



**Maximum Level of Aviation Terminal Service Charges that may
be imposed by the Irish Aviation Authority**

DRAFT DETERMINATION

Commission Paper 1/2011

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Commission for Aviation Regulation

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EXECUTIVE SUMMARY

1. This paper presents the Commission's draft determination capping the level of aviation terminal service charges that the Irish Aviation Authority (the IAA) may levy at Cork, Dublin and Shannon airports. These charges are levied in respect of the provision of aviation terminal services for landing and departing aircraft from the three airports. The IAA separately charges airlines for en-route air navigation services, charges that are not subject to regulation by the Commission.
2. The 2012 starting cap represents a reduction of about 28 per cent on the 2011 cap. Thereafter, the cap is expected to fall further by about 5 per cent per annum in real terms. The projected revenues the IAA is expected to collect in 2015 broadly correspond to those collected in 2006/07, when terminal traffic was last close to the level foreseen for 2015. The determination will last four years

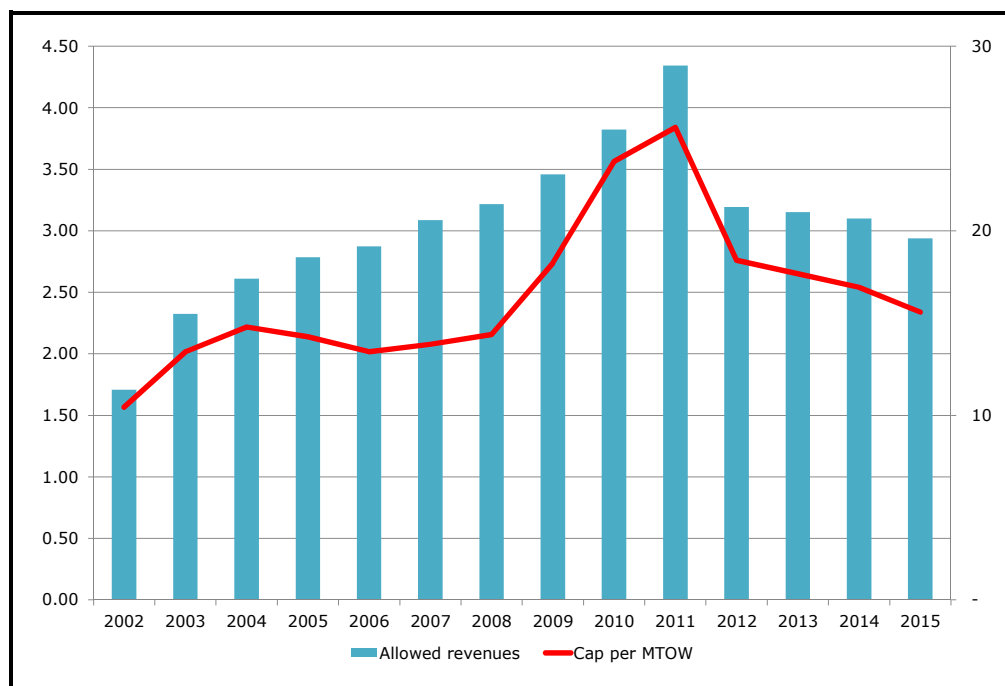


Figure E1: IAA Terminal Service Revenues and Charges per MTOW

Source: Commission calculations

3. At the time of the Issues Paper, the Commission identified a number of issues that might be relevant for this forthcoming determination:
 - Single European Sky II (SES II)
 - Volume-risk sharing
 - Over and under recovery against the price cap
 - Operating efficiency
 - Capex underspend

4. It is perhaps the last two points that have been the most significant features in shaping this determination. The chart below shows how out-turn traffic, investment and operating expenditure compare with forecasts at the time of the 2007 determination. Traffic is lower than forecast because of the severe economic downturn. Partly in response to this, the IAA has undertaken less investment than envisaged in 2007; however its total operating costs are above forecast despite the lower than expected traffic. With this background in mind, we have made decisions relating to capex underspend and operating efficiency that result in a significant reduction in the price cap.

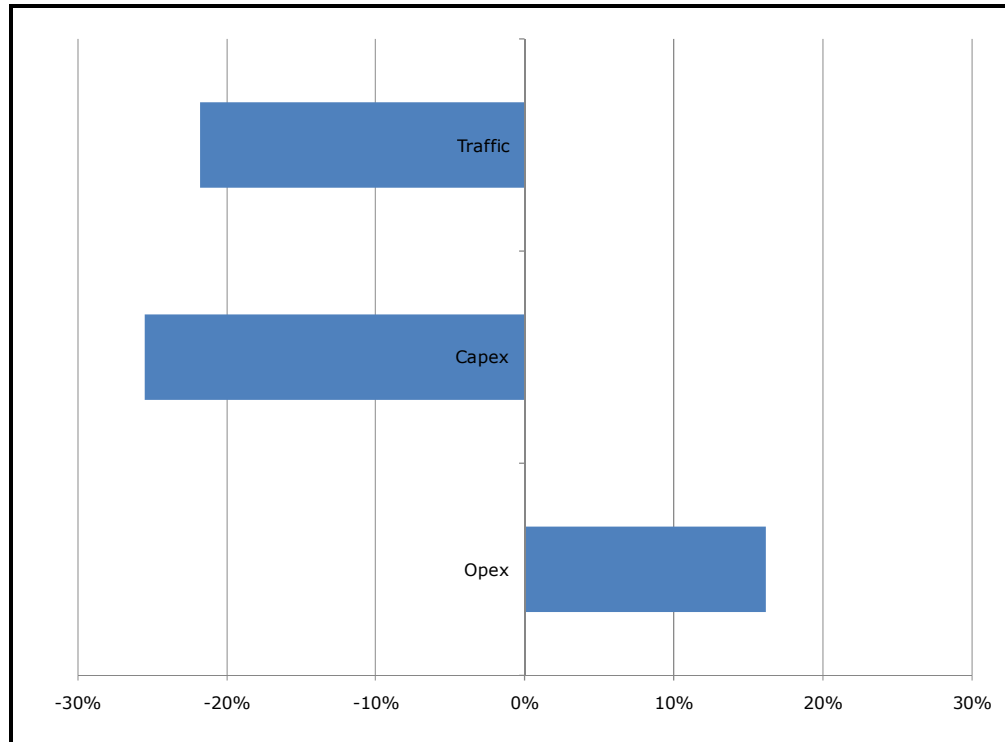


Figure E2: Cumulative Deviation from 2007 Determination Forecasts

Source: Commission calculations

5. The 2007 determination envisaged increases in real terms in the price cap, primarily to fund an extensive investment programme outlined by the IAA. Ultimately, the IAA has spent considerably less on capital projects than allowed in 2007. Nevertheless, it chose to price up to the cap in the intervening years. The forthcoming determination seeks to “clawback” those revenues that the IAA was allowed to collect on the basis of investments that it subsequently did not make. This is achieved by revising the starting regulatory asset base (RAB) down – future depreciation charges and returns on capital are consequently lower in the forthcoming period. Furthermore, the determination assumes future investment levels in line with average outturn capital expenditure in the past decade and not the high levels assumed in the 2007 determination. The result is a price cap that is about 28 per cent below the 2011 price.
6. While the IAA undertook less capital expenditure than expected, its operating expenditure exceeded the targets set in the 2007 determination. The current levels of operating expenditure are higher than we forecast would be required, despite the fact that the outturn traffic for 2011 was much lower than the 2007 forecast for traffic in 2011. The discrepancy between target

and outturn operating expenditure is even greater when looking at unit costs, given the decline in traffic. For the forthcoming determination, we have set a price cap that will require the IAA to realise operating efficiencies of about six per cent per annum in real terms. The 2015 price cap assumes a level of operating expenditure similar to the levels in 2006. To achieve such savings, we expect the IAA will have to cut its staffing costs, an area where the IAA's costs have evolved in a manner that appears to compare unfavourably with other sectors in the Irish economy. The draft determination contains a target level of €13.5m for operating expenditure in 2015, compared to the €16.7m sought by the IAA.

7. The effects of SES II for this determination are limited because the Irish government has chosen to defer the application of the amended charging regulations to terminal service until 31 December 2014. The main change in this determination that might be attributed to European regulations is our decision to set a cap per terminal service unit (TSU), rather than per ton of maximum take-off weight (MTOW). This change is to align the cap with the charging unit that the IAA intends to use in the forthcoming period to comply with European regulations. The current formula used by the IAA to estimate TSUs will change in 2012 and 2014; our determination anticipates these changes.
8. We propose continuing with a volume-risk sharing regime, but in future adjustments will occur with a lag of two years. So if traffic deviates from forecast in 2012, the 2014 price cap will be adjusted to compensate partially the IAA if traffic was lower than expected or to partially reimburse airlines if traffic exceeded forecast. The arrangement entails less risk sharing than the SES II scheme. We have adopted STATFOR's baseline traffic forecast.
9. This draft determination proposes reducing the scope for adjustments to the price cap arising from the IAA over and under-collecting relative to the cap. In future, the IAA will be required to reimburse users within 45 days should it over-collect in a year; should it under-collect future caps will only be adjusted to allow the IAA to recover at most 5 per cent of the allowed revenues in the year in which it under-collected.
10. For the first time, we propose to include a quality of service term. There will be a financial incentive for the IAA to avoid delays due to industrial action, equipment failure and other factors within its control. For every day there is an ATFM regulation delay in excess of 15 minutes due to criteria such as "industrial action (ATC)" or "ATC equipment", the price cap will be reduced by 0.33 per cent. The penalty will also apply if airlines cancel flights in anticipation of such problems. The total penalty in a year is capped at 10 per cent, and would apply if the IAA was responsible for significant disruption on 30 or more days in the year.
11. The IAA will be able to collect additional revenues if passenger numbers exceed 23.5 million at Dublin airport, so as to fund a control tower or other option to permit use of a parallel runway at Dublin airport. The amount the IAA will be allowed to collect is €4.1m for subsequent years of the forthcoming regulatory period – about a 20 per cent increase in the cap. We have not reached a final conclusion on how much to allow for such a project, given uncertainty about viable technologies. The proposed trigger is the same as the trigger for a new runway in the current airport charges determination, to reduce the risk of users being asked to pay for a tower when there is no runway (or vice versa). However, parties should be aware that the proposed trigger would mean the runway was complete almost 18 months prior to a

tower being fully operational, if the DAA and IAA's estimates for completing work on a new runway and tower respectively are correct.

12. We invite comments on all aspects of this draft determination by no later than 3pm 27 July 2011. Details on how to respond are set out in Chapter 11 of this report. Following receipt and consideration of responses to this draft determination, we will publish a final determination by the end of the year. We currently plan to do this in October 2011.

