



# Irish RP3 Performance Plan Consultation Document

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## Table of Contents

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Chapter 1 Introduction.....	9
Chapter 2 Background .....	12
Chapter 3 Capital Expenditure & Investments .....	26
Chapter 4 Safety .....	32
Chapter 5 Environment .....	35
Chapter 6 En Route Capacity.....	37
Chapter 7 En Route Cost Efficiency .....	40
Chapter 8 Terminal Navigation Services .....	59
Chapter 9 Interdependencies .....	66
Chapter 10 Traffic risk sharing & incentives .....	72
Appendix A En Route and TANS RP3 Cost Tables.....	79
Appendix B Cost of capital report .....	118
Appendix C Institutional Separation .....	120
Appendix D Local Safety Targets .....	124
Appendix E Local Environment Targets .....	134
Appendix F Local Capacity Targets.....	136
Appendix G Local Cost-efficiency Targets.....	143
Appendix H ANSP Investment Plan RP3.....	151
Appendix I Abbreviations .....	160

## Executive Summary

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1. This consultation document has been produced by the Safety Regulation Division of the IAA, acting in its capacity as the National Supervisory Authority (NSA) for Ireland. The document seeks stakeholders' views on the contents of the draft Irish Performance Plan for Reference Period 3 (RP3) (2020 – 2024) of the Single European Sky (SES) Performance Scheme, in line with the obligations outlined in Commission Implementing Regulation (EU) No 2019/317.
2. The Performance Scheme is a European Union (EU) initiative to improve the performance of Air Navigation Services (ANS) in four key performance areas (KPAs): safety, environment, capacity and cost efficiency. The Performance Plan (PP) includes a capacity incentives scheme and traffic risk sharing mechanism. There is also a detailed consideration of the Interdependencies between performance areas.
3. During RP2, Ireland met all performance targets, with very low delays and the sustained delivery of Free Route Airspace (FRA). Continuing to achieve the same level of performance as traffic grows into RP3 will be Ireland's defining challenge.

### Impact of Brexit

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4. With respect to the United Kingdom's decision to leave the EU, it is not yet clear what form Brexit will take, or the impact that it will have on the Regulated Entities' business in the short to medium term. Recent political developments in the UK have also generated an increased risk of the UK leaving the European Union without an agreement on future trade. The new British PM has stated his willingness to pursue a no-deal Brexit if deemed necessary. These factors led the NSA to assess the need to provide for Brexit, and otherwise attempt to "Brexit Proof" the RP3 PP.
5. Any economic downturn associated with a no-deal Brexit, or indeed with a postponed Brexit decision, could negatively impact the Irish economy, interest rates, etc. However, this is still an area of great uncertainty. Indeed, traffic growth from Q1 2019 has not indicated any "BREXIT effect". The NSA has therefore concluded that it is simply not

possible to reasonably quantify the impact of Brexit, and safely apply these assumptions to the RP3 PP. There are too many variables still in play. We have chosen to use the STATFOR base scenario in line with the general advice of the European Commission (EC), while acknowledging the uncertainty surrounding BREXIT. The other targets and provisions within the Irish plan should similarly be considered with the same caution.

6. Despite the best efforts of all Stakeholders, the Ireland RP3 PP may ultimately be framed for a very different environment than was anticipated during this preparation stage. Of course, this caveat could also be reasonably made for other non-Brexit scenarios, e.g. trade wars, global recession, etc. It is not possible, nor in keeping with the principles of SES, to attempt to “de-risk” the operating environment for one class of stakeholder.

## Irish Targets for RP3

### Safety

7. Safety targets for Ireland have been set for effectiveness of safety management (EoSM).

**Figure 1: Irish safety targets**

		2020	2021	2022	2023	2024
EoSM	ANSP	Level D	Level D	Level D	Level D	Level D

8. During RP3, the NSA has mandated that the IAA ANSP shall comply with the Union-wide targets by ensuring Effectiveness of Safety that is at least “Level D” in the objective of safety risk management and at least “Level C” in the other safety objectives of culture, policy, promotion and assurance. This ensures consistency between local and Union-wide targets (2019/903 Art 2.).

### Environment

9. The environment KPA contains one KPI applicable at local level: horizontal en route flight efficiency of the actual trajectory (KEA).

**Figure 2: Irish KEA target**

	2020	2021	2022	2023	2024
EU wide target	2.53%	2.47%	2.4%	2.4%	2.4%
Irish reference value	1.56%	1.54%	1.53%	1.53%	1.53%
Irish target	1.56%	1.54%	1.53%	1.53%	1.53%

10. This means an average of 1.53% route extension in actual trajectory by 2024, decreasing from 1.56% in 2020.
11. The Irish target is consistent with the Ireland allocated share of the Union-wide targets.

### Capacity

12. The capacity KPA includes two KPIs - en route air traffic flow management (ATFM) delay per flight; and terminal and airport ANS ATFM arrival delay per flight.

**Figure 3: Irish en route capacity target**

(mins delay/flight)	2020	2021	2022	2023	2024
EU wide target	0.9	0.9	0.7	0.5	0.5
Irish reference value	0.07	0.07	0.07	0.04	0.03
Irish target	0.07	0.07	0.07	0.04	0.03

**Figure 4: Irish terminal capacity targets**

(mins delay/flight)	2020	2021	2022	2023	2024
EU wide target	N/A	N/A	N/A	N/A	N/A
Irish reference value	0.25	0.25	0.20	0.20	0.20
Irish target	0.25	0.25	0.20	0.20	0.20
Airport Contribution	0.20	0.20	0.15	0.15	0.15

13. The NSA has applied national reference values as the RP3 capacity targets for both en route and terminal services. Cost Efficiency
14. The cost efficiency KPA includes two KPIs - the determined unit cost (DUC) for en route ANS; and the DUC for terminal ANS. The baseline year for real costs is 2019. The price base for real costs is 2017.

15. Ireland has achieved all the Cost Efficiency Targets set in RP2, with Actual Costs coming in below Determined Costs (DC) for each year to date. There has been an element of “underspend”, particularly in the capital expenditure (CAPEX) area, and the NSA has mandated that this be returned to customers at the earliest opportunity. However, the good performance for cost efficiency in RP2 has also been the result of close budgetary control, and comprehensive planning.
16. Short term measures such as a heavy reliance on overtime and significant deferrals of annual leave were necessary in RP2 as Ireland dealt with unanticipated and significant traffic increases. These measures cannot be sustained into RP3. However, the close attention to cost control that has been a positive feature of previous Irish PPs will be maintained.
17. The Irish RP3 cost efficiency targets are set out below.

**Figure 5. Irish RP3 en route cost efficiency target**

	2020	2021	2022	2023	2024
DC real (€000)	136,944	142,712	146,318	149,296	153,069
Real en route DUCs €	29.21	29.79	29.92	30.03	30.28

**Figure 6. Irish RP3 terminal cost efficiency target**

	2020	2021	2022	2023	2024
DC real (€000)	32,104	36,080	37,872	38,530	39,033
Real TANS DUC	169.32	184.45	190.50	189.90	188.84

The DC outlined above contain very significant values for restructuring and “new” State Costs relating to the State mandated Institutional Separation of the ANSP and Safety Regulation functions from January 2020. These amount to €41.8 million over RP3 and are outlined in detail later in this document. To provide a meaningful picture of how the Irish Cost Efficiency targets deviate from the Union wide targets, these costs should be excluded for separate consideration. The adjusted RP3 DCs and DUCs are as follows:

**Figure 7. Irish RP3 en route cost efficiency target excluding Restructuring and new “Other State Costs”**

	2020	2021	2022	2023	2024	RP2/RP3 Trend Avg
DC real (€000)	129,788	134,967	138,876	141,945	145,704	
Real en route DUCs	€27.68	€28.18	€28.40	€28.55	€28.83	
DUC Trend +/-(-)	5.5%	1.8%	0.8%	0.5%	1.0%	1.9%

**Figure 8. Irish RP3 terminal cost efficiency target excluding Restructuring and new “Other State Costs”**

	2020	2021	2022	2023	2024	RP2/RP3 Trend Avg
DC real (€000)	31,187	35,042	36,914	37,575	38,097	
Real TANS DUC	164.49	179.15	185.68	185.19	184.31	
DUC Trend +/-(-)	26.0%	8.9%	3.6%	0.2%	0.4%	7.1%

18. After adjusting for Restructuring Costs and “New State Costs” the DC and DUC outlined above are necessary to deliver the measures and conditions required to achieve the performance targets in the key performance area of capacity. The NSA has assessed the portion of these costs relating to ANS provision as consistent and reasonable, taking account of local conditions and interdependencies. This RP3 DUC trend of +1.9% and resulting modest deviation from the RP3 Union- wide determined unit cost trend of -1.9% is both necessary and proportionate. The NSA is satisfied that the deviation is justified and appropriate.

## Final Plan

19. Following the stakeholder consultation, the RP3 Irish PP will be updated to take into account comments received. The final Plan will then be submitted in the formal EU template as part of the Irish government’s submission of the Irish PP to the European Commission and the Performance Review Body (PRB). A supporting document will accompany the final submission, detailing the outcomes of the stakeholder consultation.



## CHAPTER 1

# Introduction

### Purpose of this Document

- 1.1 This consultation document has been drafted by the National Supervisory Authority (NSA) of Ireland – the Irish Aviation Authority Safety Regulation Division (IAA SRD). **It is intended to seek views from stakeholders** as part of the development of the Irish Performance Plan (PP) for the third Reference Period (RP3) of the Single European Sky (SES) Performance and Charging Scheme for Air Navigation Services (ANS).
- 1.2 On 30<sup>th</sup> November 2017 the IAA released a Consultation Document to stakeholders outlining possible developments in RP3, seeking stakeholder opinion on these changes, as well as comment on their experiences up to that point in RP2. The feedback received from stakeholders during this process helped inform the NSA’s developments of national targets for RP3, and the drafting to date of the Ireland RP3 PP.
- 1.3 This document has been constructed to support the current stakeholder consultation process and meet the consultation requirements mandated within Commission Implementing Regulation (EU) 2019/317 laying down a performance and charging scheme for RP3. The required elements for consultation with ANSPs and airspace users and their location within this document are as follows:

Element	Document Section(s)	Document Page
Traffic forecasts	2.30 – 2.35	18 - 20
Charging policy	7.14 – 7.18	44 - 45
Incentives Scheme	10.10 – 10.16	74 - 78
Charging zones & Cost bases	7.1 – 7.59, 8.16 – 8.25	40-58, 63-65

Traffic risk sharing	10.1 – 10.9	72 - 73
Simplified charging scheme	2.8	13
Major investments	3.10 – 3.15	28 - 31

## Consultation responses

- 1.4 All responses to the consultation of the draft PP will be made available to stakeholders in a “Comment Response” document, after the stakeholder event on the 10<sup>th</sup> September at IAA HQ in Dublin.
- 1.5 The feedback received from stakeholders will inform the final PP, which will be submitted to the Irish Department of Transport, Tourism and Sport (DTTAS) within the formal EU template in September 2019. The full comment log will accompany the final submission.

## Structure of the remainder of this document

- 1.6 The remainder of this document is structured as follows:
- Chapter 1: Introduction
  - Chapter 2: Background
  - Chapter 3: Capital Expenditure & Investments
  - Chapter 4: Safety
  - Chapter 5: Environment
  - Chapter 6: En route Capacity
  - Chapter 7: En route Cost-Efficiency
  - Chapter 8: Terminal Navigational services
  - Chapter 9: Interdependencies
  - Chapter 10: Traffic risk sharing & incentives

- Appendix A: En Route and Terminal RP3 Cost tables and supporting information
- Appendix B: Cost of capital report
- Appendix C: Institutional Separation
- Appendix D: Local Safety Targets
- Appendix E: Local Environment Targets
- Appendix F: Local Capacity Targets
- Appendix G: Local Cost efficiency Targets
- Appendix H. ANSP Investment Plan RP3
- Appendix I: Abbreviations

## CHAPTER 2

# Background

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- 2.1 This chapter provides an overview of the European context, scope, overall assumptions and process of drafting the RP3 PP for Ireland.

## European Context

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### The Performance Scheme

- 2.2 The original SES Framework Regulation (549/2004<sup>1</sup>, art.11) and the SES Service Provision Regulation (550/2004<sup>2</sup>, art. 14 and 15) first outlined the objectives of the Performance and Charging Schemes, respectively. Reference period 2 (RP2) of the Performance Scheme was officially enacted in Commission Implementing Regulations (EU) No 390/2013 - the Performance Regulation, and (EU) No 391/2013 - the Charging Regulation. RP2 covered 2015-2019.
- 2.3 The Performance Regulation mandates that there be a full review of the Performance Scheme by the European Commission (EC) before the end of each RP. In preparation for the third Reference Period (RP3), the EC has adopted an Implementing Regulation (IR)<sup>3</sup> which repeals and replaces Commission IRs (EU) No 390/2013 and 391/2013. RP3 will cover 2020-2024.
- 2.4 As a requirement of the Performance Scheme, Member States must integrate a set of targets in respect of ANS provision within the PP. These cover fixed RPs and must be developed in consistency with the Union-wide targets. It further establishes that NSAs are responsible to draw up PPs at a FAB or national level.
- 2.5 The Union-wide targets for RP3 were approved on 1<sup>st</sup> April 2019 during an ad-hoc meeting of the Single Sky Committee (SSC). The

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1 Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation)

2 Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation)

3 Commission Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the Single European Sky, available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R0317>

Performance Review Body (PRB) has also developed a set of local capacity reference values published on 13<sup>th</sup> March 2019. EU targets were adopted within Implementing Decision ((EU) 2019/903), which was published on 29<sup>th</sup> May 2019. Local environmental reference values were then published in July 2019.

- 2.6 Several changes have been introduced within the RP3 regulatory framework. For each Key Performance Area (KPA), the Union-wide and local Key Performance Indicators (KPIs) have been refined. These are outlined in Section I and II of the RP3 Regulation's Annex I. In addition, the Performance Indicators that were set during RP2 are now termed 'indicators for monitoring'. The set of indicators also changed for RP3.
- 2.7 The Commission is now mandated to perform an initial verification of completeness for plans upon their submission by States (2019/317 - Article 13). If anything in the PP is perceived as missing, States shall be contacted within one month. Following the high-level check, an updated version of the plan will have to be returned to the Commission within three weeks.
- 2.8 In terms of the regulation's scope, a simplified charging scheme can now be adopted for an entire reference period (Article 34), where traffic or cost risk sharing are going to be disregarded. However, this is only applicable to those members that successfully achieved all the KPI targets in the areas of safety, capacity and environment.
- 2.9 With regards to capacity incentives schemes and traffic risk sharing, the rules have been revised to allow greater flexibility at local level; details for the Irish RP3 mechanisms are outlined in Chapter 9.

### International collaboration

- 2.10 The RP3 regulation introduced the ability for States to submit PPs at FAB or national level. UK and Ireland have agreed to provide plans at a national level for RP3.
- 2.11 This decision was mainly due to possible implications of Brexit negotiations, but also because FAB-level targets can mask underlying inconsistencies in performance created by differences in the scope and complexity of both airspaces. The Irish and UK governments recognise, however, the importance of ensuring continued cooperation with regards to ATM matters. Both States are committed

to continuing to drive better performance and achieve national targets with the use of bilateral collaborative projects.

2.12 In terms of projects developed during RP2, the UK-IR FAB launched a Dynamic Sectorisation Operational Trial (DSOT) that aimed to test whether the tactical switching of air traffic services between providers could contribute to a more efficient utilisation of resources. The goal was in line with the SESAR concept and the feasibility of such initiatives was demonstrated along with potential costs and further benefits.

2.13 The IAA intends to undertake/continue a number of cross-border collaborations to encourage efficiencies and innovations during RP3. These include through COOPANS, Entry Point North and Borealis:

- i) COOPANS is an international partnership that includes the IAA and ANSPs from five other countries (Austria, Croatia, Denmark, Portugal and Sweden). The ANSPs act as one organisation and the system supplier is Thales. There are benefits from sharing know-how in the form of common tools, methods and operational procedures throughout the system life cycle, whereas financial benefits arise from common procurement for development, integration, deployment and maintenance.
- ii) Entry Point North is one of the largest global ATS training academies that offers a wide portfolio of services to aspiring and operational air traffic controllers, air traffic service officers, air traffic safety electronics personnel, administrative personnel and other aviation-related personnel. It has locations in Ireland, Sweden, Hungary, Denmark, Spain and Belgium.
- iii) Borealis is an alliance of ANSPs from Ireland, Denmark, Estonia, Finland, Iceland, Latvia, Norway, Sweden and the UK. Borealis Alliance focuses on strategic business cooperation between the member ANSPs, seeking economies of scale and projects that can be achieved on a commercial basis, complementing the work of the northern European FABs, but without the need for regulatory or State involvement. The Alliance is also an important enabler of joint initiatives to improve flight efficiency and reduce environmental impact, delivered across the whole area.

## Scope of PP

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2.14 The Irish RP3 PP covers:

- En route services in the Shannon Flight Information and Upper Information Regions (FIR/UIR). It does not include Shanwick Oceanic airspace.
- Terminal services provided at airports in Ireland with more than 80,000 instrument flight rules (IFR) movements per annum. Cork and Shannon (below 80,000 IFR) airports will be included for the Irish terminal cost efficiency target but not for any other KPIs.

## Stakeholders

2.15 Whilst the focus of the Performance Scheme is ANS, the regulations impact and necessarily place requirements on a number of actors across the ATM system, including:

- ANSPs (en route, terminal, MET and the Network Manager);
- Air transport operators;
- Airports;
- Airport coordinators;
- Staff organisations
- NSAs; and
- Member States.

2.16 For Ireland both en route and terminal ANS are provided by IAA ANSP.

2.17 The PP also covers the other elements of the national unit charges levied on airlines: MET services provided in Ireland by Met Éireann, the relevant NSA costs of the IAA SRD, and the national shares of EUROCONTROL agency costs.

2.18 The PP does not cover the costs of Shanwick Oceanic services provided by UK and Ireland to flights over the eastern Atlantic in high seas airspace operated under a mandate from ICAO outside the scope of the SES legislation.

## Process

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### Plan development

- 2.19 NSAs were required to draw up PPs supported by ANSP Business Plans (BPs) and stakeholder consultation responses. The final version of the BP of the IAA ANSP was provided to the NSA, following a process of coordination to ensure all necessary information was included. The coordination also acted to provide sufficient clarification for the NSA to create a view of the ANSP's requirements for the coming years.
- 2.20 The ANSP BP was supported by an external study on the level of cost of capital, performed by First Economics.
- 2.21 Similar to the IAA ANSP BP, Met Eireann's BP was provided to the NSA following a process of coordination to ensure the plans are clear and the associated costs are justified.
- 2.22 Feedback received in response to this consultation document, as well as comments made during the Irish stakeholder consultation on 10<sup>th</sup> September, will inform the finalisation of a national PP. Details of stakeholder feedback on the draft PP and NSA responses will be included in a supporting document to accompany the formal PP.

### Next steps

- 2.23 Following the Irish consultation on the draft national PP, there are a number of key steps before it comes into force:
- **September 2019:** the IAA SRD will submit the plan to the DTTAS. An internal verification of completeness will be performed two weeks ahead of the plan's submission to the European Commission.
  - **October 2019:** PPs must be submitted by the State to the European Commission by 1<sup>st</sup> October. An initial verification step will be performed by the Commission, following which States with missing elements will be informed about any issue and will be given a three weeks period to resolve it.
  - **March 2020:** The Commission, advised by the PRB, will consider whether the plans meet the requirements of the regulations and reach a provisional decision in March 2020.



Member States will be notified on whether plans are consistent with regulation and make an acceptable contribution to the achievement of EU-wide targets for RP3.

- **June 2020:** If irregularities are found, a revised plan shall be submitted by 1<sup>st</sup> June 2020. The Commission would then deliver a second decision by 1<sup>st</sup> October 2020.

## Overall assumptions for RP3

### Economic assumptions

2.24 Following the post-2008 economic downturn, 2018 represented another year of recovery for Ireland with a 6.7% GDP growth. The underlying economic activity was driven by multinationals, investments in construction and an increasing performance of the labour market. Although the country was predicted to be amongst the strongest-growing economies in 2019, the forecast was revised by the Government and indicated a 3.9% estimate - a decrease of 30 basis points when compared to the initial GDP forecast. The uncertainty is mainly caused by intense Brexit negotiations, an environment that will drive further moderation in 2020. Accordingly, under a no-deal withdraw for the UK, the figures are expected to be even lower, with a growth of just 2.5% in 2020 that would cause a decrease in air travel demand.

**Figure 2.1: Basic macro-economic factors**

	2018	2019 <sup>f</sup>	2020 <sup>f</sup>	2021 <sup>f</sup>	2022 <sup>f</sup>	2023 <sup>f</sup>	2024 <sup>f</sup>
Real GDP growth	6.7	3.9	3.4	3.1	2.9	2.7	2.7
Nominal GDP (\$ billion)	372.7	381.57	405.19	428.08	452.68	476.42	502.53
Unemployment (%)	5.7	5.4	5	5	4.9	4.8	4.8
Inflation (CPI)	0.7	1.2	1.5	1.7	1.9	2.0	2.0

Sources: IMF (GDP), The Global Economy projections (Unemployment rate), Central Bank of Ireland (CPI)

2.25 As indicated by the IMF, the CPI index growth is predicted to reach a rate of 2% by the end of RP3 – a figure close to the European Central Bank’s targets. Notable annual changes have been currently recorded

for Housing, Water, Electricity, Gas & Other Fuels (+0.62%<sup>4</sup>) that mainly represented an upward contribution to the CPI.

- 2.26 Inflation has been uncharacteristically suppressed in Ireland for much of RP2 but the IMF's CPI projections for Ireland have inflation returning to the European Central Bank's target of close to but below 2% by 2022.
- 2.27 The global economy is further influenced by the distortion of trade relationships between the US and China, with the latter experiencing a recent economic downturn. Factoring in the slow recovery of the Euro Area, the Irish domestic economy will continue to be under pressure during RP3. The IMF consequently predicts a decreasing trend over the forecast horizon.
- 2.28 However, it should be noted that the national economic goals continue to be in line with the Irish Government's Medium-Term Strategy<sup>5</sup>, implemented for the 2014-2020 period. The strategy aims to improve employment and household incomes whilst ensuring a proper management of public finances.
- 2.29 The access to European markets, along with a competitive tax infrastructure and the skilled labour availability, continue to position Ireland as an attractive environment for foreign investments. In this context, there is reason to believe that the underlying outlook for growth and stability will remain positive.

### Traffic assumptions

- 2.30 During the 2015 – 2019 period, terminal traffic in the Irish airspace increased by an average of 6.4% per annum. Similarly, en route traffic showed a continued positive growth, demonstrating an annual increase of 3.8% in the same timeframe.
- 2.31 The traffic forecasts for Ireland used in the PP are based on the STATFOR Base projections as published in February 2019<sup>6</sup>. The

<sup>4</sup> CSO Statistical Release, available from:

<https://www.cso.ie/en/releasesandpublications/er/cpi/consumerpriceindexjanuary2019/>

<sup>5</sup> Ireland Medium – Term Economic Strategy 2014 - 2020, available from:

<https://www.dfa.ie/media/dfa/alldfawebsitemedia/ourrolesandpolicies/tradeandpromotion/strategy-for-growth-2014-2020.pdf>

<sup>6</sup> EUROCONTROL Seven-Year Forecast (February 2019), available from:

<https://www.eurocontrol.int/sites/default/files/2019-03/eurocontrol-7-year-forecast-february-2019-main-report.pdf>

Base scenario takes into account the implications of the United Kingdom leaving the EU with a formal agreement. For en route, the service units are based on the actual, rather than planned route for 2020 onwards. For terminal, the baseline projection considered the same terminal charging zones applicable in RP2. The forecasts for the two charging zones are as follows:

**Figure 2.2: IAA traffic forecast Ireland – En route (adjusted for revised SU methodology)**

	2020	2021	2022	2023	2024
IFR movements (thousands)	660	674	688	700	711
IFR movements (yearly variation in %)	1.7%	2.1%	2.1%	1.7%	1.7%
En route service units (thousands)	4,689	4,790	4,890	4,972	5,054
En route service units (yearly variation in %)	1.1%	2.2%	2.1%	1.7%	1.7%

Source: STATFOR Base forecast

**Figure 2.3: IAA traffic forecast Ireland – Terminal**

	2020	2021	2022	2023	2024
IFR movements (thousands)	144.4	149.1	152.2	155.0	158.1
IFR movements (yearly variation in %)	1.1%	3.2%	2.1%	1.9%	2.0%
Terminal service units (thousands)	189.6	195.6	198.8	202.9	206.7
Terminal service units (yearly variation in %)	1.0%	3.2%	1.6%	2.1%	1.9%

Source: STATFOR Base forecast

2.32 The Base STATFOR scenario predicts an average annual growth rate of 1.8% during RP3, a case in which the outcome would not significantly affect the traffic between the UK and Ireland. The growth in terminal service units, meanwhile, is estimated at 2.0%. Compare this to the 6.4% average terminal growth witnessed during RP2.

2.33 It should be noted that a number of dependencies exist that can impact the predictability of volume growth and traffic variations:

- The income percentage that is spent by Europeans on travelling is a key dependency for passenger volumes and aircraft activity. With more accessible air travel, the demand grew strongly in 2017, showcasing an average increase of

8.5%<sup>7</sup> at EU airports, followed by a slowdown in 2018 caused by underlying economic trends.

- The air freight market is expected to experience a slowdown in activity due to trade tensions at a global level. As a leading indicator of economic activity, the lack of significant growth will impose further challenges within the sector, mainly when it comes to reaching the forecasted STATFOR targets.
- Oil price presents another influencing factor on traffic levels. According to Brent (the international benchmark), the average oil price for 2019 is estimated at \$65.15/barrel, whereas in 2020 the price is projected to slightly decrease to \$62/barrel. The environment will remain volatile, with the World Bank expecting Brent, WTI and Dubai prices to increase after 2020 up to an average value of \$70/barrel by 2030. For the aviation industry, these fuel price fluctuations could impose significant challenges in terms of profitability, since fuel represents one of the largest cost items for airlines. As fuel price can also affect preferred routing and increase the volatility in terms of traffic demand predictions, it represents a challenge that must be addressed within the context of the new regulatory framework. It should be noted, nonetheless, that few Airspace Users (AUs) benefited from recent fuel price falls since commonly used derivative contracts lock the price at levels higher than the actual market price.
- Uncertainty associated with the UK's decision to leave the EU and the impact it will have on traffic volumes during RP3 – more than 10 million passengers travelled to and from the UK through Dublin Airport in 2018, representing almost one-third of all passengers at Dublin Airport with a similar proportion of Irish overflights to or from UK destinations.
- In RP3, route charging will be based on actual rather than planned trajectory which was used in RP2. In the long term, this should reduce incentivising differences between planned and actual routes and increase the reflectiveness of cost allocation. Considering that STATFOR forecasts are based on

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<sup>7</sup> ACI Europe full year 2018 report available from:

<https://www.aci-europe.org/component/downloads/downloads/5827.html>

the behaviour of AUs where planned trajectories are used for unit charges, however, there will be a short-term increase in uncertainties with regards to traffic flow projections.

- There are additional local constraints such as slot capacity issues during busy hours and associated infrastructure deficits that could impose further challenges within the number of stands at Dublin Airport. These are not expected to be fully completed until the end of RP3.

2.34 The NSA did consider applying a modified traffic forecast that could reasonably take further account of local conditions. This flexibility is allowed under the revised regulations. Specifically, the ANSP put forward detailed submissions on the impact of Brexit and the operating environment with regard to the new Tower in Dublin. However, the NSA decided that the uncertainty inherent in these items was not sufficiently quantifiable to justify a departure from the STATFOR Base forecast, or indeed apply a Low STATFOR rate.

2.35 Stakeholders are requested to submit any comments they may have on the traffic forecasts utilised in the draft PP within their feedback on the RP3 Irish Performance Plan.

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## Current Institutional Context for ANS Provision

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- 2.36 DTTAS is responsible for ensuring that aviation practices and procedures in Ireland comply with best international standards; promoting the development of a vibrant, competitive and progressively regulated aviation sector and the provision of adequate airport infrastructure and competitive airport services. Implementation of some aspects of these policies has been entrusted to a range of State-sponsored bodies and Agencies for which the Department retains overall responsibility.
- 2.37 The Irish Aviation Authority (IAA) is one of the mentioned State-Sponsored Bodies. The IAA is a 100% State-owned commercial company, which carries out operational and regulatory functions and services relating to the safety and technical aspects of civil aviation. The Authority ensures that Irish civil aviation operates to international and European safety standards and systems in accordance with international agreements.
- 2.38 The regulatory and service provision roles of the IAA are separated at a functional level:
- The IAA SRD is the NSA for Ireland. Through its Aeronautical Services Department, it certifies and regulates the provision of ANS within the Shannon FIR/UIR and other areas through delegated arrangements. It also regulates the competence of personnel involved in the provision of ANS. In addition, the Aeronautical Services Department is tasked with the licensing of aerodromes in Ireland including the three State airports of Dublin, Shannon and Cork.
  - The IAA ATM Operations and Strategy Division is the certified air navigation service provider (ANSP) of the IAA. They provide Air Traffic Management (ATM) services in en route airspace controlled by Ireland, as well as Dublin, Cork and Shannon airports. ATM services include air traffic control, flight information, alerting and the aviation rescue and coordination function of search & rescue services. The Operations Division also provides aeronautical information services and performs the airspace management and Air Traffic Flow Management (ATFM) functions. The Technology & Training Division is responsible for the day-to-day acquisition, putting into service

and maintenance to certification standards of the ATM Operations and Strategy division's complex network of systems.

- Met Éireann provides meteorological facilities to civil, military and general aviation. The MET Aviation Services Division comprises the Central Aviation Office at Shannon Airport, together with the meteorological offices at Dublin, Cork and Casement airports. It issues forecasts (Terminal Aerodrome Forecasts and Local Area Forecasts) for the various airports and smaller airfields in the country as well as local warnings, warnings (Sigmet) for the Shannon FIR, en route documentation and briefings.

## Future changes to Institutional Set-up

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- 2.39 As of January 2020, the IAA will be split into two new corporate and operational entities, as a result of the Irish Government's initiative that commenced in RP2. The intention is to separate the IAA SRD and its associate functions from the air traffic control responsibilities. The newly formed stand-alone Regulator is also planned to include the Commission for Aviation Regulation (CAR). The remaining body will act as a separate entity for service provision (ANSP).
- 2.40 Institutional separation will incur significant additional costs during RP3 due to the expanded support requirements by the separation of corporate services (HR, ICT, Payroll, etc.). Another building will be required for the office accommodation of one separated entity. These costs have been assessed as relating to ANS provision and validated as reasonable and necessary by the NSA.
- 2.41 The other significant incremental change from RP2 to RP3 is the inclusion by the State of two new charges in "Other State Costs". Firstly, the inclusion of SAR (Search and Rescue) is new for RP3, reflecting the revised Irish regulatory oversight arrangements for this area. The NSA has assessed and validated these costs as eligible and reasonable for inclusion in the RP3 PP.
- 2.42 The State has also instructed the NSA to include €2.5m p.a. in "transition costs" for the new Safety Regulatory body, time limited to RP3. This is in addition to the Restructuring costs provided for ANS related activities in the ANSP and NSA Determined Costs. The NSA understands that the €2.5m p.a. relates to non-ANS activities. The NSA has not carried out any validation or assessment exercises on this item. Discussions are ongoing between the State and the Commission on the inclusion of this Exceptional item in the RP3 PP.



