.
c. 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 segregate areas back to civil traffic – Q4 2021.
d. Implementation of close 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 – Q4 2021.
- Airspace changes:
a. Reorganisation of TMAs in order to allow Continuous Descent Approach (CDA) operations from more directions than it is available today – Q2 2020. CDA techniques are also going to reduce fuel consumption and CO2 emissions and improve cooperation with airports in order to reduce the nuisance of air transport for local communities.
b. Implementation of cross-border FRA in FAB Baltic area - between ACC Warszawa and ACC Vilnius – 2021/2022.
c. Implementation of cross-border FRA between ACC Warszawa and ACC Malmoe – 2022/2023.

As explained during the consultation meeting on August 22nd, the above initiatives were taken into account when establishing the RP3 target for Poland. Still, as in detail explained above, these initiatives are not expected to substantially improve KEA in RP3 – having in mind the above mentioned FRA implementation, which already took place, already optimised AFUA procedures and eNM/ANSPs measures.

SECTION 3.3: CAPACITY KPA

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

a) Capacity national performance targets

b) Detailed justifications in case of inconsistency between national targets and national reference values

c) Main measures put in place to achieve the target for en-route ATFM delay per flight

d) ATCO planning

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

a) Capacity national performance targets

b) Contribution to the improvement of the European ATM network performance

c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

Annexes of relevance to this section

ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS

3.3 - Capacity targets

3.3.1 - Capacity KPI #1: En route ATFM delay per flight

a) National capacity performance targets

	2020	2021	2022	2023	2024
	Target	Target	Target	Target	Target
National reference values	0,30	0,30	0,23	0,18	0,18
National targets	0,30	0,30	0,23	0,18	0,18

b) Detailed justifications in case of inconsistency between national targets and national reference values

There is no inconsistency between National reference values and National targets.
The local CAPACITY targets are developed based on the PRB document "Local capacity reference values for RP3" dated 13 March 2019 and the latest edition of the European Network Operation Plan 2019-2024, published in June 2019.
The forecasted delay is at the level of 0.30 min/flight in 2020-2021 and around 0,23-0,18 min/flight in 2022-2024. Higher values for initial years of RP3 take into account traffic increase (traffic level above earlier forecast underlying revised RP2 performance plan) and assumed operational measures related to capacity situation in the European network.

** Refer to Annex Q, if necessary.*

c) Main measures put in place to achieve the target for en-route ATFM delay per flight

A set of measures focused on the positive impact on the capacity performance includes, among others, the following actions:
- Follow up on RP2 lessons learned;
- In the staffing area:
• roster plan extended by additional ATCOs – ATCO training - increasing the number of controllers by change of recruitment and training processes in order to increase the efficiency of training;
• flexible staff planning during traffic peaks;
• flexible roster responding to traffic complexity and week/weekend demand;
- In the airspace area:
• increasing No of sectors opened + extended hours of opening more sectors;
• implementation of third layer of vertical split of ACC sectors within area of responsibility of Warszawa ACC – 2021/2022;
• reorganisation of lower airspace in Poland (including TMAs) in order to optimise airspace configuration – 2022/2024;
• evolving ACC sector configurations and management to cope with updated STATFOR traffic forecast;
• development of FRA - successive introduction with neighbouring ANSP - Cross Border FRA;
- Adaptation of the air traffic management system to operational needs and modernisation of the ATM System;
- Improvement of comprehensive airspace management;
- Development of tools supporting ATCOs and flow management optimisation (including Traffic Complexity Tool);
- Investments in infrastructure (CNS) allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace;.
- ATFCM techniques including STAM – less sectors overload;
- FMP dynamic management: reaction on "core area"- tactical reduction of delays, closer cooperation with AUs, dynamic capacity/occupancy management, offload rerouting scenarios;
- Full implementation of A-CDM at Warsaw Chopin airport (evaluation phase), local CDM with regional airports.
It should be underlined that PANSA actively supports network delay optimisation measures undertaken by the Network Manager in cooperation with ANSPs. It assumed that in the initial years of RP3 such measures will continue.

d) ATCO planning

	Actual	Planning					
Warsaw (EPWW ACC)	2018	2019	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS planned to start working in the OPS room (FTEs)		7,50	21,00	11,00	12,00	12,00	12,00
Number of ATCOs in OPS planned to stop working in the OPS room (FTEs)		0,00	2,00	0,00	0,00	0,00	0,00
Number of ATCOs in OPS planned to be operational **at year-end (FTEs)**	158,75	166,25	185,25	196,25	208,25	220,25	232,25

Additional comments
Traffic increase observed in 2018 (much above revised RP2 PP assumptions) and forecast for subsequent years require increase in the number of ATCO in OPS to enable ANSP meet the RP3 capacity target. The required number of ACC ATCOs was estimated using EUROCONTROL NEST tool. By the end of RP2 PANSA initiated a recruitment process to increase the number of operational staff to compensate traffic growth in the last years and the future challenges. PANSA undertook measures aimed at increasing effectiveness of ATCO recruitment and training processes to ensure availability of required number of ATCOs. These included, among others, changes to the training programme, with increased number of hours for simulator training and greater involvement of OJT instructors in the simulator training, as well as increasing number of pseudo pilots. To ensure attractiveness of the offer to candidates for ATCO, PANSA plans to increase salaries for trainees.

3.3.2 - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

a) National capacity performance targets

	2020	2021	2022	2023	2024
	Target	Target	Target	Target	Target
National targets	0,45	0,35	0,33	0,28	0,25
Additional comments	The terminal capacity targets ANS ATFM arrival delay per flight were developed based on the historical data and assumptions taking into account the air traffic forecasts included in the STATFOR forecast issued in February this year. Additionally, at the end of May 2019, a group of experts carried out the simulation of the terminal traffic delays in Poland in the coming years. Poland decided to establish the incentive scheme for the terminal capacity target only at the national level. Poland decided to modulate the pivot values for calculation of the capacity incentive scheme and limit the incentive to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual.				

Airport level	***EPWA-Chopina w Warszawie***	0,95	0,60	0,60	0,54	0,52
	Airport contribution to national targets	EPWA - Warsaw Chopin airport is the main expected contributor to national targets.				
	EPKK-Kraków-Balice	0,06	0,35	0,25	0,15	0,07
	Airport contribution to national targets	The target was set to take into account potential delay caused by weather and other causes not-related to ATC.				
	EPGD-Gdańsk im. Lecha Wałęsy	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPGD is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPKT-Katowice-Pyrzowice	0,02	0,13	0,11	0,08	0,03
	Airport contribution to national targets	The target was set to take into account potential delay caused by other causes not-related to ATC.				
	EPWR-Wrocław-Strachowice	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPWR is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPPO-Poznań-Ławica	0,08	0,08	0,08	0,07	0,07
	Airport contribution to national targets	The target was set to take into account potential delay caused by airspace management.				
	EPRZ-Rzeszów-Jasionka	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPRZ is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets				
	EPSC-Szczecin-Goleniów	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPSC is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPBY-Bydgoszcz	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPBY is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPMO-Warszawa/Modlin	0,24	0,74	0,65	0,47	0,36
	Airport contribution to national targets	The target was set to take into account potential delay caused by weather and other causes not-related to ATC.				
	EPLL-Łódź	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPLL is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPLB-Lublin	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPLB is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPZG-Zielona Góra-Babimost	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPZG is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPRA-Radom-Sadków	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPRA is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				
	EPSY-Olsztyn-Mazury	0,00	0,00	0,00	0,00	0,00
	Airport contribution to national targets	EPSY is not expected to produce terminal and airport ANS ATFM arrival delay / contribution to national targets.				

b) Contribution to the improvement of the European ATM network performance

Warsaw Chopin airport implemented the Airport Collaborative Decision Making (A-CDM) which is highly contributing to the airport operations efficiency and to the European ATM network performance. Currently the A-CDM for EPWA is in the evaluation phase. It is planned to implement Target Start up Approval Time - TSAT Generator dedicated to optimise the time of the starting the aircraft engines based on the calculated Target off Block Time (TOBT).

c) Main measures put in place to achieve the target for terminal and airport ANS ATFM arrival delay per flight

Planned change of the airspace structure in TMA Warsaw and an increased number of staff should result in a reduction of delays generated due to ATC Capacity from 2023. Together with the airspace structure changes and ATCO increase, PANSA plans to implement tools supporting ATCOs and allowing for capacity increase, including supporting operations in adverse weather conditions (A-SMGCS, ILS). These investments necessary for ensuring required terminal capacity are included in PANSA investment plan for RP3.
The following measures, aimed at capacity increase at Warsaw Chopin airport, are planned for RP3:
• TMA reconstruction;
• Increasing number of sectors available during daytime and related increase in staff complement;
• Upgrade of Arrival Manager;
• Full implementation of A-CDM (currently in evaluation phase);
• Modification of departure spacing;
• Implementation of Electronic Flight Strips;
• Investments in new tower and implementation of A-SMGCS (phased approach).
For other airports, the following operational measures are planned for RP3:
• TMAs reconstruction;
• Implementation of Electronic Flight Strips enhancing local CDM;
• Ensuring availability of ATCOs at newly opened airports;
• Implementation of tools supporting TWR ATCO (reduced workload and improved situational awareness);
• Replacement investments in CNS to maintain required capacity level.