1. Notice of the Making of a Determination

- 1.1 In accordance with Section 35(5) of the 2001 Aviation Regulation Act, the Commission for Aviation Regulation hereby gives notice that it intends to make a determination specifying the maximum levels of aviation terminal service charges that the Irish Aviation Authority may levy.
- 1.2 Pursuant to Section 35(5) (c) of the 2001 Act, the Commission must allow a statutory consultation period of not less than two months from date of publication of this notice. As in previous periods, the Commission gives notice by way of publishing a draft determination. The closing date for the receipt of representations is **3.00pm, 27 July 2011**. Interested parties should note the contents of Chapter 11 concerning the deadline. The conditions contained therein will be strictly applied without exception. Interested parties should also note the guidelines regarding issues such as delivery of documents and confidentiality.

2. Introduction

- 2.1 This paper presents the Commission's draft determination specifying the maximum level of aviation terminal service charges (ATSC) that the Irish Aviation Authority (IAA) may levy at Dublin, Cork and Shannon airports. Section 36 of the 2001 Aviation Regulation Act sets out the statutory objective of the Commission and the statutory factors to which it must have due regard when making a determination.

Consultation Process to Date

- 2.2 The proposed timetable leading to the making of the forthcoming ATSC determination was included in the Commission's Annual Report to the Minister for Transport for the year ended December 2009. An up-to-date timetable has been maintained on the Commission's website since then.¹
- 2.3 The Commission published an Issues Paper (CP3/2010) on 29 October 2010. That provided some background data and set out various issues that the Commission considered relevant for the purposes of making a determination. It invited interested parties to comment on policies that the Commission should adopt, methodologies it should use, or data sources that it might rely on. The Commission received responses from Aer Lingus, the IAA and the International Air Transport Association (IATA).
- 2.4 The IAA provided the Commission with its forecast traffic and costs in February 2011. It also included its investment plans, which were subsequently presented to the industry on 15 April.
- 2.5 The publication of this draft determination was originally intended for April 2011, but this was deferred due to uncertainty about how European regulations arising under the second Single European Skies package (SES II) would be implemented in Ireland. A letter from the Department of Transport dated 29 April notified the Commission that Ireland would be deferring implementation of the regulations as they relate to terminal charges until 31 December 2014.²

Consultants Retained by the Commission

- 2.6 Steer Davies Gleave (SDG) advised the Commission on matters relating to a possible service quality regime. Annex 3 contains their final report.

Structure of the Paper

- 2.7 The next chapter sets out the Commission's draft determination. The subsequent chapters describe how the Commission reached this decision. The chapters are ordered in the same way as the Issues Paper. The Commission summarises the comments to the Issues Papers received from interested parties in the chapters to which the particular point raised relates, and sets out the reasoning behind the approach the Commission has chosen to adopt.
- 2.8 *Chapter 4* describes the Commission's approach to regulation. This includes issues relating to the charging formula, developments under SES II, and volume-risk sharing.
- 2.9 *Chapter 5* sets out the Commission's current thinking on how it will treat service levels in setting the price cap for the next ATSC Determination.

¹ See http://www.aviationreg.ie/2011_ATSC_Decision/Default.485.html

² See Annex 2.

- 2.10 *Chapters 6, 7, and 8* respectively deal with the traditional regulatory building blocks of volume forecasts, operating expenditure (“opex”) and capital costs. They set out the Commission’s forecasts for each of these variables and, where relevant, discuss how they compare to the projections of other parties.
- 2.11 *Chapter 9* sets out other issues that do not fall neatly within one of the traditional ‘building blocks’ but nevertheless may influence the final Determination. Topics in this chapter include: the treatment of any over or under-recovery of ATSC revenues relative to the cap; the allocation of costs; deflation; and the effects of volcanic activity.
- 2.12 *Chapter 10* outlines how the Commission believes it has met its statutory objective and had due regard to various statutory factors. In most cases, this is done by referring to the preceding chapters.
- 2.13 The final chapter provides important details for parties wishing to respond to this draft determination. It is a statutory consultation, so it is imperative that parties respond by the deadline of 3pm, 27 July 2011.
- 2.14 Unless otherwise indicated in the text, all of the monetary values quoted in this report are in January 2011 prices. The 2007 Determination used the 2006 consumer price index (CPI) =115.7 (Dec 2001 base) from the Central Statistics Office (CSO) as the price basis for the price cap. The 2010 Issues Paper used September 2010 CPI = 120.1 (Dec 2001 base) or CPI = 101.8 (Dec 2006 base).

Timetable for the 2011 Determination

- October 2010: Publication by the Commission of Issues Paper
- December 2010: Deadline for responses to Issues Paper
- February 2011: IAA provided the Commission with outturn/projected data on opex, capex and demand for 2007-2011 and its Technology Investment Plan
- April 2011: Meeting held by IAA to discuss investment plans
- May 2011: Publication by the Commission of Draft Determination
- 27 July 2011: Deadline for responses to Draft Determination
- October 2011: Publication by the Commission of **Final Determination**

3. Draft Determination

- 3.1 The Commission proposes setting a price cap on the charge per terminal service unit (TSU) that the IAA may levy for each of the four years of the forthcoming determination. The TSU will be defined as $(MTOW/50)^{0.8}$ in 2012 and 2013, and as $(MTOW/50)^{0.7}$ in 2014 and 2015, to align the cap with the charging unit that the IAA intends to use in those years. In 2012 the cap will be €152 per TSU. Previous determinations set a cap per maximum take-off weight (MTOW). Because the cap is expressed in terms of a different charging unit, making a direct comparison with earlier caps requires assumptions about how the relationship between TSUs and MTOWs will evolve over time. Assuming the same relationship as in 2010, the proposed price cap in 2012 is expected to be 28 per cent lower than this year, and to fall by about 5 per cent in real terms each year thereafter.
- 3.2 The cap will be adjusted to control for the effects of changes in the CPI. Additional adjustments will also be made if and when the following events occur:
- Annual passenger numbers at Dublin airport exceed 23.5 million. This will trigger an annual allowance of €4.1m intended to fund a new tower or other suitable technology to facilitate use of a parallel runway at the airport.
 - There are air traffic flow management (ATFM) delays in excess of 15 minutes due to "industrial action (ATC)", "ATC equipment", "ATC staffing" and "ATC capacity", or there are cancellations arising because of such factors. For each day such disruption occurs up to a maximum of 30 days in a year, the price cap will be reduced by 0.33 per cent.
 - There is a discrepancy between the forecast and outturn level of traffic, measured in TSUs. If traffic exceeded forecast, the subsequent cap will be reduced by an amount equal to 50 per cent of the additional revenues that the traffic increase generated; if traffic is below forecast, there will be an upward adjustment to permit the IAA to recover 50 per cent of the revenues that it forewent because of the fall in traffic. These volume-risk sharing adjustments will occur with a two-year lag.
- 3.3 We do not propose to include any sub caps.
- 3.4 A yield table for the determination is shown overleaf. This shows the inputs used in the calculations. The rationale for the numbers in the table is explained in more detail in the following chapters of this report. The yield table assumes that the traffic outturn corresponds to the traffic forecast, the trigger for a new tower at Dublin airport is not met, and that the IAA satisfies its quality of service target. An Excel model is available on the Commission's website that allows parties to trace the various calculations that give rise to the yield table.

Yield table (€, 2011)	2011	2012	2013	2014	2015
RAB at start of year	19.9m	19.6m	20.3m	19.9m	19.9m
Investment (non-milestone)		3.9m	5.4m	4.8m	4.4m
Depreciation		4.2m	4.7m	5.2m	5.0m
RAB at end of year		19.6m	20.3m	19.9m	19.4m
Discounting rate of return (WACC)		5.6%	5.6%	5.6%	5.6%
Rate of return on average RAB		5.45%	5.45%	5.45%	5.45%
Return on assets		1.1m	1.1m	1.1m	1.1m
Operating costs		16.0m	15.2m	14.4m	13.5m
Depreciation		4.2m	4.7m	5.2m	5.0m
Regulatory levy		0.1m	0.1m	0.1m	0.1m
Required revenues		21.3m	21.0m	20.7m	19.6m
Forecast traffic (all in 000s)*					
MTOW		7,713	7,923	8,134	8,379
TSU (quotient to the power of 0.9)		147	151	155	159
TSU (quotient to the power of 0.8)		140	144	148	152
TSU (quotient to the power of 0.7)		134	138	142	146
Price cap (€)*					
MTOW	3.85	2.76	2.65	2.54	2.34
TSU (quotient to the power of 0.9)		145	139	134	123
TSU (quotient to the power of 0.8)		152	146	140	129
TSU (quotient to the power of 0.7)		158	152	146	134
Total allowed revenues		21.3m	21.0m	20.7m	19.6m

Table 3.1: Yield table

Source: Commission calculations

*The current cap is expressed per MTOW, although the IAA sets charges in TSUs with a quotient to the power of 0.9. For 2012 and 2013, the cap will be expressed in TSUs with a quotient to the power of 0.8, and in 2014 and 2015, the cap will be expressed in TSUs with a quotient to the power of 0.7. To permit comparison, we have included projections for all four series, although in any given year the cap will be binding only with reference to the charging unit that the IAA has indicated it will use in that year to comply with SES II regulations.

- 3.5 To realise the Dublin tower trigger in the next four years will require above forecast growth in traffic at Dublin. In such circumstances, it is possible that the volume-risk sharing arrangements will have an offsetting effect on the price cap should the Dublin tower trigger be satisfied. Nevertheless, for illustrative purposes, the table below shows how much higher the forecast price cap will be if the trigger is realised under the forecast TSUs.

Effect on price cap	2013	2014	2015
Per MTOW	+0.52	+0.50	+0.49
Per TSU (quotient to the power of 0.9)	+27	+27	+26
Per TSU (quotient to the power of 0.8)	+28	+28	+27
Per TSU (quotient to the power of 0.7)	+30	+29	+28
Percentage increase	+20%	+20%	+21%

Table 3.2: Effect of Dublin Tower Milestone on Price Cap

Source: Commission calculations

*Calculations assume milestone achieved without any deviation from the forecast levels of MTOWs and TSUs.

4. The Commission's Approach to Regulation

- 4.1 The Commission proposes to express the cap on ATSC as a maximum per charging unit that the IAA may levy, rather than as a maximum per unit of MTOW. In 2012 and 2013, the charging unit will be $(MTOW/50)^{0.8}$, while from 2014 onwards it will be $(MTOW/50)^{0.7}$. The determination will last for four years, with a separate annual price cap specified for each year. There will be a volume risk sharing arrangement, similar to the current arrangement except that any adjustments will apply two years after the year in which traffic volumes deviated from forecast.