2.43 The financial impact of these costs on the Ireland RP3 determined costs is as follows;

Impact on En route and TANS Determined Costs (€'000)						
Description	2020	2021	2022	2023	2024	RP3
Restructuring -ANSP	5,174	5,877	5,485	5,385	5,271	<b>27,193</b>
Search and Rescue	399	406	414	421	529	<b>2,169</b>
Safety Regulation Transition	2,500	2,500	2,500	2,500	2,500	<b>12,500</b>
<b>Total</b>	<b>8,073</b>	<b>8,783</b>	<b>8,399</b>	<b>8,306</b>	<b>8,300</b>	<b>41,862</b>
<b>En Route</b>	<b>7,156</b>	<b>7,744</b>	<b>7,443</b>	<b>7,351</b>	<b>7,365</b>	<b>37,058</b>
<b>Terminal Services</b>	918	1,038	957	955	935	4,804

2.44 The figures presented constitute a notable factor that will impact the cost efficiency targets within the Irish RP3 PP. For further details on institutional separation, see Appendix C.

2.45 Stakeholders are requested to submit any comments they may have on the plans and forecasted costs of institutional separation within their feedback on the RP3 Irish Performance Plan.

**CHAPTER 3****Capital Expenditure & Investments**

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**Overview**

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- 3.1 The NSA strongly supports the ongoing investment by regulated entities in capital expenditure (CAPEX) projects that will enhance productivity and efficiency and contribute to the achievement of Performance targets.
- 3.2 During RP2, Ireland saw very low delays and the sustained delivery of Free Route Airspace (FRA). As traffic grows into RP3, continuing to achieve the same level of performance will be Ireland's defining challenge. The NSA was mindful that the RP3 Investment Plan should support investments in technology as well as in people and processes that ensure this high-quality performance can be maintained over RP3.

**RP2 Performance**

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- 3.3 Traffic in RP2 grew much more quickly than anticipated and the ANSP had to utilise more resources than initially planned on day-to-day activity at the expense of resource allocation to project delivery. The NSA highlighted this in the annual monitoring reports and has prioritised CAPEX delivery in RP3. It also means that there is a heavy volume of obsolescence projects and catch up projects for RP3, hence the forecast increase of CAPEX over and above RP2. Notwithstanding these issues, there were some notable CAPEX achievements in RP2, including;
- New Control Tower construction completed in March 2019. Currently in a 12-month fit-out phase and will enable parallel runway operations at Dublin airport in 2021.
  - Electronic flight strips (EFS) introduced at Dublin airport.
  - A new comms system introduced.
- 3.4 There will be a significant CAPEX underspend in RP2. As of end 2018, there was €17.9m of capital-related costs (depreciation and cost of capital) that the IAA ANSP had not utilised since the beginning of

the performance scheme. This is split between en route (€13.5m) and terminal (€4.4m). At the direction of the NSA, the IAA ANSP has committed to returning the unspent €17.9m to the airspace users in 2020. In addition to this, it is expected that a further €6.7m of unused capital-related costs will materialise in 2019, with €4.3m attributable to en route and €2.4m attributable to terminal.

## CAPEX-related Rate adjustments

- 3.5 The IAA is committed to returning the €17.9m unspent CAPEX incurred during 2015-2018, in addition to the actual unspent CAPEX during 2019, to the airspace users in 2021.
- 3.6 Based on the assumption of €6.7m unspent CAPEX during 2019, the proposed impact on unit rates is as follows:

**Figure 3.4 Unit rate adjustment from redistribution of unspent CAPEX**

	Reduction in unit rate	
	2020	2021
En route	€2.84	€0.91
Terminal	€22.99	€12.10

ANSPs are not required to return unspent CAPEX during RP2 – with the regulations changing for any unspent CAPEX during RP3 – but the IAA has nonetheless decided to return this unspent allowance as a measure of good faith. The NSA believes this underscores the commitment to transparency that stakeholders have sought to be demonstrated in RP3.

- 3.7 During RP2 the IAA shared in Incentive Contributions to the existing COOPANS members, from new members, relating to builds developed prior to the date on which they joined. The IAA share is €2.2m, payable over the period 2018 – 2021. This effectively retrospectively reduces the cost of the original capital spend. As a measure of good faith, the IAA proposes to pass on this incentive payment in full to the airspace users in the following manner:

**Figure 3.5 Unit rate adjustment from redistribution of COOPANS Incentive**

	Reduction in unit rate		
	2020	2021	2022
En route	€0.18	€0.13	€0.04
Terminal	€1.54	€1.07	€0.31

3.8 To date, in RP2, the IAA has returned €4.7m in EU grants monies received, of which €3.2m relates to en route and €1.5m relates to terminal. The IAA will continue to apply for EU funding with a view to reducing actual customer charges throughout RP3.

## RP3 Investments

3.9 The total value of the capital projects included in the Ireland RP3 Plan is €172.8m, the vast majority of which relates to the IAA ANSP, with €8.4m attributable to MET activity. The IAA ANSP plans to deliver assets valued at €164.4 million into operational use in RP3. The total amount to be capitalised is made up of several significant projects, some new for RP3 and some ongoing from RP2. Table 3.6 below sets out a high-level breakdown of capitalized projects by value.

**Figure 3.6: High-level summary of IAA ANSP RP3 Investment Plan**

	Value of capitalised projects (€'000)					
	2020	2021	2022	2023	2024	RP3
Air Traffic Management	57,856	19,012	11,359	21,425	10,817	120,469
Communications	5,778	1,500	800	2,750	2,700	13,528
Surveillance	2,019	6,575	3,097	400	5,650	17,741
Navigation	3,050	5,550	1,350	950	1,765	12,665
<b>Total</b>	<b>68,703</b>	<b>32,637</b>	<b>16,606</b>	<b>25,525</b>	<b>20,932</b>	<b>164,403</b>

3.10 In respect of investments, the RP3 Performance and Charging Regulation differentiates between the following two concepts which must be duly addressed in the PPs:

“New and existing investments” which cover the acquisition, development, replacement, upgrade or leasing of fixed assets where depreciation costs, cost of capital, or in the case of leasing,

operating costs, for that investment are incurred during the reference period covered by the PP (Article 2(15)).

A 'major investment' which refer to any investment in fixed assets of a total value of at least 5 million EUR (Article 2(13)).

- 3.11 All capital projects (in addition to MET Investments) have been assessed by the NSA. It is important that each one contributes to a safer, more efficient ATM environment. It is also important that the potential exists for delivering savings to customers, even if this is not immediate. The NSA paid particular attention to CAPEX relating to staff remuneration or training to ensure there is no double charging of the same costs via operating costs and depreciation.
- 3.12 The NSA also recognises the importance of Productivity Improvements using technology and innovation to increase operational capacity and productivity. While the cost benefits may not be realised until later in RP3 (or possibly after), their introduction is vital to preserve and improve capacity and efficiency. Examples of planned improvements include;
- Time Based Separation will deliver increased runway capacity.
  - Data linking will increase ATCO productivity via better automation of routine tasks.
- 3.13 The following major investments (over €5 million) are planned by the IAA ANSP for RP3:

Major New Investment RP3	Capital Cost	Determined costs of investment (depreciation & cost of capital)					"O" Date
		€'000	2020	2021	2022	2023	
Extension of Build 3 COOPANS	6,526	647	1,109	1,228	1,307	1,271	2020-2024
North Dublin RADAR - Building & RADAR	6,297	0	423	1,095	1,070	1,024	2021
ILS & IRVR Replacements	6,500	83	396	694	876	1,108	2020-2024
Dublin Tower – Building	36,529	3,222	4,510	4,459	4,364	4,231	2020

Dublin Tower – Equipment	19,725	806	2,448	3,898	3,738	3,559	2020-2021
COOPANS Next Generation	5,248	0	0	0	256	1,025	2023
Woodcock Hill Radar Replacement	5,050	0	0	0	0	784	2024
Plant & Equipment Replacement	8,426	0	140	698	1,229	1,727	2020-2024
Costs of IAA Restructure	10,560	2,072	2,755	2,625	2,472	2,316	2020
<b>Total</b>	<b>104,861</b>	<b>6,830</b>	<b>11,781</b>	<b>14,697</b>	<b>15,312</b>	<b>17,045</b>	

- New visual control tower and parallel runway at Dublin:** The daa has commenced build of a parallel runway at Dublin airport to meet growing demand and counter current congestion issues. The development of the parallel runway has necessitated the IAA to build a new visual control tower and associated infrastructure to “release” the capacity of the new runway. The total cost of €56.25m is going to be entirely allocated for the terminal level and with a depreciation period of 8 years for equipment-related costs and 20 years for the control tower as the asset value is almost double. The delivery of the IAA’s new Visual Control Tower at Dublin Airport is an essential enabler for the proposed parallel runway. Building works on the Tower were completed March 2019 and the Technology fit out has commenced.
- COOPANS ATM system:** The COOPANS ATM system delivers cost efficiency, safety, capacity and environmental performance benefits. The depreciation period for the €6.526m project is estimated to be 8 years, whilst three quarters of the total asset value will be allocated at the en route level. The investment is mandated by a SES Regulation.
- NAVAIDs replacement programme (ILS and IRVR):** The IAA’s Navigational Aids Infrastructure and the ILS (Instrument Landing Systems) are going to be renewed during RP3, accounting for €6.5m.
- Next Generation COOPANS (first phase):** As a partner within COOPANS, the IAA is set to invest in next generation systems such as Thales FDP to increase system capacity and meet the new

regulatory requirements imposed at a Union-wide level.

- **RADAR replacement at Woodcock Hill:** Radar update to extend the life of existing radar heads with a total value of €5.05m.
- **North Dublin RADAR and Building:** Additional radar capacity is also planned to be implemented at Dublin Airport, as a requirement to maintain the 3NM separation on a continual basis.
- **Plant and Equipment.** Addressing obsolescence issues, and meeting obligations to ensure all properties, equipment and assets are protected appropriately is generating increased costs compared to previous years. The total value of €8.426m for Plant & Equipment replacements is expected to be amongst the major RP3 investments.
- **Institutional Separation.** As previously described, significant additional costs will result from the functional separation of the IAA's air traffic control activities from SRD. There is a large capital element to these costs, forecast at €10.56m.

3.14 Further information on RP3 Investments can be found in Appendix H to this document, including relevant excerpts from the ANSP Business Plan.

3.15 Stakeholders are requested to submit any comments they may have on the Irish service providers' investment plans, including major new investments, within their feedback on the RP3 Irish Performance Plan.

## CHAPTER 4

# Safety

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### SES Requirements

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- 4.1 The Performance Regulations require targets to be set at national level against the following KPI:
- The minimum level of the Effectiveness of Safety Management (EoSM): this KPI shall be measured by the 5 implementation levels of the following management objectives - safety policy and objectives, safety risk management, safety assurance, safety promotion and safety culture.
- 4.2 According to the Performance regulation, EoSM is to be measured by maturity levels as defined in the acceptable means of compliance and guidance material from EASA for the implementation and measurement of safety KPIs as referred to in the Performance Regulation. These maturity levels are as follows:
- Level A – ‘Initiating’ – ad hoc processes and often chaotic
  - Level B – ‘Planning/Initial Implementation’ – activities and services are managed
  - Level C – ‘Implementing’ – standard processes are used for managing
  - Level D – ‘Managing & Measuring’ – objectives are used to manage processes and performance is measured
  - Level E – ‘Continuous Improvement’ – continuous improvement of processes and process performance.
- 4.3 Note that the plan does not include safety incentives.

### Status of Aviation Safety

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- 4.4 Ireland has developed a State Safety Programme (SSP) as an integrated set of regulations and activities aimed at improving safety in accordance with its obligations under ICAO. Under the SSP the IAA has developed two key publicly available documents, a State Safety



Plan and an Annual Safety Performance Review<sup>8</sup>.

- 4.5 The State Safety Plan is a rolling 3-year plan that was first produced in 2010 and is reviewed annually. The latest update covering the period 2017-2020 is available on the IAA website.
- 4.6 The Annual Safety Performance Review describes the performance of the aviation system in Ireland, including ANS.
- 4.7 A set of safety indicators have been established in Ireland to monitor safety performance within the Irish air navigation services domain. A number of these indicators are tracked with specific targets at both national and Unit level. Unit level targets are identified for the three IAA air traffic services unit locations; Dublin, Cork and Shannon. These safety indicators and targets do not fall within the scope of the Performance Regulation.

## Irish target

- 4.8 The Irish target for the safety KPI is as follows:
- During RP3, the NSA has mandated that the IAA ANSP shall comply with the Union-wide targets by ensuring Effectiveness of Safety that is at least “Level D” in the objective of safety risk management and at least “Level C” in the other safety objectives of culture, policy, promotion and assurance.
- 4.9 This target is consistent with Union-wide targets (2019/903 Art 2.).
- 4.10 At an ANSP level, the IAA has already achieved the equivalent of level C<sup>9</sup> in all Safety Management areas well ahead of the end of RP2.
- 4.11 In order to ensure the achievement of RP3 targets, the IAA’s Safety Management Unit has undertaken a set of key actions. These initiatives include the development of Team Safety Reps through SMS training, the integration of Human Factor assessment into the IAA’s ‘change assessment’ processes between 2019 and 2021, and the finalisation of HF policy and processes in Q1 2019. In terms of safety intelligence, the Advanced Safety Performance Dashboard is

<sup>8</sup> The IAA State Safety Plan and Annual Safety Performance Review are available from:  
<https://www.iaa.ie/safety/safety-performance1>

<sup>9</sup> Note that the EOSM Acceptable Means of Compliance has been revised for RP3. Level D and E in RP2 is equivalent to Level C and D in RP3, respectively.

expected to be enhanced through the integration of new versions of TOKAI, BI and APF during 2019 - 2023. In addition, the acquisition of the Automatic Safety Monitoring Tool (ASMT) for the COOPANS system is set to be completed in RP3, allowing for automatic monitoring occurrences using operational data.

4.12 Further relevant information can be found in Appendix D – Local Safety Targets.

4.13 Stakeholders are requested to submit any comments they may have on the RP3 safety KPI targets within their feedback on the RP3 Irish Performance Plan.

## CHAPTER 5

# Environment

### SES Requirements

- 5.1 The environment KPA includes one en route KPI to be set at a local level:
- Horizontal en route flight efficiency of the actual trajectory (KEA). The KEA is defined as: the comparison between the length of the en route part of the actual trajectory derived from surveillance data and the achieved distance, summed over IFR flights within or traversing the local airspace.
- 5.2 In addition to setting targets, the RP3 regulation sets out a series of indicators for monitoring at both a Union and local level, which are detailed in Annex 1 of the Regulation. These are as follows:
- The average horizontal en route flight efficiency of the last filed flight plan trajectory;
  - The average horizontal en route flight efficiency of the shortest constrained trajectory;
  - The effective use of reserved or segregated local airspace;
  - The rate of planning via available local airspace structures; and
  - The rate of using available local airspace structures.
- 5.3 The plan does not include environment incentives.

### Irish Target

- 5.4 The draft Irish RP3 PP sets out the following targets:

**Figure 5.1 EU and Irish targets for KEA**

	2020	2021	2022	2023	2024
EU wide target	2.53%	2.47%	2.40%	2.40%	2.40%
Irish reference value	1.56%	1.54%	1.53%	1.53%	1.53%
Irish target	1.56%	1.54%	1.53%	1.53%	1.53%

Source: IAA SRD

- 5.5 The Irish targets are in line with the RP3 national reference values for KEA as published on the SES Performance website.
- 5.6 All national targets for the environmental KPA were met before the end of the RP2. The 1.58% KEA value achieved by Ireland in 2018 clearly demonstrates that the State is performing well in this area and that it makes a positive contribution to the European average when taken in the context of the 2.6% target to be achieved by end of RP2 at a Union-wide level.
- 5.7 The extension of Shannon's Free Route Airspace (FRA) contributed to this performance, where airlines operating in the lower airspace were recording fuel savings while being allowed to fly the optimum trajectory. Further improvements in this area are dependent on the implementation of FRA on a phased basis with NATS at a cross border level – an initiative that is aiming to reach full implementation by 2022.
- 5.8 The implementation of the additional parallel runway is also expected to contribute towards reducing the environmental emissions through a major decrease in airport attributed delays. The terminal airspace is currently being reassessed by the IAA to facilitate the most efficient use of parallel runways with the least environmental impact.
- 5.9 Stakeholders are requested to submit any comments they may have on the RP3 environmental KPI targets within their feedback on the RP3 Irish Performance Plan.

## CHAPTER 6

# En Route Capacity

### SES Requirements

- 6.1 The capacity en route KPI is the average minutes of en route ATFM delay per flight attributable to air navigation services. This KPI is defined within the RP3 regulation as follows:
- The en route ATFM delay is the delay calculated by the Network Manager, expressed as the difference between the estimated take-off time and the calculated take-off time allocated by the Network Manager.
  - This indicator covers all IFR flights traversing the local airspace and all ATFM delay causes, excluding exceptional events; it also covers IFR flights traversing other airspaces, when delay corrections are applied as a result of the post-operations delay adjustment process coordinated by the Network Manager through which operational stakeholders notify the Network Manager of issues that relate to ATFM delay measurement, classification and assignment.
  - This indicator is calculated for the whole calendar year and for each year of the reference period.
- 6.2 Member States are also required to adopt financial incentives for their ANSPs for the key performance area of capacity. A description of the Irish capacity incentive schemes is contained in Chapter 10.

### Irish Target

- 6.3 The draft Irish RP3 PP sets out the following local en route targets:

**Figure 6.1: Irish En Route Capacity Target**

(Minutes delay per flight)	2020	2021	2022	2023	2024
EU wide Target	0.9	0.9	0.7	0.5	0.5
Irish Reference Value	0.07	0.07	0.07	0.04	0.03
Irish Target	0.07	0.07	0.07	0.04	0.03

- 6.4 The IAA ANSP has consistently achieved and beaten RP2 targets for en route delay with an average of 0 minutes per flight en route delay. Ireland has thus made a positive contribution to network performance.
- 6.5 Traffic across RP2 significantly exceeded all forecasts. Performance targets were only achieved due to the prioritisation of resources (including frontline staff) towards capacity and service quality over capital project delivery. A range of short-term staffing solutions (overtime, leave-deferral, etc.) were key initiatives in delivering the no/low delay profile that benefitted the entire European network. These measures cannot be sustained into RP3.
- 6.6 In addition, there are staff-related regulations at both local and EU level which commenced implementation in RP2. In RP3, these will severely restrict the use of short-term staffing solutions and require additional staff to comply with requirements such as paternity leave.
- 6.7 The introduction of a new parallel runway at Dublin with the new visual control tower during RP3 will require a significant redesign of Dublin ACC airspace and sectors. The ground procedures will also be modified in order to facilitate the use of the two parallel runways. This will lead to major capacity increases at Dublin airport.
- 6.8 Achieving the RP3 capacity targets will result in additional costs in terms of increased staffing and investment in technology. Failure to reverse the upward trend in overtime levels and annual leave accumulation experienced over RP2 would potentially affect capacity requirements during RP3. There have been instances in the airline industry where flight cancellations have resulted from rostering issues and this needs to be avoided in Air Traffic Services provision. The link between overtime, annual leave accumulation and fatigue needs to be emphasised. Further details on interdependencies between capacity and cost efficiency can be found in Chapter 9.
- 6.9 The NSA supports the focus on Capacity that has been emphasised during the discussions to date on RP3. This point has been referenced in the early stakeholder consultation undertaken by the NSA (January 2018). It was also a prominent feature of the ANSP/Customer engagement process in 2018 and 2019. The IAA's customers indicated that "Efficient Airspace" is the most important consideration to their airline with more than half of respondents (55%) ranking this as a top priority. Related to this, more than one quarter of

respondents (26%) indicated that “Low Levels of Delay” is their top priority. “Operational Resilience” was also considered to be of fundamental importance by 19% of responding customers. From these perspectives, the NSA supports the prioritisation of Capacity performance in RP3.

- 6.10 The Brexit uncertainty represents a key challenge in service predictability due to the uncertainty it creates in forecasted volume of traffic in Ireland; this complicates capacity planning. The volatility would increase within the context of a ‘no-deal’ scenario; this would affect air traffic demand between the UK and Ireland, noting that UK is the destination for more than 40% of all passengers travelling from Dublin.
- 6.11 The key measures planned to be adopted in order to achieve capacity targets for en route services include the following:
- The development of a new en route contingency centre ‘CEROC’ that will provide a high level of back-up to the Shannon ACC whilst minimizing disruptions to customers in the case of a contingency situation.
  - Maintaining an appropriate fit between staffing and traffic levels through the ‘crew to workload’ initiative.
  - Continue the deployment of COOPANS builds as required to improve sector capacities and safety.
  - Continue to review and improve the internal dynamic sectorisation to match changes in aircraft performance and routings.
  - Implement necessary procedures at Dublin Airport to accommodate the operations within the two parallel runways.

6.12 Stakeholders are requested to submit any comments they may have on the RP3 capacity en route KPI targets within their feedback on the RP3 Irish Performance Plan.

## CHAPTER 7

# En Route Cost Efficiency

### SES Requirements

- 7.1 The cost efficiency KPI for en route services is the Determined Unit Cost for en route air navigation services, calculated as follows:
- the ratio between the en route determined costs and the forecast traffic in the charging zone, expressed in en route service units, expected during each year of the reference period at local level, contained in the PPs;
  - expressed in real terms and in national currency;
  - provided calculated for the whole calendar year and for each year of the reference period.
- 7.2 In addition, States are required to monitor the actual unit cost incurred by users for en route services, calculated as follows:
- calculated for the whole calendar year and for each year of the reference period as the sum of the DUC for air navigation services and of the adjustments in accordance with Article 25(2) stemming from that year;
  - expressed in nominal terms and in national currency.
- 7.3 Member States are also required to describe any traffic risk mechanisms employed in their State or FAB. A detailed description of the Irish traffic risk sharing mechanism is contained in Chapter 10.

### Irish Cost Efficiency Target

- 7.4 Figures 7.1-7.3 summarise the Irish en route cost efficiency target.

**Figure 7.1: Ireland En Route DUC and DC in RP3 Performance Plan**

2019 DUC€00	2020 DUC€00	2021 DUC€00	2022 DUC€00	2023 DUC€00	2024 DUC€00	RP2-RP3 Trend	RP1-RP3 Trend
122,344	136,944	142,712	146,318	149,296	153,069	4.6%	4.1%



2019 DUC€	2020 DUC€	2021 DUC€	2022 DUC€	2023 DUC€	2024 DUC€	RP2-RP3 Trend	RP1-RP3 Trend
26.24	29.21	29.79	29.92	30.03	30.28	2.9%	1.5%

- 7.5 As of January 2020, the IAA will be split into two new corporate and operational entities as a result of the Irish Government’s initiative that commenced in RP2. Institutional separation will incur significant additional restructuring costs during RP3. Additional functions (e.g. SAR) will also be included in NSA Determined Costs. These costs have been assessed as relating to ANS provision and validated as reasonable and necessary by the NSA.
- 7.6 The State has also instructed the NSA to include €2.5m p.a. in “transition costs” for the new Safety Regulatory body, time limited to RP3. This is in addition to the Restructuring costs provided for ANS related activities in the ANSP and NSA Determined Costs. The NSA understands that the €2.5m p.a. relates to non-ANS activities.

**Figure 7.2: Exclude “Restructuring” and “New State Costs”**

Impact on En route Determined Costs (€'000)						
Description	2020	2021	2022	2023	2024	RP3
Restructuring – ANSP	4,256	4,839	4,528	4,430	4,336	22,389
Search and Rescue	399	406	414	421	529	2,169
Safety Regulation Transition	2,500	2,500	2,500	2,500	2,500	12,500
<b>Total</b>	<b>7,155</b>	<b>7,745</b>	<b>7,442</b>	<b>7,351</b>	<b>7,365</b>	<b>37,058</b>

- 7.7 After adjusting for Restructuring Costs and “New State Costs”, the Determined Costs and Determined Unit Costs outlined below are necessary to deliver the measures and conditions required to achieve the performance targets in the key performance area of capacity. The NSA has assessed these costs as consistent and reasonable, taking account of local conditions and interdependencies, especially capacity. This RP3 DUC trend of +1.9% and resulting modest deviation from the RP3 Union- wide determined unit cost trend of - 1.9% is both necessary and proportionate. The NSA is satisfied that the deviation is justified and appropriate.

**Figure 7.3: Real Ireland En Route DUC RP3 for Assessment (excluding Restructuring and “New State Costs”)**

2019 DUC€00	2020 DUC€00	2021 DUC€00	2022 DUC€00	2023 DUC€00	2024 DUC€00	RP2-RP3 Trend	RP1-RP3 Trend
122,343	129,788	134,967	138,876	141,946	145,704	3.6%	3.6%
2019 DUC€	2020 DUC€	2021 DUC€	2022 DUC€	2023 DUC€	2024 DUC€	RP2-RP3 Trend	RP1-RP3 Trend
26.24	27.68	28.18	28.40	28.55	28.83	1.9%	1.0%

## NSA guidance to Regulated Entities

7.8 The NSA noted the clarity on RP3 that the European Commission provided by publishing a Statement at the Single Sky Committee 71. From the NSA perspective of drafting an RP PP, the three key takeaways from this Statement are listed below:

- With respect to local baseline values, the Commission noted that each Member State should establish their own baseline values at local level, for which the method chosen by the Member State should be transparent, justified and consistent with point (a) of Article 10(2) of Regulation 2019/217.
- The Commission will take local circumstances into account when assessing the consistency of proposed national or FAB targets with the Union-wide targets.
- As regards the targets in the key performance area of cost-efficiency, the Commission recalls the assessment criteria set out in point 1.4(d)(i) of Annex IV to Commission Implementing Regulation (EU) 2019/317, which allows a deviation from the criteria set out in points (a) to (c) in order to allow the achievement of performance targets in the key performance area of capacity set at national level.

7.9 It is particularly helpful as it confirms that the Union-wide targets are accurately titled as targets and are not binding in themselves for each individual ANSP. This is welcome, as Ireland’s good performance over the course of RP1 and RP2 means that there is little scope to

continuously deliver upon “top down” cost efficiency targets, compared to other States which may not have performed so well to date. The Commission followed up with assurances to Member States that targets including, for example, the 1.9% annual reduction in costs is an ambitious target at a Union-wide level and that it is the Member State PPs that are binding.

- 7.10 The NSA therefore guided the regulated entities to comply with the regulations by setting out their required costs in a clear, objective and transparent manner, while demonstrating that any variance (additional costs) with the Union-wide cost efficiency target is justified, in particular on the basis of being critical to ensuring sufficient capacity.

## Underlying assumptions

- 7.11 The definition of the target for cost efficiency for en route services was provided at the start of this chapter, i.e. it is the ratio between en route DC and forecast traffic. The forecast traffic is presented in Chapter 2 of this document. For Ireland, the DC is made up of the contributions of the following entities:
- IAA (ANSP);
  - IAA (NSA); and
  - Met Éireann.

## Baseline value

- 7.12 Regarding the ‘baseline value’, this is defined within Article 10(2)(a) of the RP3 regulation as the starting point used for performance target setting in respect of en route cost efficiency. The regulation states:

*The performance plans shall be drawn up in accordance with the template set out in Annex II and shall include:*

*(a) binding national performance targets or binding FAB performance targets, set on the basis of the key performance indicators referred to in Article 8(2), including a ‘baseline value for determined costs’ and a ‘baseline value for the determined unit cost’ for each charging zone, for the purpose of setting targets in the key performance area of cost-efficiency. Those baseline values shall be calculated in respect to the year preceding the start of the reference period.*

*The baseline value for determined costs shall be estimated by using*

*the actual costs available for the preceding reference period and shall be adjusted to take account of latest available cost estimates, traffic variations and their relation to costs.*

*The baseline value for the determined unit costs shall be derived by dividing the baseline value for the determined costs with the latest available traffic forecast expressed in service units for the year preceding the start of the reference period.*

- 7.13 The NSA considers the most appropriate approach to setting a “baseline value” is one that takes the most recently audited returns (2018 actuals) and adjusts them appropriately to match current activity and latest information, as recommended in Article 10(2)(a). The dataset that most closely matches this requirement for a regulated entity is the 2019 approved operating and capital budget.

### Charging policy

- 7.14 The NSA will apply the necessary Unit Rate adjustments mandated by IR 2019/317. These adjustments will be in the year N+2, in line with the Regulation. This will apply to both en route and TANS charges, and will also refer to:
- i) planned and actual inflation;
  - ii) incentives and risk sharing mechanisms (financial advantages and disadvantages);
  - iii) Exempt from Risk Sharing (MET, NSA);
  - iv) Unforeseen adjustments (Art 28.3); and,
  - v) CAPEX adjustments, including refunds of unspent RP2 CAPEX (Chapter3).
- 7.15 There will be no implementation of a modulation mechanism of air navigation charges within the meaning of Article 32 of the Performance and Charging Regulation.
- 7.16 There will not be (nor is there at present) cross-financing between terminal charging zones, or between en route and TANS services.
- 7.17 The NSA will only set aside the timing adjustments referred to above on foot of specific guidance from the Commission and/or when the timing is beneficial to airspace users. Specific adjustments are

referred to in the following section.

7.18 Stakeholders are requested to submit any comments they may have on the Irish charging policy within their feedback on the RP3 Irish Performance Plan.

## RP3 Ireland Determined Costs

- 7.19 The NSA has carried out extensive eligibility and validation exercises on all costs included in the ANSP and MET Business Plans. A high bar was set for inclusion, and this led to a rigorous challenge by the NSA. A combination of analytical review, trend analysis and financial modelling was applied. The performance to date in RP2 was critically assessed, with particular regard to the historical trend of significant underspend by the IAA ANSP. This resulted in significant downward revision of estimates, and a more realistic phasing of forecast costs.
- 7.20 The NSA paid close attention to any costs that were “new” for RP3, or where there were significant upward trends in evidence. The following analysis by cost category highlights the pertinent issues noted by the NSA. The NSA is satisfied that the items noted represent a valid justification for variances from Union-wide targets.
- 7.21 For a meaningful analysis of RP2 vs. RP3 costs and their evolution, it is appropriate to exclude the Restructuring and “New State Costs” outlined above. This provides a more realistic basis for justifying the slight variance in the Ireland RP3 DC/DUC from the Union-wide targets. The modest increase of ER DUC in RP3 by +1.9%, and departure from the Union-wide target is to be considered in this context. The adjusted costs are as follows:

**Figure 7.4 Ireland En Route Determined Cost & DUC RP3 (excluding “Restructuring Costs” and new “Other State Costs”)**

<i>2017 prices</i>	<b>2020 DC €'000</b>	<b>2021 DC €'000</b>	<b>2022 DC €'000</b>	<b>2023 DC €'000</b>	<b>2024 DC €'000</b>	<b>RP3 Total /Trend</b>
ANSP DC	109,589	114,809	118,622	120,958	124,261	<b>588,239</b>
MET DC	6,222	6,009	5,916	6,325	6,314	<b>30,786</b>
NSA DC	13,977	14,149	14,338	14,662	15,129	<b>72,255</b>
<b>Total DC</b>	<b>129,788</b>	<b>134,967</b>	<b>138,876</b>	<b>141,945</b>	<b>145,704</b>	<b>691,280</b>
<b>% + / (-)</b>	<b>6.1%</b>	<b>4.0%</b>	<b>2.9%</b>	<b>2.2%</b>	<b>2.6%</b>	<b>3.6%</b>
<b>Total DUC</b>	<b>€27.68</b>	<b>€28.18</b>	<b>€28.40</b>	<b>€28.55</b>	<b>€28.83</b>	
<b>% + / (-)</b>	<b>5.5%</b>	<b>1.8%</b>	<b>0.8%</b>	<b>0.5%</b>	<b>1.0%</b>	<b>1.9%</b>

## NSA assessment of Determined Costs and Targets

- 7.22 The NSA reviewed the respective BPs of the Regulated entities. Firstly, costs related to Restructuring and “New State Costs” were excluded for “stand-alone” consideration. The remaining RP3 Determined Costs of €691m for en route and €179m for TANS were considered by activity (ANSP, MET and NSA). To enhance transparency, and ensure Stakeholders are clear on the justification criteria applied by the NSA, extensive material and analysis is provided under each cost category and regulated entity. The following analysis provides much greater detail to Stakeholders on costs, trends and interdependencies than was made available in RP2.
- 7.23 The table below sets out the total RP3 Ireland en route and TANS Determined Costs by category and excluding the aforementioned Restructuring Costs” and new “Other State Costs”. Each cost category is accompanied by a summary of the NSA analysis, and outlines the key reasons for material changes from RP2 to RP3.