SECTION 3.4: COST-EFFICIENCY KPA

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #x

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)

b) Cost-efficiency performance targets

c) Description and justification of the methodology used to estimate the baseline values

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs

e) Description and justification of the consistency between local and Union-wide cost-efficiency targets

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #x

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)

b) Cost-efficiency performance targets

c) Description and justification of the methodology used to estimate the baseline values

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs

e) Description and justification of the contribution of the the local targets to the performance of the European ATM network

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS

3.4.3 - Pension assumptions

3.4.3.1 Total pension costs

3.4.3.2 Assumptions for the "State" pension scheme

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme

3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

3.4.5 - Restructuring costs

3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

3.4.5.2 Restructuring costs planned for RP3

Annexes of relevance to this section

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX H. RESTRUCTURING MEASURES AND COSTS
ANNEX M. COST ALLOCATION
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS

NOTE: The following requirements as per Annex II, 3.3 are addressed in the Annexes A and B:

Point 3.3 (d) on cost-allocation;
Point 3.3 (e) on the return on equity and cost of capital;

Point 3.3 (f) on assumptions for pension costs and interest on debt for other entities, inflation forecast and adjustments beyong IFRS;
Point 3.3 (g) on adjustments to the unit rates carried over from previous reference periods;
Point 3.3 (h) on costs exempt from cost-sharing;
Point 3.3 (k) reporting tables and additional informations.

3.4 - Cost efficiency targets

3.4.1 - Cost efficiency KPI #1: Determined unit cost (DUC) for en route ANS

En Route Charging Zone #1 - Poland

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)

2019 baseline value for the determined costs (in real terms and in national currency)	922 495 032
2019 latest available service units forecast (actual route flown, see point 1.2 of Annex VIII)	4 884 368
2019 baseline value for the determined unit costs (in real terms and in national currency)	**188,87**

b) Cost-efficiency performance targets

En route charging zone	**Baseline 2014**	**Baseline 2019**	**RP3 Performance Plan (determined 2020-2024)**					**CAGR**	**CAGR**
Name of the CZ	**2014 B**	**2019 B**	**2020 D**	**2021 D**	**2022 D**	**2023 D**	**2024 D**	**2014A-2024D**	**2019B-2024D**
Total en route costs in nominal terms (in national currency)			1 018 362 201	1 063 987 173	1 104 664 958	1 129 937 499	1 125 780 504		
Total en route costs in real terms (in national currency at 2017 prices)	**664 844 905**	**922 495 032**	**980 301 216**	**1 009 942 597**	**1 033 488 137**	**1 041 582 368**	**1 022 312 755**	**4,40%**	**2,08%**
YoY variation			6,3%	3,0%	2,3%	0,8%	-1,9%		
Total en route Service Units (TSU)	3 922 040	4 884 368	5 123 850	5 271 048	5 422 184	5 561 505	5 703 287	3,82%	3,15%
YoY variation			4,9%	2,9%	2,9%	2,6%	2,5%		
Real en route unit costs (in national currency at 2017 prices)	**169,52**	**188,87**	**191,32**	**191,60**	**190,60**	**187,28**	**179,25**	**0,56%**	**-1,04%**
YoY variation			1,3%	0,1%	-0,5%	-1,7%	-4,3%		
Real en route unit costs (in EUR2017) [1]	**39,84**	**44,39**	**44,97**	**45,03**	**44,80**	**44,02**	**42,13**	**0,56%**	**-1,04%**
YoY variation			1,3%	0,1%	-0,5%	-1,7%	-4,3%		

National currency	**PLN**
[1] Average exchange rate 2017 (1 EUR=)	**4,25483**

c) Description and justification of the methodology used to estimate the baseline values

For details, see Annex F.

** Refer to Annex F, if necessary.*

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs

For details, see Annex F.

** Refer to Annex F, if necessary.*

e) Description and justification of the consistency between local and Union-wide cost-efficiency targets

For details, see Annex R.

** Refer to Annex R, if necessary.*

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for en route ANS

For details, see Annex R.

** Refer to Annex R, if necessary.*

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #1 - Poland - EPWA

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)

2019 baseline value for the determined costs (in real terms and in national currency)	51 889 228
2019 latest available service units forecast	113 549
2019 baseline value for the determined unit costs (in real terms and in national currency)	**456,98**

b) Cost-efficiency performance targets

Terminal charging zone Name of the CZ	Baseline 2019 2019 B	RP3 Performance Plan (determined 2020-2024) 2020 D	 2021 D	 2022 D	 2023 D	 2024 D	CAGR 2019B-2024D
Total terminal costs in nominal terms (in national currency)		53 296 016	56 033 390	60 415 578	63 300 179	78 475 747	
Total terminal costs in real terms (in national currency at 2017 prices)	**51 889 228**	**51 071 390**	**52 928 684**	**56 336 407**	**58 264 998**	**70 930 490**	**6,45%**
YoY variation		-1,6%	3,6%	6,4%	3,4%	21,7%	
Total terminal Service Units (TNSU)	113 549	120 138	122 405	124 461	125 345	125 765	**2,06%**
YoY variation		5,8%	1,9%	1,7%	0,7%	0,3%	
Real terminal unit costs (in national currency at 2017 prices)	**456,98**	**425,10**	**432,41**	**452,64**	**464,84**	**563,99**	**4,30%**
YoY variation		-7,0%	1,7%	4,7%	2,7%	21,3%	
Real terminal unit costs (in EUR2017) [1]	**107,40**	**99,91**	**101,63**	**106,38**	**109,25**	**132,55**	**4,30%**
YoY variation		-7,0%	1,7%	4,7%	2,7%	21,3%	

National currency	**PLN**
[1] Average exchange rate 2017 (1 EUR=)	**4,25483**

c) Description and justification of the methodology used to estimate the baseline values

For details, see Annex F.

** Refer to Annex F, if necessary.*

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs

For details, see Annex F.

** Refer to Annex F, if necessary.*

e) Description and justification of the contribution of the the local targets to the performance of the European ATM network

For details, see Annex R.

** Refer to Annex R, if necessary.*

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS

For details, see Annex R.

** Refer to Annex R, if necessary.*

3.4.2 - Cost efficiency KPI #2: Determined unit cost (DUC) for terminal ANS

Terminal Charging Zone #2 - Poland - Other (14 airports - List of airports included is presented in point 1.4.)

a) Baseline value for the determined costs and the determined unit costs (in real terms and in national currency)

2019 baseline value for the determined costs (in real terms and in national currency)	115 036 396
2019 latest available service units forecast	139 521
2019 baseline value for the determined unit costs (in real terms and in national currency)	**824,51**

b) Cost-efficiency performance targets

Terminal charging zone Name of the CZ	Baseline 2019 2019 B	RP3 Performance Plan (determined 2020-2024) 2020 D	 2021 D	 2022 D	 2023 D	 2024 D	CAGR 2019B-2024D
Total terminal costs in nominal terms (in national currency)		136 305 200	141 085 482	142 647 266	145 321 187	144 659 581	
Total terminal costs in real terms (in national currency at 2017 prices)	**115 036 396**	**130 970 085**	**133 635 408**	**133 210 135**	**133 581 935**	**130 820 128**	**2,60%**
YoY variation		13,9%	2,0%	-0,3%	0,3%	-2,1%	
Total terminal Service Units (TNSU)	139 521	146 864	152 104	156 636	160 891	165 299	**3,45%**
YoY variation		5,3%	3,6%	3,0%	2,7%	2,7%	
Real terminal unit costs (in national currency at 2017 prices)	**824,51**	**891,78**	**878,58**	**850,44**	**830,27**	**791,41**	**-0,82%**
YoY variation		8,2%	-1,5%	-3,2%	-2,4%	-4,7%	
Real terminal unit costs (in EUR2017) [1]	**193,78**	**209,59**	**206,49**	**199,88**	**195,13**	**186,00**	**-0,82%**
YoY variation		8,2%	-1,5%	-3,2%	-2,4%	-4,7%	

National currency	**PLN**
[1] Average exchange rate 2017 (1 EUR=)	**4,25483**

c) Description and justification of the methodology used to estimate the baseline values

For details, see Annex F.

** Refer to Annex F, if necessary.*

d) Justification for the level of the baseline value for the determined costs in comparison with the latest available actual costs

For details, see Annex F.

** Refer to Annex F, if necessary.*

e) Description and justification of the contribution of the the local targets to the performance of the European ATM network

For details, see Annex R.

** Refer to Annex R, if necessary.*

f) Main measures put in place to achieve the targets for determined unit cost (DUC) for terminal ANS

For details, see Annex R.