Statutory background and scope of the regulation

- 4.2 The determination regulates the level of revenues that the IAA can collect from ATSCs levied on users at airports in the State with annual passenger throughput in excess of one million passengers per annum in the calendar year. This currently includes Cork, Dublin and Shannon airports. It covers only terminal services, and not en route charges for which we have no regulatory role. In delineating between en route and terminal services, we continue to associate the costs of Cork, Dublin and Shannon towers, as well as certain costs of the Dublin and Ballycasey Area Control Centres (ACCs), with the provision of terminal services.
- 4.3 For the purposes of making this determination, the statutory environment is similar to that prevailing in 2007. There have been significant developments relating to SES II initiative in the intervening period, but the Irish government has chosen to defer those provisions that would otherwise have had implications for terminal charges until 31 December 2014.³ Perhaps most importantly for this determination, the IAA will not separately have to comply with a national performance plan for terminal charges in the period 2012-2014. Consequently, we have made this determination without necessarily attempting to comply with the methodologies that might be used to set charges under SES II, given there is no binding performance plan for terminal charges for the next three years and there is too much uncertainty around what a performance plan might look like in 2015.

Price-cap regulation

- 4.4 We have decided to continue with price-cap regulation.
- 4.5 In responding to the Issues Paper, the IAA and IATA both argued that the Commission should align its approach with European regulations. The IAA also argued that the Commission should adopt a revenue cap. Aer Lingus called on the Commission to adopt a "progressive and dynamic" regulatory approach that would "encourage the service provider to align itself with best international practice to ensure that it performs well in an increasingly competitive environment". It wanted the regulatory regime to incentivise the IAA to improve cost efficiency and be subject to the same principle of risk and reward as exists in an open market.
- 4.6 The Commission believes that a price cap provides incentives for a regulated entity to find cost efficiencies, as sought by Aer Lingus. The IAA assumes all the risks and rewards associated with beating the cost targets set by the Commission for a given level of traffic. Moreover, as discussed in the chapter on operating costs, the Commission has proposed a level for the price cap that has regard to costs in other jurisdictions.
- 4.7 The choice of a price cap is arguably more consistent with forthcoming European regulations governing air traffic control (ATC) charges than a revenue cap would

³ See Annex 2.

be. However, the decision to adopt a price cap was to satisfy best the Commission's statutory objectives.

4.8 As in previous determinations governing the level of ATSCs (and airport charges), the price cap is based on a forecast of the total costs of providing the regulated services. The *ex-ante* estimate of total costs for a given multi-year regulatory period is derived from a series of inputs known as 'regulatory building blocks' which are calculated by the Commission at the time of a Determination. These building blocks are:

- An estimate of efficient future opex (discussed in Chapter 6 of this report);
- Plus a depreciation allowance (discussed in Chapter 7);
- Plus a return on capital (discussed in Chapter 7);

The sum of these building blocks is divided by a forecast of charging units to obtain the price cap on charging units.

Calculation of terminal charges

4.9 The charging unit for the purposes of specifying the annual price caps in the forthcoming determination will be defined as $(\text{MTOW}/50)^{0.8}$ in 2012 and 2013, and $(\text{MTOW}/50)^{0.7}$ thereafter. This is a change from earlier determinations, when the price cap was expressed in per MTOW terms. The change arises because the IAA is currently transitioning to setting charges per TSU, consistent with European regulatory requirements. A TSU calculated using the formula $(\text{MTOW}/50)^{0.7}$ will be the basis under which the IAA has to set unit charges from 2014.

4.10 Both Aer Lingus and the IAA supported moving to a regime where the price cap is set per TSU rather than per MTOW. Aer Lingus thought it would increase clarity and understanding of the charging rate.

4.11 The Commission agrees that the revised approach will make it easier for all parties to see whether and how the IAA is complying with the cap. As discussed in Chapter 6, we have considered traffic movements rather than TSUs for the purposes of estimating total costs. But having arrived at a forecast level of total costs on this basis, there is no reason why the price cap cannot be set to align with the actual charging regime that the IAA will apply during the forthcoming determination. To permit comparisons across years, the chart below plots how the price cap would have evolved had we continued to express it in per-MTOW terms, as well as the levels that would have applied per TSU if the quotient was to the power of 0.7, 0.8 or 0.9.

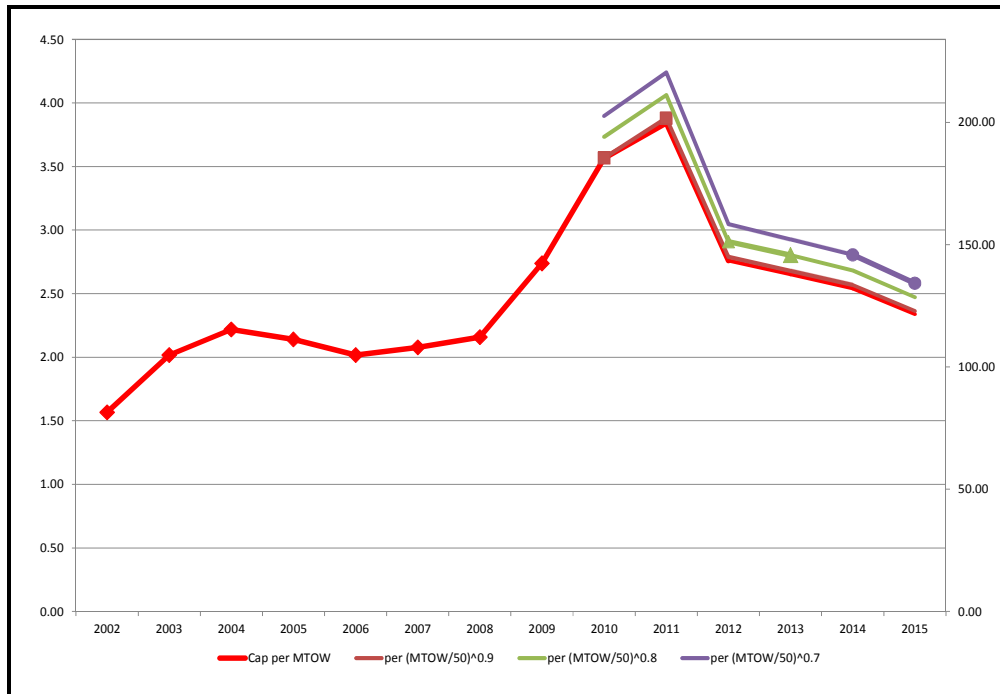


Figure 4.1: Evolution of ATSCs, Various Charging Units

Source: Commission calculations, IAA

Volume-risk sharing

- 4.12 The determination will continue to mitigate the IAA from some of the risk and reward associated with traffic levels deviating from forecast levels. However, in contrast to the second determination, any adjustment will apply with a two-year lag rather than immediately.
- 4.13 All three respondents offered views about the desirability or otherwise of a volume risk sharing arrangement. Aer Lingus and IATA objected to the fact that charges went up because volumes fell. Aer Lingus claimed that airlines, despite having fixed costs, had to respond to periods of reduced demand by finding ways to react quickly to falling demand and felt that the IAA should face the same economic realities. While acknowledging the challenges of providing aviation terminal services with a cost base that is fully elastic, Aer Lingus felt that treating 50 per cent of the IAA's current cost base as fixed for the purposes of setting charges was inappropriate.
- 4.14 The IAA argued that it could not respond immediately to rapidly changing circumstances: its cost base was predominantly fixed. Economic regulation should provide incentives for it to develop capacity that matched long-term demand trends rather than responding to volatile short-term volume fluctuations. Any increased exposure to volume risk would increase the IAA's cost of capital. The IAA also referred to SES II amendments setting out a specific regime for traffic risk sharing and suggested that the Commission should align its determination with these provisions.
- 4.15 The SES II provisions require that the air navigation service provider (ANSP) bear all the risks associated with traffic fluctuations, provided the deviation is less than 2 per cent. They require the airlines to bear all the risks should traffic deviate from expectation by more than 10 per cent. For traffic that differs to expectation by between 2 per cent and 10 per cent, there is some discretion as to how much risk is borne by the air-traffic controller: if demand is below forecast, airlines may

be asked to contribute up to 70 per cent of the forecast revenues not accruing because of the downturn; if demand is above forecast, at least 70 per cent of the additional revenues above forecast have to be returned to users.⁴

- 4.16 The European provisions differ to those we used in 2007 but not in a way that means one party always gains or loses from the switch. The charts below compare the two approaches. There are two charts: one shows how the per-unit charge varies as traffic levels vary; the other shows how the IAA’s revenues vary under the different schemes as traffic volumes vary. Both charts show outcomes for traffic out-turns that are up to 40 per cent more or less than the central forecast: in 2010 traffic was 38 per cent less than forecast at the time of the 2007 Determination, so there is a precedent for such deviations from expectation.

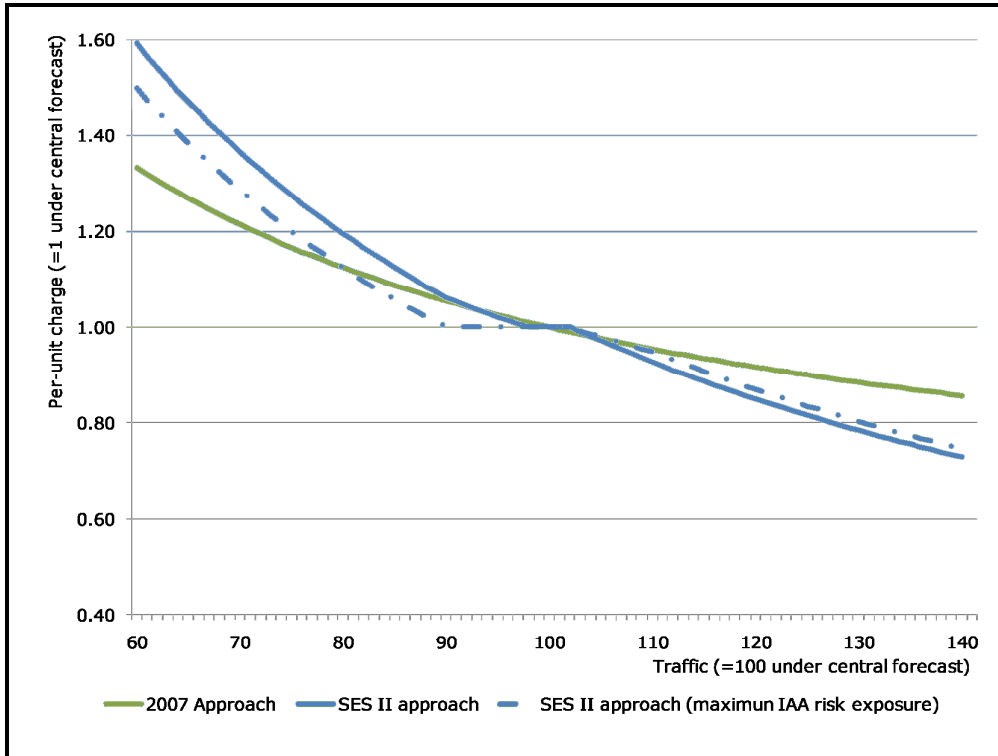


Figure 4.2:Effect on Unit Charges of Different Traffic-Risk Sharing Regimes

Source: Commission calculations

⁴ See Article 11(a) of the amended Commission Regulation (EC) No 1794(2006) for precise details.