**Figure 7.5: Ireland Determined Cost by Category (excluding “Restructuring Costs” and new “Other State Costs”)**

2017 prices Cost Category	2020 €'000	2021 €'000	2022 €'000	2023 €'000	2024 €'000	RP3 Total
Staff costs	81,895	85,253	87,766	89,683	91,905	436,502
<i>Of which is Pension cost</i>	12,500	12,862	13,112	13,352	13,535	65,361
Other Operating	55,048	56,371	56,442	56,554	57,330	281,745
Depreciation	16,103	18,609	20,900	22,736	23,938	102,286
Cost of Capital	7,929	9,776	10,682	10,547	10,628	49,562
<b>Total</b>	<b>160,976</b>	<b>170,009</b>	<b>175,790</b>	<b>179,520</b>	<b>183,801</b>	<b>870,096</b>
<b>En Route</b>	<b>129,788</b>	<b>134,967</b>	<b>138,876</b>	<b>141,945</b>	<b>145,704</b>	<b>691,280</b>
<b>Terminal</b>	<b>31,188</b>	<b>35,042</b>	<b>36,914</b>	<b>37,575</b>	<b>38,097</b>	<b>178,816</b>

## IAA (ANSP) Costs

- 7.24 The IAA ANSP has consistently performed well in the area of cost-efficiency, maintaining one of the lowest en route unit rates amongst the 37 EUROCONTROL Member States. During RP1, it contributed to the achievement of the European cost efficiency targets through a

significant reduction in its unit rate. Moreover, in RP2, the actual unit cost has been significantly less than the DUC planned within the RP2 PP. Although the 2017 actual unit costs have been increasing from 2016, it was still 10% lower than the planned one.

7.25 For RP3, however, the current cost levels and their rate of decrease cannot be maintained whilst ensuring the same service quality. This is mainly due to further costs associated with staff requirements and capital expenditure (CAPEX). Accordingly, the ANSP costs required for RP3 are as follows:

**Figure 7.6: ANSP Determined Cost by Category (excluding “Restructuring Costs” and new “Other State Costs”)**

<i>2017 prices Cost Category</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 Total</b>
Staff costs *	75,272	78,578	81,074	83,197	85,384	<b>403,505</b>
<i>*Of which is Pension cost</i>	12,127	12,476	12,715	12,944	13,116	<b>63,378</b>
Other Operating	39,401	40,849	40,903	40,709	41,015	<b>202,877</b>
Depreciation	15,509	18,015	20,244	21,315	22,517	<b>97,600</b>
Cost of Capital	7,929	9,776	10,682	10,547	10,628	<b>49,562</b>
<b>Total</b>	<b>138,112</b>	<b>147,218</b>	<b>152,903</b>	<b>155,768</b>	<b>159,544</b>	<b>753,545</b>
<b>En Route</b>	<b>109,589</b>	<b>114,809</b>	<b>118,622</b>	<b>120,958</b>	<b>124,261</b>	<b>588,239</b>
<b>Terminal</b>	<b>28,523</b>	<b>32,409</b>	<b>34,281</b>	<b>34,810</b>	<b>35,283</b>	<b>165,306</b>

### Staff and related costs

7.26 Staff and related costs are the single largest category in the Determined Costs. The human element is at the heart of effective ATM/ANS. This can be leveraged with Technology but having the correct number of staff to carry out the necessary functions is the most important factor in delivering a safe, efficient service to Stakeholders. Following extensive validation and challenge by the NSA, the following costs and staffing numbers are deemed necessary for RP3:

**Figure 7.7: Staff Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En route	64,126	66,937	69,046	70,848	72,803	343,760
Terminal	11,146	11,641	12,028	12,349	12,581	59,745
<b>Total</b>	<b>75,272</b>	<b>78,578</b>	<b>81,074</b>	<b>83,197</b>	<b>85,384</b>	<b>403,505</b>

**Figure 7.8: ANSP headcount requirements for RP3**

<b>Category</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
ATCOs	313	325	333	338	338	346
Engineers	72	91	92	93	94	94
Data Assistants	37	43	45	45	45	45
Ops Mgt / Support	65	71	71	71	71	71
Corporate Services	67	70	70	70	70	70
<b>Total</b>	<b>554</b>	<b>600</b>	<b>611</b>	<b>617</b>	<b>618</b>	<b>626</b>

7.27 Staff costs, including pension costs, are driven mainly by forecasts of headcount and pay. The biggest drivers for additional headcount in RP3 are:

- to meet the operational requirement to support increasing traffic,
- to provide operational resilience; and
- to meet the demand for a new parallel runway at Dublin airport. The new runway brings with it a significant change to the IAA's staffing requirement, not only in terms of increased ATCOs but also increased numbers of engineers, data assistants and operational support staff. For example, an additional 18 ATCOs will be required to service the new runway.

7.28 Total headcount is forecast to increase by 13% over the course of RP3 from a base in 2019 of 554 employees to 626 employees at the end of 2024. It is worth noting that the initial staffing levels put forward by the ANSP were materially higher, and a reduction was deemed necessary by the NSA.



- 7.29 A detailed analysis of ANSP Staff Costs, with supporting NSA assessments can be found in Appendix G.

## Pension Costs

**Figure 7.9: Staff Pension Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En route	10,343	10,640	10,846	11,043	11,209	54,081
Terminal	1,784	1,836	1,869	1,901	1,907	9,297
<b>Total</b>	<b>12,127</b>	<b>12,476</b>	<b>12,715</b>	<b>12,944</b>	<b>13,116</b>	<b>63,378</b>

- 7.30 The IAA operates different pension schemes, with the original defined benefit scheme closed to new entrants since 2008. This scheme is subject to an actuarial valuation every three years. The latest valuation was on 1<sup>st</sup> January 2018. The scheme is also subject to the Irish Pensions Authority's Minimum Funding Standard (MFS). The pension scheme's actuary has calculated that the necessary level of contributions required to meet both the ongoing valuation and the MFS is in the order of 36.5% of pensionable pay. This Plan assumes that the employees of the ANSP will continue to make a pension contribution of 6% per annum thereby resulting in a pension contribution of 30.5% per annum by the ANSP. This is unchanged from RP2.
- 7.31 For employees who joined the company from 1<sup>st</sup> January 2011 to-date, the IAA operates a hybrid pension scheme (a defined benefit scheme up to a cap and a defined contribution scheme thereafter). The latest actuarial valuation of the defined benefit portion of the hybrid pension scheme calculated an employers' contribution rate of 7.2% per annum. The PP makes provision for an annual contribution rate over the course of RP3 of 7.2% per annum.

## Other Operating Costs

**Figure 7.10: Other Operating Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2019 €'000</b>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En Route	27,161	31,460	33,154	33,695	33,418	33,791	165,518
Terminal	5,630	7,941	7,696	7,208	7,291	7,224	37,360
<b>Total</b>	<b>32,791</b>	<b>39,401</b>	<b>40,850</b>	<b>40,903</b>	<b>40,709</b>	<b>41,015</b>	<b>202,878</b>

- 7.32 Other operating costs comprise items such as travel, training, systems and equipment maintenance, spares, telecommunications, general maintenance, power, environmental costs, flight checking, subscriptions and general sundry. Also included are administration costs such as rent and rates, computing/NIS, insurance, environmental, etc. The NSA required these costs to be broken down by category and between en route and terminal, with accompanying justification and explanation.
- 7.33 The cost items that have significantly contributed to incremental increases in other operating costs from RP2 to RP3 are:
- Training Costs.
  - Environmental.
  - Network and Information Security (new compliance requirements).
  - Maintenance and related costs for new Dublin Tower and new ATC Contingency centre.
- 7.34 A detailed analysis of Other Operating Costs, with supporting NSA assessments can be found in Appendix G.

## CAPEX and depreciation

### CAPEX

7.35 For the RP3 period, a total of €163.4 million of CAPEX is foreseen, distributed over four project categories as follows:

**Figure 7.11: IAA ANSP RP3 Capex**

Value of capitalised projects						
Category	2020 €'000	2021 €'000	2022 €'000	2023 €'000	2024 €'000	RP3 €'000
Air traffic management	57,856	19,012	11,359	21,425	10,817	120,469
Communications	5,778	1,500	800	2,750	2,700	13,528
Surveillance	2,019	6,575	3,097	400	5,650	17,741
Navigation	3,050	5,550	1,350	950	1,765	12,665
<b>Total</b>	<b>68,703</b>	<b>32,637</b>	<b>16,606</b>	<b>25,525</b>	<b>20,932</b>	<b>164,403</b>

7.36 A detailed description of all major capital projects and investments is included in Chapter 3 of this consultation document.

### Depreciation

7.37 Depreciation is calculated to write-off the cost of each asset, on a straight-line basis over its expected useful life at the following annual rates:

- Buildings: 5%
- Completed installations and other works: 8 <sup>1</sup>/<sub>3</sub> % – 12 <sup>1</sup>/<sub>2</sub>%
- Office Equipment: 20% - 33 <sup>1</sup>/<sub>3</sub>%

7.38 Assets are depreciated from the date they are commissioned for use. Any indication of impairment is determined at each reporting date when the carrying amounts of tangible fixed assets are reviewed. Due to the investments that are foreseen for RP3, as set out above, depreciation will increase substantially due to the larger asset base. Depreciation is allocated between en route and TANS depending on the activity the asset is supporting. A consistent policy of allocation is applied in the case of assets or systems that support both ER and TANS. The charge of depreciation, based on the assets

above being capitalised, over the course of RP3 is as follows:

**Figure 7.12 Depreciation Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2020</b> €'000	<b>2021</b> €'000	<b>2022</b> €'000	<b>2023</b> €'000	<b>2024</b> €'000	<b>RP3</b> €'000
En Route	9,803	10,352	11,271	12,006	12,696	56,128
Terminal	5,706	7,663	8,973	9,309	9,821	41,472
<b>Total</b>	<b>15,509</b>	<b>18,015</b>	<b>20,244</b>	<b>21,315</b>	<b>22,517</b>	<b>97,600</b>

## Cost of Capital

7.39 The IAA ANSP commissioned a study in May 2019 by First Economics to determine Cost of Capital (CoC) for RP3. The key parameters on which this calculation was based are as follows:

**Figure 7.13: First Economics Cost of Capital scenario parameters**

	<b>Low</b>	<b>High</b>
Gearing	0.1	0.1
Cost of debt	2.5%	2.5%
Cost of equity (pre-tax)	5.28%	6.67%
Cost of equity (post-tax)	4.62%	5.83%

Source: 2019 First Economics study of Cost of Capital for IAA ANSP

7.40 Based on these inputs, the proposed range for the IAA's real pre-tax cost of capital is between 5% and 6.3%.

7.41 The IAA NSA has decided upon a CoC value based on the results of the comprehensive CoC study performed by First Economics for the IAA ANSP, as well as other recent Irish regulatory settlements, industry trends, macroeconomic factors and the context of the Irish ANSP's financial performance during RP2. Despite the possibility of rising interest rates, the IAA NSA has decided that in part due to the context of the profits made by IAA ANSP during RP2, a conservative viewpoint with regards to CoC will be employed in the Irish PP.

7.42 The above led to the choice of pre-tax real WACC of 5.00%. Tax is applied at a rate of 12.5%.

**Figure 7.14 ANSP Cost of Capital Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En route	4,200	4,367	4,610	4,685	4,971	22,833
Terminal	3,729	5,409	6,072	5,861	5,657	26,728
<b>Total</b>	<b>7,929</b>	<b>9,776</b>	<b>10,682</b>	<b>10,546</b>	<b>10,628</b>	<b>49,561</b>

7.43 Further documentation supporting the Cost of Capital rates is included in Appendix B.

## NSA Costs

7.44 A properly resourced NSA is a fundamental requirement for the effective delivery and monitoring of PPs that support the achievement of SES objectives. This was highlighted in the “ECORYS ex-post evaluation of the Single European Sky Performance and Charging Schemes in Reference Period 1 and first year of Reference Period 2”. The report included the following statement;

*“Another more general observation, confirmed by ANSPs and NSAs, is that NSAs are generally underfunded and lack sufficient resources and expertise to implement the performance scheme. The scheme requires Member States to set up a proper NSA, but in practice some NSAs tend to resolve staffing issues by relying increasingly on ANSPs’ expertise, which jeopardises their independence.” It can be concluded that the asymmetry of information between ANSPs and NSAs and the under-resourcing of certain NSAs is not fully mitigated by the joint actions indicated by stakeholders.”*

7.45 The NSA Determined Costs for RP3 were drafted to ensure that the expertise, independence and objectivity applied to date in Ireland is preserved and enhanced.

**Figure 7.15: NSA RP3 Determined Cost by Category (excluding new “Other State Costs”)**

<i>2017 prices</i> Cost Category	2020 €'000	2021 €'000	2022 €'000	2023 €'000	2024 €'000	RP3 Total
Staff costs	3,153	3,263	3,344	3,436	3,531	<b>16,727</b>
<i>Of which is Pension cost</i>	373	386	397	408	419	<b>1,983</b>
Other Operating	11,932	12,016	12,148	12,410	12,834	<b>61,340</b>
Depreciation	-	-	-	-	-	-
Cost of Capital	-	-	-	-	-	-
<b>Total</b>	<b>15,085</b>	<b>15,279</b>	<b>15,492</b>	<b>15,846</b>	<b>16,365</b>	<b>78,067</b>
En Route	13,977	14,149	14,338	14,662	15,129	72,255
Terminal	1,108	1,130	1,154	1,184	1,236	5,812

- 7.46 The NSA costs for RP3 reflect an increased headcount to take account of current and anticipated Regulatory oversight requirements. There is an element of “catch up” in play, with staffing levels for RP2 not approaching planned levels until recently. This is reflective of the difficulty in recruiting appropriately experienced staff and the lead time required before such staff can be deployed with maximum efficiency. The staff costs provided for in RP3 take account of the Eurocontrol NSA HR Application (N-HRA) database which facilitates NSAs to assess, monitor and report on Human Resources (HR) in the ANS Oversight Domain.
- 7.47 The NSA costs above include approximately €500k p.a. relating to additional costs (rent, support services, etc.) that will be incurred in relation to the NSA joining a new Regulatory body from January 2020. This is the total incremental amount projected as required by the NSA in relation to ANS oversight.
- 7.48 “Other Operating Costs” for the NSA include Ireland’s share of Eurocontrol costs and other subscription to organisations such as ICAO, ECAC and ABIS (approx. €8.5m in 2020).
- 7.49 “Other Operating Costs” also include Policy Costs incurred by the Department of Transport, Tourism and Sport in relation to ATM/ANS, and is reasonably consistent with RP2 levels (approx. €3m p.a.).
- 7.50 The NSA determined costs shall not be subject to the provisions of Risk Sharing. In respect of these Determined Costs, any additional

revenue in year N due to differences between actual service units and the service unit forecast included in the PP for that year shall be passed on to airspace users, and any revenue loss shall be recovered from airspace users, through an adjustment of the unit rate in year N+2.

## Met Éireann

7.51 Since 2006, Met Éireann has been defined as an aviation meteorological service provider (METSP) under the European Regulations and the Aviation Services Division (ASD) as certified by the Irish NSA. Met Éireann holds a service provision certificate from the NSA and is designated as the sole provider of ICAO specified meteorological services by the DTTAS in Ireland. It also acts as the ICAO MET Authority for Ireland.

**Figure 7.16: MET RP3 Determined Cost by category**

<i>2017 prices Cost Category</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 Total</b>
Staff costs	3,470	3,412	3,348	3,050	2,990	<b>16,270</b>
Other Operating	3,715	3,506	3,391	3,435	3,481	<b>17,528</b>
Depreciation	594	594	656	1,421	1,421	<b>4,686</b>
Cost of Capital	-	-	-	-	-	-
<b>Total</b>	<b>7,779</b>	<b>7,512</b>	<b>7,395</b>	<b>7,906</b>	<b>7,892</b>	<b>38,484</b>
En Route	6,222	6,009	5,916	6,325	6,314	30,786
Terminal	1,557	1,503	1,479	1,581	1,578	7,698

7.52 The NSA considered and assessed the MET ASD RP3 BP, validating all relevant assumptions. The main drivers of MET costs for RP3 are as follows;

### **1. Aviation Modernisation and Automation Project (AMAP).**

- Modernising the aviation observing infrastructure is necessary to meet the requirement of a new EC Regulation drafted by the European Aviation Safety Agency (EASA), with a CIR date of January 2nd, 2020. The focus during RP3 will be to automate the aviation observations and reports to enable significant reductions in staff serving aviation and financial

savings to the airlines, following developments and planned developments in this regard in European METSPs.

- The modernised system is planned for implementation through the end of the RP2 period with automation to be developed during the lifetime of RP3. The capital and support costs for the new systems will be compensated by ongoing and significant cost reductions associated with the staffing efficiencies which are an integral part of the plan. The final decision on automation will require regulatory approval by the NSA and the successful completion of detailed and comprehensive safety cases to be presented to the Regulator.

## **2. Building High Performance Computing and NWP capacity (HPC)**

- The science of meteorology is on a continuous upward trajectory in terms of its appetite for high performance computing (HPC) and ICT resources. The implementation of resilient HPC by Met Éireann is essential if the ASD is to be capable of introducing essential developments in forecast services such as nowcasting and the use of high-resolution ensemble forecasts for the TMA. Met Éireann will throughout RP3, in collaboration with other modern European Meteorological Services develop this HPC capacity.

## **3. Development of an expanded RADAR network**

- Met Éireann's current RADAR network is nearing the end of its useful life and is both too small and under specified for a modern meteorological service. The data produced by the network is high quality but is not at the level required to support effective nowcasting algorithms or the development of automated aviation observations.

## **4. EUMETSAT contribution**

- Other Operating Costs include the Irish Government's contribution to EUMETSAT (approx. €1.5m p.a.).

7.53 The MET determined costs shall not be subject to the provisions of Risk Sharing. In respect of these Determined Costs, any additional revenue in year n due to differences between actual service units and



the service unit forecast included in the PP for that year shall be passed on to airspace users, and any revenue loss shall be recovered from airspace users, through an adjustment of the unit rate in year N+2.

## Irish en route cost efficiency summary

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- 7.54 The NSA is satisfied that the Ireland RP3 Determined Costs and RP3 DUC trend of +1.9% are reasonable despite the slight variance with the Union-wide cost efficiency targeted reduction of 1.9% per year. These costs are absolutely required to achieve Safety, Capacity and Environment targets.
- 7.55 For regions like Ireland which have managed to maintain a low delay service even as traffic has increased well beyond RP2 forecast levels, the focus for RP3 must be on maintaining this high quality service and ensuring that forecast traffic increases in the next five years can be managed in a sustainable manner.
- 7.56 The focus in RP3 is quite rightly on delivery of meaningful improvements to Capacity across Europe. This is referenced in the Regulation (point 1.4(d) of Annex IV) which permits a deviation of the local DUC trend from the Union-wide DUC trend in order to achieve the local performance targets in the KPA of capacity. The NSA is of the firm opinion that this is the case in Ireland for RP3. An attempt to comply in full with this one aspect of the Implementing Regulation would have a material negative impact on the achievement of planned targets for Capacity, Safety and Environment. It would also be counter-productive to the outcomes that Stakeholders have prioritised. The NSA has provided detailed explanations of the interdependencies between the four target areas, and these can be found in Chapter 9 of this Consultation Document.
- 7.57 Following extensive validation and challenge, the NSA has identified the following costs for the three accountable entities as necessary for Ireland to positively contribute to SES performance in RP3.
- 7.58 The analysis provided shows very modest cost increases after excluding exceptional items like “Restructuring Costs” and new “Other State Costs”. The impact of planned RP2 CAPEX returns, and other rate adjustments is also highlighted.

Ireland En Route Determined Cost & DUC RP3 (excluding “Restructuring Costs” and new “Other State Costs”)						
<i>2017 prices</i>	2020 DC €'000	2021 DC €'000	2022 DC €'000	2023 DC €'000	2024 DC €'000	RP3 Total
ANSP DC	109,589	114,809	118,622	120,958	124,261	<b>588,239</b>
MET DC	6,222	6,009	5,916	6,325	6,314	<b>30,786</b>
NSA DC	13,977	14,149	14,338	14,662	15,129	<b>72,255</b>
<b>Total DC</b>	<b>129,788</b>	<b>134,967</b>	<b>138,876</b>	<b>141,945</b>	<b>145,704</b>	<b>691,280</b>
<b>Total DUC</b>	<b>€27.68</b>	<b>€28.18</b>	<b>€28.40</b>	<b>€28.55</b>	<b>€28.83</b>	
Add Restructuring and new “Other State Costs”						
Restructuring and new “Other State Costs”	7,155	7,745	7,442	7,351	7,365	<b>37,058</b>
Impact on DUC €	1.53	1.62	1.52	1.48	1.46	
Total Ireland En Route Determined Cost & DUC RP3						
<b>DC €'000</b>	<b>136,944</b>	<b>142,712</b>	<b>146,318</b>	<b>149,296</b>	<b>153,069</b>	<b>728,339</b>
<b>DUC €</b>	<b>29.21</b>	<b>29.79</b>	<b>29.92</b>	<b>30.03</b>	<b>30.28</b>	

Planned DUC Rate Adjustments						
Adjustment	2020 DUC €	2021 DUC €	2022 DUC €	2023 DUC €	2024 DUC €	
RP2 CAPEX Refund	(2.84)	(0.91)	-	-	-	
COOPANS Refund	(0.18)	(0.13)	(0.04)			
<b>Total DUC Impact + /(-) €</b>	<b>(3.02)</b>	<b>(1.04)</b>	<b>(0.04)</b>			

7.59 Stakeholders are requested to submit any comments they may have on the Irish RP3 cost base and/or charging zones, including any comments on the choice of the baseline value, within their feedback on the RP3 Irish Performance Plan.

**CHAPTER 8****Terminal Navigation Services**

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- 8.1 The RP3 regulation applies to TANS provided at airports located within the territories of Member States with 80,000 IFR movements or more per year. This chapter contains context for the inclusion of Irish TANS under the Performance regulation and sets out the targets contained within the draft Irish PP.

**Background**

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- 8.2 The IAA ANSP currently provides TANS at Dublin, Cork and Shannon airports in Ireland. Dublin is the largest of these airports.
- 8.3 The IAA is a commercial semi-State company and operates without any financial support from the Irish Exchequer. It receives no loans, grants or subventions from the State. TANS revenues are generated solely through charges and fees raised from its airline customers in respect of its operational activities at the three Irish State airports. It is therefore very sensitive to legislative and/or regulatory interventions which increase its cost base and/or impact on its revenues.
- 8.4 The Irish Aviation Authority Act 1993 requires the IAA ANSP to “operate and manage terminal services at State aerodromes”. The State aerodromes to which the Act refers are Dublin, Cork and Shannon. Traffic volumes at Cork and Shannon airports and the fragmented nature of the flight schedules result in a very challenging business environment.
- 8.5 All new and/or improved processes, procedures and technology are subject to the rigorous application of the IAA’s SMS and benefit from the oversight of the IAA SRD. Customers and stakeholders expect the IAA ANSP to continue to provide safe, delay free, efficient and cost-effective TANS.

**European Legislative Context**

- 8.6 The Commission has determined that States need not apply the performance scheme to TANS at airports with fewer than 80,000 IFR

air transport movements per annum<sup>10</sup>. As neither Cork nor Shannon has traffic at this level, Dublin Airport is the only airport to which the performance scheme should be applied. However, since all three airports are covered by a single charging zone, and because it is not considered easily possible for the ANSP to allocate its TANS costs to individual airports, Ireland will include Cork and Shannon in the PP specifically for the cost efficiency target, but not for targets in any other KPA.

## Safety

- 8.7 The KPIs for safety have no safety requirements for TANS operations. The Irish NSA expects the safety KPIs to be reported as set out for the overall plan in Chapter 4.
- 8.8 The RP3 regulation does, however, set out a series of indicators for monitoring at both a Union and local level, which are detailed in Annex 1 of the Regulation. The local indicators are:
- The rate of runway incursions at airports located in a Member State, calculated as the total number of runway incursions with a safety impact that occurred at those airports divided by the total number of IFR and VFR movements at those airports;
  - The rate of separation minima infringements within the airspace of all controlling air traffic services units in a Member State, calculated as the total number of separation minima infringements with a safety impact that occurred in that airspace divided by the total number of controlled flight hours within that airspace;
  - The rate of runway incursions at an airport calculated as the total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at that airport divided by the total number of IFR and VFR movements at that airport;
  - The rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services, calculated as the total number of separation minima infringements with any contribution from air traffic services, or

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<sup>10</sup> (EU) 2019/317 Article 1 (3).

CNS services with a safety impact divided by the total number of controlled flight hours within that airspace; and

- Where automated safety data recording systems are implemented, the use of these systems by the air navigation service providers, as a component of their safety risk management framework, for the purposes of gathering, storing and near-real time analyses of data related to, as a minimum, separation minima infringements and runway incursions.

## Environment

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- 8.9 The KPIs for Environment have no specific requirements for TANS operations. The Irish NSA expects the environment KPIs to be reported as set out for the overall plan in Chapter 4.
- 8.10 The RP3 regulation does, however, set out a series of indicators for monitoring at both a Union and local level, which are detailed in Annex 1 of the Regulation. The indicators to be monitored in the environment KPA for TANS are as follows:
- The additional time in the taxi-out phase;
  - The additional time in terminal airspace; and
  - The share of arrivals applying Continuous Descent Operation (CDO).

## Capacity

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- 8.11 The terminal capacity KPI is defined as the average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services, calculated at local level as follows:
- the average arrival delay at the destination airport caused by ATFM regulations per inbound IFR flight;
  - covers all IFR flights landing at the destination airport and all ATFM delay causes, excluding exceptional events;
  - calculated for the whole calendar year and for each year of the reference period;
  - for the purposes of this indicator, 'local' means at national level;
  - for monitoring, the values calculated for this indicator are

broken down at airport level.

- 8.12 The national targets for the TANS Capacity KPI are represented by the Terminal and airports ANS ATFM arrival delay per flight. As Dublin is the only airport for which a terminal capacity target will be set for RP3, the target will constitute the Irish national target. The levels were set as follows:

**Figure 8.1: Irish Terminal and Airport Capacity Target**

	2020	2021	2022	2023	2024
National targets	0.25	0.25	0.20	0.20	0.20
EIDW – Dublin	0.25	0.25	0.20	0.20	0.20
Airport Contribution	0.20	0.20	0.15	0.15	0.15

- 8.13 The ATFM arrival delays in Ireland have been consistently falling below the European average and the planned resources allocated for RP3 should ensure this is maintained. The initiative that will predominantly contribute to this achievement will be the introduction of a new parallel runway that will be in operation in Q3 2021. Required capacity will also be ensured in part due to the completion of the new visual control tower and airspace modifications. Lastly, ATFM delays will also be avoided through SESAR Pilot Common Project (PCP) initiatives such as extended Arrival MANAGEMENT (AMAN) and time-based separations.
- 8.14 The RP3 regulation also requires the following indicators for monitoring:
- The percentage of IFR flights adhering to their ATFM departure slots at local level (nationally with a breakdown at airport level) calculated for the whole calendar year and for each year of the reference period.
  - The average minutes of air traffic control pre-departure delay per flight caused by take-off restrictions at the departure airport, calculated at local level (at airport level for airports with 80 000 IFR air transport movements or more per year) as follows:
    - this indicator is the average air traffic control pre-departure delay per outbound IFR flight;

- this indicator includes all IFR flights taking off at the departure airport and covers delays in start-up caused by air traffic control constraints when the aircraft is ready to leave the departure stand;
  - this indicator is calculated for the whole calendar year and for each year of the reference period.
  - The average time, expressed in minutes, of departure delay from all causes per flight, calculated at local level (at airport level for airports with 80 000 IFR air transport movements or more per year) in accordance with point 3.2(c) of Section 1.
- 8.15 When considering the optimum Irish terminal airspace capacity, it is important to take into account: the airfield infrastructure at Dublin Airport; the situation in neighbouring airspace - particularly the UK; and, the sometimes challenging conditions that exist as a result of Ireland being on the western edge of European airspace. In this context, it is most appropriate to target a level of terminal delay for RP3 which recognises that the IAA ANSP does not have responsibility for, or control over the development of ground infrastructure at Dublin Airport. Moreover, the target should consider the effect that the interdependencies and network effects mentioned above can have on the IAA's ability to avoid delay.

## Cost Efficiency

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- 8.16 The terminal cost efficiency KPI is the Determined Unit Costs (DUC) for TANS at charging zone level. The indicator is:
- the ratio between the determined costs and the forecast traffic, expressed in terminal service units, expected during each year of the reference period at local level, contained in the PPs;
  - expressed in real terms and in national currency; and
  - calculated for the whole calendar year and for each year of the reference period.
- 8.17 The IAA ANSP operates and manages TANS at State aerodromes, Dublin, Cork and Shannon. The operators of these airports choose to keep them open on a H24 basis and traffic volumes at Cork and Shannon airports and the fragmented nature of the flight schedules result in a very challenging business environment.