** Refer to Annex R, if necessary.*

3.4.3 - Pension assumptions

Polish Air Navigation Services Agency (PANSA)

3.4.3.1 Total pension costs (in nominal terms in '000 national currency)

Pension costs	2020D	2021D	2022D	2023D	2024D
Total pension costs	85 539	89 542	92 739	95 944	97 324
En-route activity	71 788	75 571	78 616	81 516	81 407
Terminal activity	13 144	13 333	13 462	13 740	15 190
Other activities	607	638	661	688	727

3.4.3.2 Assumptions for the "State" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	Yes-2

All staff	2020D	2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	565 437	583 730	594 435	606 252	605 818
Employer % contribution rate to this scheme	16,26	16,26	16,26	16,26	16,26
Total pension costs in respect of this scheme	**47 940**	**50 524**	**52 743**	**54 944**	**56 253**
Number of employees the employer contributes for in this scheme	2 058	2 079	2 090	2 094	2 087

Staff employed in special conditions (ATCO, "flying personnel")	2020D	2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	312 316	324 175	341 073	351 012	357 138
Employer % contribution rate to this scheme	1,50	1,50	1,50	1,50	1,50
Total pension costs in respect of this scheme	**1 597**	**1 740**	**1 891**	**2 042**	**2 150**
Number of employees the employer contributes for in this scheme	638	672	699	722	740

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

The State pension scheme is defined in the Act of 13 October 1998 on social security scheme. It is a general occupational scheme applicable to all entities/all employees in Poland. The scheme is a Defined Contribution Scheme. This scheme defines level of obligatory contribution of employers to State pension scheme. This pension contribution amounts to 9.76% plus additional 6.5% for disability scheme - totalling 16.26% (employer's contribution only).
Additionally, for staff employed in special conditions (the list of staff categories is defined in Annexes to the Act of 19 December 2008 on bridging pension scheme), under the obligatory State scheme defined in the Act of 19 December 2008 on bridging pension scheme, employer pays 1.5% contribution to bridging pension scheme. In case of PANSA the staff employed in special conditions include personnel operating aircraft used for calibration flights (pilots and mechanics) and ATCOs.
At the moment of drafting the RP3 PP no drafts of proposed changes to the above national legislation on pensions are available - therefore the RP3 PP does not assume any changes.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

For the State pension scheme the costs assume the annual limit of contributions to State pension insurance applicable for 2019 in the amount of PLN 142.950, which in subsequent years was increased by 4.74% per annum calculated on the basis of the average for 2010 -2019 (the limit is verified on annual basis by the State taking into account the level of monthly average salary in the Polish economy).
The following limits were assumed in the RP3 PP:
2020 - 149.726 PLN,
2021 - 156.823 PLN,
2022 - 164.256 PLN,
2023 - 172.042 PLN,
2024 - 180.197 PLN.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

As the pension costs related to the State occupational scheme directly depend on the national legislation applicable to all entities, PANSA and the NSA have no control over the evolution of these costs if any change to the national legislation is implemented within RP3.
PANSA possible cost control mechanisms can only relate to the number of employees not exceeding the numbers foreseen in the RP3 PP and assumptions on remuneration level (sticking to the assumptions underlying the RP3 PP). PANSA is committed to following these assumptions on staff numbers and remuneration level as foreseen in the RP3 PP.

3.4.3.3 Assumptions for the occupational "Defined contributions" pension scheme (in nominal terms in '000 national currency)

Are there different contribution rates for different staff categories? If yes, how many?	No

All staff (access for employees on voluntary basis)	2020D	2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies	514 329	532 541	544 361	556 542	556 012
Employer % contribution rate to this scheme	7,00	7,00	7,00	7,00	7,00
Total pension costs in respect of this scheme	**36 003**	**37 278**	**38 105**	**38 958**	**38 921**
Number of employees the employer contributes for in this scheme	1 766	1 784	1 808	1 831	1 816

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

The occupational pension scheme is based on the Act of 13 October 1998 on employee pension schemes. In case of introducing such scheme, it is necessary to sign a company contract - an agreement concluded by the employer with a representation of employees. Then it is possible for the employer to pay pension contribution to the scheme up to 7% for each employee registered to the scheme. Contribution in PANSA according to the company contract amounts to 7%. Contributions are collected and managed by AVIVA Insurance Company. In addition, employees have the right to determine the amount they want to contribute - the sum of additional contributions made by a participant to the scheme during a calendar year may not exceed the amount equivalent to four-and-a-half times the average projected monthly salary in the national economy for a given year.
No future changes are predicted.

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs
Calculations are made in the same way as in the case of contributions to the State pension scheme, except that there is no limit of contributions.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users
The pension costs related to this scheme are dependent on the number of employees and their salaries. Therefore, similar as in case of the State scheme described above, PANSA possible cost control mechanisms can relate to the number of employees not exceeding the numbers foreseen in the RP3 PP and assumptions on remuneration level (sticking to the assumptions underlying the RP3 PP). PANSA is committed to following these assumptions on staff numbers and remuneration level as foreseen in the RP3 PP. In case of unforeseen increase in the level of remuneration or number of staff, which could lead to significant increase in the costs of this pension scheme, PANSA has a possibility to limit the level of contribution or to suspend the scheme for a limited period.

3.4.3.4 Assumptions for the occupational "Defined benefits" pension scheme (in nominal terms in '000 national currency)

Does the ANSP assume liability for meeting future obligations for the occupational "Defined benefits" scheme?	No
Is the occupational "Defined benefits" pension scheme funded?	No

	2020D	2021D	2022D	2023D	2024D
Total pensionable payroll to which this scheme applies					
Employer % contribution rate to this scheme					
Total pension costs in respect of this scheme					
Number of employees the employer contributes for in this scheme					

Description on the relevant national pension regulations and pension accounting regulations on which the assumptions are based, as well as information whether changes of those regulations are to be expected during RP3

Description of the assumptions underlying the calculations of pension costs comprised in the determined costs

Where, in the Reporting Tables, some occupational "defined benefits" costs (e.g. interest expense related to pensions) are reported in other cost item(s) than staff costs, the cost item(s) should be indicated here below along with corresponding explanations.

Describe the actions taken ex-ante to manage the cost-risk (cost increase) associated with this item, as well as the actions taken to limit the impact of the unforeseen change on the costs to be passed on to airspace users

3.4.4 - Interest rate assumptions for loans financing the provision of air navigation services

Polish Air Navigation Services Agency (PANSA)

Select number of loans	Select

Interest rate assumptions for loans financing the provision of air navigation services
(Amounts in nominal terms in '000 national currency)

Other loans	2020D	2021D	2022D	2023D	2024D
Description	Not applicable. PANSA does not plan to use debt financing, therefore no loans are foreseen for the third reference period.				
Remaining balance					
Average weighted interest rate %	-	-	-	-	-
Interest amount					

Total loans	2020D	2021D	2022D	2023D	2024D
Total remaining balance	0	0	0	0	0
Average weighted interest rate %	-	-	-	-	-
Interest amount	0	0	0	0	0

3.4.5 - Restructuring costs

3.4.5.1 Restructuring costs from previous reference periods to be recovered in RP3

Restructuring costs from previous reference periods approved by the European Commission?	No

3.4.5.2 Restructuring costs planned for RP3

Restructuring costs foreseen for RP3?	No

Additional comments
Not applicable.

SECTION 3.5: ADDITIONAL KPIS / TARGETS

3.5 Additional KPIs / Targets

Annexes of relevance to this section

ANNEX J. OPTIONAL KPIs AND TARGETS

3.5 - Additional KPIs / Targets

Number of additional KPIs	Click to select number of additional KPIs

SECTION 3.6: DESCRIPTION OF KPAS INTERDEPENDENCIES AND TRADE-OFFS INCLUDING THE ASSUMPTIONS USED TO ASSESS THOSE TRADE-OFFS

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

3.6.1 - Interdependencies and trade-offs between safety and other KPAs
3.6.2 - Interdependencies and trade-offs between capacity and environment
3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity
3.6.4 - Other interdependencies and trade-offs

3.6 - Description of KPAs interdependencies and trade-offs including the assumptions used to assess those trade-offs

3.6.1 - Interdependencies and trade-offs between safety and other KPAs

a) Do the measures to reach the targets in the different KPAs require changes in the ANSP functional system that have safety implications? If yes, which mitigation measures are put in place?
The main implemented changes in functional system are listed below together with mitigation measures. They have to support reaching the capacity and environment targets ensuring the highest safety priority. POLFRA – cooperation with NM (IFPS) in order to verify flight planning including simulation exercise; additional trainings and briefings for ATCOs; validation tests and certification of CAT 2.0 system, review and update of procedures, INOPS and AIP; A-CDM - review and update of INOPS for TWR EPWA and technical services; elaborate procedures for system failure or lack of TSAT data; publish in AIP information concerning TSAT and A-VDGS; assure training for all TSAT Terminus users and administrators. 5 NM longitudinal separation – publish data concerning the functional change in AIP, monitor indicators and parameters described in annexes to Safety Assessment, verify and update training programme.