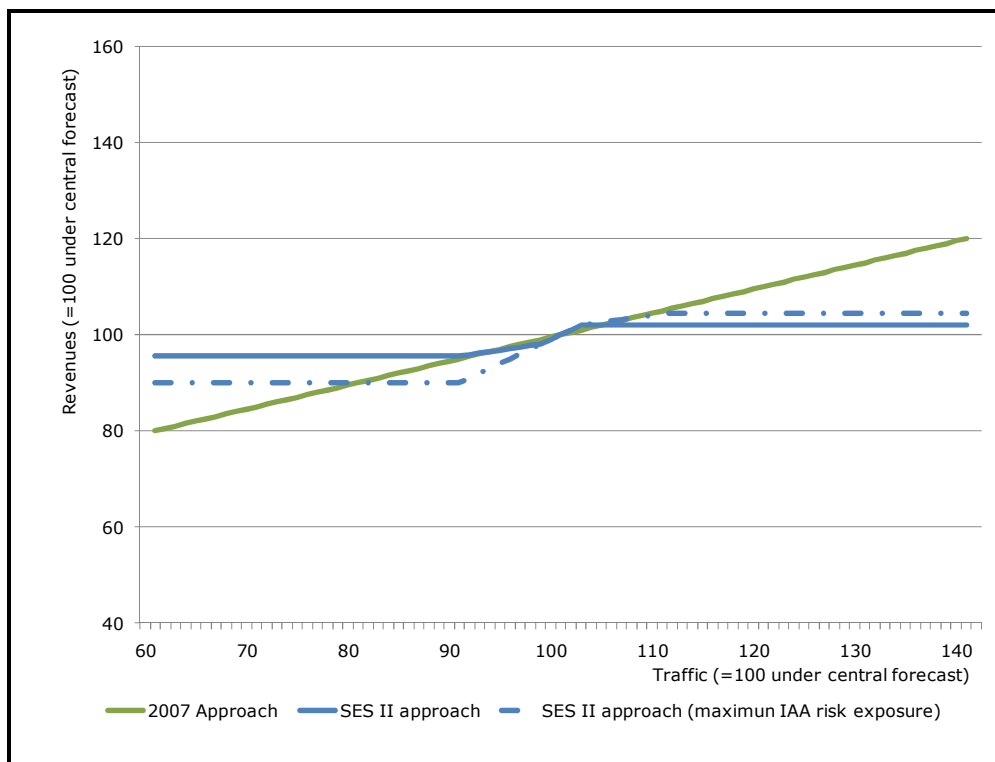


Figure 4.3:Effect on Revenues of Different Traffic-Risk Sharing Regimes

Source: Commission calculations

- 4.17 The SES II provisions would expose the IAA to less volume risk when there are significant deviations from forecast traffic levels. So if demand is significantly lower than expected, airlines would end up paying even higher unit charges than would be the case under the regime currently in place. (Conversely, the airlines would gain from greater reductions in unit charges should out-turn traffic exceed forecast levels significantly.) For more moderate deviations from forecast, the SES II provisions may increase the extent to which the ANSP is exposed to volume risk. It continues to be the case that a downturn causes unit charges to be higher, while growth above forecast cause unit charges to be lower.
- 4.18 One distinction not drawn in the charts and preceding discussion is that the SES II provisions allow any adjustment due to volume risk sharing to be deferred for up to two years (in exceptional circumstances, this two-year deferral can be extended when the adjustment relates to a period when demand was below forecast). Such a deferral could partially alleviate the concerns of airlines that volume risk sharing regimes increase their costs in a period when their own demand is already down. The 2007 Determination already provided some scope for the IAA to defer collection of revenues due under the price cap until a later date because of the “k”-term. But in 2010 and 2011, the IAA was unwilling to defer increasing prices and foregoing revenue in case the Commission’s 2011 determination failed to make an allowance for this deferred revenue.
- 4.19 We have decided to retain the volume risk sharing arrangement adopted in the 2007 Determination. This reflects a risk sharing that, for larger deviations from forecast, is less than sought by the IAA and more than the airlines wanted.
- 4.20 One important change made is that any adjustments to the price cap arising from deviations in forecasts will be deferred for two years. This will allow parties to plan for such changes. It also partially addresses the valid concern that the previous regime imposed a very counter-cyclical pricing regime, with significant increases

in the price cap in years when volume was down the most. Of course, it always remains open for the IAA not to price up to the cap set by the Commission.

Duration of the price cap

- 4.21 The determination will last for four years. This is the shortest duration that a cap can last under the current legislation.
- 4.22 Both Aer Lingus and the IAA supported a four-year cap. (The IAA even argued for a shorter period if that became possible, since it would better allow the Commission's determinations to align with the timetable for performance plans envisaged under SES II.)

5. Quality of Service

- 5.1 We propose linking the price cap to the service quality provided by the IAA. The cap may fall by up to 10 per cent if the IAA consistently fails to meet the standards set. The metric used to capture service quality measures instances where events within the IAA's control trigger ATFM regulation delays in excess of 15 minutes or result in airline cancellations. Such events would include equipment failures and industrial action.

Responses to the Issues Paper

- 5.2 The IAA questioned the need for a formal quality of service scheme, citing examples of what it argued were proactive measures on its part responding to the needs of its customers. It also referred to favourable assessments customers gave to its service quality and operational efficiency. The IAA suggested that the key areas of quality of service were:
- Air traffic flow management;
 - Regulation and slot adherence delays
 - Environmental; and
 - Cost issues such as reduction in taxi times, holding time at the ground holding point and holding in the air
- 5.3 However, it thought that the cost of providing information on key performance indicators would outweigh the benefits. The IAA thought that quantifying the extent to which different stakeholders are responsible for reduced service quality was a major problem. On financial incentives; the IAA argued that any scheme that put 8 per cent of revenues at risk for poor quality was unreasonable and that any discussion of financial incentives also needed to include a system of bonuses.
- 5.4 IATA described delay performance as the most important component, along with flight efficiency, of service quality for airlines. Subject to the costs of any scheme not outweighing the benefits, it supported a scheme to incentivise delay reduction. It suggested that the CFMU delay figures were the most appropriate source of data for metrics. IATA did not feel the penalties need to recompense airlines for their delay costs, but rather should provide incentives for IAA management to focus on the key service quality components of their customers. It opposed including any bonuses in the scheme, since the charges should already suffice for providing an agreed minimum level of service. IATA also suggested thought might be given to including an element dealing with flight efficiency, particularly given airlines face the prospect of the EU Emissions Trading Scheme in 2012.
- 5.5 Aer Lingus supported a regulatory scheme that required the ANSP to face the financial consequences for non-performance. It pointed out the direct and indirect costs to its business from the July 2008 radar failure. For evidence on costs, Aer Lingus referred to the Eurocontrol Westminster Report and the EU Regulation 261/2004 concerning passenger rights. Aer Lingus, like IATA, referred to the three delay metrics affecting the charges that the UK ANSP can collect.

Proposed Approach

- 5.6 We have developed the proposed service quality scheme mindful of the responses received. The target seeks to provide a financial incentive for the IAA's management to avoid causing serious disruptions and delays. The proposed metric seeks to capture instances where the IAA among stakeholders is

unambiguously the most culpable party. It should not give rise to significant data collection costs. The scheme does not seek to align the financial penalties with the possible costs to airlines from such delays.

- 5.7 The case for defining a baseline level of service for any price-cap regime seems strong. It acts as a check against the regulated entity securing “false” savings by merely offering a lesser service. At the same time, it is desirable to avoid a regulatory regime that creates perverse incentives for stakeholders to seek to “game” a series of key performance indicators so as to realise a more favourable price cap.
- 5.8 SDG has assisted us in developing a service quality regime. Their work proceeded in steps. First, they reviewed the available evidence on current European quality of services regimes governing terminal services. A variety of different metrics were used to measure aspects of performance, but in almost all cases the results do not have financial implications for the ANSP (although they may have implications for individuals within the ANSP). Attempts to compare approaches across jurisdictions are hindered by differences in the regulatory regimes, and also variations in delineating between the ANSP’s role providing terminal services, and the role of the airport and the en-route ANSP. At the European level, there is currently no agreed set of measures for the quality of terminal services.
- 5.9 The available evidence suggested that we would need to develop a bespoke service quality scheme for the purposes of the forthcoming determination. (Aer Lingus and IATA’s references to the UK system seem to relate to delay measures for en route services rather than terminal services.) We are keen that any such scheme should not impose a significant administrative burden, particularly in circumstances where parallel developments at the European level may require the IAA to develop and report a separate, yet to be defined, set of performance indicators.
- 5.10 At the same time, we sympathise with the airlines’ concerns about the costs they incur when there are delays. We are particularly keen to address instances of significant disruption. We are aware of three such instances in recent years:
- Radar failure in July 2008;
 - Industrial action in January 2010; and
 - Volcanic ash in spring 2010.
- 5.11 We do not believe that the volcanic ash experience would warrant the IAA suffering financial consequences, over and above the losses that accrue from whatever volume risk it is required to bear under the price-cap formula. But in the first two cases, it does appear reasonable to provide increased incentives for the IAA to avoid disruption due to equipment failure or staffing problems. Such events are unlikely to give rise to disputes about which stakeholder is primarily responsible for resulting inconvenience. We consequently asked SDG to advise on a possible performance scheme for Ireland that might address such instances. See Annex 3 for a copy of their report.
- 5.12 Based on SDG’s recommendations, we propose to include in the price cap formula a condition that will reduce the price cap by one-third of one per cent (0.33%) on any day when
- there is an ATFM regulation delay of 15 minutes or more reported in the Control Flow Management Unit (CFMU) data for Dublin, Cork or Shannon airports with one of the following codes – “Industrial Action ATC”, “ATC Equipment”, “ATC staffing”, and “ATC capacity”; or

- there are flight cancellations at Dublin, Cork or Shannon airports arising from IAA staffing shortages, industrial action or equipment failure.
- 5.13 In the case of ATFM regulation delay, the IAA already collects the relevant data for the CFMU, the operational unit of EUROCONTROL. The IAA will be responsible for notifying the Commission of any delays exceeding 15 minutes for the relevant codes. The possibility of disruption resulting in cancellations rather than delays is the rationale for including the second condition for which a penalty will apply. To trigger it will require airlines notifying the Commission that they have cancelled a flight or flights because of the IAA and provide supporting documentary evidence to show that the cancellation was because of IAA equipment failure or staffing problems.
- 5.14 The penalties will apply for a maximum of 30 days in a year, so the maximum adjustment to the price cap is minus 10 per cent. We do not believe that adjusting the price cap by as much as 10 per cent is disproportionate. First, the penalties only apply on days when the IAA has caused significant delay and disruption, and it would require such failings to occur for a whole month to realise the 10 per cent penalty. Second, such disruption is likely to cause traffic volumes to fall, which the volume-risk sharing arrangement outlined in Chapter 4 would result in the IAA being allowed to charge higher prices in later years. Having a penalty of the size envisaged should mean that the IAA would bear financial consequences if it fails to provide a suitable service.