- 8.18 Terminal reporting tables providing details of terminal costs and charges (including MET & NSA) have been included in Appendix A. These tables can be summarised as follows:

**Figure 8.2: Ireland Terminal DC and DUC RP3 in draft Performance Plan**

<i>2017 prices</i>	2019 DC €000	2020 DC €000	2021 DC €000	2022 DC €000	2023 DC €000	2024 DC €000	RP2-RP3 Trend
ANSP	21,836	29,440	33,447	35,239	35,765	36,219	
MET	1,818	1,556	1,503	1,479	1,581	1,578	
NSA	848	1,108	1,130	1,154	1,184	1,236	
Total DC €'000	24,502	32,104	36,080	37,872	38,530	39,033	9.8%
DUC €	130.54	169.32	184.45	190.50	189.90	188.84	7.7%
<b>Exclude restructuring costs</b>							
		2020	2021	2022	2023	2024	RP3 Total
Restructuring €'000		917	1,038	958	955	936	4,804
<b>Real Ireland Terminal DC RP3 for Assessment (excluding Restructuring)</b>							
		2020	2021	2022	2023	2024	RP2-RP3 Trend
DC €'000		31,187	35,042	36,914	37,575	38,097	9.2%
DUC €		164.49	179.15	185.68	185.19	184.31	7.1%
<b>Planned DUC Rate Adjustments</b>							
Adjustment		2020 DUC €	2021 DUC €	2022 DUC €	2023 DUC €	2024 DUC €	
RP2 CAPEX Refund		(22.99)	(12.10)	-	-	-	
COOPANS Refund		(1.54)	(1.07)	(0.31)			
Total DUC Impact + /(-) €		(24.53)	(13.17)	(0.31)			

## Assumptions

- 8.19 The underlying assumptions for the TANS DC base are broadly similar to that outlined in Chapter 7 on en route Cost Efficiency. Similarly, the principles relating to Baselines and Allocations apply to TANS services also.



- 8.20 The TANS cost base is calculated in the same way as the en route DC, albeit different activities are used to allocate shared and/or corporate costs. The analysis in Chapter 7 of the different cost categories (Staffing, Admin, etc.) is valid when considering the TANS costs also. The NSA has applied consistent assessment and justification criteria for both en route and TANS.
- 8.21 There is one aspect of the TANS RP3 DC that is worth highlighting, and that is the portion relating to the New Tower and Runway at Dublin. This is a completely new facility for RP3. In effect the scale of Dublin airport is close to doubling as the vast majority of traffic currently works off Runway 10/28. When the new 10/28 Northern parallel runway is built it will have new ILS Systems, new ground radar systems etc.
- 8.22 The new Dublin Visual Control Tower construction was completed in March 2019 on schedule and on budget. The tower is currently in a 12-month fit-out phase and will enable parallel runway operations at Dublin airport in 2021. Notwithstanding the additional depreciation in RP3 relating to the €56m capital cost, the extent of the incremental impact of the New Runway and Control Tower on RP3 Terminal DC and DUC is considerable.
- 8.23 The new runway brings with it a significant change to the IAA's staffing requirement, not only in terms of increased ATCOs but also increased numbers of engineers, data assistants and operational support staff. An additional 18 ATCOs will be required to service the new runway.
- 8.24 Increased engineering resources are required to support the new control tower at Dublin airport in terms of power supply, telecoms, air conditioning, CNS and ATM systems. The current tower will be maintained as a contingency tower requiring ongoing monitoring and maintenance. The new parallel runway will have new ILS and new ground radar systems which will also require engineering resources to monitor and maintain.
- 8.25 Stakeholders are requested to submit any comments they may have on the Irish terminal ANS KPI targets within their feedback on the RP3 Irish Performance Plan.

## CHAPTER 9

# Interdependencies

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- 9.1 There are clear interdependencies between the four KPAs covered by the Performance Scheme. This chapter describes these interdependencies and outlines the details of, and assumptions used for trade-offs.

### Overview

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- 9.2 In developing the Plan, the NSA must give due consideration to the relevant interdependencies between the various Union-wide targets. The NSA see this as a very important aspect of the PP, and a key element in validating local targets that are outside the Union-wide targets. At the core of this process is the need to ensure that Safety is never compromised, either directly or indirectly, by efforts to comply with other Performance targets. It is important to note that the Implementing Regulation grants the NSA scope to avoid imposing the Union-wide targets at national level if they are deemed to be unrealistic taking account of interdependencies.
- 9.3 The KPAs covered by the PP should not be considered as stand-alone. It should be recognised that performance in one area will affect performance in other areas.
- 9.4 The links between the KPAs and the resulting trade-offs in terms of performance is a critical aspect of this Plan. Changes in one KPA target area (e.g. cost efficiency) can adversely affect the achievement of KPA targets in another (e.g. capacity / delays).

### Safety and the other KPAs

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- 9.5 The level of ANS safety required under EU legislation will not be subject to any trade-offs under any circumstances. Where interdependencies arise between safety and the other three KPAs (cost-efficiency, capacity and the environment), these will be effectively managed so as not to compromise the required level of safety. Safety has a cost, and the significant additional compliance requirements need to be assessed on an incremental basis to ensure the adequate resources are in place.

## Changes to ATM functionality

- 9.6 There are several items included in the PP that are designed to contribute to the achievement of RP3 targets, and ensure compliance with the PCP Regulation. In terms of ATM functionality, there are: new Investments (ATC Tower, replacement radar, etc.); new staffing arrangements; and compliance obligations (FRA, etc.). Each of these has a potential safety impact. In advance of implementation, all new and/or improved processes, procedures and technology are subject to the rigorous application of the IAA's Safety Management System (SMS) and benefit from the oversight of the IAA SRD and the NSA. This approach has served the IAA and their Stakeholders well to date and will continue to do so in the future.
- 9.7 The IAA manages the safety aspects of change effectively. All change is subject to safety assessment before it is implemented to demonstrate that hazards have been identified, safety requirements derived, and mitigation implemented to ensure that any associated residual operational risks are tolerable. This includes changes from environmental, capacity and cost drivers as they impact the operation. The Safety Management System (SMS) is at the centre of a robust governance structure, and effective procedures are embedded in project governance (CAPEX) and ATC procedure development processes and robustly applied throughout the business.

## Assessment criteria and underlying assumptions.

- 9.8 At a most basic level, the over-arching imperative in any investment or process change is that it should not impact safety in a negative way. The fundamental principle is that change must not degrade safety performance and should, wherever possible, improve it. The IAA ANSP has, in the initial stages of planning for the en route, Terminal & Technology strategies, taken into account, albeit initially at a high level, the safety implications of any new equipment and/or procedures. Unless they offer no erosion in safety levels at a minimum and/or unless appropriate risk mitigation procedures can be developed, a project will not be permitted to commence.
- 9.9 Reliance is also placed on the fact that a mature and fully effective SMS is currently in place, with all safety metrics for RP2 met and exceeded ahead of time.
- 9.10 The IAA ANSP has extensive contingency arrangements in place and

maintains the facility for flow restrictions as the ultimate means of preserving safety in the operational environment.

### Target Trade-Offs

- 9.11 The targets included in the PP make provision for managing resource shortfalls in order to preserve safety performance. The targets, or underlying incentive scheme penalties do not restrict the release of staff for safety activities, such as training. Staffing factors, having been verified by the NSA include a contingency provision to facilitate this.

### Assessment by NSA of ANSP resources to support Safety in RP3

- 9.12 The high achievement and progressive improvements in safety performance have been attained during RP2 via the implementation of proportionate and focused strategies. These successful efforts, however, have required additional financial investments to ensure that necessary structures and essential specialists and dedicated staff were available to achieve these levels of improvements to the SMS.
- 9.13 The NSA has assessed the resource requirements to support the current SMS activities and resources needed to meet RP3 targets in tandem with the impact of the new IR (EU) 2017/373 regulatory compliance requirements. We are satisfied that provision has been made for the necessary additional Safety Management, SMS support staff and ATM Occurrence Investigator posts for operational units. An example of the areas that will challenge the current IAA SMS and line operational management structures from a Safety assurance perspective are as follows:

#### Safety Key Performance Indicator- EoSM

- 9.14 This SKPI, utilising an advanced version of the RP2 EoSM questionnaire, has significantly expanded its requirements; this demands increased granularity, justification and evidence to meet the set target Levels. A good example of the increased demand is the criteria for attaining Level D for the *Safety Risk* category; this will be particularly challenging to meet due to the impact of the related IR (EU) 2017/373 *Management and Oversight of Change* regulation, with its increased process complexity and departure from current process requirements. This will make achieving this EoSM Level very

demanding, necessitating the focussing of resources with sustained availability for training, implementation and application of procedures going forward.

### **Human Factors & Fatigue Risk Management**

- 9.15 The ATCO roster compliance requirements of IR (EU) 2017/373 and the associated FRM /FRMS necessitates additional and new processes, expertise and management oversight. The impact on the changes is centred on additional resources for dedicated expertise and technology i.e. roster tool with IT potential to support FRM.

### **Technology and Innovation**

- 9.16 ASMT (Air Safety Management Tool). A key development activity identified in this plan requires technical and IT support and dedicated safety management activities for the deployment, oversight and analysis enabled by the tool for airspace performance and hotspot identification. This initiative is intended to support safety performance improvements and airspace efficiency.

### **Regulatory Impact**

- 9.17 In summary, the impact of the combination of IR (EU) 376/2014, (EU) 340/2015 and impending IR (EU) 2017/373 from Jan 2020, will see increased demands on current professional staff combining their core activities with additional subsidiary activities (e.g. ATM Occurrence Investigators and Human Factor Local actors etc). This will affect the focus on the new requirements with a significant workload increase from 2020 that will require additional standalone resources.

### **Capacity and Cost-Efficiency**

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- 9.18 En route ATFM delays in Irish en route airspace have been extremely low during RP2 despite traffic growth which has been far in excess of the levels forecasted in the UK-Ireland RP2 FAB PP. This has not been achieved without impacting on other areas and presents very clear evidence of the interdependencies between Cost Efficiency and Capacity.
- 9.19 Traffic across RP2 significantly exceeded all forecasts, and key decisions had to be made to prioritise capacity and service quality ahead of capital project delivery. Performance targets were achieved only at the expense of diverting resources from planned capital

projects to core operations and by ensuring that sufficient frontline staff were available at the expense of capital investment. A range of short-term staffing solutions (overtime, leave-deferral, etc.) were key initiatives in delivering the no/low delay profile that benefitted the entire European network.

- 9.20 Short-term measures such as a heavy reliance on overtime and considerable volumes of annual leave being deferred cannot be sustained into RP3. In addition, both national and EU staff related regulations that began implementation during RP2 (and will continue in RP3) will not only severely restrict the use of short-term staffing solutions but will also require additional staff to comply with requirements such as paternity leave.
- 9.21 The NSA is certain that this high level of interdependency between capacity and cost-efficiency will continue to be a factor in RP3. This is borne out by validation work, and RP2 monitoring. For example, NSA analysis has highlighted that traffic increases, and other legal and regulatory demands have resulted in overtime [+58%] and annual leave carry over [+44%] increasing to unsustainable levels during RP2.
- 9.22 Achieving the RP3 capacity target will result in additional costs in terms of increased staffing and investment in technology. The upward trend in overtime levels and annual leave carry-over experienced during RP2 must be reversed. Failure to do so could potentially impact the delivery of the agreed RP3 capacity target due to staffing issues as well as the implementation and development of projects designed to enhance service to customers. This investment in staffing and technology is required to sustain the required performance. The link between overtime, annual leave accumulation and fatigue needs to be emphasised. This will become particularly relevant with the implementation of IR (EU) 2017/373. There have been instances in the airline industry where flight cancellations have resulted from rostering issues and this needs to be avoided in Air Traffic Services provision.

## Capacity and Environment (flight efficiency)

- 9.23 The PRB and Commission, as well as other Stakeholders have rightly identified the introduction of H24 Free Route Airspace (FRA) as a key priority for RP3, and one of the initiatives with potential to positively impact Capacity. In Ireland, the IAA ANSP has achieved all that is possible from a local perspective in terms of horizontal flight efficiency with the implementation of free route airspace in both the Upper and Lower airspaces. This has had corresponding positive efficiency, capacity and environmental impacts. The local Irish en route flight efficiency values are extremely efficient.
- 9.24 In the wider European context, the position of Irish controlled airspace on the western edge of the Eurocontrol zone, must be considered. Maintaining the conditions that enabled the delivery of FRA in Ireland since 2009 are vitally important to the achievement of wider Eurozone FRA in RP3.
- 9.25 Further improvements in this area are dependent on the introduction of Free Route Airspace in neighbouring airspaces with the accompanying system upgrades to enable full cross border FRA. It is planned that this will be achieved on a phased basis over the first three years of RP3 with full implementation by 2022. The IAA will fully cooperate with this introduction. The RP3 PP has made provision for the necessary resources (OPEX and CAPEX) to facilitate this cross-border initiative and maintain the conditions that have delivered FRA locally since 2009.

9.26 Stakeholders are requested to submit any comments they may have on the NSA's consideration of Interdependencies with regard to RP3 targets within their feedback on the RP3 Irish Performance Plan.

**CHAPTER 10****Traffic risk sharing & incentives**

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**Traffic risk sharing**

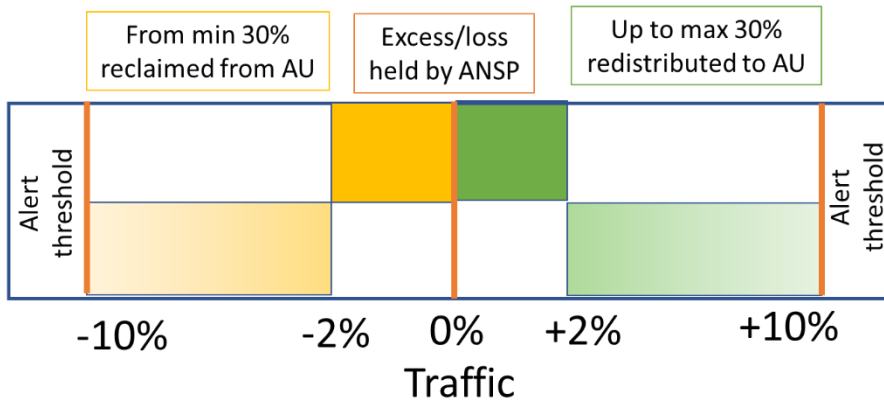
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- 10.1 Article 27 of the Regulation enables some flexibility for NSAs in respect of the traffic risk sharing arrangements applicable at local level over the reference period. NSAs may either decide to apply the default traffic risk sharing mechanism as defined in Article 27(2), (3) and (4), or they may decide to adapt the values of the traffic risk sharing parameters laid out in Article 27(2) and 27(3), subject to the conditions set out in Article 27(5).
- 10.2 In the preparation of the Ireland RP3 PP the Irish NSA has chosen to apply the default traffic risk sharing mechanism. We confirm that the range ('dead-band') within which additional revenue or revenue losses due to traffic variations are borne in full by the ANSP is set at  $\pm 2\%$  of the service unit forecast established in the PP, in accordance with Article 27(2).
- 10.3 The traffic risk sharing keys specified in Article 27(3) apply in respect of additional revenue or revenue losses stemming from traffic deviations beyond the dead-band referred to in Article 27(2) but not exceeding 10% of the service unit forecast. Hence, 70% of additional revenue received for traffic in excess of 2% of the service unit forecast (and up to 10% of the service unit forecast) is to be returned to AUs, whilst the ANSP is able to recover 70% of a revenue loss incurred in excess of 2% of the service unit forecast (and up to 10% of the service unit forecast).
- 10.4 The traffic risk sharing keys specified in Article 27(4) apply in respect of additional revenue or revenue losses due to actual traffic deviating from the service unit forecast by more than 10% (i.e. exceeding 110% of the service unit forecast or being lower than 90% of the service unit forecast). Any additional revenue beyond this limit is passed on in full to airspace and any revenue loss is fully recovered from airspace users.



10.5 The traffic risk sharing scheme to be applied for RP3 is illustrated as follows

**Figure 10.1 Traffic Risk Sharing Mechanism for RP3**



10.6 This will be applied to en route and TANS DC for RP3.

10.7 The following DC shall not be subject to the provisions of Risk Sharing outlined above:

- the DC incurred by competent authorities. For the purposes of this PP this relates to the costs incurred by the NSA and these are stated in the cost tables included in Appendix A.
- the DC for meteorological services.

10.8 In respect of these DC, any additional revenue in year n due to differences between actual service units and the service unit forecast included in the PP for that year shall be passed on to airspace users, and any revenue loss shall be recovered from airspace users, through an adjustment of the unit rate in year n+2.

10.9 Stakeholders are requested to submit any comments they may have on the application by the NSA of the default traffic risk sharing mechanism within their feedback on the RP3 Irish Performance Plan.

## Capacity incentives scheme

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- 10.10 The incentives scheme for capacity in RP2 is fixed, with no flexibility at a local level. Reference Values (RVs) are set for each MS, which contribute to the achievement of the FAB-level capacity target. Deviation from these RVs in year n result in a bonus or penalty of up to 1% of revenues for the ANSP, adjusted in unit rates in year n+2. To date in RP3, the performance of the Irish ANSP would have qualified it for a capacity bonus each year. However, a condition was included whereby if the FAB target was missed, no bonus would be payable to individual ANSPs, irrespective of performance. The performance of UK NATS led to the FAB target being missed in 2016 and 2018. Consequently, the bonus was applied to the IAA ANSP in 2015 and 2017 only.
- 10.11 The NSA supports the focus on Capacity that has been emphasised during the discussions to date on RP3. All stakeholders are in main agreement with this principle, and the PPs submitted need to reflect this. We believe that mature ANSPs and NSAs do not actually require specific incentivisation in this regard. The elimination of delays, and the resultant benefits to airspace users and the travelling public are already a key objective. However, the Regulation states that Capacity Incentive schemes are mandatory for en route and terminal capacity, and the NSA will apply this measure.
- 10.12 The new regulation for RP3 offers the ability to better tailor schemes to traffic developments observed at a local level. 'Pivot Values' (PV) replace RVs (Article 11(3)(c)), which may be based: on the performance targets at national level, broken down at the level of each individual air navigation service provider; or on modulated performance targets at national level, broken down at the level of each individual air navigation service provider, set annually by the NSA for the following year.
- 10.13 The regulation also provides for optional additional key performance indicators and targets with financial incentives for environment or for the achievement of the additional performance targets referred to in Article 10(3) where these support performance improvements in these KPAs. The NSA will not be applying any optional incentive schemes for RP3.

- 10.14 When designing the Capacity Incentive Schemes, the NSA considered the changes to the performance. The following items are required under the Regulation:
- Bonuses/penalties specified as % of DC;
  - Symmetric “dead bands” required around the target; and,
  - Mandated financial capacity incentive with a maximum bonus of 2% DC, along with a penalty at least equal to the maximum allowed for the bonus (with no set maximum penalty).
- 10.15 The NSA also had to decide on the basis for the PV and dead-band, as well as the delay causes attributable. We carried out extensive modelling exercises utilising both historical and forecast data. We also considered the detailed supporting guidance drafted by the NCP Performance WG. The scheme and underlying assumptions developed for application in RP3 are as follows:
- In respect of en route services, the PV for year n is the reference value from the November release of year n-1 of the NOP.
  - In respect of terminal services, the PV for each calendar year are to be equal to the local performance target set for that year.
  - For en route, the maximum penalty shall be set at 1% of DC and the maximum bonus shall be set at 0.5% of DC.
  - For TANS, the maximum penalty shall be set at 0.5% of DC and there will be no bonus element.
  - As stated in point 2 of Annex XIII, a ‘smooth sliding scale’ shall be applied for the purpose of calculating the annual bonus or penalty payment stemming from the incentive scheme.
  - A “dead-band” of 50% will be applied to the en route Incentive Scheme. Given that this must be symmetrical, the NSA believes a wide “dead-band” is appropriate when Pivot Values are relatively low. ANSPs with low delays going into RP3 are already making significant contributions to EU-wide targets. They should not be exposed to disproportionately high penalties from minor variances that do not adversely impact the

Network.

- A “dead-band” of 30% will be applied to the Terminal Services Incentive Scheme. Given that this must be symmetrical, the NSA believes a wide “dead-band” is appropriate when Pivot Values are relatively low. The bonus/penalty range of 50% is set by the Regulation, and the “dead-band” must be less than this to ensure a range exists for bonuses or penalties.
- The scope of the incentive scheme 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. For avoidance of doubt, the delay causes are limited to the following items:

**Figure 10.2 Delay causes subject to the incentive scheme**

Regulation Cause	NM Code	Regulation Location	Examples	IATA Code	IATA Delay Cause
ATC Capacity	C	En route	Demand exceeds capacity; Planned staff shortage	81	ATFM due ATC En route Demand/Capacity
ATC Routings	R	En route	Phasing in of new procedures; ATFCM scenarios, Network Solutions	81	ATFM due ATC En route Demand/Capacity
ATC Staffing	S	En route	Unplanned staff shortage	82	ATFM due Staff/Equipment En route
ATC Equipment	T	En route	Radar failure; RTF failure	82	ATFM due Staff/Equipment En route
Military	M	En route	Airspace availability; Military exercise	82	ATFM due Staff/Equipment En route

Special Event	P	En route	European football cup; Heads of Government meetings; Upgrade of ATM systems	82	ATFM due Staff/Equipment En route
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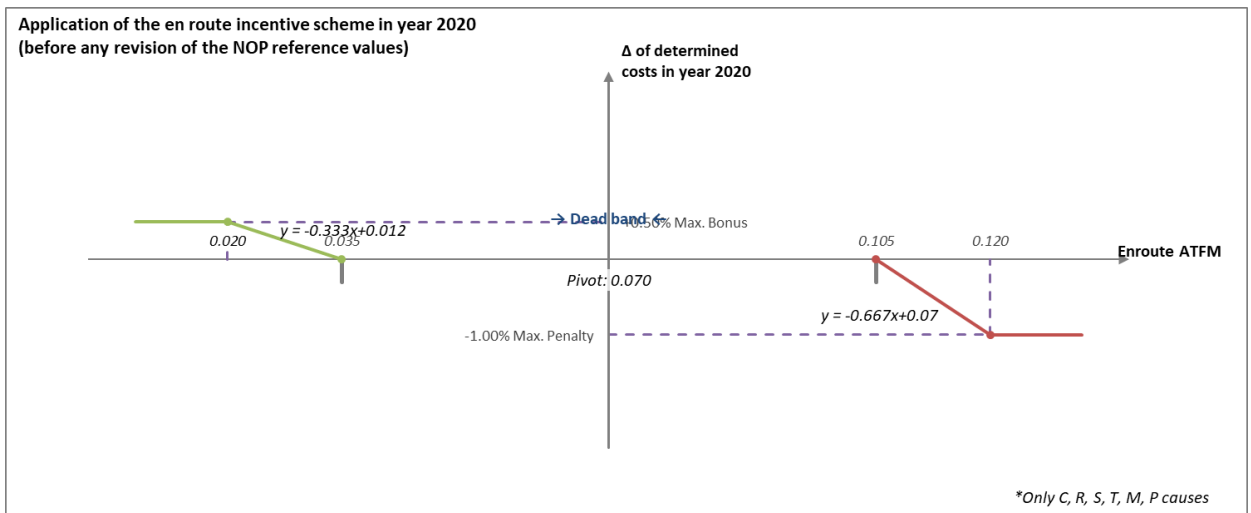
Source: IAA SRD

**Figure 10.3 Calculation of bonus and penalty thresholds En Route**

	2020	2021	2022	2023	2024
NOP reference values (mins of ATFM delay per flight)	0.07	0.07	0.07	0.04	0.03
Alert threshold ( $\Delta$ Ref. value in fraction of min)	0.05	0.05	0.05	0.05	0.05
Performance Plan targets (mins of ATFM delay per flight)	0.07	0.07	0.07	0.04	0.03
Pivot values for RP3 (mins of ATFM delay per flight)*	0.07	0.07	0.07	0.04	0.03
Dead band range	[0.035-0.105]	[0.035-0.105]	[0.035-0.105]	[0.02-0.06]	[0.015-0.045]
Bonus range	[0.02-0.035]	[0.02-0.035]	[0.02-0.035]	[0-0.02]	[0-0.015]
Penalty range	[0.105-0.12]	[0.105-0.12]	[0.105-0.12]	[0.06-0.09]	[0.045-0.08]

\* These figures are only indicative as they will be updated annually on the basis of the November n-1 NOP

Source: IAA SRD

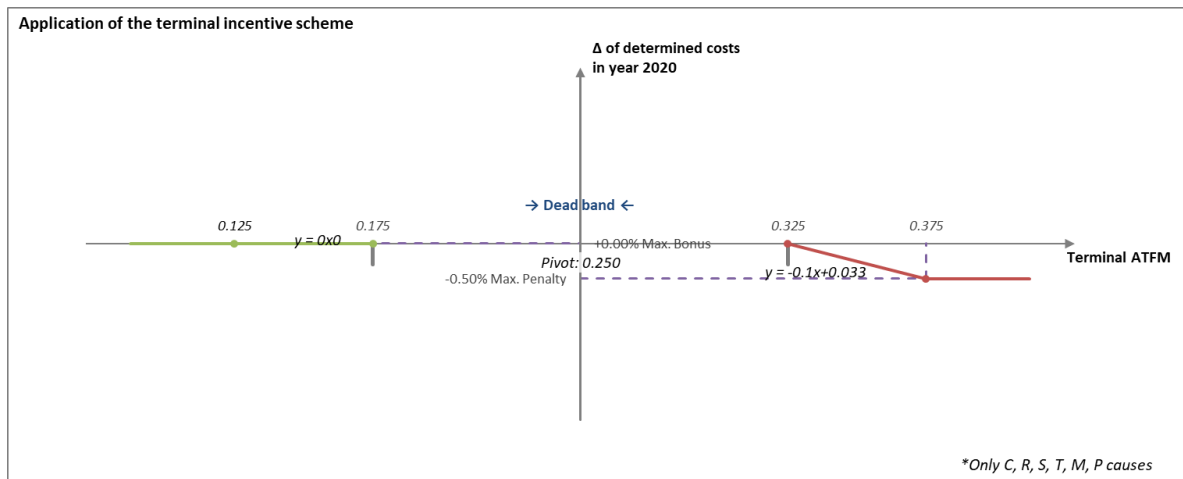


**Figure 10.4 Calculation of bonus and penalty thresholds Terminal Services**

	2020	2021	2022	2023	2024
Performance Plan targets (mins of ATFM delay per flight)	0.25	0.25	0.2	0.2	0.2
Bonus/penalty range Δ (in fraction of min)	0.125	0.125	0.1	0.1	0.1
Pivot values for RP3 (mins of ATFM delay per flight)*	0.25	0.25	0.2	0.2	0.2
Not attributable to ANS (airport contribution)*	0.20	0.20	0.15	0.15	0.15
Dead band range	[0.175-0.325]	[0.175-0.325]	[0.14-0.26]	[0.14-0.26]	[0.14-0.26]
Bonus range	[0.125-0.175]	[0.125-0.175]	[0.1-0.14]	[0.1-0.14]	[0.1-0.14]
Penalty range	[0.325-0.375]	[0.325-0.375]	[0.26-0.3]	[0.26-0.3]	[0.26-0.3]

\* These figures are only indicative as they will be updated based on ANS attributable delays only

Source: IAA SRD



10.16 Stakeholders are requested to submit any comments they may have on the design and planned application of the RP3 Capacity Incentive schemes (ER and TANS) within their feedback on the RP3 Irish Performance Plan.

Appendix A

## En Route and TANS RP3 Cost Tables

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## A1 RP3 Ireland En Route Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland													
Currency: Euro													
All Entities													
	Actual costs 2012-2019								Determined costs - Performance Plan - RP3				
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>													
1.1 Staff	60,861	59,334	58,694	60,004	60,772	63,213	64,821	67,421	72,357	76,557	80,237	83,579	87,408
of which, pension costs	0	0	0	0	0	0	0	0	11,010	11,515	11,958	12,414	12,850
1.2 Other operating costs	32,598	30,954	29,137	31,445	33,090	35,848	37,549	42,072	52,096	54,441	55,593	56,422	58,234
1.3 Depreciation	9,995	9,636	9,262	8,693	8,713	9,106	9,917	9,280	11,592	12,579	13,548	14,895	15,585
1.4 Cost of capital	6,523	6,067	5,595	6,643	6,096	5,744	5,607	5,497	4,596	4,883	5,017	4,972	5,130
1.5 Exceptional items	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>1.6 Total costs</b>	<b>109,977</b>	<b>105,991</b>	<b>102,688</b>	<b>106,785</b>	<b>108,671</b>	<b>113,911</b>	<b>117,894</b>	<b>124,270</b>	<b>140,641</b>	<b>148,460</b>	<b>154,395</b>	<b>159,868</b>	<b>166,357</b>
Total													
% n/n-1		-3.6%	-3.1%	4.0%	1.8%	4.8%	3.5%	5.4%	13.2%	5.6%	4.0%	3.5%	4.1%
<b>2. Detail by service (in nominal terms)</b>													
2.1 Air Traffic Management	80,754	77,316	75,413	79,991	80,101	84,000	87,290	92,165	104,381	111,288	116,385	120,508	125,679
2.2 Communication	2,632	2,735	2,668	2,607	2,685	2,816	2,926	3,089	3,499	3,730	3,901	4,039	4,213
2.3 Navigation	2,781	2,650	2,585	2,185	2,251	2,361	2,453	2,590	2,933	3,127	3,271	3,386	3,532
2.4 Surveillance	4,322	4,094	3,993	3,529	3,636	3,813	3,962	4,183	4,738	5,051	5,283	5,470	5,704
2.5 Search and rescue	0	0	0	0	0	0	0	491	399	406	414	421	529
2.6 Aeronautical information	1,500	1,442	1,004	1,311	1,379	1,428	1,500	1,584	1,794	1,912	2,000	2,071	2,160
2.7 Meteorological services	6,541	6,541	6,478	6,492	7,598	7,796	7,181	7,398	6,420	6,296	6,304	6,810	6,911
2.8 Supervision costs	1,636	1,454	1,395	1,550	1,726	1,612	1,678	4,356	5,538	5,650	5,768	5,919	6,177
2.9 Other State costs	9,811	9,759	9,151	9,120	9,295	10,085	10,904	8,413	10,939	10,999	11,070	11,243	11,452
<b>2.10 Total costs</b>	<b>109,977</b>	<b>105,991</b>	<b>102,688</b>	<b>106,785</b>	<b>108,671</b>	<b>113,911</b>	<b>117,894</b>	<b>124,270</b>	<b>140,641</b>	<b>148,460</b>	<b>154,395</b>	<b>159,868</b>	<b>166,357</b>
Total													
% n/n-1		-3.6%	-3.1%	4.0%	1.8%	4.8%	3.5%	5.4%	13.2%	5.6%	4.0%	3.5%	4.1%



## Appendix: En Route and TANS RP3 Cost Tables

### 3. Complementary information (in nominal terms)

#### Average asset base

3.1 Net book val. fixed assets	82,569	73,096	65,800	62,140	56,389	52,029	49,271	48,219	69,311	71,693	71,764	70,216	72,447
3.2 Adjustments total assets	0	0	0	0	0	0	0	0	0	0	0	0	0
3.3 Net current assets	0	0	0	0	0	0	0	0	0	0	0	0	0
3.4 Total asset base	82,569	73,096	65,800	62,140	56,389	52,029	49,271	48,219	69,311	71,693	71,764	70,216	72,447

#### Cost of capital %

3.5 Cost of capital pre tax rate													
3.6 Return on equity													
3.7 Average interest on debts													
3.8 Share of financing through equity													

#### Costs of common projects

3.9 Common projects	0	0	0	0	0	0	0	0	0	0	0	0	0
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#### Costs of new and existing investments

3.10 Depreciation	0	0	0	0	0	0	0	0	11,592	12,579	13,548	14,895	15,585
3.11 Cost of capital	0	0	0	0	0	0	0	0	4,596	4,883	5,017	4,972	5,130
3.12 Cost of leasing	0	0	0	0	0	0	0	0	0	0	0	0	0

#### Eurocontrol costs

3.13 Eurocontrol costs (Euro)													
3.14 Exchange rate (if applicable)													
3.15 Eurocontrol costs (national currency)	7,595	7,510	6,917	6,583	6,569	6,425	6,875	7,900	7,857	7,915	7,983	8,128	8,335

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights	127	127	127	127	127	127	127	127	127	127	127	127	127
4.2 Total determined/actual costs	109,850	105,864	102,561	106,658	108,544	113,784	117,767	124,143	140,514	148,333	154,268	159,741	166,230

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	1.90%	0.50%	0.30%	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.1	99.6	99.9	99.9	99.7	100.0	100.70	101.91	103.44	105.20	107.19	109.34	111.52
5.3 Total costs real terms (2)	110,588	106,180	102,637	106,738	108,792	113,784	117,143	122,343	136,944	142,712	146,318	149,297	153,069
Total % n/n-1		-4.0%	-3.3%	4.0%	1.9%	4.6%	3.0%	4.4%	11.9%	4.2%	2.5%	2.0%	2.5%
5.4 Total Service Units	3,806.0	3,812.9	3,922.5	4,182.5	4,467.6	4,465.3	4,549.9	4,636.0	4,689.0	4,790.3	4,889.5	4,971.9	5,054.3
Total % n/n-1		0.2%	2.9%	6.6%	6.8%	-0.1%	1.9%	1.9%	1.1%	2.2%	2.1%	1.7%	1.7%
5.5 Unit cost in real terms prices (3)	29.06	27.85	26.17	25.52	24.35	25.48	25.75	26.39	29.21	29.79	29.92	30.03	30.28
Total % n/n-1		-4.2%	-6.0%	-2.5%	-4.6%	4.6%	1.0%	2.5%	10.7%	2.0%	0.4%	0.3%	0.9%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan.