b) What are the main assumptions used to assess the interdependencies between safety and other KPAs?
The main assumption for interdependencies is that the level of safety required under the EU legislation shall not be compromised and impacted by the other performance areas.

c) What metrics, other than those indicators described in the Regulation, are you monitoring during RP3 to ensure targets in the KPAs of capacity , environment, and cost-efficiency are not degrading safety?
Polish NSA is analyzing safety related occurrences within State Safety Programme/ Plan and Safety Oversight Report. The inspection plan is developed as a risk based oversight programme.

d) Do targets allow trade-offs in operational decision making to managing resource shortfalls in order to preserve safety performance? Do targets restrict the release of staff for safety activities, such as training?
The trade-offs in operational decision making are sometimes unavoidable. The ambitious capacity targets may restrict the release of staff for safety training during the high season, however these safety activities are not deleted but postponed and moved to low season.

e) Has the State reviewed the ANSP financial and personnel resources that are needed to support safe ATC service provision through safety promotion, safety improvement, safety assurance and safety risk management after changes introduced to achieve targets in other KPAs? Please, explain.
Polish CAA inspectors review and supervise the ANSP personnel resources in accordance with regulatory requirements Commission IR (EU) No. 1035/2011 (Annex I p.5).

3.6.2 - Interdependencies and trade-offs between capacity and environment

Several projects (airspace optimisation, route network straightening, DCT and FRA implementation) carried out by PANSA in the past few years allowed to improve HFE KPIs calculated for Polish (and Baltic FAB) airspace. Further improvement of HFE KPIs may cause reduction in capacity and/or throughput of EPWW FIR airspace. In complex airspaces with high demand, capacity is inversely proportional to flight routing efficiency. This is also confirmed by preliminary results of SESAR 2020 PJ06 project which is validating FRA concept in high and very high complexity environments. According to the mentioned results, when FRA is being implemented in complex airspaces with high demand it is necessary to introduce some "structural limitations" (which decrease flight efficiency) in order to maintain capacity which can be affected by increased complexity (ATCO workload) and increased number of ACC sectors which are penetrated by flights which are carried out on shortened routings. This situation will led to increased regulation implemented on the day of operation. The outcome of these structural limitations is very often less penalising than the cost of ATM regulations.

Last significant PANSA project (POLFRA) aimed to optimise flight efficiency was implementation of FRA in FIR EPWW on 28th of February 2019. Based on the mentioned above knowledge and performed analysis, in order not to decrease capacity of ACC Warszawa, POLFRA was implemented together with set of RAD restrictions which slightly increase length of the planned routes for chosen traffic flows. These restrictions were implemented after precise analysis in order to minimise negative impact on users, while at the same time minimizing the risk of occurrence of ATM regulation implemented on the day of operation.

Most of the RAD restrictions implemented in POLFRA are related to decreasing the number of ACC sectors crossed in a "sector sequence" for a given traffic flow in FIR EPWW in order to maximise the throughput of the Polish airspace.

Taking into account all the above mentioned elements, PANSA has performed high level estimation of potential negative results of withdrawing some of "structural limitations" of POLFRA. This could allow airspace users to plan more direct routings, but would also reduce throughput of ACC Warszawa airspace. Analysis was done based on traffic data from early June 2019 (still not the most busy period of summer season).

The values shown below represent the additional traffic within the one day in each ACC sector (only the sectors with the highest values are shown):

EPWWCL: 24
EPWWCH: 11
EPWWGH: 18
EPWWDH: 37
EPWWJL: 10
EPWWTH: 21

Let's take sector EPWWDH as an example.

Value 37 for this sector means that within one day 37 flights would additionally enter this sector.

Each of these 37 flights will cross 3 or 4 instead 2 or 3 Warszawa ACC sectors. These flights which are restricted usually cross sectors for a very short period, thus are "stealing" place in sector for flights which are flying for a long time, through whole sector. Typical capacity of one basic ACC sector is approximately 44 sector entries per hour. So, for example in case of EPWWDH we could have approximately up to 84% of hourly capacity wasted.

If we take into account all sectors, we have approximately 150 flights per day which would enter one sector more in a sector sequence, what most probably would led to significant ATM regulations applied on that day of operations. In the worst case scenario this could turn into 3,5 hours of ATM regulation – almost four sectors hourly capacity affected.

Another example of trade-offs between capacity and environmental targets could be the effect of enhanced NM Summer 2019 Measures. While at network level these measures are expected to bring positive effects for the level of delays, from the HFE perspective they lead to negative effects linked to longer routes. This relationship was recognized lately also by EASA Management Board Task Force on Airspace Congestion.

3.6.3 - Interdependencies and trade-offs between cost-efficiency and capacity

There is a direct and widely recognized trade-off between these two areas. Capacity provision comes at cost. To be able to increase and even to maintain current capacity, ANSPs need financial resources allowing them to ensure availability of ATCOs and infrastructure – these are the two most visible resources categories related to capacity provision.
Without required financial resources ANSPs will not be able to ensure availability of ATCOs.
Similarly, lack of investments in new tools supporting ATCOs, new ATM system and CNS infrastructure would negatively impact provision of additional capacity. This concerns not only ER, but also investments at airports like ILS or A-SMGCS, which increase airport capacity in adverse weather conditions.
Relationship between cost efficiency and capacity can also be measured by so called economic cost being total of financial costs invoiced to the airspace users and cost of delays. Reductions in ANSP financial costs can lead to significant increase in cost of delays, as a consequence negatively impacting the economic cost - with increasing cost for airspace users.
Additionaly, CAA has analyzed the simulation performed by PANSA, which indicates that lack of additional ATCOs in RP3 would lead to exponential increase in the level of delays, generating high additional costs for the airspace users. This element was also recognized in the report of EASA Management Board Task Force on Airspace Congestion. The simulation has also included the estimated cost of delays. One of the main conclusion of the simulation is that assuming the delay of the level of 5 511 300 min in RP3, will result into 551.1 mln EUR (at 1 min = 100 EUR).
For more details concerning the impact of capacity on cost-efficiency, see Annex R.
Additionall, as explained in Annex E, the major investments for RP3 were subject to analysis of benefits and related investment costs, leading to calculation – where possible - of NPV (see Annex E). This analysis proved that there is a strong and direct relationship between capacity and cost-efficiency performance. 90% of PANSA RP3 investments is related to capacity. Executing these – as proved by the benefit analysis – will allow for:
• increased airspace capacity – higher number of sectors and more flexible airspace structures management, directly contributing to maintaining low level of delays,
• reduced risk of irregularities and preventing limitations of EPWW capacity - reduced cost of delays in case of any failures,
• further capacity increase through possible implementation of validated in the future SESAR2020 solutions,
• improved traffic predictability limiting ATC restrictions for aircraft operators – again leading to lower level of delays,
• improved operation planning for all services at an airport and reduced workload for ATCO – allowing for increased airport capacity.
Not executing these would lead to exponential increase of delays in EPWW.
The above mentioned analysis proved also that there is a relationship between cost efficiency (additional costs related to execution of investments) and environment and safety area.
For further detail please see chapter 2.1 on major investments and Annex E.

3.6.4 - Other interdependencies and trade-offs

Experience of Poland of RP2 indicates that there is also an interdependency between cost-efficiency and environment areas. In case of bordering charging zones with significant differences in unit rates, in times of relatively low fuel costs, aircraft operators might be willing to fly through 'cheaper' charging zones, even when this means longer routes. Especially during RP2 these differences in the level of UR among the States was seen. The airpsace users planned their most efficient route (not only the shortest) and then performed flight on the shortest available routes. This practice has an impact also on ANSP overall performance in both cost-efficiency and environment areas.