6. Traffic Forecasts

- 6.1 The table below shows the traffic forecast that we have assumed in making this draft determination. We have a forecast of both the number of movements and the number of TSUs.

	2011	2012	2013	2014	2015
Movements		220	226	232	239
(MTOW/50) ^{0.9}	143	147	151	155	159
(MTOW/50) ^{0.8}	137	140	144	148	152
(MTOW/50) ^{0.7}	131	134	138	142	146
TSUs	143	140	144	142	146

Table 6.1: Traffic Forecast ('000s)

Source: Commission calculations, IAA, EUROCONTROL

- 6.2 Our forecast for the number of movements corresponds to the baseline forecast terminal traffic movements generated by the EUROCONTROL Statistics and Forecast Services (STATFOR) in February 2011. The forecast number of movements has informed the work estimating the IAA's future opex needs, discussed in the next chapter.
- 6.3 All three respondents to the Issues Paper thought that the EUROCONTROL forecasts were a suitable source for traffic forecasts. We have rejected a suggestion from the IAA that we use the low forecast rather than the baseline forecast "to reflect the fragility of terminal activity at Cork, Dublin and Shannon". We prefer to use EUROCONTROL's central forecast. There are other tools available when making a determination to address the possible risks of a deviation from a central forecast, such as the volume-risk sharing arrangement.
- 6.4 The determination will set a price cap per TSU, so as to express the cap in the same units as the IAA will levy terminal charges. The IAA is transitioning from charging per MTOW to a unit charge estimated on a different basis in different years. The table above gives forecasts for series estimated using the quotient (MTOW/50) raised to different powers, as well as the TSU forecast we propose to use for the forthcoming determination.
- 6.5 These forecasts all assume that the series grow in line with the growth in aircraft movements at the three airports, starting from the 2010 outturn levels. The assumed growth rate is shown in the table below, along with the growth rates that would have applied had we used either STATFOR's high or low growth rates.

	2011	2012	2013	2014	2015
High growth	5.3	4.1	4.9	4.6	5.2
Baseline	4.4	2.3	2.7	2.7	3.0
Low growth	2.9	2.4	1.4	1.8	1.8

Table 6.2: STATFOR growth rates for movements (%)

Source: Commission calculations, EUROCONTROL

- 6.6 Prior to the final determination, the Commission proposes to update these forecasts in line with any changes to STATFOR's baseline forecast.

7. Operating Expenditure

- 7.1 The draft determination has assumed that the IAA will incur the level of opex shown in the table below. To permit comparison, the table also shows the level of operating costs, in real terms, that the IAA forecast in a submission to the Commission in February 2011 under the baseline scenario for traffic growth. The Commission has allowed 84 per cent of the opex sought by the IAA, with the amounts disallowed greater in the later years of the forthcoming determination.

	2012	2013	2014	2015
Draft Determination	16.0	15.2	14.4	13.5
IAA Submission	16.6	16.5	16.6	16.7

Table 7.1: Forecast operating expenditure (€m, 2011)

Source: Commission calculations, IAA.

- 7.2 In the responses to the Issues Paper, Aer Lingus encouraged the Commission to rigorously scrutinise the service provider's cost base and to adopt the most progressive approaches to operating cost control. It was suggested that the Commission evaluate the internal cost performance of the service provider and the wider competitive opportunities that exist in the terminal service market place. IATA recommended that the IAA is incentivised to be more flexible and efficient at managing changing workloads.
- 7.3 The IAA cited the most recent report of the Performance Review Unit (PRU) of EUROCONTROL as evidence that the IAA is performing efficiently and effectively compared with its peers. It suggested the Commission should benchmark IAA's performance against that of other ANSPs, but identified four points that were important if such an exercise was to be useful:
- Comparability – the need to compare like-for-like, controlling for factors likely to influence costs such as size, traffic complexity, cost of living, and safety regulatory restrictions;
 - Best practice – the use of respected, credible data sources such as the PRU data;
 - Proportionality – identifying the key cost areas for review and focussing efforts on those; and
 - Achievability – making recommendations that are practical and achievable in the context of running an ANSP.
- 7.4 We are in general agreement with the responses of all the parties in terms of how to assess opex. The rest of this chapter describes how the Commission arrived at its opex forecast. Three types of evidence were considered: the information provided by the IAA; data on the costs of other ANSPs contained in various EUROCONTROL publications; and Irish macroeconomic data. To the extent the data permit, we have looked at both levels and trends, for both total costs and costs per ATM.

Analysis of IAA's opex projection

- 7.5 The IAA projects that it will require €66m of opex for the period 2012 to 2015: €41m for staff costs and €25m for non-staff costs. The chart below shows how the annual projections for the coming years compare with out-turn opex in the last decade.

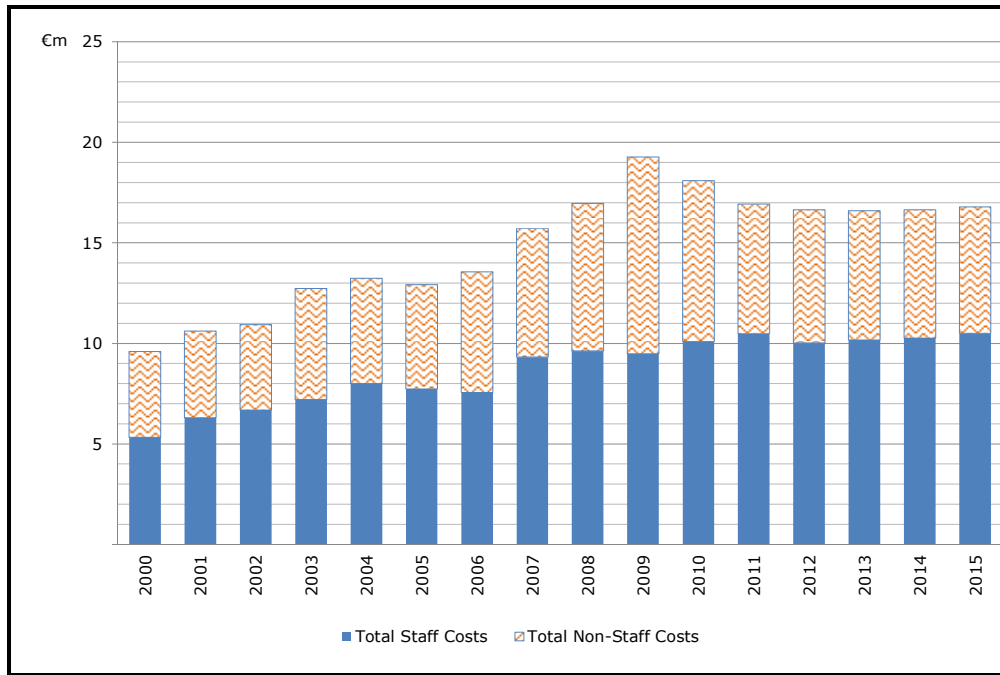


Figure 7.1: Total opex for terminal services, 2000-2015 (IAA forecasts)

Source: Commission calculations, IAA

- 7.6 The IAA forecasts opex to increase marginally in real terms during the four years of the determination, but from a base in 2012 that is lower than any of the preceding four years. In 2015, the IAA expects opex to be slightly lower than the forecast level in 2011 and the actual out-turn in 2008. At the same time, the expected number of movements in 2015 is about the same level as in 2005.
- 7.7 The chart below shows how the IAA’s forecasts compare with historic out-turns when looking at opex per movement. The forecast predicts opex per movement to be higher than in any year prior to 2008. In the years 2008 and 2009, the high per unit costs might partially be explained by the unexpected drop in traffic relative to forecast and the IAA’s inability to respond immediately and cut opex accordingly. However, it is less clear that per unit costs for the period 2012-2015 should continue to exceed the levels seen in the early years of this century. There appears at first glance to be scope to set a lower target level of opex that would remain “achievable”, to use one of the criteria that the IAA suggested in its response to the Issues Paper.

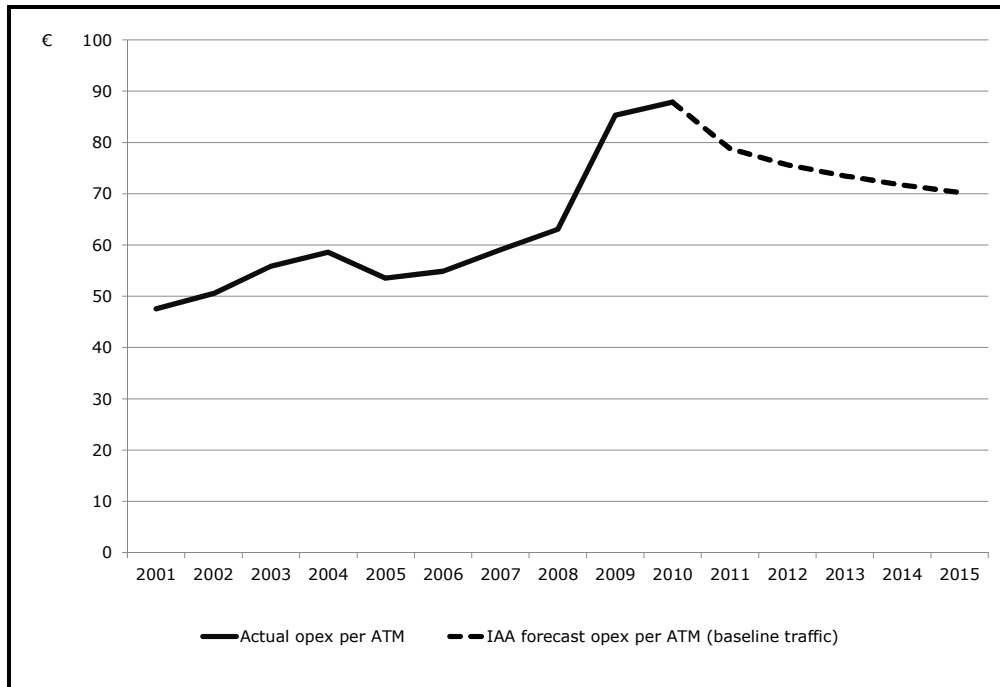


Figure 7.2: Opex per terminal movement, 2000-2015

Source: Commission calculations, IAA

Fixed and variable costs

- 7.8 The IAA was the only party to comment on the possible responsiveness of opex to changing levels of traffic. It thought that it was difficult to define a long-term relationship between operating costs and volumes. The IAA observed that assuming a 0.3 elasticity (such that a 10 per cent growth in traffic would require a 3 per cent increase in staff costs) was consistent with the model of NATS in the UK, except that there the relationship applied to all opex and not just staff costs. The IAA also cautioned that it was harder to respond to unplanned reductions in traffic.
- 7.9 Whatever the assumed relationship between traffic and opex for terminal services, it is difficult to use this alone to rationalise the level of opex that the IAA projects for the period 2012-2015. The chart below shows the levels of opex we would have expected if the elasticity between cost and traffic was 0.3, using as a base the level of traffic and opex in 2001 and 2006 respectively. These dates represent the most up-to-date data available at the time of the 2002 and 2007 determinations respectively. Given the traffic and opex in those years, the level of opex that would have been expected given the baseline traffic forecast in 2015 and a opex cost elasticity of 0.3 is much less than the IAA forecasts. More generally, following both previous determinations opex costs have grown more rapidly than a 0.3 elasticity would suggest. If the difference between the actual level of opex in 2001 and the forecast level in 2015 was purely due to changes in traffic, it would imply an elasticity of 1.5: for every 10 per cent increase in movements, opex would increase by 15 per cent.