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland													
Currency: Euro													
IAA													
	Actual costs 2012-2019								Determined costs - Performance Plan - RP3				
Cost details	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>													
1.1 Staff	55,107	53,662	52,933	54,210	54,866	56,855	59,199	61,552	66,809	70,916	74,527	77,994	81,743
of which, pension costs									10,699	11,193	11,627	12,074	12,501
1.2 Other operating costs	20,364	18,872	17,874	20,077	20,377	22,713	23,499	27,806	34,823	37,206	38,272	38,751	39,967
1.3 Depreciation	9,995	9,636	9,262	8,693	8,713	9,106	9,826	8,757	11,117	12,104	13,023	13,758	14,448
1.4 Cost of capital	6,523	6,067	5,595	6,643	6,096	5,744	5,607	5,497	4,596	4,883	5,017	4,972	5,130
1.5 Exceptional items													
1.6 Total costs	91,989	88,237	85,663	89,623	90,052	94,418	98,131	103,612.00	117,345	125,109	130,839	135,475	141,288
Total      % n/n-1		-4.1%	-2.9%	4.6%	0.5%	4.8%	3.9%	5.6%	13.3%	6.6%	4.6%	3.5%	4.3%
<b>2. Detail by service (in nominal terms)</b>													
2.1 Air Traffic Management	80,754	77,316	75,413	79,991	80,101	84,000	87,290	92,165	104,381	111,288	116,385	120,508	125,679
2.2 Communication	2,632	2,735	2,668	2,607	2,685	2,816	2,926	3,089	3,499	3,730	3,901	4,039	4,213
2.3 Navigation	2,781	2,650	2,585	2,185	2,251	2,361	2,453	2,590	2,933	3,127	3,271	3,386	3,532
2.4 Surveillance	4,322	4,094	3,993	3,529	3,636	3,813	3,962	4,183	4,738	5,051	5,283	5,470	5,704
2.5 Search and rescue													
2.6 Aeronautical Information	1,500	1,442	1,004	1,311	1,379	1,428	1,500	1,584	1,794	1,912	2,000	2,071	2,160
2.7 Meteorological services													
2.8 Supervision costs													
2.9 Other State costs													
2.10 Total costs	91,989	88,237	85,663	89,623	90,052	94,418	98,131	103,612.00	117,345	125,109	130,839	135,475	141,288
Total      % n/n-1		-4.1%	-2.9%	4.6%	0.5%	4.8%	3.9%	5.6%	13.3%	6.6%	4.6%	3.5%	4.3%

## Appendix: En Route and TANS RP3 Cost Tables

### 3. Complementary information (in nominal terms)

#### Average asset base

3.1 Net book val. fixed assets	82,569	73,096	65,800	62,140	56,389	52,029	49,271	48,219	69,311	71,693	71,764	70,216	72,447
3.2 Adjustments total assets													
3.3 Net current assets													
3.4 Total asset base	82,569	73,096	65,800	62,140	56,389	52,029	49,271	48,219	69,311	71,693	71,764	70,216	72,447

#### Cost of capital %

3.5 Cost of capital pre tax rate	7.90%	8.30%	8.50%	10.69%	10.81%	11.04%	11.38%	11.40%	6.63%	6.81%	6.99%	7.08%	7.08%
3.6 Return on equity	9.79%	10.25%	10.48%	10.69%	10.81%	11.04%	11.38%	11.40%	7.09%	7.29%	7.49%	7.59%	7.59%
3.7 Average interest on debts	4.60%	5.00%	5.20%						2.50%	2.50%	2.50%	2.50%	2.50%
3.8 Share of financing through equity	63.58%	62.86%	62.55%	100.00%	100.00%	100.00%	100.00%	100.00%	90.00%	90.00%	90.00%	90.00%	90.00%

#### Costs of common projects

3.9 Common projects				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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#### Costs of new and existing investments

3.10 Depreciation									11,117.0	12,104.0	13,023.0	13,758.0	14,448.0
3.11 Cost of capital									4,596.0	4,883.0	5,017.0	4,972.0	5,130.0
3.12 Cost of leasing									0.0	0.0	0.0	0.0	0.0

#### Eurocontrol costs

3.13 Eurocontrol costs (Euro)													
3.14 Exchange rate (if applicable)													
3.15 Eurocontrol costs (national currency)													

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights	127	127	127	127	127	127	127	127	127	127	127	127	127
4.2 Total determined/actual costs	91,862	88,110	85,536	89,496	89,925	94,291	98,004	103,485	117,218	124,982	130,712	135,348	141,161

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	1.90%	0.50%	0.30%	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.1	99.6	99.9	99.9	99.7	100.0	100.7	101.9	103.4	105.2	107.2	109.3	111.5
5.3 Total costs real terms (2)	92,541	88,399	85,607	89,569	90,150	94,291	97,430	101,814	113,845	119,648	123,150	125,388	128,597
Total % n/n-1		-4.5%	-3.2%	4.6%	0.6%	4.6%	3.3%	4.5%	11.8%	5.1%	2.9%	1.8%	2.6%
5.4 Total Service Units	3,806.0	3,812.9	3,922.5	4,182.5	4,467.6	4,465.3	4,549.9	4,636.0	4,689.0	4,790.3	4,889.5	4,971.9	5,054.3
Total % n/n-1		0.2%	2.9%	6.6%	6.8%	-0.1%	1.9%	1.9%	1.1%	2.2%	2.1%	1.7%	1.7%
5.5 Unit cost in real terms prices (3)	24.31	23.18	21.82	21.42	20.18	21.12	21.41	21.96	24.28	24.98	25.19	25.22	25.44
Total % n/n-1		-4.7%	-5.9%	-1.9%	-5.8%	4.6%	1.4%	2.6%	10.6%	2.9%	0.8%	0.1%	0.9%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan.

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland Currency: Euro MET													
Cost details	Actual costs 2012-2019								Determined costs - Performance Plan - RP3				
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>													
1.1 Staff	4,421	4,317	4,379	4,338	4,499	4,638	3,999	3,993	2,871	2,871	2,871	2,668	2,668
of which, pension costs									0	0	0	0	0
1.2 Other operating costs	2,120	2,224	2,099	2,154	3,099	3,158	3,182	2,882	3,074	2,950	2,908	3,005	3,106
1.3 Depreciation								523	475	475	525	1,137	1,137
1.4 Cost of capital													
1.5 Exceptional items													
1.6 Total costs	6,541	6,541	6,478	6,492	7,598	7,796	7,181	7,398	6,420	6,296	6,304	6,810	6,911
Total    % n/n-1		0.0%	-1.0%	0.2%	17.0%	2.6%	-7.9%	3.0%	-13.2%	-1.9%	0.1%	8.0%	1.5%
<b>2. Detail by service (in nominal terms)</b>													
2.1 Air Traffic Management													
2.2 Communication													
2.3 Navigation													
2.4 Surveillance													
2.5 Search and rescue													
2.6 Aeronautical Information													
2.7 Meteorological services	6,541	6,541	6,478	6,492	7,598	7,796	7,181	7,398	6,420	6,296	6,304	6,810	6,911
2.8 Supervision costs													
2.9 Other State costs													
2.10 Total costs	6,541	6,541	6,478	6,492	7,598	7,796	7,181	7,398	6,420	6,296	6,304	6,810	6,911
Total    % n/n-1		0.0%	-1.0%	0.2%	17.0%	2.6%	-7.9%	3.0%	-13.2%	-1.9%	0.1%	8.0%	1.5%

## Appendix: En Route and TANS RP3 Cost Tables

### 3. Complementary information (in nominal terms)

#### Average asset base

3.1 Net book val. fixed assets													
3.2 Adjustments total assets													
3.3 Net current assets													
3.4 Total asset base													

#### Cost of capital %

3.5 Cost of capital pre tax rate													
3.6 Return on equity													
3.7 Average interest on debts													
3.8 Share of financing through equity													

#### Costs of common projects

3.9 Common projects													
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#### Costs of new and existing investments

3.10 Depreciation									475.0	475.0	525.0	1,137.0	1,137.0
3.11 Cost of capital									0.0	0.0	0.0	0.0	0.0
3.12 Cost of leasing									0.0	0.0	0.0	0.0	0.0

#### Eurocontrol costs

3.13 Eurocontrol costs (Euro)													
3.14 Exchange rate (if applicable)													
3.15 Eurocontrol costs (national currency)													

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights													
4.2 Total determined/actual costs	6,541	6,541	6,478	6,492	7,598	7,796	7,181	7,398	6,420	6,296	6,304	6,810	6,911

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	1.90%	0.50%	0.30%	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.1	99.6	99.9	99.9	99.7	100.0	100.7	101.9	103.4	105.2	107.2	109.3	111.5
5.3 Total costs real terms (2)	6,600	6,567	6,485	6,498	7,621	7,796	7,131	7,269	6,222	6,009	5,916	6,325	6,314
Total % n/n-1		-0.5%	-1.3%	0.2%	17.3%	2.3%	-8.5%	1.9%	-14.4%	-3.4%	-1.5%	6.9%	-0.2%
5.4 Total Service Units	3,806.0	3,812.9	3,922.5	4,182.5	4,467.6	4,465.3	4,549.9	4,636.0	4,689.0	4,790.3	4,889.5	4,971.9	5,054.3
Total % n/n-1		0.2%	2.9%	6.6%	6.8%	-0.1%	1.9%	1.9%	1.1%	2.2%	2.1%	1.7%	1.7%
5.5 Unit cost in real terms prices (3)	1.73	1.72	1.65	1.55	1.71	1.75	1.57	1.57	1.33	1.25	1.21	1.27	1.25
Total % n/n-1		-0.7%	-4.0%	-6.0%	9.8%	2.4%	-10.2%	0.0%	-15.4%	-5.5%	-3.5%	5.1%	-1.8%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan.

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland Currency: Euro NSA													
Cost details	Actual costs 2012-2019								Determined costs - Performance Plan - RP3				
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>													
1.1 Staff	1,333	1,355	1,382	1,456	1,407	1,720	1,623	1,876	2,677	2,770	2,839	2,917	2,997
of which, pension costs									311	322	331	340	349
1.2 Other operating costs	10,114	9,858	9,164	9,214	9,614	9,977	10,868	11,384	14,199	14,285	14,413	14,666	15,161
1.3 Depreciation							91	0	0	0	0	0	0
1.4 Cost of capital													
1.5 Exceptional items													
1.6 Total costs	11,447	11,213	10,546	10,670	11,021	11,697	12,582	13,260	16,876	17,055	17,252	17,583	18,158
Total      % n/n-1		-2.0%	-5.9%	1.2%	3.3%	6.1%	7.6%	5.4%	27.3%	1.1%	1.2%	1.9%	3.3%
<b>2. Detail by service (in nominal terms)</b>													
2.1 Air Traffic Management													
2.2 Communication													
2.3 Navigation													
2.4 Surveillance													
2.5 Search and rescue								491	399	406	414	421	529
2.6 Aeronautical Information													
2.7 Meteorological services													
2.8 Supervision costs	1,636	1,454	1,395	1,550	1,726	1,612	1,678	4,356	5,538	5,650	5,768	5,919	6,177
2.9 Other State costs	9,811	9,759	9,151	9,120	9,295	10,085	10,904	8,413	10,939	10,999	11,070	11,243	11,452
2.10 Total costs	11,447	11,213	10,546	10,670	11,021	11,697	12,582	13,260	16,876	17,055	17,252	17,583	18,158
Total      % n/n-1		-2.0%	-5.9%	1.2%	3.3%	6.1%	7.6%	5.4%	27.3%	1.1%	1.2%	1.9%	3.3%

## Appendix: En Route and TANS RP3 Cost Tables

### 3. Complementary information (in nominal terms)

#### Average asset base

3.1 Net book val. fixed assets														
3.2 Adjustments total assets														
3.3 Net current assets														
3.4 Total asset base														

#### Cost of capital %

3.5 Cost of capital pre tax rate														
3.6 Return on equity														
3.7 Average interest on debts														
3.8 Share of financing through equity														

#### Costs of common projects

3.9 Common projects														
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#### Costs of new and existing investments

3.10 Depreciation														
3.11 Cost of capital														
3.12 Cost of leasing														

#### Eurocontrol costs

3.13 Eurocontrol costs (Euro)	7,594.6	7,510.5	6,916.6	6,583.0	6,568.8	6,425.0	6,875.0	7,900.0	7,857.3	7,915.1	7,983.4	8,127.6	8,334.7
3.14 Exchange rate (if applicable)													
3.15 Eurocontrol costs (national currency)	7,594.6	7,510.5	6,916.6	6,583.0	6,568.8	6,425.0	6,875.0	7,900.0	7,857.3	7,915.1	7,983.4	8,127.6	8,334.7

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights														
4.2 Total determined/actual costs	11,447	11,213	10,546	10,670	11,021	11,697	12,582	13,260	16,876	17,055	17,252	17,583	18,158	

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %														
5.2 Inflation index (1)														
5.3 Total costs real terms (2)	11,447	11,213	10,546	10,670	11,021	11,697	12,582	13,260	16,876	17,055	17,252	17,583	18,158	
Total % n/n-1		-2.0%	-5.9%	1.2%	3.3%	6.1%	7.6%	5.4%	27.3%	1.1%	1.2%	1.9%	3.3%	
5.4 Total Service Units	3,806.0	3,812.9	3,922.5	4,182.5	4,467.6	4,465.3	4,549.9	4,636.0	4,689.0	4,790.3	4,889.5	4,971.9	5,054.3	
Total % n/n-1		0.2%	2.9%	6.6%	6.8%	-0.1%	1.9%	1.9%	1.1%	2.2%	2.1%	1.7%	1.7%	
5.5 Unit cost in real terms prices (3)	3.01	2.94	2.69	2.55	2.47	2.62	2.77	2.86	3.60	3.56	3.53	3.54	3.59	
Total % n/n-1		-2.2%	-8.6%	-5.1%	-3.3%	6.2%	5.6%	3.4%	25.8%	-1.1%	-0.9%	0.2%	1.6%	

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan.

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## **A2: RP3 Ireland En Route Additional Information**

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### **ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS**

#### **Introduction**

These reporting tables are issued in draft and are subject to ongoing review by the NSA and consultation with key stakeholders.

During RP2, the Irish Government signalled its intention to separate the safety regulatory functions of the IAA from the air traffic control functions. Progress is ongoing, and these tables assume two new legal entities with effect from 1 January 2020. If the project is delayed beyond 1 January 2020 there may be additional costs which are not included in this draft submission, but which may be quantifiable in later submissions.

Capacity at Dublin airport is planned to increase significantly in RP3 with the construction of a new parallel runway. The new runway should be operational in 2021. These tables reflect the higher costs associated with such a major infrastructure project, in particular higher operational ATCO and engineering staffing numbers.

Another significant change to the ANSP's cost base is the introduction in RP3 of the IAA's new en route contingency centre. Built at a very cost-effective price, this facility will be fully operational for all of RP3.

In calculating a determined unit rate, these tables assume the use of base case STATFOR. The extent to which BREXIT will have an impact on Ireland's air traffic activity remains uncertain and will continue to be monitored for any adverse effects. In addition, the move to reflect actual routes flown or M3 data has been assessed as having an adverse impact on Ireland's service units of 0.74% per annum.

In order to manage the unexpected and significant increase in traffic in RP2, and to do so without incurring ATM-related delays, the IAA diverted its resources away from its capital expenditure activities and into front-line operational activities. This resulted in a lower than anticipated capital spend throughout RP2. The IAA proposes to return all unspent capex-related costs in RP3 through a reduction in the unit rate.



## 1. Determined costs and unit costs

*a) Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;*

Costs of facilities and services are allocated to the activity they support. The IAA accounting system allocates costs by nature to en route, terminal and other activities by registering each resource/cost to its appropriate cost centre. Therefore, costs incurred in providing en route services are 100% allocated to the en route cost centre.

For facilities and services that serve en route, terminal and other activities, the costs are allocated based on a number of allocation keys which vary with the nature of the cost e.g. staff numbers, square footage. These allocation keys are kept under regular review by the IAA.

*b) Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);*

The cost of VFR flights is captured in an annual amount of €126,974, as agreed in previous years.

*c) Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);*

ANSP

Determined costs are allocated in a transparent manner to en route and terminal activities as they are incurred in the provision of those activities. Approach services are allocated 100% to en route where those services are provided beyond 20km of the respective aerodrome. For capital expenditure, where the facilities provided are not 100% for en route or terminal activities but are mainly for en route activities, then an allocation of 75% of the costs is applied to route services. Where the facilities apply equally to en route and terminal services an allocation of 50% applies to each and where the facilities provided are fully for terminal services then there is no cost allocation to route services.

## MET

Costs for meteorological services are allocated 80% to en route and 20% to terminal. This allocation has been in place since 2001.

## NSA

For the NSA, costs are shared between en route and terminal activities. State subscription costs are allocated 100% to en route activities, consistent with previous years.

*d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;*

Met services are provided by the State-owned Met Éireann. Met Éireann has been certified and designated by the NSA to provide meteorological services.

The MET office estimates that the portion of total Met Éireann costs attributable to aviation approximates to 26%, of which 80% is then allocated to en route activities and 20% to terminal activities. This allocation is in line with recommendations of the Commission for Aviation Regulation.

Met Éireann's charge for the provision of meteorological services to international civil aviation is determined according to the methodology described in Appendix 4 of the Report of the Working Group on Met Éireann Aviation-Related Costs (2002).

The direct costs of providing meteorological services to civil aviation comprise the costs incurred in the immediate provision and delivery of these services. Met Éireann's Internal Accounts System (IAS) recognises 10 categories of such costs: METAR reports, reports for ATS, flight folders, briefing and consultation, TAFs, SIGMET, TREND, aerodrome warnings and enquiries, SigWx charts and tabular winds and general expenses.

All direct services to end users, including services to aviation, depend on the use of core products and services. Core costs include the costs of surface synoptic observations, upper-air observations, radar, satellite, numerical weather prediction (NWP), climatology and computing and telecoms.

e) *Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;*

As described in Appendix 4 of the Report of the Working Group on Met Éireann Aviation-Related Costs (2002), costs incurred in the direct provision of aviation services are fully recovered in the charge for MET services.

A proportion of core costs is also allocated to aviation charges. The proportion depends on the use made of core products for aviation purposes as compared with their use for other purposes.

The methodology in the Report of the Working Group provides for the following allocations of core costs:

- Surface synoptic observations, upper-air observations, radar, satellite and NWP - the proportion charged to aviation equals the direct cost of aviation forecasting divided by the direct cost of all forecasting activity.
- Climatology - the proportion of the cost of the climatological archive charged to aviation is 5%.
- Computing and telecoms - the proportion of the cost of computing and telecoms services charged to aviation equals the cost of direct services to aviation divided by the cost of all direct services.
- A *credit* for meteorological reports by aircraft (AIREPs) is also incorporated into the charge for core costs. This credit amounts to 12.5% of the cost of the upper-air observations.

f) *For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;*

### **Determined costs by nature and by service**

Entity: ANSP - IAA / MET/ NSA	
<b>1. Detail by nature (in nominal terms)</b>	
1.1 Staff costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
of which, pension costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base

1.2 Other operating costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.3 Depreciation	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.4 Cost of capital	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.5 Exceptional items	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
<b>2. Detail by service (in nominal terms)</b>	
2.1 Air Traffic Management	
2.2 Communication	
2.3 Navigation	
2.4 Surveillance	
2.5 Search and rescue	
2.6 Aeronautical Information	
2.7 Meteorological services	
2.8 Supervision costs	
2.9 Other State costs	
<b>Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008</b>	

### **Pension costs**

*Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)*

<b>Entity: ANSP /MET/ NSA</b>
<b>Assumptions underlying the determined pension costs and expected evolution over Reference Period 3</b>
<...>

*g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;*

## ANSP

Tangible fixed assets are stated at cost, less accumulated depreciation. Depreciation is calculated to write off the cost of each fixed asset, including equipment purchased as part of an installation, on a straight-line basis over its expected useful life, at the following annual rates:

Buildings	5%
Completed installations and other works	8 <sup>1</sup> / <sub>3</sub> %-12 <sup>1</sup> / <sub>2</sub> %
Office equipment and non-operational administrative software	20% - 33 <sup>1</sup> / <sub>3</sub> %

Assets are depreciated from the date they are commissioned for use. Assets under construction/installations in progress are carried at historical cost and are not depreciated until they are brought into use.

*h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;*

ANSP/ MET/ NSA	
Costs of new and existing investments (see also performance plan item 2)	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	An explanation will be included in the Performance Plan following consultation and final agreement
3.12 Cost of leasing	N/A

Eurocontrol costs	
3.13 Eurocontrol costs (Euro)	Costs provided by EUROCONTROL
3.14 Exchange rate (if applicable)	N/A

*i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;*

ANSP	
Average asset base	
3.1 NBV fixed assets	An explanation will be included in the Performance Plan following consultation and final agreement

3.2 Adjustments total assets	
3.3 Net current assets	
<b>Cost of capital %</b>	
3.6 Return on equity	
3.7 Average interest on debts	
3.8 Share of financing through equity	

*j) Description of the determined costs of common projects (point 3.9 of Table 1).*

<b>&lt;Entity&gt;</b>					
<b>Determined costs of common projects (in nominal terms in '000 national currency)</b>					
<b>CP reference</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
<b>Total (Table 1 item 3.9)</b>					

This information will be set out in the Performance Plan.

## 2. Actual costs and unit costs

*a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;*

Not applicable for this submission

*b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;*

Not applicable for this submission

*c) Breakdown of the actual costs of common projects per individual project;*

Not applicable for this submission

*d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;*

Not applicable for this submission

*e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).*

Not applicable for this submission

## **ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION**

*a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;*

As in previous years, Ireland continues to specify one en route charging zone. The charging zone comprises, in addition to the Shannon FIR, those blocks of airspace known as the Northern Oceanic Transition Area (NOTA) and the Shannon Oceanic Transition Area (SOTA).

*b) Description of the policy on exemptions and description of the financing means to cover the related costs;*

Ireland is in conformity with Article 31 in applying the following en route exemptions:

- Flights performed by aircraft with a maximum authorised take-off weight which is less than two metric tonnes;
- Mixed VFR/IFR flights in the charging zones where they are performed exclusively under VFR and where an en route charge is not levied for VFR flights;

- Flights performed exclusively for the purpose of transport, on official mission, of reigning Monarchs and their immediate family, heads of state, heads of government and government ministers;
- Search and rescue flights authorised by the appropriate competent body;
- Military flights performed by military aircraft of any country;
- Training flights performed solely within Irish-controlled airspace and exclusively for the purpose of obtaining a licence or a rating in the case of cockpit flight crew;
- Circular flights;
- VFR flights.

Funding is provided by the State.

*c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;*

Adjustments resulting from traffic risk sharing are set out in the reporting tables.

*d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;*

Not applicable for this submission

*e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);*

Not applicable for this submission

*f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);*

Included in other revenues is reimbursement of EC funding received by the IAA. Funding for operating/current expenditure is reimbursed in N+2 and funding for capital expenditure is reimbursed in line with depreciation of the related asset.

There is no reimbursement due in respect of the 2020 unit rate.



*g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;*

**Financial incentive schemes**

Financial incentive schemes for RP3 are still subject to consideration by the NSA and consultation with the stakeholders and will be included in the Performance Plan.

**Modulation of charges**

It is not proposed to introduce modulation of charges in RP3.

*h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);*

Not applicable for this submission

*i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;*

There is no cross-financing between en route and terminal charging zones.

*j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;*

Not applicable

*k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;*

Adjustments relating to previous reference periods are set out in the reporting tables. In addition, the IAA proposes to return unspent RP2 capital-related costs in RP3.

**ADDITIONAL INFORMATION TO REPORTING TABLE 3 –  
COMPLEMENTARY INFORMATION ON COMMON PROJECTS  
AND ON UNION ASSISTANCE PROGRAMME**

*l) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.*

N/A

## A3 RP3 Ireland TANS Cost Tables

Scope of the Terminal Charging Zone

Charging zone: Ireland - TCZ

Actual costs 2015-2019					Determined costs - Performance Plan - RP3					
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	

ICAO Airport code	Airport Name	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
EIDW	Dublin International	1	1	1	1	1	1	1	1	1	1
EICK	Cork	1	1	1	1	1	1	1	1	1	1
EINN	Shannon	1	1	1	1	1	1	1	1	1	1

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

	Actual costs 2015-2019					Determined costs - Performance Plan - RP3				
Cost details	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>										
1.1 Staff	10,385	10,697	11,130	11,362	11,953	12,860	13,600	14,263	14,839	15,389
of which, pension costs						1,907	1,995	2,069	2,147	2,197
1.2 Other operating costs	5,207	5,910	6,340	6,684	6,989	10,064	9,929	9,507	9,823	9,983
1.3 Depreciation	3,820	3,850	3,896	3,889	3,585	6,095	8,142	9,464	9,953	10,465
1.4 Cost of capital	2,921	2,751	2,514	2,310	2,314	3,810	5,515	6,156	5,920	5,690
1.5 Exceptional items	0	0	0	0	0	0	0	0	0	0
1.6 Total costs	22,333	23,208	23,880	24,245	24,841	32,829	37,186	39,390	40,535	41,527
Total % n/n-1		3.9%	2.9%	1.5%	2.5%	32.2%	13.3%	5.9%	2.9%	2.4%
<b>2. Detail by service (in nominal terms)</b>										
2.1 Air Traffic Management	18,203	18,670	19,161	19,524	20,008	27,212	31,157	33,126	34,019	34,846
2.2 Communication	573	625	641	653	669	910	1,042	1,108	1,138	1,165
2.3 Navigation	480	519	533	543	556	757	867	921	946	969
2.4 Surveillance	776	849	870	887	909	1,236	1,415	1,505	1,546	1,583
2.5 Search and rescue	0	0	0	0	0	0	0	0	0	0
2.6 Aeronautical Information	0	0	0	0	0	0	0	0	0	0
2.7 Meteorological services	1,623	1,899	1,949	1,795	1,850	1,606	1,575	1,576	1,702	1,727
2.8 Supervision costs	310	345	322	335	848	1,108	1,130	1,154	1,184	1,236
2.9 Other State costs	368	301	404	508	0	0	0	0	0	0
2.10 Total costs	22,333	23,208	23,880	24,245	24,841	32,829	37,186	39,390	40,535	41,527
Total % n/n-1		3.9%	2.9%	1.5%	2.5%	32.2%	13.3%	5.9%	2.9%	2.4%
<b>3. Complementary information (in nominal terms)</b>										
Average asset base										
3.1 Net book val. fixed assets	27,295	25,470	22,772	20,263	20,298	64,952	90,574	97,754	92,459	88,745
3.2 Adjustments total assets	0	0	0	0	0	0	0	0	0	0
3.3 Net current assets	0	0	0	0	0	0	0	0	0	0
3.4 Total asset base	27,295	25,470	22,772	20,263	20,298	64,952	90,574	97,754	92,459	88,745
Cost of capital %										
3.5 Cost of capital pre tax rate										
3.6 Return on equity										
3.7 Average interest on debts										
3.8 Share of financing through equity										

## Appendix: En Route and TANS RP3 Cost Tables

### Costs of common projects

3.9 Common projects	0	0	0	0	0	0	0	0	0	0
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### Costs of new and existing investments

3.10 Depreciation						6,095	8,142	9,464	9,953	10,465
3.11 Cost of capital						3,810	5,515	6,156	5,920	5,690
3.12 Cost of leasing						0	0	0	0	0

### Eurocontrol costs

3.13 Eurocontrol costs (Euro)										
3.14 Exchange rate (if applicable)										
3.15 Eurocontrol costs (national currency)										

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights	0	0	0	0	0	0	0	0	0	0
4.2 Total determined/actual costs	22,333	23,208	23,880	24,245	24,841	32,829	37,186	39,390	40,535	41,527

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.9	99.7	100.0	100.7	101.9	103.4	105.2	107.2	109.3	111.5
5.3 Total costs real terms (2)	22,347	23,256	23,880	24,125.30	24,502	32,104	36,080	37,872	38,530	39,033
Total % n/n-1		4.1%	2.7%	1.0%	1.6%	31.0%	12.4%	5.0%	1.7%	1.3%
5.4 Total Service Units	149.9	163.3	171.7	182.7	187.7	189.6	195.6	198.8	202.9	206.7
Total % n/n-1		9.0%	5.1%	6.4%	2.7%	1.0%	3.2%	1.6%	2.1%	1.9%
5.5 Unit cost in real terms prices (3)	149.12	142.41	139.11	132.04	130.54	169.33	184.46	190.50	189.90	188.84
Total % n/n-1		-4.5%	-2.3%	-5.1%	-1.1%	29.7%	8.9%	3.3%	-0.3%	-0.6%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland - TCZ  
Currency: Euro  
IAA