SECTION 4: CROSS-BORDER INITIATIVES AND SESAR IMPLEMENTATION

4.1 - Cross-border initiatives and synergies

4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs

4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives

4.2 - Deployment of SESAR Common Projects

4.3 - Change management

Annexes of relevance to this section

ANNEX N. CROSS-BORDER INITIATIVES

4.1 - Cross-border initiatives and synergies

4.1.1 - Planned or implemented cross-border initiatives at the level of ANSPs

Number of cross-border initiatives	3

Initiative #1	
Name	Local Traffic Complexity Management (FAB Project)
Description	Objective: The Local traffic complexity management project implemented by PANSA/Oro Navigacija is an instrument for automated and dynamic traffic forecasting and sectorisation planning that would provide support to local ATFCM and ATS units in the execution of tasks in order to enable efficient planning of capacity and staffing at PANSA/Oro Navigacija. The project would enable to run fast-time simulations that in turn would develop optimised sectorisation scenarios in terms of capacity parameters and ATCOs resources needs. The project will enable coordination between PANSA/Oro Navigacija and different stakeholders, in particular NM, AUs and MIL, airport operators/slot coordinator through collaborative decision-making processes. Status: Project is in implementation stage. PANSA/Poland and Oro Navigacija/Lithuania submitted project application in 2018 Q1, which was approved in November 2018. Project Grant Agreement was signed in December 2018. ATM MP links and EU legislation links: In accordance with the PCP IR (EU 716/2014) and the Deployment Programme, ATM Functionality # 4 (Network Collaborative Management), including the Project Family 4.4.2 (Traffic Complexity tools), is required to be deployed in the European Air Traffic Management Network (EATMN). ATM MP L3: ATC12.1 AF4 - Network Collaborative Management; DP2017: Family 4.4.2 - Traffic Complexity tools
Expected performance benefits	Safety: Medium impact The project will enable more precise traffic forecasting leading to a significant reduction of overload situations and having positive impact on improved safety. The project will reduce operational human errors. Environment: Medium impact Reduced flight times and delays due to improved trajectory and network complexity assessment. Capacity: High impact The project will enable more precise traffic forecasting and traffic predictability, which will have positive impact on capacity increase and delay reduction in both en-route and terminal operations. Improved predictability is a consequence of better capacity utilisation. This improvement is mainly related to improved trajectory and network complexity assessment. Cost-efficiency: Low impact Increased ATCO productivity due to better allocation of resources to traffic thanks to traffic complexity assessment and EFD messages. Operational efficiency: Medium impact Reduced flight times and delays due to improved trajectory and network complexity assessment.

Initiative #2	
Name	iTEC/Convergence of ATM systems in the Baltic FAB ACCs and Cross Borders Service provision with Joint Contingency Service Provision
Description	Objective: Objective of this project is to achieve ATM system convergence, which will be an enabler for several solutions aiming at achieving the optimal use of technical and human resources resulting in lower provision costs and improved operational performance in the Baltic FAB. It will be then possible, for two ANSP operating the same ATM system, to provide contingency ATM services for themselves. Status: Project is during the implementation phase. ATM MP links and EU legislation links / other links: L3: ATC02.8, ATC12.1, ATC17, ITY-AGDL, ITY-AGVCS2, ITY-FMTP EC Regulations: 1035/2011; 552/2004; ESSIP/LSSIP: All ESSIP/LSSIP ATC & ITY-xxx objectives related to ATM and COM systems; FOC< 2019 and IOC>2017 ATM Master Plan: All ATM MP OI steps with FOC< 2019 and IOC>2017 related to VLCN Network Strategy Plan: SO4
Expected performance benefits	Safety: High impact Improved safety and controllers confidence while using complete set of Safety Nets, Conflict detection and monitoring aids available for 2015+ manufactured systems be offered by manufacturers (from 2018+). Environment: Low impact 1) System will support cross-border FRA contributing to ENV KPIs for horizontal fuel savings and corresponding reduction of CO2 emission; 2) System will be upgradable to future XMAN and thus capable to contribute future ENV KPIs most probably related to vertical fuel savings and corresponding CO2 emission and noise reduction (from 2018+). Capacity: High impact 1) Designed to support dynamic sectorization it will allow to deliver capacity on demand thus optimizing controllers workload while avoiding either overdelivery or underdelivery of the tactical capacity; 2) Air-Ground and Ground-Ground data exchange for seamless ATC coordination, dialog and transfer of communication means will allow to accommodate significant traffic growth/fluctuations without increasing the number of controlling sectors, protecting them from tactical overloads which may cause potential delays; 3) Interoperable with the airport systems to support A-CDM (from 2018+). Cost-efficiency: High impact. It will reduce equipment maintenance costs (other operating costs) and minimize the required installation of new upgrades and functions in existing ATC system. Operational efficiency: Medium impact. Reduction in flight time and reduction in fuel burn.

Initiative #3	
Name	Enhancement of inter-FAB cooperation and cooperation with non-EU countries (FAB project)
Description	The main objective of cooperation is to drive progress towards greater flight efficiency, cost efficiency and operational consistency in line with Single European Sky performance goals. Status: Outcome of Baltic FAB Implementation Programme Closing Report dated 29 November 2016 states: "Implementation phase is closed. Baltic FAB ANSPs will continue to seek for further possibilities of common actions in international environment in accordance with Baltic FAB Development Strategy." Project is a continuous activity. ATM MP links and EU legislation links: L3: AOM21.2, ATC02.8, ATC07.1, ATC12.1, ATC15.1, ATC15.2, ATC17 EC Regulations: SES Legislation ATM Master plan: "Regulatory roadmap" Particular activities: - Joint execution of the project based on ANSPs resources (financial, technical, HR), MoT, MoD, NSAs in-kind contribution. ANSP activity was focused on cooperation within interFAB Cooperation platform and GATE ONE as well as on opportunities provided by joint participation in SESAR Deployment Manager (Common implementation of AGDL, participation in definition of DLS functionality B, iTEC), B4 Consortium (Pansa, Oro Navigacija, LPS and ANS CZ) and Centralised Services (PANSA, Oro Navigacija, Uksatse) projects. - In 2017, PANSA and the Lithuanian Oro Navigacija, signed a memorandum of cooperation with the Ukrainian air traffic agency UkSATSE. Under the memorandum, the parties will strive for intensive cooperation on aviation infrastructure development and airspace management, particularly in the area of the preparation and development of operating systems for air traffic control and the deployment of Free Route Airspace. - In 2018 a Memorandum of Cooperation between Baltic FAB ANSPs and Belaeronavigatsia, Belarusian Air Navigation Service Provider, was signed. The aim of the Memorandum of Cooperation between Baltic FAB and Belaeronavigatsia was to give a framework for potential future works on operational level. - By a bilateral agreement on cooperation, Oro Navigacija and PANSA formalized their cooperation in search and rescue (SAR) area signing the appropriate agreement in 2018. The two ANSPs are also planning to cooperate in joint trainings / exercises and exchange of best practice. - Also, meetings were held with Belarusian ANSP, Ukrainian ANSP, and Kaliningrad ANSP with the aim to discuss the optimisation of CNS. Numerous common activities prove that ANSPs in Baltic FAB consider its common presence as valuable tool to achieve benefits. There are two Memorandums of Cooperation signed between Baltic FAB ANSPs and non—EU ANSPs from Ukraine and Belarus. Both documents partially covers cross-border activities. 1. MoC with Ukraine covers co-operation concerning the following areas: - Cross border Free Route Airspace; - Implementation and utilisation of GBAS/SBAS; - Deployment and extension of AMHS network; - Coordinated approach to DLS implementation; - Safety and Quality; - Implementation of common requirements applicable to ANSPs at EU level; - GATE ONE; - Baltic FAB ATM System 2. MoC with Belarus covers cooperation concerning the following areas: - cross border Free Route Airspace; - implementation and utilisation of PBN; - deployment and extension of AMHS network; - coordinated approach to DLS implementation; - surveillance Data Exchange; - safety and quality; - flight plan progress messages exchange.
Expected performance benefits	Low to medium in SAF, ENV and CAPACITY KPI. Not applicable to Cost-Efficiency

Additional comments

4.1.2 - Investment synergies achieved at FAB level or through other cross-border initiatives

Details of synergies in terms of common infrastructure and common procurement
New joint ATM system developed under the iTEC alliance, Jointly executed project related to implementation of Local Traffic Complexity Tool, Data sharing related to CNS infrastructure. This could include: o DVOR/DME Suwałki (replacement of existing DVOR/DME 'SUW' after resource period; this navaid may be potentially used for instrument procedures or RNAV coverage also on the territory of Lithuania); o DME Rudka (new DME which will be set instead of current DVOR/DME 'RUD'; planned location of new DME site is 52°55'36.1 N 023°05'16.3E (WGS-84); This navaid may be potentially used for RNAV coverage also on the territory of Lithuania); o Radar Gdańsk (new radar site close to Gdańsk (finally replacing current one); data from this radar may be potentially shared with SEORO NAVIGACIJA).