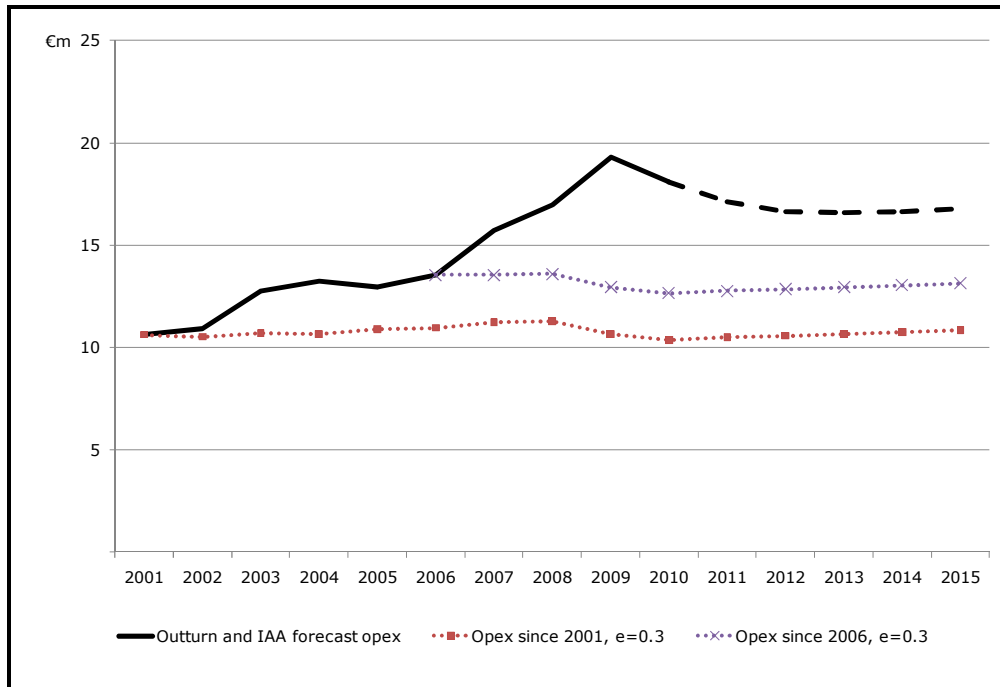


Figure 7.3: Projecting forward IAA opex assuming an elasticity of 0.3

Source: Commission calculations, IAA.

7.10 The experience of the IAA in managing terminal opex costs was not consistent with a fixed cost base during the growth in movements enjoyed in the early years of this century. This would suggest that real costs should have fallen during the recent downturn. Alternatively, to claim that costs are relatively unresponsive to traffic to justify recent trends and forecasts would suggest that either the IAA was more efficient in the early 2000s than currently, or that the opex required to provide terminal services efficiently has grown over time for reasons unrelated to traffic. One such explanation would be the increasing share of meteorological costs allocated to terminal rather than en route services during the first determination, but after 2006 we are not aware of any such reason why opex might have grown so much more rapidly than a 0.3 elasticity would imply.

Opex breakdown

7.11 Breaking down the opex numbers suggests that it is staff costs that should be the focus of any further review. They account for the majority of opex costs, as revealed in the pie chart below showing a breakdown of the IAA’s forecast opex needs in the next four years, 2012-2015. If training costs are viewed as closely related to the level of staffing costs, then less than one third of the total projected opex is not related to the costs of staffing.

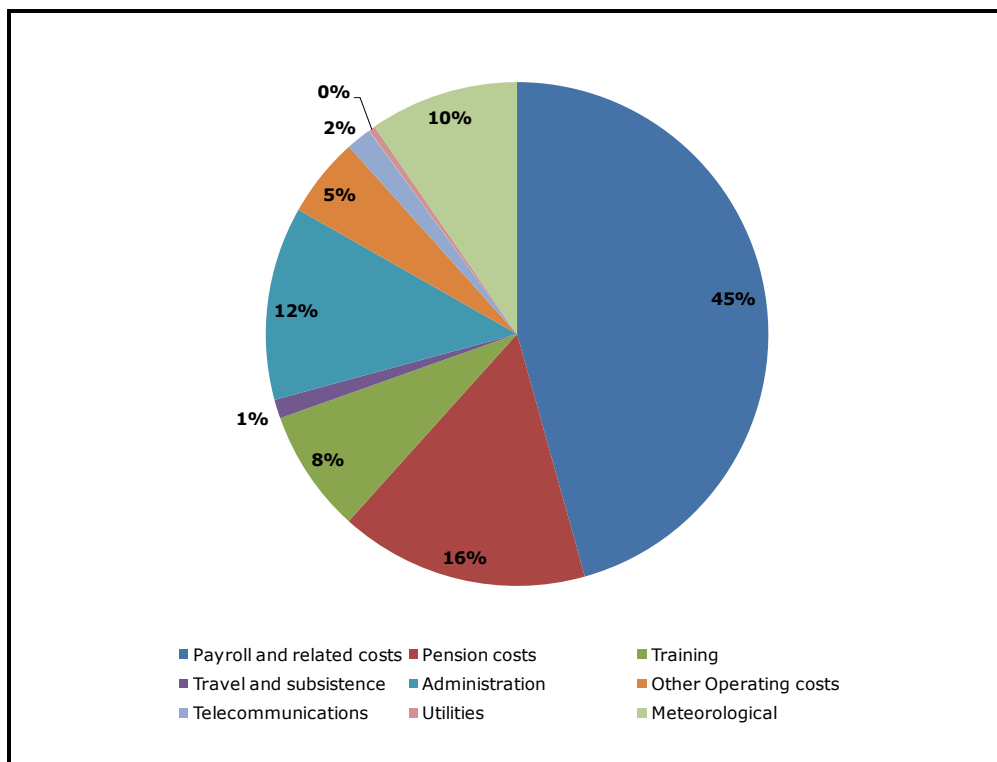


Figure 7.4: Breakdown of forecast opex per category, 2011-2015

Source: Commission calculations, IAA

- 7.12 The total level of non-staff opex is forecast to be lower in the period 2012-2015 than it was in the period 2007-2011, as shown in the table below. Aside from training, the only non-staff opex categories expected to give rise to costs in excess of €1m per annum are administration and meteorological costs. The latter are set by Met Eireann. We propose to continue to allow 20 per cent of meteorological costs to be recovered from terminal charges. (For the purposes of en route charges, Met Eireann’s determined costs are included in the National Performance Plan; should those costs be revised before the final determination, we will adjust our allowance accordingly. We do not have any formal powers to regulate the costs or charges of Met Eireann.)
- 7.13 The IAA is forecasting annual administration costs that are roughly equal to the 2001 level. We propose to accept the IAA’s forecast levels of administration costs.
- 7.14 Training costs are the only area of non-staff opex where we have revised down the IAA’s forecast. The proposed adjustment is proportional to adjustment to staff opex that we have made. Consequently, as a percentage of staff costs, the level of training costs are the same as the IAA sought – just over 12 per cent. This is lower than the average of 17 per cent observed in the period 2000 to 2011. In absolute terms, the average annual training budget assumed of €1.1m is marginally less than the actual amounts spent on training between 2007 and 2011. Since the outturns include years when there would have been training needs associated with opening a new tower, a need not expected to arise in the next four years, we are satisfied that the proposed training budget will suffice.

Opex category	2007-2011		2012-2015	
	Average p.a.	Share of Total	Average p.a.	Share of Total
Payroll and related costs	€7.2m	41%	€7.6m	45%
Pension costs	€2.6m	15%	€2.7m	16%
Total Staff Costs	€9.8m	56%	€10.2m	61%
Training	€1.2m	7%	€1.3m	8%
Travel and subsistence	€0.2m	1%	€0.2m	1%
Administration	€3.3m	19%	€2.1m	12%
Other Operating costs	€0.8m	5%	€0.9m	5%
Telecommunications	€0.2m	1%	€0.3m	2%
Utilities	€0.1m	0%	€0.1m	0%
Meteorological	€1.6m	9%	€1.6m	10%
Finance	€0.1m	0%		0%
Regulation	€0.1m	1%	€0.1m	0%
Total Non-Staff Costs	€7.6m	44%	€6.4m	39%
Total Opex	€17.3m	100%	€16.4m	100%

Table 7.2: IAA forecast baseline opex

Source: Commission calculations, IAA.

- 7.15 In its response to the Issues Paper, the IAA referred to its pension liability, and argued that it had pro-actively addressed the issue with a number of solutions to bring the fund into surplus. It thought the pension costs should be allowed into the cost base in full for the purposes of the next determination.
- 7.16 A review of the data suggests that pension costs grew during the period of the last determination, but that payroll and related costs rather than pensions explain most of the forecast increase in staff costs in the coming years. The chart below illustrates this point. The IAA forecasts annual payroll and related costs to be 5 per cent higher than the average in the period 2007-2011, whereas average annual pension costs are forecast to be 1.4 per cent higher. Annual training costs are forecast to be 1 per cent higher; as a percentage of payroll and related costs the projections are in line with the relationship seen in the past decade.