Cost details	Actual costs 2015-2019					Determined costs - Performance Plan - RP3				
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>										
1.1 Staff	9,038	9,318	9,660	10,069	10,638	11,666	12,389	13,040	13,653	14,188
of which, pension costs						1,845	1,931	2,003	2,079	2,127
1.2 Other operating costs	4,253	4,744	5,135	5,355	5,737	8,663	8,554	8,131	8,407	8,505
1.3 Depreciation	3,820	3,850	3,896	3,873	3,454	5,976	8,023	9,333	9,669	10,181
1.4 Cost of capital	2,921	2,751	2,514	2,310	2,314	3,810	5,515	6,156	5,920	5,690
1.5 Exceptional items										
1.6 Total costs	20,032	20,663	21,205	21,607	22,143	30,115	34,481	36,660	37,649	38,564
Total % n/n-1		3.2%	2.6%	1.9%	2.5%	36.0%	14.5%	6.3%	2.7%	2.4%
<b>2. Detail by service (in nominal terms)</b>										
2.1 Air Traffic Management	18,203	18,670	19,161	19,524	20,008	27,212	31,157	33,126	34,019	34,846
2.2 Communication	573	625	641	653	669	910	1,042	1,108	1,138	1,165
2.3 Navigation	480	519	533	543	556	757	867	921	946	969
2.4 Surveillance	776	849	870	887	909	1,236	1,415	1,505	1,546	1,583
2.5 Search and rescue										
2.6 Aeronautical Information										
2.7 Meteorological services										
2.8 Supervision costs										
2.9 Other State costs										
2.10 Total costs	20,032	20,663	21,205	21,607	22,143	30,115	34,481	36,660	37,649	38,564
Total % n/n-1		3.2%	2.6%	1.9%	2.5%	36.0%	14.5%	6.3%	2.7%	2.4%
<b>3. Complementary information (in nominal terms)</b>										
Average asset base										
3.1 Net book val. fixed assets	27,295	25,470	22,772	20,263	20,298	64,952	90,574	97,754	92,459	88,745
3.2 Adjustments total assets										
3.3 Net current assets										
3.4 Total asset base	27,295	25,470	22,772	20,263	20,298	64,952	90,574	97,754	92,459	88,745
Cost of capital %										
3.5 Cost of capital pre tax rate	10.7%	10.8%	11.0%	11.4%	11.4%	5.87%	6.09%	6.30%	6.40%	6.41%
3.6 Return on equity	10.7%	10.8%	11.0%	11.4%	11.4%	7.09%	7.29%	7.49%	7.59%	7.59%
3.7 Average interest on debts	0.0%	0.0%	0.0%	0.0%	0.0%	2.50%	2.50%	2.50%	2.50%	2.50%
3.8 Share of financing through equity	100.0%	100.0%	100.0%	100.0%	100.0%	90.0%	90.0%	90.0%	90.0%	90.0%

## Appendix: En Route and TANS RP3 Cost Tables

### Costs of common projects

3.9 Common projects	0	0	0	0	0	0	0	0	0	0
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### Costs of new and existing investments

3.10 Depreciation						5,976	8,023	9,333	9,669	10,181
3.11 Cost of capital						3,810	5,515	6,156	5,920	5,690
3.12 Cost of leasing						0	0	0	0	0

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights	0	0	0	0	0	0	0	0	0	0
4.2 Total determined/actual costs	20,032	20,663	21,205	21,607	22,143	30,115	34,481	36,660	37,649	38,564

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.9	99.7	100.0	100.700	101.908	103.437	105.2	107.2	109.3	111.5
5.3 Total costs real terms (2)	20,045	20,705	21,205	21,500	21,836	29,440	33,447	35,239	35,765	36,219
Total % n/n-1		3.3%	2.4%	1.4%	1.6%	34.8%	13.6%	5.4%	1.5%	1.3%
5.4 Total Service Units	149.9	163.3	171.7	182.7	187.7	189.6	195.6	198.8	202.9	206.7
Total % n/n-1		9.0%	5.1%	6.4%	2.7%	1.0%	3.2%	1.6%	2.1%	1.9%
5.5 Unit cost in real terms prices (3)	133.75	126.79	123.53	117.67	116.34	155.27	171.00	177.26	176.27	175.22
Total % n/n-1		-5.2%	-2.6%	-4.7%	-1.1%	33.5%	10.1%	3.7%	-0.6%	-0.6%

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland - TCZ Currency: Euro MET	Actual costs 2015-2019					Determined costs - Performance Plan - RP3				
Cost details	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>										
1.1 Staff	1,084	1,125	1,159	1,000	998	718	718	718	667	667
of which, pension costs										
1.2 Other operating costs	539	774	790	795	721	769	738	727	751	776
1.3 Depreciation				0	131	119	119	131	284	284
1.4 Cost of capital										
1.5 Exceptional items										
1.6 Total costs	1,623	1,899	1,949	1,795	1,850	1,606	1,575	1,576	1,702	1,727
Total % n/n-1		17.0%	2.6%	-7.9%	3.1%	-13.2%	-1.9%	0.1%	8.0%	1.5%
<b>2. Detail by service (in nominal terms)</b>										
2.1 Air Traffic Management										
2.2 Communication										
2.3 Navigation										
2.4 Surveillance										
2.5 Search and rescue										
2.6 Aeronautical information										
2.7 Meteorological services	1,623	1,899	1,949	1,795	1,850	1,606	1,575	1,576	1,702	1,727
2.8 Supervision costs										
2.9 Other State costs										
2.10 Total costs	1,623	1,899	1,949	1,795	1,850	1,606	1,575	1,576	1,702	1,727
Total % n/n-1		17.0%	2.6%	-7.9%	3.1%	-13.2%	-1.9%	0.1%	8.0%	1.5%
<b>3. Complementary information (in nominal terms)</b>										
<b>Average asset base</b>										
3.1 Net book val. fixed assets										
3.2 Adjustments total assets										
3.3 Net current assets										
3.4 Total asset base	0	0	0	0	0	0	0	0	0	0
<b>Cost of capital %</b>										
3.5 Cost of capital pre tax rate										
3.6 Return on equity										
3.7 Average interest on debts										
3.8 Share of financing through equity										



## Appendix: En Route and TANS RP3 Cost Tables

### Costs of common projects

3.9 Common projects										
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### Costs of new and existing investments

3.10 Depreciation						119	119	131	284	284
3.11 Cost of capital						0	0	0	0	0
3.12 Cost of leasing						0	0	0	0	0

### Eurocontrol costs

3.13 Eurocontrol costs (Euro)										
3.14 Exchange rate (if applicable)										
3.15 Eurocontrol costs (national currency)										

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights										
4.2 Total determined/actual costs	1,623	1,899	1,949	1,795	1,850	1,606	1,575	1,576	1,702	1,727

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %	0.00%	-0.20%	0.30%	0.70%	1.20%	1.50%	1.70%	1.90%	2.00%	2.00%
5.2 Inflation index (1)	99.9	99.7	100.0	100.7	101.9	103.4	105.2	107.2	109.3	111.5
5.3 Total costs real terms (2)	1,625	1,905	1,949	1,783	1,818	1,557	1,503	1,479	1,581	1,578
Total % n/n-1		17.2%	2.3%	-8.5%	2.0%	-14.4%	-3.4%	-1.6%	6.9%	-0.2%
5.4 Total Service Units	149.9	163.3	171.7	182.7	187.7	189.6	195.6	198.8	202.9	206.7
Total % n/n-1		9.0%	5.1%	6.4%	2.7%	1.0%	3.2%	1.6%	2.1%	1.9%
5.5 Unit cost in real terms prices (3)	10.84	11.66	11.35	9.76	9.68	8.21	7.68	7.44	7.79	7.63
Total % n/n-1		7.6%	-2.7%	-14.1%	-0.7%	-15.2%	-6.4%	-3.2%	4.7%	-2.0%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## Appendix: En Route and TANS RP3 Cost Tables

Table 1 - Total Costs and Unit Costs

Ireland - TCZ Currency: Euro NSA
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Actual costs 2015-2019						Determined costs - Performance Plan - RP3				
Cost details	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>1. Detail by nature (in nominal terms)</b>										
1.1 Staff	263	254	311	293	317	476	493	505	519	534
of which, pension costs						62	64	66	68	70
1.2 Other operating costs	415	392	415	534	531	632	637	649	665	702
1.3 Depreciation				16	0	0	0	0	0	0
1.4 Cost of capital										
1.5 Exceptional items										
1.6 Total costs	678	646	726	843	848	1,108	1,130	1,154	1,184	1,236
Total % n/n-1		-4.7%	12.4%	16.1%	0.6%	30.7%	2.0%	2.1%	2.6%	4.4%
<b>2. Detail by service (in nominal terms)</b>										
2.1 Air Traffic Management										
2.2 Communication										
2.3 Navigation										
2.4 Surveillance										
2.5 Search and rescue										
2.6 Aeronautical Information										
2.7 Meteorological services										
2.8 Supervision costs	310	345	322	335	848	1,108	1,130	1,154	1,184	1,236
2.9 Other State costs	368	301	404	508						
2.10 Total costs	678	646	726	843	848	1,108	1,130	1,154	1,184	1,236
Total % n/n-1		-4.7%	12.4%	16.1%	0.6%	30.7%	2.0%	2.1%	2.6%	4.4%
<b>3. Complementary information (in nominal terms)</b>										
<b>Average asset base</b>										
3.1 Net book val. fixed assets										
3.2 Adjustments total assets										
3.3 Net current assets										
3.4 Total asset base	0	0	0	0	0	0	0	0	0	0
<b>Cost of capital %</b>										
3.5 Cost of capital pre tax rate										
3.6 Return on equity										
3.7 Average interest on debts										
3.8 Share of financing through equity										

## Appendix: En Route and TANS RP3 Cost Tables

### Costs of common projects

3.9 Common projects										
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### Costs of new and existing investments

3.10 Depreciation						0	0	0	0	0
3.11 Cost of capital										
3.12 Cost of leasing										

### Eurocontrol costs

3.13 Eurocontrol costs (Euro)										
3.14 Exchange rate (if applicable)										
3.15 Eurocontrol costs (national currency)										

### 4. Total costs after deduction of costs for services to exempted flights (in nominal terms)

4.1 Costs for exempted VFR flights										
4.2 Total determined/actual costs	678	646	726	843	848	1,108	1,130	1,154	1,184	1,236

### 5. Cost-efficiency KPI - Determined/Actual Unit Cost (in real terms)

5.1 Inflation %										
5.2 Inflation index (1)										
5.3 Total costs real terms (2)	678	646	726	843	848	1,108	1,130	1,154	1,184	1,236
Total % n/n-1		-4.7%	12.4%	16.1%	0.6%	30.7%	2.0%	2.1%	2.6%	4.4%
5.4 Total Service Units	149.9	163.3	171.7	182.7	187.7	189.6	195.6	198.8	202.9	206.7
Total % n/n-1		9.0%	5.1%	6.4%	2.7%	1.0%	3.2%	1.6%	2.1%	1.9%
5.5 Unit cost in real terms prices (3)	4.52	3.96	4.23	4.61	4.52	5.84	5.78	5.80	5.84	5.98
Total % n/n-1		-12.6%	6.9%	9.1%	-2.1%	29.4%	-1.1%	0.5%	0.5%	2.5%

Costs and asset base items in '000 - Service units in '000

(1) Inflation index - Base 100 in 2017, Forecast inflation 2019 as per the Performance Plan

(2) Determined costs (performance plan) and actual costs in real terms

(3) Determined unit costs (performance plan) and actual unit costs in real terms

## A4 RP3 Ireland TANS Additional Information

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### ADDITIONAL INFORMATION TO REPORTING TABLES 1 – TOTAL COSTS AND UNIT COSTS

#### Introduction

These reporting tables are issued in draft and are subject to ongoing review by the NSA and consultation with key stakeholders.

The single biggest impact on the terminal determined cost base and unit rate in RP3 is the cost of the new visual control tower currently under construction at Dublin airport. During RP2, the Dublin airport authority, the daa, supported by the State, made the decision to proceed with plans to build a new parallel runway. These reporting tables anticipate that the IAA's new control tower will be operational for current operations in mid-2020 and for parallel operations in late 2021.

During RP2, the Irish Government signalled its intention to separate the safety regulatory functions of the IAA from the air traffic control functions. Progress is ongoing, and these tables assume two new legal entities with effect from 1 January 2020. If the project is delayed beyond 1 January 2020 there may be additional costs which are not included in this draft submission, but which may be quantifiable in later submissions.

In calculating a determined unit rate, these tables assume the use of base case STATFOR. The extent to which BREXIT will have an impact on Ireland's terminal air traffic activity remains uncertain and will continue to be monitored.

In order to manage the unexpected and significant increase in traffic in RP2, and to do so without incurring any material ATM-related delays, the IAA diverted its resources away from its capital expenditure activities and into front-line operational activities. This resulted in a lower than anticipated capital spend throughout RP2. The IAA proposes to return all unspent RP2 capex-related costs in RP3 through a reduction in the unit rate.

## Determined costs and unit costs

a) *Description of the methodology used for allocating costs of facilities or services between different air navigation services, based on the list of facilities and services listed in ICAO Regional Air Navigation Plan, European Region (Doc 7754) as last amended, and a description of the methodology used for allocating those costs between different charging zones;*

Costs of facilities and services are allocated to the activity they support. The IAA accounting system allocates costs by nature to en route, terminal and other activities by registering each resource/cost to its appropriate cost centre. Therefore, costs incurred in providing terminal services are 100% allocated to the terminal cost centre.

For facilities and services that serve en route, terminal and other activities, the costs are allocated based on a number of allocation keys which vary with the nature of the cost e.g. staff numbers, square footage. These allocation keys are kept under regular review by the IAA.

b) *Description of the methodology and assumptions used to establish the costs of air navigation services provided to VFR flights, when exemptions are granted for VFR flights in accordance with Article 31(3), 31(4) and 31(5);*

Not applicable

c) *Criteria used to allocate costs between terminal and en route services, in accordance with Article 22(5);*

ANSP

Determined costs are allocated in a transparent manner to en route and terminal activities as they are incurred in the provision of those activities. Approach services are allocated 100% to en route where those services are provided beyond 20km of the respective aerodrome. For capital expenditure, where the facilities provided are not 100% for en route or terminal activities but apply equally to en route and terminal services then an allocation of 50% applies to each and where the facilities provided are mainly for en route services then an allocation of 25% applies to terminal charges.

## MET

Costs for meteorological services are allocated 80% to en route and 20% to terminal. This allocation has been in place since 2001.

## NSA

For the NSA, costs are shared between en route and terminal activities. State subscription costs are allocated 100% to en route activities, consistent with previous years.

*d) Breakdown of the meteorological costs between direct costs and the costs of supporting meteorological facilities and services that also serve meteorological requirements in general ('MET core costs'). MET core costs include general analysis and forecasting, surface and upper-air observation networks, meteorological communication systems, data processing centres and supporting core research, training and administration;*

Met services are provided by the State-owned Met Éireann. Met Éireann has been certified and designated by the NSA to provide meteorological services.

The MET office estimates that the portion of total Met Éireann costs attributable to aviation approximates to 26%, of which 80% is then allocated to en route activities and 20% to terminal activities. This allocation is in line with recommendations of the Commission for Aviation Regulation.

Met Éireann's charge for the provision of meteorological services to international civil aviation is determined according to the methodology described in Appendix 4 of the Report of the Working Group on Met Éireann Aviation-Related Costs (2002).

The direct costs of providing meteorological services to civil aviation comprise the costs incurred in the immediate provision and delivery of these services. Met Éireann's Internal Accounts System (IAS) recognises 10 categories of such costs: METAR reports, reports for ATS, flight folders, briefing and consultation, TAFs, SIGMET, TREND, aerodrome warnings and enquiries, SigWx charts and tabular winds and general expenses.

All direct services to end users, including services to aviation, depend on the use of core products and services. Core costs include the costs of surface synoptic observations, upper-air observations, radar, satellite, numerical weather prediction (NWP), climatology and computing and telecoms.

e) *Description of the methodology used for allocating total meteorological costs and MET core costs referred to in point (d) to civil aviation and between charging zones;*

As described in Appendix 4 of the Report of the Working Group on Met Éireann Aviation-Related Costs (2002), costs incurred in the direct provision of aviation services are fully recovered in the charge for MET services.

A proportion of core costs is also allocated to aviation charges. The proportion depends on the use made of core products for aviation purposes as compared with their use for other purposes.

The methodology in the Report of the Working Group provides for the following allocations of core costs:

- Surface synoptic observations, upper-air observations, radar, satellite and NWP - the proportion charged to aviation equals the direct cost of aviation forecasting divided by the direct cost of all forecasting activity.
- Climatology - the proportion of the cost of the climatological archive charged to aviation is 5%.
- Computing and telecoms - the proportion of the cost of computing and telecoms services charged to aviation equals the cost of direct services to aviation divided by the cost of all direct services.
- A *credit* for meteorological reports by aircraft (AIREPs) is also incorporated into the charge for core costs. This credit amounts to 12.5% of the cost of the upper-air observations.

f) *For each entity, description of the composition of each item of the determined costs by nature and by service (points 1 and 2 of Table 1), including a description of the main factors explaining the planned variations over the reference period;*

#### **Determined costs by nature and by service**

Entity ANSP - IAA / MET/ NSA	
<b>1. Detail by nature (in nominal terms)</b>	
1.1 Staff costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
of which, pension costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base

1.2 Other operating costs	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.3 Depreciation	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.4 Cost of capital	The explanation for the movements in these costs will be set out in the Performance Plan following consultation and final agreement on the cost base
1.5 Exceptional items	
<b>2. Detail by service (in nominal terms)</b>	
2.1 Air Traffic Management	<...>
2.2 Communication	<...>
2.3 Navigation	<...>
2.4 Surveillance	<...>
2.5 Search and rescue	<...>
2.6 Aeronautical Information	<...>
2.7 Meteorological services	<...>
2.8 Supervision costs	<...>
2.9 Other State costs	<...>
<b>Adjustments beyond the provisions of the International Financial Reporting Standards adopted by the Union pursuant to Regulation (EC) No 1126/2008</b>	

### **Pension costs**

*Note: The determined pension costs of the main ANSPs are detailed and justified in the body of the performance plan (item 3.4.3)*

<b>Entity: ANSP /MET/ NSA</b>
<b>Assumptions underlying the determined pension costs and expected evolution over Reference Period 3</b>
<...>

*g) For each entity, a description and justification of the method adopted for the calculation of depreciation costs (point 1.3 of Table 1): historical costs or current costs referred to in the fourth subparagraph of Article 22(4), and, where current cost accounting is used, provision of comparable historical cost data;*

ANSP

Tangible fixed assets are stated at cost, less accumulated depreciation.  
Depreciation is calculated to write off the cost of each fixed asset, including



equipment purchased as part of an installation, on a straight-line basis over its expected useful life, at the following annual rates:

Buildings	5%
Completed installations and other works	8 <sup>1</sup> / <sub>3</sub> %-12 <sup>1</sup> / <sub>2</sub> %
Office equipment and non-operational administrative software	20% - 33 <sup>1</sup> / <sub>3</sub> %

Assets are depreciated from the date they are commissioned for use. Assets under construction/installations in progress are carried at historical cost and are not depreciated until they are brought into use.

*h) For each entity, description and underlying assumptions of each item of complementary information (point 3 of Table 1), including a description of the main factors explaining the variations over the reference period;*

ANSP/ MET/ NSA	
<b>Costs of new and existing investments (see also performance plan item 2)</b>	
3.10 Depreciation	Covered in item f) above
3.11 Cost of capital	An explanation will be included in the Performance Plan following consultation and final agreement
3.12 Cost of leasing	N/A

Eurocontrol costs	
3.13 Eurocontrol costs (Euro)	N/A
3.14 Exchange rate (if applicable)	N/A

*i) For each entity, description of the assumptions used to compute the cost of capital (point 1.4 of Table 1), including the composition of the asset base, the return on equity, the average interest on debts and the shares of financing of the asset base through debt and equity;*

ANSP	
<b>Average asset base</b>	
3.1 NBV fixed assets	An explanation will be included in the Performance Plan following consultation and final agreement
3.2 Adjustments total assets	

3.3 Net current assets	
<b>Cost of capital %</b>	
3.6 Return on equity	
3.7 Average interest on debts	
3.8 Share of financing through equity	

*j) Description of the determined costs of common projects (point 3.9 of Table 1).*

<b>&lt;Entity&gt;</b>					
<b>Determined costs of common projects (in nominal terms in '000 national currency)</b>					
<b>CP reference</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
<b>Total (Table 1 item 3.9)</b>					

This information will be set out in the Performance Plan.

## 2. Actual costs and unit costs

*a) For each entity and for each cost item, a description of the reported actual costs and the difference between those costs and the determined costs, for each year of the reference period;*

Not applicable for this submission

*b) Description of the reported actual service units and a description of any differences between those units and the figures provided by the entity that is billing and collecting charges as well as any differences between those units and the forecast set in the performance plan, for each year of the reference period;*

Not applicable for this submission

*c) Breakdown of the actual costs of common projects per individual project;*

Not applicable for this submission

*d) Justification of the difference between the determined and the actual costs of new and existing investments of the air navigation service providers, as well as the difference between the planned and the actual date of entry into operation of the fixed assets financed by those investments for each year of the reference period;*

Not applicable for this submission

*e) Description of the investment projects added, cancelled or replaced during the reference period with respect to the major investment projects identified in the performance plan, and approved by the national supervisory authority in accordance with Article 28(4).*

Not applicable for this submission

## **ADDITIONAL INFORMATION TO REPORTING TABLES 2 – UNIT RATE CALCULATION**

*a) Description and rationale for establishment of the different charging zones, in particular with regard to terminal charging zones and potential cross-subsidies between charging zones;*

Ireland operates one terminal charging area covering three state airports, Dublin, Cork and Shannon. A single cost base and a single terminal charging rate applies in this area.

*b) Description of the policy on exemptions and description of the financing means to cover the related costs;*

Ireland is in conformity with Article 31 in applying the following terminal exemptions:

- Flights performed by aircraft with a maximum authorised take-off weight which is less than two metric tonnes;
- Search and rescue flights authorised by the appropriate competent body;
- Training flights performed exclusively for the purpose of obtaining a licence etc.;
- Circular flights;

- Flights performed exclusively for the purpose of checking or testing equipment used or intended to be used as ground aids to air navigation, excluding positioning flights by the aircraft concerned;

*c) Description of adjustments resulting from the traffic risk sharing mechanism in accordance with Article 27;*

Adjustments resulting from traffic risk sharing are set out in the reporting tables.

*d) Description of the differences between determined costs and actual costs of year n as a result of the changes in costs referred to in Article 28(3) including description of the changes referred to in that Article;*

Not applicable for this submission

*e) Description of adjustments resulting from unforeseen changes in costs in accordance with Article 28(3) to (6);*

Not applicable for this submission

*f) Description of the other revenues, if any, broken down between the different categories indicated in Article 25(3);*

Included in other revenues is reimbursement of EC funding received by the IAA. Funding for operating/current expenditure is reimbursed in N+2 and funding for capital expenditure is reimbursed in line with depreciation of the related asset.

There is no reimbursement due in respect of the 2020 unit rate.

*g) Description of the application of the financial incentive schemes referred to in Article 11(3) and 11(4) in year n and the resulting financial advantages and disadvantages; description and explanation of the modulation of air navigation charges applied in year n under Article 32 where applicable, and resulting adjustments;*

### **Financial incentive schemes**

Financial incentive schemes for RP3 are still subject to consideration by the NSA and consultation with the stakeholders and will be included in the Performance Plan.

### **Modulation of charges**

It is not proposed to introduce modulation of charges in RP3.

*h) Description of adjustments relating to the temporary application of a unit rate under Article 29(5);*

Not applicable for this submission

*i) Description of the cross-financing between en route charging zones, or between terminal charging zones, in accordance with point (e) of Article 15(2) of Regulation 550/2004;*

There is no cross-financing between en route and terminal charging zones.

*j) Information on the application of a lower unit rate under Article 29(6) than the unit rate calculated in accordance with Article 25(2) and the means to finance the difference in revenue;*

Not applicable

*k) Information and breakdown of the adjustments relating to previous reference periods impacting the unit rate calculation;*

Adjustments relating to previous reference periods are set out in the reporting tables. In addition, the IAA proposes to return unspent RP2 capital-related costs in RP3.

### **ADDITIONAL INFORMATION TO REPORTING TABLE 3 – COMPLEMENTARY INFORMATION ON COMMON PROJECTS AND ON UNION ASSISTANCE PROGRAMME**

*l) Information on the costs of common projects and other funded projects broken down per individual project, as well as of public funds obtained from public authorities for these projects.*

N/A

## Appendix B

## Cost of capital report

### Cost of Capital

The IAA NSA has decided to use a Cost of Capital (CoC) of 5% in real, pre-tax terms for the calculation of Determined Costs in the RP3 Irish PP. This figure takes into account the results of the comprehensive CoC study performed by First Economics for the IAA ANSP in May 2019, as well as other recent Irish regulatory settlements, industry trends, macroeconomic factors and the context of the Irish ANSP's financial performance during RP2.

**Figure B.1: Cost of Capital parameters**

	<b>Real</b>
Gearing	10%
Cost of debt	2.5%
Cost of equity (pre-tax)	5.28%
Cost of equity (post-tax)	4.62%
WACC (pre-tax)	5%

Source: First Economics report

### RP2 trends in Irish CoC

There has been a universal decrease in CoC calculated within studies for Irish public sector businesses during 2014-2019, including for the energy and water industries. The decrease is predominantly due to an underlying fall in Irish interest rates. In line with this, the proposed RP3 CoC (5%) is notably lower than that used for RP2 (6.7%), which was determined within First Economics' earlier CoC study for the IAA ANSP in 2014.

Cost of debt for Irish business has been impacted since 2014 by a decrease of 100 points in Euribor rates, which are now sub-zero. This is the primary driver for the fall in the cost of debt calculated by First Economics for IAA ANSP, from 3.5% in RP2 to 2.5% in RP3. It should be noted, however, that the CoC estimate assumes gearing for the IAA of 0.1 in RP3. The IAA currently has no borrowing, but this assumption accounts for the risk of needing to

borrow in the future. For example, the IAA may need to borrow if they decided to forward capital investment or change their capital structure, or if there were external shocks to revenues or costs. Nonetheless, the gearing is still low, so the risk of future Euribor rates to the overall Irish RP3 CoC is marginal.

Dublin Airport provides a comparable example of the impact of trends in national interest rates on CoC trends. A draft study by Swiss Economics for the Irish Commission of Aviation Regulation (CAR) in March 2019 advised a CoC for Dublin Airport of 3.99% for RP3. This represents a decrease of 1.81% compared to the 2014 determination by CAR. The study attributes this difference to the fall in interest rates, or specifically changes in the cost of debt, risk-free rate and equity beta used in the Weighted Average Cost of Capital (WACC) calculation.

### Irish RP3 CoC

The IAA NSA's proposed RP3 CoC is in line with the lower threshold of the range suggested within the 2019 First Economics CoC study for the IAA ANSP (5.0 - 6.3%). This decision was influenced by a mixture of local and macroeconomic factors.

It should be noted there is potential for CoC rates to rise due to macroeconomic factors. Most forecasters expect interest rates to start to move up as the European Central Bank (ECB) ends its programme of quantitative easing and begins to normalise interest rates. National factors could also drive up CoC values. There is evidence that stock market returns in Ireland have been slightly above the world average, suggesting that investors in Irish companies face slightly more country risk than investors in other places. This would be reflected in increased Expected Market Returns.

Despite the possibility of rising interest rates, the IAA NSA has decided that in part due to the context of the profits made by IAA ANSP during RP2, a conservative viewpoint with regards to CoC will be employed in the PP. The IAA NSA has consequently chosen the lower threshold value

The full First Economics report can be found at [IAA Open Consultations](http://www.iaa.ie) on [www.iaa.ie](http://www.iaa.ie).

## Appendix C

## Institutional Separation

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### Restructuring measures and related costs

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As specified in Article 2(18), 'restructuring' refers to measures implemented by one or several ANSPs, which lead to significant one-off costs incurred by these providers. The categories of measures which are eligible under restructuring costs are defined in a limitative way in Article 2(18)'. These measures may be of an operational, technological, organisational or financial nature. They should lead to permanent, structural changes in respect of the service provision.

During RP2, the Irish Government signalled its intention to separate the safety regulatory functions of the Irish Aviation Authority (IAA) from its air traffic control functions (see [DTTAS press release](#)). Functional separation has always been applied and carefully monitored within the IAA. The NSA, being part of IAA SRD is currently located in this entity also. An outline of the current institutional arrangements in place can be found at [LSSIP Ireland report](#)

The main impact of this restructuring is that there will be two new corporate and operational entities from 1 January 2020. A stand-alone Regulator (of which the NSA will be part of), and a separate ANSP entity. The Regulator entity will also include the Commission for Aviation Regulation, which is currently a stand-alone entity.

From the perspective of RP3, there will be significant additional costs from this permanent organisational restructuring. Currently all qualifying costs included in the RP2 cost tables (ANSP and NSA) are drawn from the single corporate entity that is the IAA. In RP3, each new entity will require their own accommodation, and there will be a requirement for separate corporate support services (HR, Payroll, ICT, etc.). The ANSP and NSA cost tables in RP2 reflected a proportionate share of total IAA corporate costs, with the remaining elements allocated to activities outside the SES Performance and Charging scheme (i.e. North Atlantic Communications, Safety Regulation).

In RP3, these broadly similar corporate costs (at least initially) will be allocated over fewer activities, with the Safety Regulatory (SRD) function now part of a different entity. The mostly fixed corporate service costs previously allocated to SRD will now be allocated to functions remaining in the ANSP entity. Of course,



there will also be incremental costs incurred by the ANSP in RP3 for new office accommodation, related infrastructure, rebranding, consultancy, etc. The NSA has reviewed these estimates from the detailed information provided by the ANSP, and are satisfied that they are realistic, proportionate and valid. The incremental impact of this restructuring cost on the ANSP determined costs and unit rates for RP3 is as follows:

**Figure C.1: Financial Impact of Restructure during RP3 (En Route)**

<b>En Route</b>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>Total €'000</b>
Staff costs	463	477	479	485	493	2,397
Other operating	4,982	5,000	4,804	4,828	4,961	24,575
Depreciation	1,314	1,752	1,752	1,752	1,752	8,322
Cost of Capital	396	516	407	286	159	1,764
<b>Total – real</b>	<b>7,155</b>	<b>7,745</b>	<b>7,442</b>	<b>7,351</b>	<b>7,365</b>	<b>37,058</b>
<i>Impact on unit rate (real 2017 prices)</i>	€1.53	€1.62	€1.52	€1.48	€1.46	

**Figure C.2: Financial Impact of Restructure during RP3 (Terminal)**

<b>Terminal</b>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>Total €'000</b>
Staff costs	132	136	137	138	141	684
Other operating	434	436	377	398	402	2,047
Depreciation	270	360	360	360	360	1,710
Cost of Capital	81	106	84	59	33	363
<b>Total – real</b>	<b>917</b>	<b>1,038</b>	<b>958</b>	<b>955</b>	<b>936</b>	<b>4,804</b>
<i>Impact on unit rate (real 2017 prices)</i>	€4.84	€5.31	€4.82	€4.71	€4.53	

It should be noted that the En Route restructuring costs noted above include €2.5m p.a. that the State has instructed the NSA to include in “transition costs” for the new Safety Regulatory body, time limited to RP3. This is in addition to the Restructuring costs provided for ANS related activities in the ANSP and NSA Determined Costs. The NSA understands that the €2.5m p.a. relates to non ANS activities. The NSA has not carried out any validation or assessment exercises on this item. Discussions are ongoing between the State and the

Commission on the inclusion of this Exceptional item in the RP3 PP.

The NSA costs will also be impacted by the Government mandated restructuring of Aviation Institutions planned for RP3. There will be a requirement for some additional staffing to support the NSA economic oversight functions, and the NSA attributable share of corporate support services in the new CAR/SRD entity will be higher than is the case under the current structures. The NSA costs include approximately €500k p.a. in relation to these items. This is the total incremental amount projected as required by the NSA in relation to ANS oversight.