4.2 - Deployment of SESAR Common Projects

PCP ATM Functionality (AF) / Sub functionality (s-AF)	Recent and expected progress: The information presented below is based on the 2019 PCP monitoring data as provided to the SESAR Deployment Manager (SDM) in the framework of the 2019 PCP monitoring exercise and presented in the initial draft of the 2019 SESAR Deployment Programme Monitoring View (June 2019); the information below is presented per Project Family which is a detailed view on the progress at the ATM Sub-functionality level and reflects the actual state of PCP implementation by Poland.
AF1 - Extended AMAN and PBN in high density TMA	
s-AF1.1 AMAN extended to en-route airspace	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
s-AF1.2 Enhanced TMA using RNP-based operations	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
AF2 - Airport Integration and Throughput	
s-AF2.1 DMAN synchronised with predeparture sequencing	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
s-AF2.2 DMAN integrating surface management constraints	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
s-AF2.3 Time-based separation for final approach	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
s-AF2.4 Automated assistance to controller for surface movement planning and routing	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
s-AF2.5 Airport safety nets	Poland outside the geographical scope of the Regulation 716/2014 on Pilot Common Project
AF3 - Flexible Airspace Management and Free Route	
s-AF3.1 Airspace management and advanced flexible use of airspace	Family 3.1.1: ASM Tool to support AFUA - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Capacity and KPA Safety: • it increases airspace capacity thanks to better airspace organisation and planning, • it leads to better situational awareness of airspace users, • it enhances Civil-Military ATM performance, • it provides real-time exchange of airspace management data, • it facilitates collaborative (civil-military) decision-making and improves safety. Family 3.1.2: ASM Management of real-time airspace data - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Capacity: • it provides information about status of airspace reservation in order to optimise the use of airspace and increase capacity. Family 3.1.3: Full rolling ASM/ATFCM process and ASM information sharing - Implementation in progress (45% achieved); the deployment target date: December 2021; Performance gains: the primary scope/focus of the Family is KPA Capacity: • it will contribute to Network performance improvements and will support a better utilisation of Free Route Airspace and fixed route structure through enhanced ASM processes and tools, • it will contribute to enhance performance-driven ASM-ATFCM processes and will introduce more dynamic and flexible ASM/ATFCM/ATS processes. Family 3.1.4: Management of Dynamic Airspace Configurations - Implementation in progress (90% achieved); the deployment target date: December 2021; Performance gains: the primary scope/focus of the Family is KPA Capacity: it will enable dynamic sectorisation and therefore flexible Airspace Management within Polish airspace.

s-AF3.2 Free route	Family 3.2.1: Upgrade of ATM systems to support DCTs and FRA - Implementation in progress (55% achieved); the deployment target date: December 2021; Performance gains: this Family embraces all four KPAs as defined in the Performance Scheme: PANSA projects that fall under this Project Families aim at deploying advanced operational concepts such as but not limited to extended information exchange with other systems / partners in a timely, coordinated and synchronized effort to raise capacity, improve safety and cutting costs and thus enabling a significant performance increase at PANSA; PANSA projects faciltate also Free Route Airspace utilization and Extended Arrival Management; while the projects support FRA utilization, they enable improved flight efficiencies in fuel and in time for the airspace users. Family 3.2.3: Implement Direct Routings (DCTs) - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Environment; it enables improved flight efficiencies in fuel and in time for the airspace users thus, also reducing the environmental footprint of commercial aviation. Family 3.2.4: Implement Free Route Airspace (FRA) - 100 % Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Environment; it enables improved flight efficiencies in fuel and in time for the airspace users thus, also reducing the environmental footprint of commercial aviation.
AF4 - Network Collaborative Management	
s-AF4.1 Enhanced short-term ATFCM measures	Family 4.1.1: STAM Phase 1 - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Capacity: • it minimizes ATFCM delay by reducing the need for ATFCM regulations and its impact on operations, • it improves the balance between demand and available capacity through cooperation between ATFCM and ATS processes, through targeted measures on (an) individual flight(s), • it supports the network coordination between stakeholders and provides the network view for the elaboration, decision and execution of STAM measures, • it provides the collaborative environment to stakeholders during the elaboration, decision and execution of STAM measures; • it helps to plan optimum capacity and flight efficiency. Family 4.1.2: STAM Phase 2 - Implementation in progress (0% achieved); the deployment of the Family linked with the Family 4.4.2 Traffic Complexity Tool (TCT); STAM Phase 2 to be implemented via Local Tool (TCT) in B2B connection with the Network Manager; the deployment target date: December 2021; Performance gains: since this Family aims at further developing the STAM Phase 1 initiative, the primary scope/focus of the Family is KPA Capacity: it enables an optimised use of the available capacity by using real-time information about the network situation to identify and avoid 'hotspots' and reduce traffic complexity; Reduced flight time and holdings, owing to improved network predictability. The both Families (4.1.1 and 4.1.2) contribute also to cost savings and reduced fuel burn due to airspace users being able to fly their preferred trajectories, according to their priorities and operational objectives.
s-AF4.2 Collaborative NOP	Family 4.2.2: Interactive Rolling NOP - Implementation planned; ATFM procedures and staff training to be done when NM platform (N-Connect) is available; the deployment target date: December 2021; Performance gains: the primary scope/focus of the Family is KPA Capacity and KPA Safety; the Family will enable to improve ATCO workload predictability and prevent ATCOs overloads. the Family, once NM platfrom is available, will contribute to improving Network situational awareness and increasing operational CDM efficiency for all network stakeholders; it will help reduce flight time and flight holding due to improved network predictability. Family 4.2.3: Interface ATM systems to NM systems - Implementation in progress (95% achieched); the deployment target date: December 2019; Performance gains: this Family is of a horizontal nature and in fact embraces all four KPAs as defined in the Performance Scheme; it is focused on the collaboration improvement between NM, ANSPs, airports and airspace users in flight plan filing and processing. Family 4.2.4: AOP/NOP information sharing - the Family focused on targeted airports listed in the Regulation 716/2014; PANSA/Poland not bound to implement the Family.
s-AF4.3 Calculated take-offtTime to target times for ATFCM purposes	Family 4.3.1: Target times for ATFCM purposes - the Family focused on NM and Airspace Users; the Family is not applicable to PANSA. Family 4.3.2: Reconciled target times for ATFCM and arrival sequencing - Implementation not planned yet; Low readiness Family; The planning of the Family implementation will be feasible when full information is provided by the NM.

s-AF4.4 Automated support for traffic complexity assessment	Family 4.4.2: Traffic Complexity Tools - Implementation in progress (10% achieved); the deployment target date: December 2021; Performance gains: the primary scope/focus of the Family is KPA Capacity: PANSA's projects falling under this Family are expected to bring the largest performance benefits in terms of capacity increase and reduction of delays both in en-route and terminal traffic; as concerns indirect impacts, the project will contribute to the following KPAs: • Safety: the project will enable more precise traffic forecasting leading to a significant reduction of overload situations and having positive impact on improved safety. • Predictability: The project will enable more precise traffic forecasting and traffic predictability that will have positive impact on capacity increase and delay reduction in both en-route and terminal operations. Improved predictability is a consequence of better capacity utilisation. This improvement is mainly related to improved trajectory and network complexity assessment • Flight efficiency: Reduced flight times and delays due to improved trajectory and network complexity assessment • Cost efficiency: Increased ATCO productivity due to better allocation of resources to traffic thanks to traffic complexity assessment and EFD (Electronic Flight Display) messages.
AF5 - Initial SWIM	
s-AF5.1 Common infrastructure components	Family 5.1.1: PENS1: Pan-European Network Service version 1 - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Cost-efficiency: a joint EUROCONTROL / ANSP led initiative to provide a common IP based network service across the European region covering voice and data communication and providing efficient support to existing services and new requirements that are emerging from future Air Traffic Management concepts, in particular in the context of SESAR (SWIM backbone). Family 5.1.2: NewPENS: New Pan-European Network Services - Implementation in progress (50% achieved); the deployment target date: December 2020; Performance gains: since the Family aims at replacing the PENS1, the primary scope/focus of the Family is also KPA Cost-efficiency through the multistakeholder nature of the initiative.
s-AF5.2 SWIM technical infrastructure and profiles	Family 5.2.1: Stakeholder Internet Protocol Compliance - Implementation in progress (0% achieved); the implementation project (co-funded from EU funds) underway; the deployment target date: December 2019; Performance gains: PANSA's project that falls under the Family is about splitting of operational and non-operational services that are based on network environment and thus contributes to improving network services for operational users by upgrading reliability and stability level (service continuity) and, ultimately, to KPA Safety. Family 5.2.2: Stakeholder SWIM Infrastructure Components - Implementation in progress (0% achieved); the implementation project (co-funded from EU funds) underway; the deployment target date: December 2024; Performance gains: PANSA's project that falls under the Family consists in improving reliability level for AMHS and upgrading AMHS functionality for Warsaw AMHS COM Center, thus contributing to service continuity and KPA Safety. Family 5.2.3: Stakeholders' SWIM PKI and cybersecurity - Implementation planned; PANSA is going to make use of solutions/best practices that will be developed in the framework of the multistakeholder project on SWIM Common PKI and policies & procedures for establishing of Trust Framework; the deployment target date: December 2024; Performance gains/description: the scope of activities under the Project families concerns cybersecurity aspects.
s-AF5.3 Aeronautical information exchange	Family 5.3.1: Upgrade/Implement Aeronautical Information - Implementation in progress (20% achieved); the deployment target date: December 2024; Perfromance gains/description: PANSA's activities within the Family will support the enhancement of security, data integrity and capacity, as well as promotion of ATM automation while making sure that the data quality is compatible with System Wide Information Management (SWIM) requirements; it will improve consistency, reliability and integrity of aeronautical data and information as well as the availability of quality-assured electronic terrain and obstacle data from authoritative sources.
s-AF5.4 Meteorological information exchange	Family 5.4.1: Upgrade/Implement Meteorological Information - not applicable; the implementation of the Family applies to the MET Service Provider.