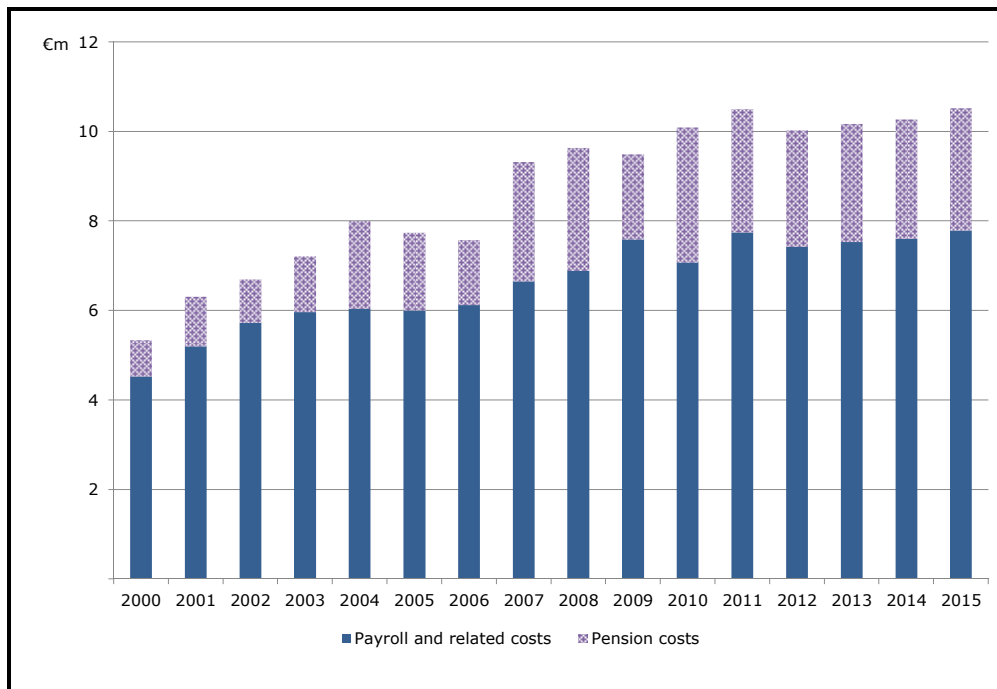


Figure 7.5: Staff costs, 2000–2015

Source: Commission calculations, IAA.

- 7.17 The IAA currently projects incurring its largest payroll costs to date in 2011, and for these levels to be almost matched in real terms in 2015. The rationale provided by the IAA when providing its forecasts was that it has to accommodate national pay awards, productivity awards and salary scale improvements. It does not anticipate significant changes in headcount.
- 7.18 This explanation does not provide immediate comfort that the forecast would represent an efficient level of staffing costs. Given the very difficult economic environment in recent years and movements in 2015 forecast to correspond roughly with levels in 2006 and 2007, we would not expect staff costs to exceed 2007 levels by 25 per cent in real terms. In looking at relative efficiency of the IAA later in this chapter, we have been particularly interested in the available evidence concerning the IAA’s ability to control staffing costs.

Relative levels of efficiency

- 7.19 The available evidence that permits comparison between the IAA and other ANSPs does lend some support to the IAA’s contention that it is relatively efficient compared to its peers. There are caveats to this conclusion. The best available data that we are aware of is from the PRU, but even these data do not always permit a like-for-like comparison. The IAA does not compare so favourably when looking at future trends rather than current levels. The data typically relate to incumbent ANSPs, who may not be regarded as the most efficient operators (a recent tender to provide ATC services at smaller airports in Sweden demonstrated the potential for cost savings).⁵ Looking beyond ANSP costs to data for the general Irish economy suggest that the IAA’s staff costs have risen significantly in the past ten years.

⁵ See “Sweden introduces private air traffic controllers” www.svensktnaringsliv.se/english/sweden-introduces-private-air-traffic-controllers_123054.html, 10 December 2010.

- 7.20 The most recently available report of the Performance Review Commission (PRC) found that Ireland's terminal ANS costs were the third lowest in Europe.⁶ In 2008 the IAA's costs per movement were €82 per instrument flight rules (IFR) airport movement. This compared to a European average for the 22 Member States providing data of €115 per IFR airport movement. These results relate to both capital and operating costs. Moreover, as we saw above the IAA's per movement operating costs in 2009 were much higher than in 2008. The extent to which other ANSPs also experience significant increases in their costs per movement will determine whether the IAA continues to rank in the top three as more recent data become available. We will carefully consider the output of the PRC's 2010 report, assuming it becomes available prior to the publication of the final determination. A current draft of the 2009 benchmarking report shows Irish cost per movement as the sixth lowest in Europe.
- 7.21 Looking at staff costs, the IAA's gate-to-gate employment costs per air traffic controller (ATCO) hour compared favourably with the average reported in the 2008 PRC report. Gate-to-gate costs relate to a broader service than just terminal service costs. The average gate-to-gates costs across Europe in 2008 was €100 per ATCO hour on duty (in 2008 prices), whereas Ireland's employments costs were about €80 per ATCO hour on duty. The high costs reported by AENA of Spain mean that the majority of ANSPs, including the IAA are below the European average in this category. The IAA had the 11th highest gate-to-gate employment costs per ATCO hour. From 2004 to 2008, average gate-to-gate ATCO costs increased by 20 per cent: the IAA's payroll and related costs for terminal services grew by 40 per cent in the same period.
- 7.22 The 2008 PRC report ranked the IAA seventh out of 36 comparators when looking at ATCO productivity (for gate-to-gate services). The IAA's gate-to-gate ATCO hour productivity was almost one, compared to an average of 0.78. The 2009 draft PRC report includes a section that attempts to break down the analysis according to complexity of the ACCs. This analysis shows the IAA's ATCO productivity as relatively poor, with only Palma having a lower number of flight hours per ATCO among the cluster of ACCs that serve predominantly lower airspace with relatively high structural complexity (other ACCs the PRC included in the cluster were Amsterdam, Brussels, Bremen, Langen, London TC, and Milano).
- 7.23 More recent data are available arising from European regulations governing a common charging scheme, including data on the forecast costs of providing terminal air navigation services for the period out to 2015.⁷ Unfortunately, there are problems with using such data to make comparisons. It is difficult to derive an estimate of unit costs for the various ANSPs. This is because Member States have had discretion to use different formulae to compute the service units, and even for a single Member State the formula may have changed over time. For example, as previously noted in this draft determination Ireland has gone from unit charges per MTOW to unit charges per $(\text{MTOW}/50)^{0.9}$ and will eventually set charges per $(\text{MTOW}/50)^{0.7}$.
- 7.24 STATFOR provided the Commission with access to information on the annual number of flights in airspace rather than terminal movements. By summing data on the number of international arrivals and departures we generated estimates for the number of terminal movements in each jurisdiction.⁸ We have used this information to estimate the number of terminal movements, and consequently the staff and other operating costs per movement.

⁶ Performance Review Report (2010) "An Assessment of Air Traffic Management in Europe during the Calendar Year 2009" www.eurocontrol.org. Although the report is for the calendar year 2009, in the case of terminal ANS unit costs 2008 was the last year for which the PRC had actual figures.

⁷ See ec.europa.eu/transport/air/single_european_sky/ans/doc/2010/tnc_oerview2.pdf

⁸ In the case of Portugal, the estimate is the total for Lisbon FIR and Santa Maria FIR.

7.25 The chart below shows our estimates of the forecast per movement costs of staff and other operating costs for ANSPs in Ireland, France, Germany, Italy, Portugal, Spain, and the United Kingdom. Recent guidance material produced by the PRU has indicated it is minded to place Ireland in the comparator group "Portugal/Ireland".⁹ Rather than compare Ireland to a single comparator, we have broadened the sample to include the five largest ANSPs in Europe. For all countries, including Ireland, the costs correspond to the staff and other operating costs reported by Member States in their terminal navigation charges (TNC) submissions to the European Commission. The IAA's reported total staff and other operating costs were about €6m higher and €3m lower respectively than the amounts included in the forecasts it provided to the Commission in February 2011. Inserting the more recent IAA cost data into the calculations would still leave per unit costs significantly below France, Italy, Portugal and Spain but significantly above the UK.

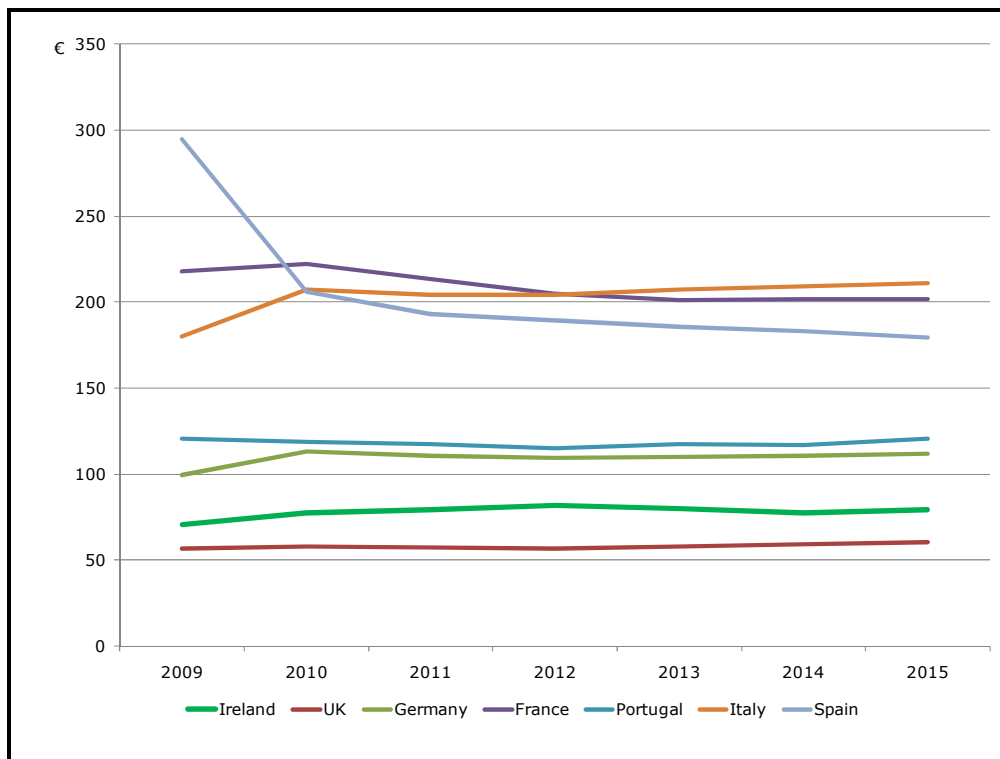


Figure 7.6: Nominal operating costs per terminal movement, 2009–2015

Source: Commission calculations, European Commission TNC and STATFOR data

7.26 Arguably, the apparent differences between the various Member States highlight the problems with using these data to compare levels, rather than provide evidence that some ANSPs are three times as efficient as others. One possibility is that there remain differences in the approach to cost allocation between terminal and en route services: for example in 2012, on average other operating costs for terminal services in Ireland are 27 per cent of other operating costs for en route services, yet in Portugal they are only 10 per cent.¹⁰ The PRU has observed that there are problems with comparing terminal costs, suggesting that there is a need to distinguish between the costs to provide terminal ANS and the costs charged for terminal ANS. This problem arises because the regulations allow ANSPs to

⁹ See PRU (2011) "Guidance material for national/FAB performance plans, Part 4", publish.eurocontrol.int/prc/gallery/content/public/Docs/GM_Part_4.pdf

¹⁰ European Commission data on Terminal Navigation Charges and Costs (TNC) 2011

recover some of the costs of terminal services from other sources and not just unit charges.