All of the above costs are assuming an Institutional Separation date of 1 January 2020, in line with Government policy on this matter. The impact of the restructuring on the respective RP3 determined cost base (ANSP and/or NSA) is driven by the following factors and assumptions:

1. The restructuring process assumes that all of the corporate support services staff of the IAA will transfer to the ANSP. The share of these staff costs previously borne by the Regulator will now be borne by the ANSP.
2. The indirect costs/corporate costs of the IAA e.g. audit fees, pension administration, staff-related costs, communications etc previously shared with the Regulator will now be borne by the ANSP.
3. The ANSP will vacate the Head Office that it currently shares with the Regulator. A working group established to consider the possibility of co-location with the Regulator has concluded that is not possible for both entities to remain in the current building (see below for financial impact).

These costs of restructuring are a significant factor in the deviation of the Irish RP3 Determined Costs and DUCs from the union wide cost efficiency targets, and this is referenced in detail in the Chapter 7 and 8.

There are several advantages that could potentially accrue to the ANSP from Institutional Separation. These may lead to efficiency benefits to airspace users in future reference periods, although it is not possible to quantify the extent at this stage. Some of the scenarios that may unfold are as follows;

- There may be opportunities to develop co-operation agreements on airspace management with other ANSPs that are not feasible under the current institutional arrangements.

- The potential evolution of market conditions for TANS services may be enhanced by the new corporate structures.
- The inclusion of all commercial ANS services in a stand-alone entity with no regulatory function could facilitate further commercial partnerships in the areas of training and technology.
- A sale or privatisation of the ANSP is not currently Government policy. However, the planned Institutional changes would facilitate this possibility more than the current arrangements.

## Appendix D

## Local Safety Targets

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### Safety – Air Traffic Management

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The core objective is to deliver a safe Air Traffic Management service for airline customers and travelling passengers – in line with this objective, the NSA are committed to ensuring that the proper conditions are in place to facilitate continuous safety improvement. In terms of performance on ATM Safety to date, the CANSO/EUROCONTROL ‘Standard of Excellence’ safety maturity measure assessed globally has recently placed the IAA ANSP’s performance at the top of 44 participating ANSPs.

During RP2 to date, the IAA ANSP has achieved all Union-wide and local targets in relation to Safety. The NSA recognise that this performance requires continuous investment to maintain and improve. During RP3, the NSA has mandated that the IAA ANSP will continue to comply with the Union-wide targets by ensuring Effectiveness of Safety that is at least “Level D” in the objective of safety risk management and at least “Level C” in the other safety objectives including culture, policy, promotion and assurance. This will be achieved by building on the current ATM Safety Strategy and further developing the four key thematic aspects of this strategy, including (1) People Create Safety, (2) Safety Intelligence, (3) Tailored & Proportionate and (4) Challenging & Learning.

The NSA carried out extensive validation work to ensure the IAA ANSP Business Plan for RP3, insofar as it related to Safety, was consistent with the actions required to achieve the compliance with the targets outlined above. The relevant excerpts are set out below, and further relevant information can be sourced at <https://www.iaa.ie/safety/safety-performance1>

### Excerpt from IAA ANSP RP3 Business Plan

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#### Overview of ATM Safety

The IAA is committed to complying with all applicable safety regulatory

requirements and to striving, whenever practicable, to go beyond compliance and operate to the highest international safety standards. Our task therefore is to provide a safe, efficient and reliable Air Traffic Management (ATM) service to meet the changing needs of our Customers.

Our strategy objective of operating to the highest levels of international safety standards is supported by our participation and engagement with CANSO Europe and Global, EUROCONTROL Safety Teams and associated workgroups. By active participation with the Safety Team's workgroups and CESAF Advisory Board we strive in influencing the Commission and EASA with respect to proportionate regulation and realistic and meaningful performance scheme targets. Moreover, through participation in performance benchmarking and Standard of Excellence safety maturity questionnaire developments, we share our own best practices while implementing those developed in peer organisations, that maintains us both in Europe and globally as a leading ANSP with respect to operational safety performance and maturity.

We seek to achieve continuous improvement to the current high level of safety-management by ensuring that the system is risk-based, systematic and corroborated by objective evidence. It is critical that personnel are appropriately trained and that there are adequate resources to meet traffic demand and adhere to any changes to the regulations.

## **RP2 Safety (2015-2018) Safety Key performance Indicators**

### **Effectiveness of Safety Management (EoSM):**

Following an ICAO continuous monitoring approach audit in 2015, Ireland was ranked second in Europe and fourth in the world for civil aviation safety oversight. In 2016, Ireland maintained its second-place ranking in Europe for civil aviation safety oversight. IAA achieved the joint highest score of the European FAB ANSPs with a safety maturity of 92% in 2017. In the penultimate year of RP2, the IAA achieved Level D with an expected top 5 place with respect to the Effectiveness of Safety Management (EoSM). We were fully compliant with Just Culture and all of the RP2 targets were exceeded.

**Table D.1: IAA ANSP EASA EoSM Survey Results 2015-2018**

IAA ANSP EASA: EoSM Annual Measurement survey.		
2015	84%	SES ANSP Average 79%
2016	92%	SES ANSP Average 80%
2017	91%	SES ANSP Average 82%
2018	92%	SES ANSP Average 84%

The EoSM metric will continue to be the key measure of SMS for the remainder of RP2. The IAA ANSP's maturity is documented with the measurement score of 91% in 2017, being in the top 5 in the SES area. A new version of the EoSM will be an RP3 SKPI, employing more detailed and higher levels of justification and evidence.

The equivalent CANSO/EUROCONTROL 'Standard of Excellence' safety maturity measure assessed globally, places the IAA's performance in this regard, for the second year in succession, at the top of 44 participating ANSPs.

The objective is the continuation of this level of SMS performance in RP3.

### Risk Analysis Tool

With regards to the implementation of RAT severity classification methodology, the IAA ANSP adopted this in February 2011 for risk classification of occurrences of Separation Minima Infringement, Runway Incursions and ATM Specific Occurrences (ASO). Since 2012 all occurrences of Separation Minima Infringement and Runway Incursions have been analysed using RAT. Similarly, ATM Specific Occurrences (ASOs) of ESARR severity classification "C" and above have also been analysed. Since 1st January 2015, all ASO occurrences have been analysed using RAT. The TOKAI which integrates RAT was successfully deployed in 2018, supporting the enhancement of our safety intelligence processes and focused safety performance improvement activities through this particular integration and overall safety tools strategy.

### Just Culture

In the area of Just Culture, defined as "A culture where staff are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated", we recognise that it must be just for the individual staff member, the IAA and our Customers. Just Culture is now well established and embedded element in the IAA where all management and staff are clear about what is expected of them in a Just Culture environment.

We will continue to ensure that Just Culture training is cascaded from the leadership level throughout our organisation. Particular focus will be placed on the training of appropriate senior management and those personnel required to undertake safety occurrence investigations. The training incorporates appropriate personnel from the top level to the newest recruit and will be tailored accordingly, whilst simultaneously recognising that the just culture training objective will be achieved through open engagement across a mix of seniority and specialism.

The IAA ANSP will ensure that this training is maintained on an on-going basis by including within our documented staff training and induction programmes. The training has been effectively implemented during RP2 to date with delivery of significant progress demonstrated by 2017. The training shall be delivered in a manner appropriate to the individual staff members with 100% of identified staff completing their training by 31st December 2019.

### **Corporate ATM Safety Strategy 2016-2020**

The ANSP has made very significant progress to date towards meeting the strategy's Safety Goals in all 4 thematic elements of the strategy. The IAA ANSP already has a strong and effective SMS in place, which is enabling us to achieve the SES RP2 target "Level D" of measured maturity, well in advance of the 2019 RP2 deadline. While this is an important achievement, the ATM Safety Strategic Plan is designed to build upon this and to concentrate our ATM safety efforts across a range of key focused activities. The focus in 2019 is now on reviewing our current processes so as to enable the ANSP to meet the new and significant regulatory and RP3, requirements that are effective from the beginning of 2020.



**Table D.2: Thematic Safety Elements and Strategic Safety Goals**

SAFETY THEMATIC ELEMENTS	STRATEGIC SAFETY GOAL
<p>PEOPLE CREATE SAFETY</p> <p>1</p>	<p><b>Safety Strategy Goal 1:</b> Challenging ourselves as an organisation, we will initiate and complete our second Safety Culture Survey. In the context of providing a Safe and Quality Service, this action will enable us to enhance our Safety Culture by cultivating an organisational wide Safety Ethos, rather than focusing solely on Operational Safety.</p> <p><b>Safety Strategy Goal 2:</b> This goal's objective is to empower the Team Safety Reps by developing their proficiency and capability through the provision of bespoke SMS Education modules. This will enhance their knowledge as <b>Subject Matter Experts</b>, facilitating and supporting the communication of their valued input to the SMS.</p> <p><b>Safety Strategy Goal 3:</b> We will minimise our operational risks associated with 'The Human Factor' to as low as reasonably practicable by application of established and validated Human Factors analysis techniques and methods, while providing resilience within our ATM functional system. We will achieve this by identifying and training HF actors to a sufficiently high standard enabling the and integration of these methods with our currently established and matured SMS processes, while maintaining operational effectiveness.</p>
<p>SAFETY INTELLIGENCE</p> <p>2</p>	<p><b>Safety Strategy Goal 4:</b> We will acquire and deploy operationally, a range of the latest Smart Safety Tool applications and technology, that will significantly enhance our monitoring, measuring and analysis of the safety performance of our system, while at the same time making the most efficient use of our available resources supporting a Tailored and Proportionate approach to these critical safety performance activities.</p>
<p>TAILORED &amp; PROPORTIONATE</p> <p>3</p>	<p><b>Safety Strategy Goal 5:</b> To ensure that we apply our resources in as an efficient and focused manner as possible, we will fully utilise our specialist data analytics function and the output of the Safety Tool applications at our disposal to provide the necessary Safety Intelligence to its greatest effect. This aim of this goal is to enable continuous safety performance improvement while simultaneously contributing nationally to the industry's Total System Safety efforts in a Tailored and Proportioned manner.</p>
<p>CHALLENGING &amp; LEARNING</p> <p>4</p>	<p><b>Safety Strategy Goal 6:</b> We will implement an 'E' Learning process to meet effectively, efficiently and economically our SMS educational and training requirements for all staff appropriate to their level of operational activity i.a.w. RP 2 regulatory requirements. This strategy will be rolled out and implemented in year 1 and 2 of the Strategy Period and will be based on, or similar to, an evolution of the current successful CBT application in use for ATSEP.</p> <p><b>Safety Strategy Goal 7:</b> We will develop processes that will provide us with on-going understanding and assurance of how our system and professional staff perform. This will be achieved by implementing an enhancement of our ATCO standards and competency and standards checking through the employment of a continuous assessment process, supported by the utilisation of an embedded non -jeopardy Normal Operational Safety survey methodology.</p> <p><b>Safety Strategy Goal 8:</b> Through participation in various Safety forums and workgroups, we will by collaboration and proactive engagement with those of whom we share risk, ensure that we can effectively address the issues that affect the total system. This strategy goal will also facilitate the continuous improvement provided our Lessons Learned process.</p>

Our ATM Safety Strategy sets out three key areas of activity in order to deliver upon this objective; Safety Culture Survey, Safety Communications and Human Factors:



## Safety Culture Survey

Safety is the responsibility of all employees in the IAA and a safety culture is designed to ensure that all employees take ownership of enhancing safety in their daily work. Challenging ourselves as an organisation, we initiated and completed our second Safety Culture Survey in 2016 with the assistance of EUROCONTROL and the London School of Economics. The Safety Culture and HR 'Wellness' surveys delivered symbiotic action plans that addressed the many common areas identified in both reports.

This approach was validated globally by the CANSO Standard of Excellence (SOE) moderation team in 2018. The ANSP's SMS relevant 7-point action plan was initiated in late 2016 and is now complete. The approach has enabled us to cultivate an organisational wide safety and wellness ethos, rather than focusing solely on operational safety. In accordance with best practice and to ensure the continuing development of our Safety Culture we will plan the next ANSP survey for activation in late 2020.

## Safety Communications

We will continue to evolve and mature our Safety Communications Network at operational unit level, empowering individuals to support bottom-up initiatives to drive safety performance improvement. This involves empowering the Team Safety Reps (TSR) through the provision of bespoke SMS Education modules. This will enhance their knowledge as Subject Matter Experts, facilitating and supporting the communication of their teams input to the SMS. The TSR concept is continuing to embed in the local operational units' safety management systems. Annual education and Safety Management System refresher training will become a focused activity in 2020, supported by the Safety Management Unit, utilising our online eLearning 'Brightspace' platform.

## Human Factors

Human Factors and human performance have become increasingly important areas of analysis when considering ATM safety performance. The IAA has developed a Human Factors (HF) Policy and a Procedures document during RP2 which was initially implemented in 2017, coinciding with the commencement of externally provided HF specific training for local 'actors' operating at unit level.

The strategy's objective of creating a specialised HF expert function in the Safety management Unit has now been achieved with employment of a HF Expert at the beginning of 2019. This now affords us with an in-house specialisation and expertise to support local HF actor activity at the unit level. In

addition, it provides the ANSP with the capability to conduct HF assessments to all changes to the ATM system supporting deeper levels of safety assurance.

During RP3, we will also use this specialisation to support the evolution of our safety investigation process, through the application of focused Human Factor analysis, to go beyond to compliance so as to fully understand how best to provide continuous safety performance improvements in a focused and efficient manner. This strategy will enable a high level of feedback that will drive tailored safety performance enhancements, through focused training and procedural improvements.

### **Safety Performance Analysis**

The IAA's Safety Management Manual requires each operational unit to conduct a mitigating /improvement activity based on trend analysis of occurrence data and to report the results in a standard Quarterly Operations Safety Report. These reports monitor trends in their top five local Key Risk Areas (KRAs) of:

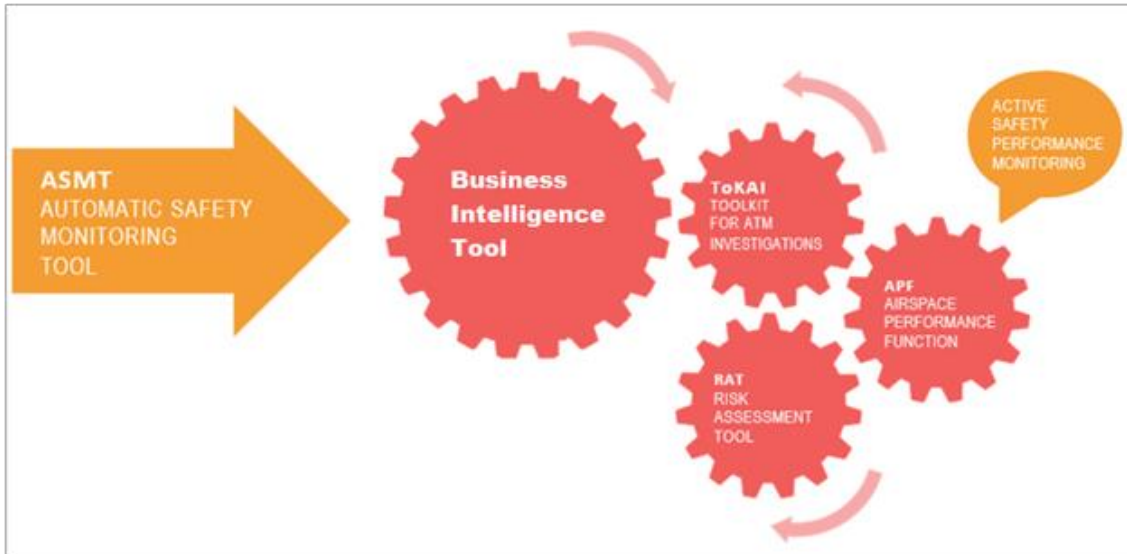
1. Separation minima infringement;
2. Runway incursions;
3. Unauthorised penetration of airspace;
4. Deviation from ATC clearance;
5. Level Bust.

The Safety Management Unit through its specialist analyst function, provides the data and analysis reports to support the operational units in this essential activity. The IAA will continue to strive for a reduction in the rate of occurrence of events in these KRAs by targeted training and awareness campaigns for both internal and external stakeholders and will ultimately support the achievement of the Union-wide targets for RP3.

We have successfully pursued the above safety goals during RP2 to date and intend to review and progressively update these during RP3.

### **Safety Intelligence**

The IAA ANSP employs a range of tools, applications and indicators to enhance our ATM safety monitoring, measuring and analysis. These tools central to which is our integrated Business Intelligence tool, assists in building our safety intelligence, which informs safety actions and future decisions. These activities are a CANSO recognised and validate 'Best Practice'.

**Figure D.3: IAA Safety Tool Applications**

The IAA ANSP uses smart safety tools such as TOKAI, RAT and APF to measure safety performance against various lenses and to analyse the factors behind safety occurrences or trends (positive or negative). The diagram above indicates the interaction between the various safety tools and applications, which the IAA uses. Utilising information from these tools also positions us to move towards a Performance-Based Environment and Risk Based Oversight.

The Aerospace Performance Factor (APF) and the RAT tools are now fully operational and integrated with TOKAI. The APF Mindmaps were re-weighted for the National APF and in addition, Unit specific APF Mindmaps were created to more accurately reflect unit risk weightings for their own specific operational environment. Securing fully this Strategic Plan objective will enable an advanced process for monitoring unit specific Safety Performance and Analysis. The occurrence investigation and reporting tool – TOKAI, was fully deployed in Q2 2018 and integrated with the ‘TARGIT’ the Business Intelligence (BI) Tool. The output of this integration is the development of ‘real time’ safety performance ‘dashboards’, which has enabled the achievement of an EoSM Level ‘E’ continuous improvement in 2018 in addition to validation by CANSO Global as a Standard of Excellence Best Practice.

New versions of the TOKAI and BI tool will be deployed in the 2020-2023 delivering further improvements to the overall integration and therefore Safety Intelligence activities.

### Preparation for RP3

This section sets out a list of key actions that are required by our Safety Management Unit in preparation for RP3. A sample of initiatives are listed below that we have committed to:

- Monitoring the effectiveness of the current Safety Culture Action Plan outputs and commence planning the next company-wide survey in 2019 for initiation in 2020;
- Continue to develop the Team Safety Reps capability through the provision initial and refresher SMS training/education, thereby maintaining their level of SMS knowledge and necessary skills to communicate and assist in driving unit safety performance improvement: annually.
- Develop and deliver the HF training /education necessary to meet the 2017-373 requirements for initial and refresher training.
- Utilising the HF expert and complete the practicable application training of all local Unit HF actors in order to integrate Human Factors assessment into the IAA's SMS 'change assessment' processes: 2019-2021.
- Providing HF education and analysis training to the ATM Occurrence Investigators to enhance the quality and granularity of our investigation outcomes: 2019-2020.
- Publish our finalised HF policy and process in Q1 2019. The Policy and processes will provide the platform to support the future development of our change assessment and occurrence analysis processes, in accordance with current and future regulatory requirements and industry best practice: 2019-2023.

With respect to improving safety intelligence, we intend to deliver on the following key actions:

- Further developments of integrated TOKAI, BI and APF utilising the new versions of the tools, to further enhance our advanced Safety Performance Dashboard quality and content; 2019-2023;
- Complete the acquisition of the ASMT which will be installed on our COOPANS system, allowing for automatic monitoring of occurrences using operational data: Testing and drafting policy and Operational Concept documentation will be conducted in 2019, with the full

operational use implemented at all units in 2020-2021, supporting an overall high-quality Safety performance monitoring and analysis capabilities;

- Enhancing the utilisation of the re-weighted severities in National and Unit specific APF, exploiting fully the capabilities provided by the integration with the TOKAI and BI tool, to provide APF Unit specific weighted performance functionality.

In delivering the above requirements, our Safety Management Unit will continue to be committed to considering Safety as a Business or Enterprise process that is operationally applied and tactically implemented. In order to maximise safety and cost effectiveness of our operations we have considered the totality of the change to the operations of the business and not simply any one or a combination of certain elements i.e. safety, environment, cost efficiency and capacity. Certain interdependencies considered are set out below.

## Appendix E

## Local Environment Targets

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### Environment targets for RP3

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The en route flight efficiency targets for RP2 were set at FAB level, and the IAA ANSP allocation was achieved in each year to date. The IAA and NATS have worked well together in delivering projects that resulted in environmental benefits and savings to the airlines in terms of reduced fuel burn and time. During RP2 to date the IAA has implemented various energy reduction initiatives, reducing emissions and energy costs. Its Free Route Airspace and Point Merge initiatives contributed significantly to reducing carbon emissions by aircraft over Ireland.

The draft Ireland RP3 PP has adopted the RP3 national reference values for KEA as published on the SES Performance website. The measures that will contribute to the achievement of this, and wider environmental gains in RP3 are as follows:

- IAA has already implemented free route airspace in both the Upper and Lower airspaces.
- Further improvements in this area are dependent on the introduction of Free Route Airspace in neighbouring airspaces with the accompanying system upgrades to enable full cross border FRA.
- Business Plans of regulated entities provide for the staffing and technological resources consistent with the continued application of FRA in RP3.
- Integrate ground-based and space-based ADS-B into the ARTAS tracker for domestic operations subject to EASA approval. This will facilitate key future capacity, safety and environmental gains.
- Continue to cooperate with ICAO and other stakeholders in the safe reduction of separation standards and other initiatives on the North Atlantic delivering increased capacity, reduced costs and reduced CO2 emissions.
- Increase network management capability ensuring a seamless and efficient gateway between oceanic and continental airspace,

deploying a range of traffic management strategies.

- Reductions in NAT separations and an ability to handle more condensed traffic flows has led and will continue to lead to more aircraft being able to fly optimum vertical and horizontal profiles across the Atlantic.
- Traffic at Dublin airport has been growing rapidly over the last five years. With the current single runway operation and the limited ground infrastructure, delays in the approach phase (extended track miles) and on the ground for both arrivals and departures have been steadily rising. The implementation of the additional parallel runway, provided this is accompanied by significant stand, apron and taxiway improvements will lead to major reductions in delays and thus in environmental emissions. The IAA is reassessing the Dublin terminal airspace and associated arrival and departure procedures with the objective of facilitating the most efficient use of the parallel runways with the least possible environmental impact.
- IAA is participating in the EUROCONTROL CCO/CDO task force that is drafting a “Joint Action Plan on Continuous Climb and Descent Operations”. The IAA will fully implement the elements of this action plan to the largest extent possible. Such improvements will only be possible in a partnership between the ANSP and the user airlines and depends on the implementation of the second parallel runway at Dublin. IAA will review the CCO/CDO at all three state airports and at the regional airports. Specific CCO/CDO targets will be set following the establishment of a suitable metric that correctly reflects ANSP possibilities.
- Targets will be set, with appropriate monitoring, in each of the following measures:
  - Continuous Descent Operations
  - Continuous Climb Operations
  - Additional taxi out time
  - Arrival Sequencing and Metering (ASMA) additional time
- Appropriate investment provisions have been made in the ANSP and MET Business Plans to upgrade energy management systems, improve carbon emissions and environmental sustainability.

## Appendix F

## Local Capacity Targets

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### En Route Capacity Targets

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The NSA has mandated the use of national reference values in the drafting of the RP3 PP. This is in line with the levels calculated by the Network Manager on the basis of the Union-wide Capacity targets recommended by the PRB in the “Updated PRB Advice to the Commission on RP3 Unionwide Targets”. Therefore, there are no inconsistencies or justification required.

### TANS Capacity Targets

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The local KPI on the average time of arrival ATFM delay per flight attributable to terminal and airport ANS, is a measure of the ATFM delays at the destination airport. This KPI covers all IFR flights landing at the destination airport and all ATFM delay causes, excluding exceptional events as defined in Article 2(9). There is no Union-wide capacity KPI applicable in respect of terminal ANS.

The key principles for local target setting in respect of the terminal ATFM delay KPI are as follows:

- The target values shall be expressed in terms of average minutes of ATFM delay per flight and shall be set for a whole calendar year, for each year of the reference period. Those targets shall be broken down into individual values relating to each airport in the scope of the PP.
- Member States also have to describe and explain how the local terminal capacity performance targets contribute to the improvement of the performance of the European ATM network.

There are no Union-wide targets on terminal services in the capacity KPA and hence no requirement for consistency with Union-wide target. However, in setting the target, the NSA must take into account the elements examined as part the review, which include the analysis of actual performance trends during the previous reference period as well as comparison of performance with similar airports. The relevant issues noted by the NSA in this regard were as follows:

- During RP2 terminal traffic growth in Ireland far exceeded all



forecasts. Despite this large traffic increase the level of IAA ANSP attributable delay at Irish airports was very close to zero. During the period 2015 – 2019, terminal traffic in Irish airspace increased by an average of 6.4% per annum. Similar to en route traffic, in order to meet the significant increase in demand during this period the IAA ANSP had to focus on core operations, which placed a significant strain on resources, and resulted in some capex delays and other areas of reprioritisation. The NSA recognises that this is not sustainable, and nor is it economically efficient to provide sufficient capacity to guarantee zero delay.

- The STATFOR forecast level of traffic growth over the RP3 period is much lower than observed during RP2 (general economic growth slow-down, BREXIT uncertainty and Dublin airport runway constraints until 2022). Dublin airport is approaching its capacity limits with the current runway and infrastructure limitations. A more normal growth pattern is expected to emerge once the new runway is operational. The volume of traffic at Cork and Shannon airports is not expected to grow significantly. It is not anticipated that ANSP attributable ATFM measures will be required at Shannon or Cork.

## RP3 Terminal Service Units Forecast

**Figure F.1: RP3 Terminal Service Units Forecast**

Service Units					
	2020F	2021F	2022F	2023F	2024F
STATFOR Service Unit Forecast	189,600	195,600	198,800	202,900	206,700
Service Unit Growth Forecast	1.0%	3.20%	1.60%	2.10%	1.90%

Source: IAA SRD

It is important in considering the optimum Irish terminal airspace capacity, to take into account the airfield ground infrastructure at Dublin Airport and available runway configurations. In these circumstances, it is most appropriate to target a level of terminal delay for RP3 which recognises that the IAA ANSP does not have responsibility for or control over the development of ground infrastructure at Dublin Airport. In addition, the operation of the parallel runway configuration (and the new visual control tower) requires a staffing complement that is higher than was required during RP2.

The TANS capacity target can be broken down into an ANSP-attributable delays and non-ANSP-attributable delays. Based on the above, the component

of the capacity target that is related to ANSP-attributable arrival ATFM delay will be set at 0.05 minutes per flight to be maintained during the RP3 period. This target is dependent upon the required additional terminal staff being available.

The second element of the target, the non-ANSP-attributable delay, is important because it covers the vast majority of delays that have occurred at Dublin Airport in recent years, with adverse weather being the main cause of delays. For the past three years, average non-ANSP attributable delays have averaged just below 0.18 minutes per flight within a range from 0.10 to 0.27 annually. There has been an upward trend in weather and aerodrome capacity delays (particularly delays due to the available runway configuration and capacity during strong winds). Some improvement in weather related ATFM arrival delays can be expected when the new runway is operational. Delays due to cross winds will however remain. It would therefore be appropriate to include a provision based on the average observed during the last two years of RP2, with some improvement from 2022 for non-ATC causes in the TANS capacity target. The proposed values are 0.20 decreasing to 0.15 minutes per flight.

This leads to the targets that are detailed below.

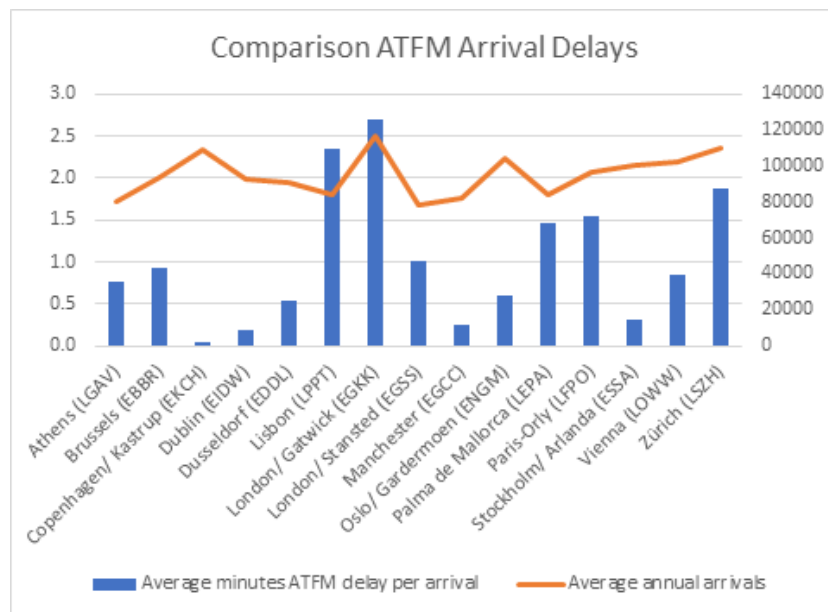
**Figure F.2: TANS Capacity Targets and Threshold**

KPA	KPI	Targets				
		2020	2021	2022	2023	2024
Capacity	Minutes of arrival ATFM delay per flight	0.25	0.25	0.20	0.20	0.20
	Attributable to IAA ANSP	0.05	0.05	0.05	0.05	0.05
	Other causes (weather, aerodrome capacity)	0.20	0.20	0.15	0.15	0.15

Source: IAA SRD

### Comparative analysis

The figure below compares Dublin with European airports with similar traffic levels. The chart shows (for the period 1/1/2016 to 30/4/2019) the average annual number of arrivals and the average annual ATFM arrival delay per flight.



Whereas it is acknowledged that local weather and capacity circumstance can vary enormously between airports the figures demonstrate the excellent capacity achievements at Dublin during RP2. These are all the more noteworthy considering that the majority of similar traffic volume airports have 2 parallel runways as opposed to Dublin.

## Measures in place and planned to achieve En Route and TANS Capacity Targets

The following excerpts from the IAA ANSP Business Plan outlines a number of measures that will have a positive impact on ATFM delay and ensure continued good performance in this area;

### 1. Excerpt from IAA ANSP RP3 Business Plan En Route

The IAA's primary objective with respect to en route traffic is to deliver safe and efficient services which meet the demands of our customers. This objective is pursued in accordance with the European Commission's Single European Sky (SES) regulatory framework. During the period 2015 – 2019, en route traffic in Irish airspace has increased by an average of 3.8% per annum. In order to meet the significant increase in demand during this period and continue to deliver the quality of service that our customers expect, the IAA had to focus on core operations, which placed a significant strain on resources, and resulted in some capex delays and other areas of reprioritisation. We have been "catching up" in the last years of RP2 and this catch will continue into RP3, until traffic growth moderates.

The equivalent rate of growth over the period 2020-2024 is projected to be 1.9% according to the most recent STATFOR base case scenario.