s-AF5.5 Cooperative network information exchange	Family 5.5.1: Upgrade/Implement Cooperative Network Information Exchange System/Service - Implementation in progress (20% achieved); the deployment target date: December 2024; Project gains/description: Activities under this Family will be focused on initiating SWIM compliance and at developing/deploying new B2B services to exchange network / flight plan information between NM and operational stakeholders; the Family will contribute to KPA Capacity and KPA Safety.
s-AF5.5.6 Flight information exchange	Family 5.6.1: Upgrade/Implement Flight Information Exchange System / Service supported by Yellow Profile - Implementation planned; the deployment target date: December 2024; Performance gains/description: this Family aims at upgrading or implementing Flight Information Exchange systems and services supported by the Yellow Profile in accordance with SWIM principles; the implementation of this Family requires an analysis of upgrades and new implementations of services to be performed, as well as the development of a concept on how to tackle the transition for this Family; this analysis shall include the development of a roadmap of the transition and the identification of the relevant artefacts (roadmap, services definition, Safety and Security framework, compliance framework); the transition concept is still awaited. Family 5.6.2: Upgrade/Implement Flight Information Exchange System / Service supported by Blue Profile - Implementation planned; the deployment target date: December 2024; Performance gains/description: The Family focuses on Flight Object Interoperability (IOP) aspects but still lacks maturity (still to be addressed within the SESAR2020 works), however, first activities have already been done, inter alia, to: • synchronise Flight Object Interoperability Industrialisation Projects • synchronise Flight Object Interoperability Deployment Activities • study and identify best options for a Flight Object Deployment Governance.
AF6 - Initial Trajectory Information Sharing	Family 6.1.1: ATN B1-based services in ATSP domain (CPDLC) - 100% Full deployment achieved; Performance gains: the primary scope/focus of the Family is KPA Capacity and KPA Safety: through the data-link communication, ATCOs' workload is substantially diminished which contributes to capacity and safety increase. Family 6.1.2: ATN B2-based services in ATSP domain - Implementation not planned yet; Low readiness Family; depending on ATN B2 services maturity, PANSA will decide after 2020 if it is feasible to upgrade current ATM system with ATN B2 services or if to postpone it until the future ATM system. Family 6.1.3: A/G and G/G Multi Frequency DL Network in defined European - 100% Full deployment; Performance gains: the primary scope/focus of the Family is KPA Capacity and KPA Cost-efficiency: • it supports SDM in its activities according to the DLS Recovery Plan and defining a European DLS Common Governance. • it identifies steps towards the envisaged target solution in order to achieve the required performance needed to achieve full AF6 implementation. • it identifies the "Service Areas" and develops a design of the system architecture that will enable Data-link services provision in the most efficient way.

4.3 - Change management

Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance
Change management practices and transition plans for the entry into service of major airspace changes or for ATM system improvements, aimed at minimising any negative impact on the network performance.

SECTION 5: TRAFFIC RISK SHARING ARRANGEMENTS AND INCENTIVE SCHEMES

5.1 - Traffic risk sharing parameters
- 5.1.1 Traffic risk sharing - En route charging zones
- 5.1.2 Traffic risk sharing - Terminal charging zones

5.2 - Capacity incentive schemes
- 5.2.1 - Capacity incentive scheme - Enroute
  - 5.2.1.1 Parameters for the calculation of financial advantages or disadvantages - Enroute
  - 5.2.1.2 Rationale and justification - Enroute
- 5.2.2 - Capacity incentive scheme - Terminal
  - 5.2.2.1 Parameters for the calculation of financial advantages or disadvantages - Terminal
  - 5.2.2.2 Rationale and justification - Terminal

5.3 - Optional incentives

Annexes of relevance to this section

ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING
ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES
ANNEX K. OPTIONAL INCENTIVE SCHEMES

5.1 - Traffic risk sharing

5.1.1 Traffic risk sharing - En route charging zones

Poland			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

5.1.2 Traffic risk sharing - Terminal charging zones

Poland - EPWA			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

Poland - Other (14 airports - List of airports included is presented in point 1			Traffic risk-sharing parameters adapted?			no
			Service units lower than plan		Service units higher than plan	
	Dead band	Risk sharing band	% loss to be recovered	Max. charged if SUs 10% < plan	% additional revenue returned	Min. returned if SUs 10% > plan
Standard parameters	±2,00%	±10,0%	70,0%	5,6%	70,0%	5,6%

5.2 - Capacity incentive schemes

5.2.1 - Capacity incentive scheme - Enroute

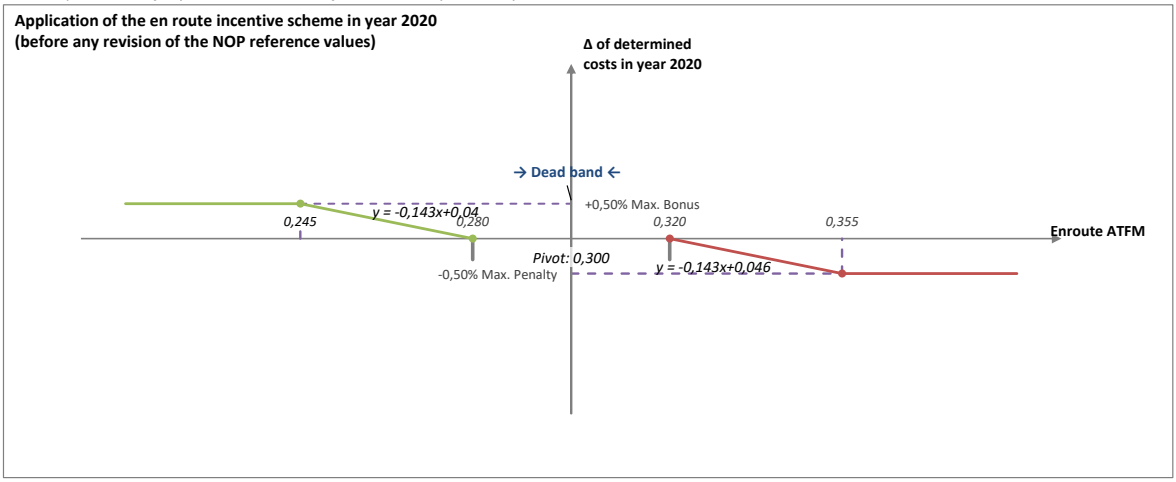
5.2.1.1 Parameters for the calculation of financial advantages or disadvantages - Enroute

Enroute	Expressed in	Value
Dead band Δ	fraction of min	±0,020 min
Max bonus (≤2%)	*% of DC*	0,50%
Max penalty (≥ Max bonus)	*% of DC*	0,50%
The pivot values for RP3 are	modulated	

Polish Air Navigation Services Agency (P

		2020	2021	2022	2023	2024
NOP reference values (mins of ATFM delay per flight)		0,3	0,3	0,23	0,18	0,18
Alert threshold (Δ Ref. value in fraction of min)		±0,055	±0,055	±0,052	±0,050	±0,050
Performance Plan targets (mins of ATFM delay per flight)		0,30	0,30	0,23	0,18	0,18
Pivot values for RP3 (mins of ATFM delay per flight)*		0,30	0,30	0,23	0,18	0,18
Financial advantages / disadvantages	Dead band range	[0,28-0,32]	[0,28-0,32]	[0,21-0,25]	[0,16-0,2]	[0,16-0,2]
	Bonus range	[0,245-0,28]	[0,245-0,28]	[0,179-0,21]	[0,13-0,16]	[0,13-0,16]
	Penalty range	[0,32-0,355]	[0,32-0,355]	[0,25-0,282]	[0,2-0,23]	[0,2-0,23]

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the November n-1 NOP and the methodology described in 5.2.1.2.a2 below. The pivot values for year n have to be notified to the EC by 1 January n.*



5.2.1.2 Rationale and justification - Enroute

Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3:	
a) In order to enable significant and unforeseen changes in traffic to be taken into account:	
a.1) The pivot value for year n IS the reference value from the November release of year n-1 of the NOP.	Yes
a.2) The pivot value for year n is informed by the November release of the year n-1 of the NOP and calculated according to the following principles and formulas:**	No
b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated.	No

*** Refer to Annex I, if necessary.*

5.2.2 - Capacity incentive scheme - Terminal

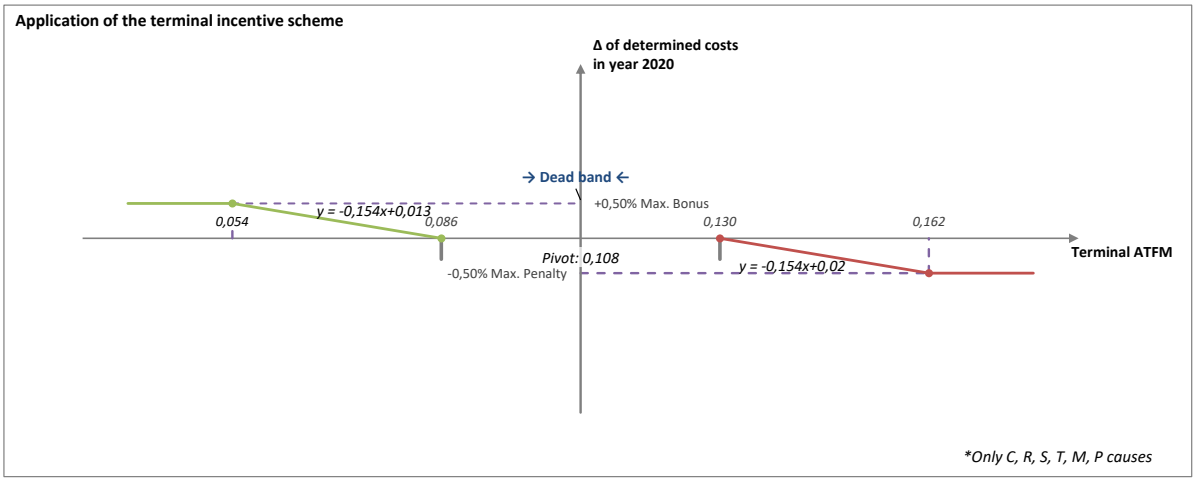
5.2.2.1 Parameters for the calculation of financial advantages or disadvantages - Terminal

Terminal	Expressed in	Value
Dead band Δ	%	±20,0%
Bonus/penalty range (% of pivot value)	%	±50%
Max bonus	% of DC	0,50%
Max penalty	% of DC	0,50%
The pivot values for RP3 are	modulated	

		2020	2021	2022	2023	2024
Performance Plan targets (mins of ATFM delay per flight)		0,45	0,35	0,33	0,28	0,25
Bonus/penalty range Δ (in fraction of min)		±0,054	±0,000	±0,000	±0,000	±0,000
Pivot values for RP3 (mins of ATFM delay per flight)*		0,11				
Financial advantages / disadvantages	Dead band range	[0,086-0,13]	[0-0]	[0-0]	[0-0]	[0-0]
	Bonus range	[0,054-0,086]	n/a	n/a	n/a	n/a
	Penalty range	[0,13-0,162]	[0-0]	[0-0]	[0-0]	[0-0]

** When modulation applies, these figures are only indicative as they will be updated annually on the basis of the methodology described in 5.2.1.2.a below. The pivot values for year n have to be notified to the EC by 1 January n.*

Application of the terminal incentive scheme



5.2.2.2 Rationale and justification - Terminal

Explain how the bonus and penalties are going to be apportioned between the different terminal charging zones and ANSPs providing services in each of them**
The target in terminal capacity area was set on national level. The financial advantage or disadvantage from those incentive schemes shall be calculated on as a 0,5 % of the PANSA terminal determined costs including TCZ 1 and TCZ 2 of year n and recovered from (reimbursed to) airspace users through an increase (reduction) of unit rate respectively in year n+2.

*** Refer to Annex I, if necessary.*

Indicate which of the principles below will be applied for the modulation of the pivot values for the whole RP3:	
a) The pivot value for year n is modulated in order to enable significant and unforeseen changes in traffic to be taken into account and is based on the principles explained below:**	No
b) The scope of the incentives is limited to delay causes related to ATC capacity, ATC routing, ATC staffing, ATC equipment, airspace management and special events with the codes C, R, S, T, M and P of the ATFCM user manual. If yes, provide below a justification for this decision and an explanation of how the pivot values are calculated.	Yes
See Annex I.	

*** Refer to Annex I, if necessary.*

5.3 - Optional incentives

Total maximum bonus for all optional incentives (≤2%):	0,0%	Total maximum penalty for optional incentives (≤4%):	0,0%

Number of optional incentives	0

SECTION 6: IMPLEMENTATION OF THE PERFORMANCE PLAN

6.1 Monitoring of the implementation plan

6.2 Non-compliance with targets during the reference period

6 - IMPLEMENTATION OF THE PERFORMANCE PLAN

6.1 Monitoring of the implementation plan

Description of the processes put in place by the NSA to monitor the implementation of the Performance Plan including the yearly monitoring of all KPIs and PIs defined in Annex I of the Regulation and a description of the data sources
Following recommendations of Performance Review Body contained in PRB assessment of revised performance plan of Poland (version 4.2, 15th November 2016) CAA was obliged to carefully monitor the implementation of the revision of the Polish Performance Plan for RP2. Based on these recommendations Poland has prepared Monitoring Plan of PANSA Performance in RP2. The monitoring activities cover the following areas: - investment plan (CAPEX) execution - execution of planned costs - use of public funding, including EU funding - execution of employment plan - execution of staff training plan - ATCO productivity - implementation of major projects aimed at increasing capacity and enhancing flight efficiency - implementation of corrective measures in the safety area. The scope of the selected areas was chosen taking into account airspace users' remarks, as well as CAA own assessment of elements. The CAA proposes to continue the preparation of the CAA's report for the airspace users. Polish CAA proposes to maintain the monitoring exercise during RP3 with the adjustment of the scope and frequency of the information received from ANSPs, taking into account that the scope of the information from smaller institutions may not necessarily be the same as from PANSA. Additionally, CAA is obliged to perform the process of continuous oversight of all ANSPs as it is stated in the Regulation 2017/373. These monitoring activities at the national level includes ANSP's business and annual plans and their consistency with the PP. All the above supervision exercise will give the CAA the knowledge on the ANSPs Performance and the threat of reaching of alert thresholds (in accordance with Article 18, Reg. (EU) 2019/317) and other obligatory requirements determined within Annex VI, Regulation (EU) 2019/317 and other relevant legislation (especially Regulation (EU) 2017/373). The monitoring of progress in achieving performance targets set in Regulation (EU) 2019/317 shall be performed by dedicated Polish NSA inspectors. The cooperation with neighbouring NSAs is already established and will be used accordingly if needed. Polish CAA in cooperation with Network Manager will prepare the annual Monitoring Report for the Republic of Poland and after approval will submit it to the European Commission via PRB until 1st June of every year of RP3 at the latest. In Polish CAA opinion the monitoring described above will give CAA the necessary information to react in advance when the risk of not reaching the targets will be identified.

6.2 Non-compliance with targets during the reference period

Description of the processes put in place and measures to be applied by the NSA to address the situation where targets are not reached during the reference period
In case that some target is not met at national level, the NSA PL shall identify potential issues, apply corrective measures designed to correct the situation and subsequently inform the European Commission in accordance with Art. 37 of the Regulation (EU) 2019/317. Based on all the inputs, NSA in cooperation with Network Manager will prepare an Annual monitoring report for the Republic of Poland and after approval will submit it to the European Commission via PRB until 1st June of every year of RP3 at the latest. However, the monitoring exercise described above will give CAA the necessary information to react in advance when the risk of not reaching the target will be identified. This prudent approach shall minimize the risk of the situation when targets are not reached (in case when the situation is caused by the circumstances under ANSPs' control).

7 - ANNEXES

ANNEX A. REPORTING TABLES & ADDITIONAL INFORMATION (EN-ROUTE)
ANNEX A.x - En route Charging Zone #x
ANNEX B. REPORTING TABLES & ADDITIONAL INFORMATION (TERMINAL)
ANNEX B.x - Terminal Charging Zone #x
ANNEX C. CONSULTATION
ANNEX D. LOCAL TRAFFIC FORECASTS
ANNEX E. INVESTMENTS
ANNEX F. BASELINE VALUES (COST-EFFICIENCY)
ANNEX G. PARAMETERS FOR THE TRAFFIC RISK SHARING
ANNEX H. RESTRUCTURING MEASURES AND COSTS
ANNEX I. PARAMETERS FOR THE MANDATORY CAPACITY INCENTIVES
ANNEX J. OPTIONAL KPIs AND TARGETS
ANNEX K. OPTIONAL INCENTIVE SCHEMES
ANNEX L. JUSTIFICATION FOR SIMPLIFIED CHARGING SCHEME
ANNEX M. COST ALLOCATION
ANNEX N. CROSS-BORDER INITIATIVES
ANNEX O. JUSTIFICATIONS FOR THE LOCAL SAFETY TARGETS
ANNEX P. JUSTIFICATIONS FOR THE LOCAL ENVIRONMENT TARGETS
ANNEX Q. JUSTIFICATIONS FOR THE LOCAL CAPACITY TARGETS
ANNEX R. JUSTIFICATIONS FOR THE LOCAL COST-EFFICIENCY TARGETS
ANNEX S. INTERDEPENDENCIES
ANNEX T. OTHER MATERIAL
ANNEX Z. CORRECTIVE MEASURES*
** Only as per Article 15(6) of the Regulation*