To address this growth in traffic and to meet our customers' demands, a number of measures are planned to ensure that an appropriate level of safety, capacity and environmental efficiency are delivered:

- Continue the “crew to workload” initiative, reviewing as appropriate, ensuring an appropriate fit between hourly costs and revenue while at the same time, ensuring the economic viability and sustainability of our en route business unit.
- Commission the new Contingency En route Operations Centre (CEROC) at Ballygirreen, Co. Clare. This will provide for improved resilience with a high level of back-up to the Shannon ACC thereby minimising disruption to our customers should a contingency situation occur.
- Integrate ground-based and space-based ADS-B into the ARTAS tracker for domestic operations subject to EASA approval. This will facilitate key future capacity, safety and environmental gains.
- Implement Aeronautical information exchange (PCP).
- Implement Meteorological information exchange (PCP).
- Continue to cooperate with ICAO and other stakeholders in the safe reduction of separation standards and other initiatives on the North Atlantic delivering increased capacity, reduced costs and reduced CO2 emissions.
- Increase our network management capability ensuring a seamless and efficient gateway between oceanic and continental airspace, deploying a range of traffic management strategies.
- Implement extended arrival management at Dublin and facilitate the introduction to other listed airports as required by the PCP.
- Expand the CPDLC message set as necessary to increase capacity whilst maintaining or improving safety.
- Continue to review and improve our internal dynamic sectorisation to match changes in aircraft performance and routings.
- Cooperate with NATS and our Borealis partners to fully implement

cross border Free Route Airspace and other initiatives across the nine members states.

We believe that these measures are adequate to deal with the forecast traffic growth while at the same time, maintaining Ireland's historically low levels of en route delay. In addition, by continuing to invest in our en route services, we will place our business on a sustainable footing, meeting all national and international regulatory requirements (aviation, environment, employment etc), reduce over-time and allow for appropriate flexibilities to develop to meet changes in traffic growth or pattern. This is positive for our customers and the wider European network.

## **2. Excerpt from IAA ANSP RP3 Business Plan TANS**

Similar to en route traffic, the IAA's primary objective with respect to terminal traffic is to deliver safe and efficient services which meet the needs of our customers. This objective is also pursued in accordance with the Commission's SES regulatory framework. It is our intention to achieve this objective by the following means:

- Implement Departure Management Synchronised with Pre-departure sequencing at Dublin by end of 2020 (PCP)
- Implement integrated Surface Management Constraints at Dublin by end of 2020 (PCP).
- Introduce the new visual control tower at Dublin in advance of the commissioning of the second parallel runway in 2021.
- Implement all necessary terminal procedures and airspace changes to facilitate parallel runway operations in 2021.
- Increase flow and network management capabilities through a range of capacity optimisation and ATFM solutions.
- Implement extended arrival management in the Dublin terminal manoeuvring area by end of 2023 (PCP)
- Implement Time-Based Separation for Final Approach at Dublin by end of 2023 (PCP).
- Implement Automated Assistance to Controller for Surface Movements Planning and Routing at Dublin by end of 2023 (PCP).
- Implement Aeronautical information exchange (PCP)

- Implement Meteorological information exchange (PCP)
- Implement Cooperative network information exchange (PCP)
- Implement Flight information exchange (PCP)
- Implement a remote tower facility for Shannon airport at Ballycasey and investigate opportunities for increased efficiency and reduced operational expenditure associated with remote towers at Cork airport.
- Continue the “crew to workload” initiative, ensuring an appropriate fit between hourly costs and revenue while at the same time, ensuring the economic viability and sustainability of our Terminal business unit.
- Implement the airport operations plan in collaboration with all airport stakeholders.
- Work with all stakeholders to ensure the safe operation of UAVs without impacting on safety.

These measures will ensure that the IAA continues to offer a safe, high quality terminal service whilst also allowing the IAA investments in people, technology and processes to “catch-up” with the significant traffic growth from RP2. This will place our service on a sustainable footing whilst also meeting all national and European/ International regulatory requirements in all areas

## Appendix G

## Local Cost-efficiency Targets

## Ireland RP3 En Route Determined Costs and DUCs

Ireland En Route Determined Cost & DUC RP3 (excluding "Restructuring Costs" and new "Other State Costs")						
<i>2017 prices</i>	2020 DC €'000	2021 DC €'000	2022 DC €'000	2023 DC €'000	2024 DC €'000	RP3 Total
ANSP DC €'000	109,589	114,809	118,622	120,958	124,261	588,239
MET DC €'000	6,222	6,009	5,916	6,325	6,314	30,786
NSA DC €'000	13,977	14,149	14,338	14,662	15,129	72,255
Total DC €'000	129,788	134,967	138,876	141,945	145,704	691,280
Total DUC €	€27.68	€28.18	€28.40	€28.55	€28.83	
Add Restructuring and new "Other State Costs"						
Restructuring and new "Other State Costs" €'000	7,155	7,745	7,442	7,351	7,365	37,058
Impact on DUC €	1.53	1.62	1.52	1.48	1.46	
Total Ireland En Route Determined Cost & DUC RP3						
DC €'000	136,944	142,712	146,318	149,296	153,069	728,339
DUC €	29.21	29.79	29.92	30.03	30.28	

Planned DUC Rate Adjustments						
Adjustment	2020 DUC €	2021 DUC €	2022 DUC €	2023 DUC €	2024 DUC €	
RP2 CAPEX Refund	(2.84)	(0.91)	-	-	-	
COOPANS Refund	(0.18)	(0.13)	(0.04)			
Total DUC Impact + /(-) €	(3.02)	(1.04)	(0.04)			

## Ireland RP3 TANS Determined Costs and DUCs

Ireland TANS Determined Cost & DUC RP3 (excluding "Restructuring Costs")						
<i>2017 prices</i>	2020 DC €'000	2021 DC €'000	2022 DC €'000	2023 DC €'000	2024 DC €'000	RP3 Total
ANSP DC €'000	28,523	32,409	34,281	34,810	35,283	165,306
MET DC €'000	1,556	1,503	1,479	1,581	1,578	7,697
NSA DC €'000	1,108	1,130	1,154	1,184	1,236	5,812
Total DC €'000	31,187	35,042	36,914	37,575	38,097	178,815
Total DUC €'000	164.49	179.15	185.68	185.19	184.31	
Add Restructuring Costs						
Restructuring Costs €'000	917	1,038	958	955	936	4,804
Impact on DUC €	4.83	5.30	4.82	4.71	4.53	
Total Ireland TANS Determined Cost & DUC RP3						
DC €'000	32,104	36,080	37,872	38,530	39,033	183,619
DUC €	169.32	184.45	190.50	189.90	188.84	

Planned DUC Rate Adjustments						
Adjustment	2020 DUC €	2021 DUC €	2022 DUC €	2023 DUC €	2024 DUC €	
RP2 CAPEX Refund	(22.99)	(12.10)	-	-	-	
COOPANS Refund	(1.54)	(1.07)	(0.31)			
Total DUC Impact + /(-) €	(24.53)	(13.17)	(0.31)			



## Staff and related costs - Analysis and NSA assessment

Staff and related costs are the single largest category in the Determined Costs. The human element is at the heart of effective ATM/ANS. This can be leveraged with Technology but having the correct number of staff to carry out the necessary functions is the most important factor in delivering a safe, efficient service to Stakeholders. Following extensive validation and challenge by the NSA, the following costs and staffing numbers were deemed necessary for RP3

**Figure G.1: Staff Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En route	64,126	66,937	69,046	70,848	72,803	343,760
Terminal	11,146	11,641	12,028	12,349	12,581	59,745
<b>Total</b>	75,272	78,578	81,074	83,197	85,384	<b>403,505</b>

**Figure G.2: ANSP headcount requirements for RP3**

<b>Category</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
ATCOs	313	325	333	338	338	346
Engineers	72	91	92	93	94	94
Data Assistants	37	43	45	45	45	45
Ops Mgt / Support	65	71	71	71	71	71
Corporate Services	67	70	70	70	70	70
<b>Total</b>	<b>554</b>	<b>600</b>	<b>611</b>	<b>617</b>	<b>618</b>	<b>626</b>

Staff costs, including pension costs, are driven mainly by forecasts of headcount and pay. Total headcount is forecast to increase by 13% over the course of RP3 from a base in 2019 of 554 employees to 626 employees at the end of 2024. It is worth noting that the initial staffing levels put forward by the ANSP were materially higher, and a reduction was deemed necessary by the NSA.

The biggest drivers for additional staff in RP3 are;

- to meet the operational requirement to support increasing traffic,
- provide operational resilience

- meet the demand for a new parallel runway at Dublin airport. The new runway brings with it a significant change to the IAA's staffing requirement, not only in terms of increased ATCOs but also increased numbers of engineers, data assistants and operational support staff. For example, an additional 18 ATCOs will be required to service the new runway.

This plan assumes 4 new Student Controller Programmes with students expected to complete their training in 2020, 2021, 2022, and 2024. Some of these trainees will be recruited to offset future retirements. The Plan assumes that ATCOs will retire, on average, at age 63, consistent with previous years. Based on particularly high recruitment levels in the late 1980's / early 1990's, it is also anticipated that retirements in early RP4 will be higher than usual. These and other relevant assumptions have been verified and validated by the NSA.

An increase in Engineers over the RP3 period is required to support current operational systems and deliver future systems into operation. In particular, increased engineering resources are required to support the new control tower at Dublin airport in terms of power supply, telecoms, air conditioning, CNS and ATM systems. The current tower will be maintained as a contingency tower requiring ongoing monitoring and maintenance. The new parallel runway will have new instrument landing systems and new ground radar systems which will also require engineering resources to monitor and maintain. In addition, a higher engineering headcount is justified from the viewpoint of ongoing maintenance of operational systems. Older CNS systems had longer lifecycles whereas the modern systems are server-based requiring more software patching and updates. With regulatory demands in terms of QMS, SMS, SeMS etc for quality, safety and security, there is a requirement for additional headcount.

As activities change and processes evolve, the staffing requirements in RP3 need to be reflective of the service delivery that is expected. However, in Ireland, there are some legacy issues from RP2 that have impacted the RP3 Determined Costs. During the period 2015 – 2019, en route traffic in Irish airspace has increased by an average of 3.8% per annum. In order to meet the significant increase in demand during this period and continue to deliver the quality of service that stakeholders expect, the IAA had to focus on core operations, which placed a significant strain on resources, and resulted in Capex delays and other areas of reprioritisation. This has required a process of "catching up" in the last years of RP2 and this catch up will continue into RP3, until traffic growth moderates.

These traffic levels across RP2 meant key decisions had to be made to prioritise capacity and service quality ahead of capital project delivery. Performance targets were achieved only at the expense of diverting resources from planned capital projects to core operations and by ensuring that sufficient frontline staff were available at the expense of capital investment. A range of short-term staffing solutions (overtime, leave-deferral, etc.) were key initiatives in delivering the no/low delay profile that benefitted the entire European network.

Short term measures such as a heavy reliance on overtime and considerable volumes of annual leave being deferred cannot be sustained into RP3. The NSA is certain that this high level of interdependency between capacity and cost-efficiency will continue to be a factor in RP3. This is borne out by our validation work, and RP2 monitoring. For example, our analysis has highlighted that traffic increases, and other legal and regulatory demands have resulted in overtime [+58%] and annual leave carry over [+44%] increasing to unsustainable levels during RP2.

The upward trend in overtime levels and annual leave carry over experienced over RP2 must be reversed. Failure to do so will impact the delivery of the agreed RP3 capacity target due to staffing issues as well as the implementation and development of projects designed to enhance service to customers. The link between overtime, annual leave accumulation and fatigue needs to be emphasised. This will become particularly relevant with the implementation of Regulation (EU) 2017/373. The airline industry has previously encountered difficulties with rostering resulting in large scale flight cancellations and this needs to be avoided in Air Traffic Service provision.

While traffic growth is the primary driver for increasing staff numbers, there are a number of other factors which also place a demand on resources. These factors include, in addition to the provision of a safe operational service, safety work, project work, on-the-job training, competency assessments and regulatory requirements. New Regulations such as Regulation EU 373/2017 will require additional resources while the ANSP's capacity to deliver on safety work, ATM occurrence investigations, systems testing and validations, project work, on-the-job training and competency assessments will require the planned increases in headcount.

In addition, legal entitlements which are beyond the control of the IAA also place demands on resources such as the recent new paid parental leave and benefits announced by the Irish government. This new benefit, which is in addition to current maternity and paternity benefits, offers two weeks' paid leave

to both parents in employment during the first year and will come into effect from November 2019. Ultimately, parents will be able to benefit from seven weeks' leave each under the scheme as it develops incrementally over the first three years of RP3.

## Other Operating Costs - Analysis and NSA assessment

**Figure G.3: Other Operating Costs (excluding Restructuring Costs) (En Route and Terminal)**

<i>2017 prices</i>	<b>2019 €'000</b>	<b>2020 €'000</b>	<b>2021 €'000</b>	<b>2022 €'000</b>	<b>2023 €'000</b>	<b>2024 €'000</b>	<b>RP3 €'000</b>
En Route	27,161	31,460	33,154	33,695	33,418	33,791	165,518
Terminal	5,630	7,941	7,696	7,208	7,291	7,224	37,360
<b>Total</b>	<b>32,791</b>	<b>39,401</b>	<b>40,850</b>	<b>40,903</b>	<b>40,709</b>	<b>41,015</b>	<b>202,878</b>

Other operating costs comprise travel, training, systems and equipment maintenance, spares, telecommunications, general maintenance, power, environmental costs, flight checking, subscriptions and general sundry. Also included are administration costs such as rent and rates, computing/NIS, insurance, environmental, buildings repairs and maintenance, security, cleaning, consultancy, audit, pension and legal fees, recruitment, medicals, employee wellbeing and health and safety, stationery and file storage. The NSA required these costs to be broken down by category and between en route and terminal, with accompanying justification and explanation. The following points are indicative of this analysis and highlight some of the main drivers of incremental increases from RP2 to RP3.

**Travel costs** are expected to remain consistent over the course of RP3. All travel and subsistence costs are paid at rates approved by the Department of Finance.

**Training Costs** included in this PP are in relation to; (a) ATCO training, (b) technical engineering training and (c) general training. ATCO training costs are expected to remain high in RP3 due to the training associated with the new tower and the overall increase in ATCO headcount resulting in higher costs of continuation training. There is provision made for four student controller programmes in RP3.

The cost of training for engineers is expected to increase in RP3 due to several factors such as increased engineering headcount, EU Regulation 373/2017, and the Network and Information Security directive.

**Utilities** comprise costs of telephones and light and heat and are not expected to change materially over the course of RP3. Utilities account for, on average, just 0.4% of total expenditure.

**Telecoms** comprise the costs of private wires for the transmission of radar data, flight plans, meteorological information and voice communications. The costs of these lines are planned to increase in RP3 due to the new tower at Dublin airport and the new en route contingency centre, which requires a parallel network. Along with this, there is an increased cost associated with the transition from TDM to IP Technology. TDM private wires are required for the stability they provide, and the newer IP services need to be monitored over time before they can be used to replace legacy TDM. Few, if any, European ANSP's are using IP networks for air-ground voice in a live operation environment. The IAA will operate with both for a period of time until IP network technology is fully proven for mission critical services.

**Maintenance and Spares** costs comprise of contracts in relation to air traffic management operational systems and electrical plant as well as facilities management contracts. There is an increase in 2020 of €2m directly related to the new tower and the en route contingency centre, which was not incurred in RP2.

**Environmental.** Following the Irish Government's May 2019 announcement of a Climate and Biodiversity emergency, semi-states and public sector bodies will be required to take the lead in reducing carbon emissions and becoming more energy efficient. The IAA has allocated €4m over RP3 to undertake highly focused energy efficiency projects on an annual basis to reduce the company's energy consumption. Similar costs were not incurred in RP2.

**Rent and Rates** include the IAA's corporate headquarters, and several of its operational sites including its buildings at Dublin and Shannon airports as well as remote sites housing radars and other equipment. Excluding the impact of Institutional Separation, these costs will remain close to RP2 levels (€3m p.a.).

**NIS – Network and Information Security** The IAA is required to be compliant with the EU Directive on security of network and information systems (NIS Directive) from January 2020. This Directive mandates that the IAA has the capability to 'identify, protect, detect, respond and recover' regarding security

issues. Therefore, as part of ensuring compliance with this Directive, the IAA needs to invest in its cyber defences to meet the increased risk profile caused by cyberthreats. The IAA has allocated €7m over RP3 to address these requirements.

**Insurance**; All indications are that the costs of aviation liability are set to increase over RP3. Other business insurances are also increasing markedly on an annual basis.

**Security, Cleaning and General Repairs**; The increasing cost of labour in the Irish economy is causing an upward trend in the costs of labour-intensive services such as these. NSA analysis has highlighted an incremental impact of about €1m p.a. increase in RP3, compared to RP2.

## Appendix H

## ANSP Investment Plan RP3

### Excerpt from IAA ANSP RP3 Business Plan - Investments

This Plan is based on the assumption that the IAA will deliver into operational use capital projects with a value of €164.4 million in RP3. The IAA charges its capital costs only when projects have been brought into operational use. The projects making up this total are as follows:

	Dates of Capitalisation	Value of Project €'000
<b><i>ATM Operations and Technology Projects</i></b>		
New visual control tower and parallel runway at Dublin	2020-2021	56,254
COOPANS ATM system	2020-2024	6,526
NAVAIDs replacement programme	2020-2024	6,500
Next Generation COOPANS (first phase)	2023	5,248
RADAR replacement at woodcock hill	2024	5,050
SWIM	2023	3,471
Voice Over Internet Protocol	2020-2024	3,450
VHF replacement and frequency expansion	2020-2024	3,010
North Dublin RADAR	2021	2,697
Replacement COOPANS hardware	2020	1,600
NIS directive - system resilience	2020-2024	1,600
Other ATM Operations and Technology projects	2020-2024	26,187
<b>Total ATM Operations and Technology</b>		<b>121,593</b>
<b><i>Property, Security and ICT Projects</i></b>		
Plant and equipment upgrades	2021-2024	8,426
North Dublin RADAR building	2022	3,600
Upgrade of operational buildings	2021-2024	3,332
Security upgrades	2021-2024	3,067

Other property and security projects	2020-2024	7,302
ICT projects – various	2020-2024	6,523
<b>Total Property, Security and ICT projects</b>		<b>32,250</b>
<b><i>Projects driven by IAA restructuring</i></b>		
Accommodation fit-out and ICT	2020	10,560
<b>Grand Total</b>		<b>164,403</b>

## Excerpt from IAA ANSP RP3 Business Plan - Technology Strategy

### Introduction

The IAA has a wide range of investment projects aimed at delivering service improvements to our customers, through increased efficiency and value for money, while improving safety performance. This is achieved through discussions with our customers, implementing European ATM requirements, and leveraging technology partnerships across Europe. The vision of the IAA Technology Strategy is to meet the operational, safety, strategic and corporate needs of the organisation with the appropriate technology and expertise in a cost-effective manner.

### Strategic Objectives

The Technology Strategy for RP3 has considered a range of key strategic drivers, based on customer feedback and industry knowledge, from Safety and Security to Drone Integration as detailed in the figure below.



**Figure H.1: Key drivers of technology strategy**

1. Safe and Secure Operational systems. This is achieved through continuous performance monitoring and periodic obsolescence management of operational systems as well as a robust security policy.
1. Regulatory Compliance as part of the SESAR Deployment program and other EU Regulations, the IAA is mandated to implement technology changes within an agreed time scale. The technology strategy has taken these requirements into account to ensure they are delivered in a timely fashion. Most of the requirements will be delivered through enhancements to the COOPANS system and electronic flight strip system.

Some examples of the mandated changes required are SESAR PCP's:

- a. Implement Aeronautical information exchange (PCP).
- b. Implement Meteorological information exchange (PCP).
- c. Implement extended arrival management at Dublin and facilitate the introduction to other listed airports as required by the PCP.
- d. Implement integrated Surface Management Constraints at Dublin by end of 2020 (PCP).
- e. Implement extended arrival management in the Dublin terminal manoeuvring area by end of 2023 (PCP)
- f. Implement Time-Based Separation for Final Approach at Dublin by end of 2023 (PCP).
- g. Implement Automated Assistance to Controller for Surface Movements Planning and Routing at Dublin by end of 2023 (PCP).
- h. Implement Aeronautical information exchange (PCP)

- i. Implement Meteorological information exchange (PCP)
  - j. Implement Cooperative network information exchange (PCP)
  - k. Implement Flight information exchange (PCP)
2. Capacity and Environment, the IAA have a strong track record of extremely low delay (zero). Continuing to achieve this level of performance as traffic grows both in RP2 and into RP3 is a key challenge for our business and accordingly we are planning investments in technology as well as in our people and processes such that this high-quality performance can be maintained over RP3.

A specific example of capacity increase activity for RP3 will be the introduction into operation of the new parallel runway at Dublin with the new visual control tower. A significant redesign of Dublin ACC airspace and sectors will be implemented, as will modified ground procedures to facilitate the use of the two parallel runways. These will lead to major capacity increases at Dublin airport.

3. Innovation via Digitisation and best practice e.g. via complete migration of the IAA's existing data Communications networks to IP based technology, use of big data and analytics. This will enable operational efficiencies while supporting improved data sharing services with high bandwidth needs, including centralised monitoring, remote towers and optimisation of controller workload via enhanced tools.
4. Strategic Partnerships, the IAA will continue to build on existing strong partnerships such as COOPANS, BOREALIS and EPN. These deliver savings to our customers, help grow innovation and shared expertise as well as fostering the spirit of the Single European Sky.
5. Obsolescence, the IAA will replace systems as they reach end of life to ensure continued safe, secure and efficient operations.
6. Productivity Improvements using technology and innovation to increase operational capacity and productivity.

Examples of planned improvements include; Time Based Separation will deliver increased runway capacity, whereas enhanced data linking will increase ATCO productivity via better automation of routine tasks.

7. Operational Resilience will be improved both via the availability of contingency systems and business contingency capabilities and ensuring systems are appropriately security protected from unauthorized access.
8. Drones Integration is required with the expected growth in drone operations. It is important that work in this area commences during the RP3 period.

### Key Projects

#### New Dublin Air Traffic Control Tower

The DAA have commenced build of a parallel runway at Dublin airport to meet growing demand and counter current congestion issues. The development of the parallel runway has necessitated the IAA to build a new visual control tower and associated infrastructure in order to “release” the capacity of the new runway. The delivery of the IAA’s new Visual Control Tower at Dublin Airport is an essential enabler for the proposed parallel runway. Building works on the Tower were completed March 2019 and the Technology fit out has commenced.

**Figure H.2: Progress on Control Tower at Dublin Airport**



The New Tower and Parallel Runway project will be the most significant project undertaken by the Authority during RP3.

### **COOPANS and Tower FDP Systems**

COOPANS is a well-recognised, successful partnership, for procurement of ATM systems amongst 6 ANSP's (IAA, LFV, NAVIAIR, AUSTROCONTROL, CROATIA CONTROL, NAV PORTUGAL). The COOPANS ATM system delivers cost efficiency, safety, capacity and environmental performance benefits. COOPANS is currently at a point of ATM system stability. Operational staff believe the system to be working well, with harmonised software across all centres. As a group, the COOPANS ANSPs are comparable to one of the EU 'Big 5' ANSP's in terms of 'control' and capacity, have low costs and are efficient compared with other ANSPs.

COOPANS is in the process of planning for the next generation systems, which will replace our existing FDP. COOPANS are evaluating the new Thales FDP, which will increase system capacity as well as meeting new European regulatory requirements. This will require significant investment over the next decade from all the COOPANS partners and will deliver incremental improvement of safety, efficiency, resilience and capacity. Examples of planned improvements include; Time Based Separation will deliver increased runway capacity, whereas enhanced data linking will increase ATCO productivity via better automation of routine tasks. In RP3, the IAA is anticipating a cashflow spend of €20.9m directly attributable to the new Thales FDP. This project is expected to be capitalised over the course of 2023 – 2029.

FDP Tower projects include the implementation of Electronic Flight Strips (EFS) in the Dublin, Cork and Shannon towers. This will enable a standardisation of tower procedures across all three towers and increase efficiency in turnaround times for airline customers.

### **Communications, Navigation and Surveillance (CNS)**

Most CNS projects are driven by obsolescence, resilience and/or capacity/efficiency improvement. The installation of additional radar capacity at Dublin Airport is required to maintain 3NM separation on a continual basis. The IAA is also planning a number of radar upgrades that will extend the life of the existing radar heads. The IAA's Navigational Aids Infrastructure, the ILS (Instrument Landing Systems) have been in service since 2006, and they will be renewed during RP3. The IAA is also over the term of this plan migrating to IP based data communications, including voice-over IP, designed to meet future SESAR and ATM requirements

### **Contingency En route Overflow Centre (CEROC)**

The IAA's new En route Contingency centre will go operational in RP3 and will be based entirely on IP technologies. This will provide for improved resilience with a high level of back-up to the Shannon ACC thereby minimising disruption to our customers should a contingency situation occur.

### **Strategic Partners**

The IAA has several existing Strategic Partnerships which the IAA has forged, and which are delivering real benefits e.g. COOPANS and EPNI. IAA will continue to evaluate further opportunities which can delivery tangible safety, efficiency or cost control benefits.

The IAA regularly meet with existing and potential new partners such that we can drive productivity, safety and cost control.

### **Systems Resilience to Protect Business Continuity**

The IAA are continually seeking to improve systems resilience in order to ensure business continuity and minimise delays. Examples of significant projects over the course of RP3 include:

- New Contingency En route Overflow Centre,
- New and Enhanced Backup FDP System,
- New Generator and Uninterruptable Power Supply Systems at Remote Sites,
- Enhanced Systems Monitoring and Control Capability,
- Using Satellite based ADS-B as a backup for ground-based Surveillance Systems.

### **Areas of Innovation**

#### **SESAR Delivery**

As part of the European ATM Masterplan the IAA is mandated to implement the SESAR Deployment Program (SDP) and the associated PCP.

The PCP's are divided into a number of specific project areas referred to as ATM Functionalities (AF), focusing on delivering incremental changes across all flight phases from gate to gate. Rather than focusing on improvements in the En route phase only, the PCP are looking at improving performance across the entire

network. Technology improvements will be delivered through our COOPANS, EFS, A-CDM and other systems.



### **Airport Collaborative Decision Making (A-CDM)**

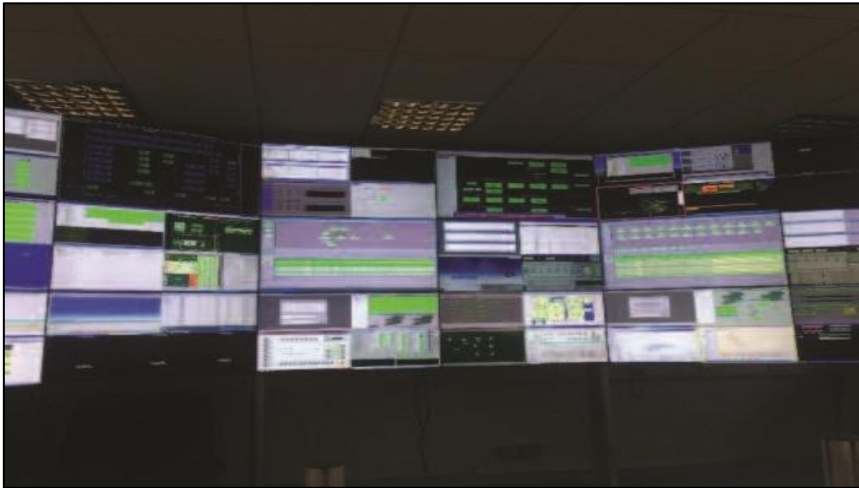
The IAA has engaged with DAA and airlines to ensure the concept of operations and associated systems take into account the future growth needs of Dublin Airport. Initial A-CDM has been introduced as part of deployment of the Electronic Flight Strip system with the network elements currently on trial. A-CDM is also considered a key requirement to future Airport efficiencies and is also part of the SESAR Deployment Program.

### **Tower Innovations**

Electronic Flight Strips (EFS) is currently operational in Dublin Tower. The installation of EFS in Cork and Shannon towers will enable a standardisation of tower procedures across all three towers.

### **Centralised Monitoring – Virtual Technical Desk**

The installation of centralized monitoring for all operational systems in Shannon, Dublin, Cork and Ballygirreen is ongoing. This is an innovative technology that will enable enhanced monitoring of all IAA operational systems.



### **Remote Tower**

The IAA aims to implement remote tower technology for Shannon and Cork airports. The remote tower project will enable capability to provide a safe, efficient and cost-effective ATM service for Cork and Shannon Towers from a remote location based in the Ballycasey Operations Centre.



### **System Wide Information Management (SWIM)**

SWIM is a SESAR Deployment enabler for future netcentric operations, as shown in the diagram, where data is shared between all parties on a needs basis, as opposed to today's data connections which have been implemented on a point to point basis. The IAA are working with our COOPANs partners to explore the opportunities associated with SWIM, such as Virtualisation and Collaboration on Security Policies and Procedures. SWIM along with standardised, interoperable systems will enable virtualisation whereby ATC services can potentially be provided irrespective of the location of the infrastructure. PENS (Pan European Network Service) will be and enabler for SWIM.

## Appendix I

## Abbreviations

Abbreviations	
A-CDM	Airport Collaborative Decision Making
AMAP	Aviation Modernisation and Automation Project
ANS	air navigation services
ANSPs	air navigation service providers
ASMA	arrival sequencing and metering areas
ATC	air traffic control
ATCO	Air Traffic Control Officer
ATFM	air traffic flow management
ATM	air traffic management
CAPEX	capital expenditure
CARG	compound annual growth rate
CFMU	Central Flow Management Unit
COOPANS	Cooperation for Procurement of ANSP Systems
CPI	consumer price index
DB	defined benefit
DC	determined costs
DSOT	Dynamic Sectorisation Operational Trial
DTTAS	Department for Transport, Tourism and Sport
DUC	determined unit costs
DUR	determined unit rate
EASA	European Aviation Safety Agency
EBITDA	earnings before interest, taxes, depreciation and amortisation
EoSM	effectiveness of safety management
EURIBOR	Euro Interbank Offered Rate
FAB	functional airspace block
FDP	flight data processing
FIR	Flight Information Region



Abbreviations	
FRA	Free Route Airspace
FUA	Flexible Use of Airspace
GDP	gross domestic product
IAA	Irish Aviation Authority (ANSP)
IAA SRD	Irish Aviation Authority Safety Regulation Division (Irish NSA)
ICAO	International Civil Aviation Organization
ICT	Information and Communications Technologies
IFR	Instrument Flight Rules
IMF	International Monetary Fund
JC	just culture
KEA	horizontal en route flight efficiency of the actual trajectory
KEP	horizontal en route flight efficiency of the last filed flight plan
KPA	key performance area
KPI	key performance indicator
MAG	Manchester Airports Group
METSPs	meteorological service providers
NATS	NATS Holding Ltd
NIE	Northern Ireland Electricity
NMD	Network Management Directorate (Eurocontrol)
NSA	National Supervisory Authority
OEF	Oxford Economics Ltd forecasts
Opex	operating expenditure
PBO	pensions benefit obligation
PP	Performance Plan
PPP	Public Private Partnership
PRB	Performance Review Body
RAT	Risk Analysis Tool
RP	reference period
SES	Single European Sky
SESAR	Single European Sky ATM research
SMS	Safety Management Systems

Abbreviations	
SKPI	safety key performance indicator
SSC	Single Sky Committee
STATFOR	Eurocontrol Statistics and Forecasting Service
SUs	service units
TANS	terminal ANS
TCAS	Traffic alert and Collision Avoidance System
TNSUs	terminal service units
TSUs	total service units
UIR	Upper Information Regions
WACC	weighted average cost of capital