7.27 The TNC data may provide more information for comparison purposes looking at the rate of change over time, rather than differences in the levels. The chart below contrasts the growth in terminal staff costs for the seven countries listed previously, and also an average for the 23 countries reporting. For each series, the data in 2010 are normalised to 100. This approach shows that among these peers the IAA forecasts the biggest increase in staff and other operating costs between its 2010 base and 2012 and 2013, and even by 2015 only Italy and the UK forecast more rapid growth in these costs than Ireland. The chart uses nominal cost data: converting the results into real costs is likely to make the relative performance of the IAA in controlling operating costs in the coming years worse since it seems likely that Ireland will have one of the lower inflation rates in the next few years.

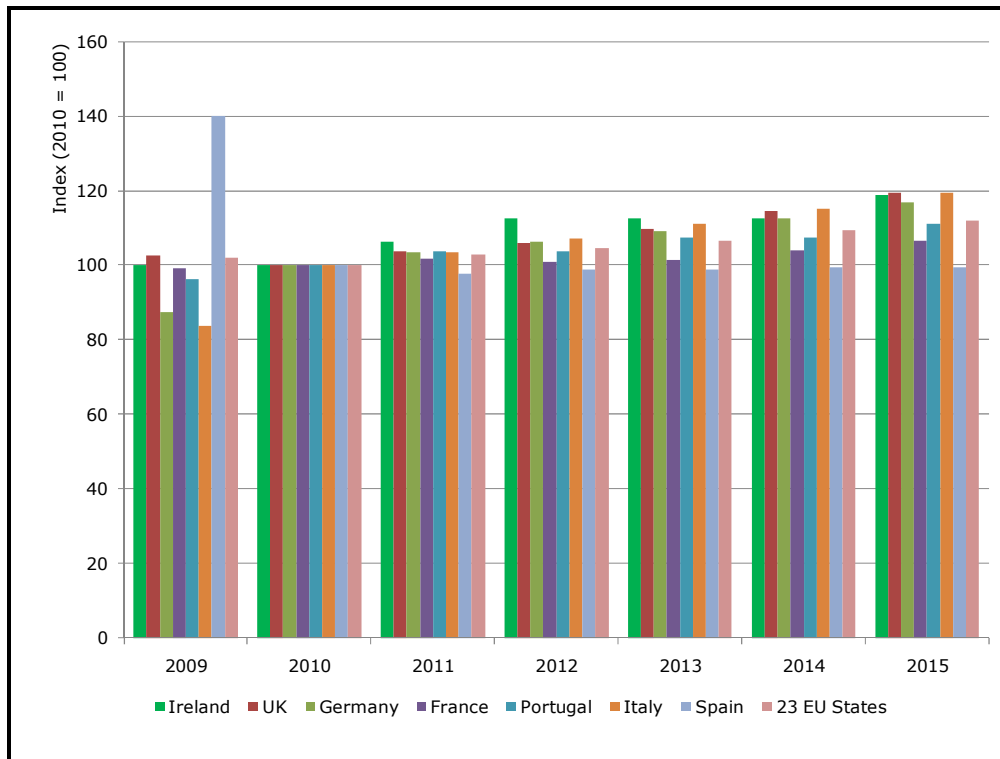


Figure 7.7: Nominal opex compared to 2010 in various Member States

Source: Commission calculations, European Commission TNC data

7.28 The apparently unfavourable comparison with other European ANSPs when looking at opex projections might be attributed to less scope for the IAA to realise savings because it had already realised efficiency savings. Yet in looking at the components making up the IAA’s opex forecasts, it was projected staffing costs that were of most concern, and the evidence over the past decade does not suggest that the IAA has controlled these costs especially carefully.

7.29 The Issues Paper compared the growth in IAA per employee costs since 2001 with industrial earnings, pay in the public sector and pay in other semi-state companies. That analysis has been updated in the chart below, extending the series out to 2015 for IAA payroll and manufacturing industry earnings. The IAA payroll data are shown with and without the costs of pensions included. We constructed the series for manufacturing industry earnings using CSO data for the

period up to 2009, and then projected forward assuming growth rates consistent with the Economic and Social Research Institute (ESRI) forecasts for non-agricultural wage rates: -3.0 per cent in 2010 and +2.2 per cent per annum thereafter.¹¹

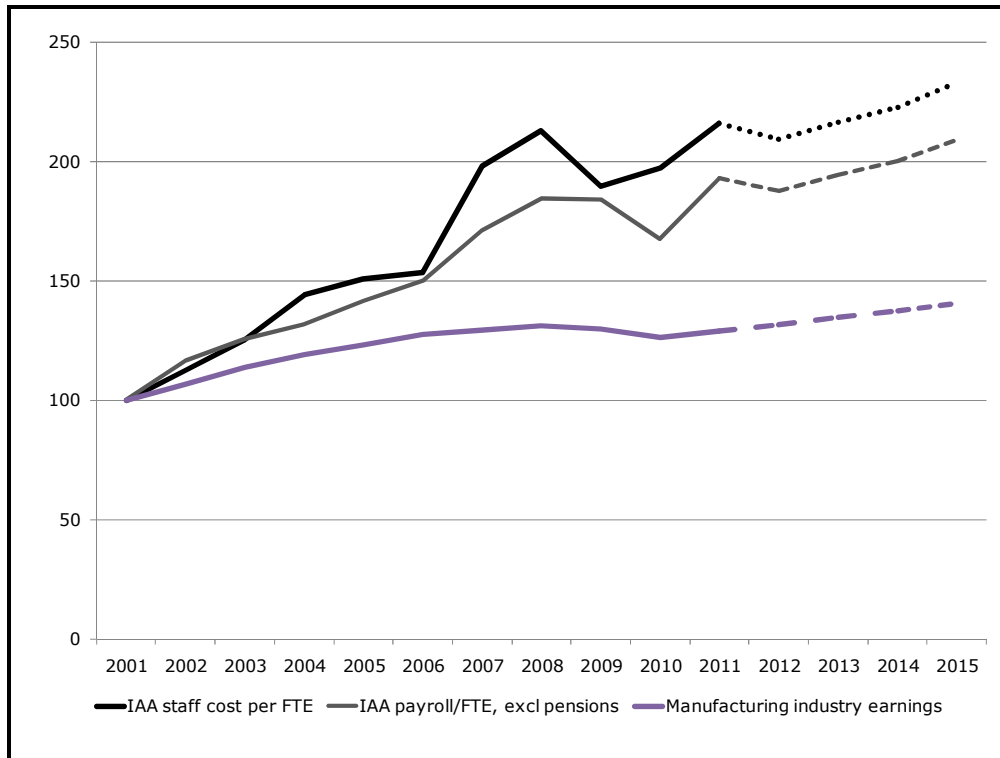


Figure 7.8: Nominal pay relative to 2001

Source: CAR analysis of IAA, CSO and ESRI data

7.30 The method for collecting CSO data changed twice in 2007, such that the data before and after 2007 may not be directly comparable. Relative to 2008, the IAA’s projected 2015 payroll costs per full-time equivalent (FTE) rise roughly in line with the 7 per cent forecast growth in manufacturing industry earnings: a 5 per cent growth in total FTE costs, or 9 per cent if pension costs are excluded. However, we do not think that uncertainty about the trend in manufacturing industry earnings in the period 2006 to 2008 (given the changes in methodology for collecting the data by the CSO) is sufficient to explain away all the difference between the growth in IAA earnings and the growth in earnings generally. We would have to assume growth of more than 50 per cent in nominal earnings between 2006 and 2008 for manufacturing industry earnings to sustain an argument that over the period 2001 and 2015 the IAA’s staff costs per FTE (excluding pensions) grew in line with other sectors of the economy. We think it is implausible to assume a growth of 50 per cent in earnings in those two years. Moreover, the ESRI forecast used to project forward future manufacturing industry earnings is more bullish than a more recent Central Bank forecast for non-agricultural earnings which predicts changes of -0.3 per cent in 2011 and +0.1 per cent in 2012.¹²

7.31 The picture that emerges does not suggest that the IAA’s projected staff costs look especially challenging given their evolution in the past decade relative to the

¹¹ ESRI (2010) “Special Article, Recovery Scenarios for Ireland: an update” www.esri.ie

¹² Central Bank of Ireland (2011) “Quarterly Bulletin Q2”, www.financialregulator.ie

Irish economy. Nor does this conclusion arise merely because of costs associated with pension obligations.

7.32 The IAA has argued that the time and costs involved in training air traffic controllers makes it harder to respond to unplanned reductions in traffic. Yet the number of FTEs has remained broadly constant for the last decade, ranging from 71 to 77, and is forecast to remain at 76 for the next four years. Such a staffing level should be able to fulfil the IAA's safety remit, given that it was sufficient in 2007 and 2008 when traffic was much higher than forecast for the coming years.

Proposed opex allowance

7.33 Our draft determination sets a target level of opex in 2015 of €13.5m. This level corresponds to the 2006 level of opex, adjusted for the different number of movements in the two years assuming an elasticity of 0.3. Our forecast has assumed that this target is reached by realising lower levels of staff and training costs than forecast by the IAA. Relative to its projected 2011 costs, the IAA would need to save €3.2m in staff and training costs; we have assumed that it cuts these costs by €0.8m each year.

7.34 This corresponds to an annual (CPI-5) per cent target evolution for opex from the projected 2011 levels. This is challenging, but consistent with an aim of facilitating the development and operation of safe, cost-effective terminal services.

- The dramatic reversal in the fortunes of the Irish economy means that the environment is more conducive to realising savings on a scale that in other times may have seemed unobtainable. The Irish government has cut public sector wages and introduced a pension levy. More recent press stories report ESB announced plans to cut its wage bill by 20 per cent over four years and eircom staff accepting a 10 per cent pay cut¹³
- The target level of staff costs in 2015, on a per FTE basis, are 43 per cent higher than in 2002 – over the same time period manufacturing industry earnings are forecast to have grown by 41 per cent. In the intervening period, the trend in per-FTE costs for IAA staff will have been higher than the trend for manufacturing industry earnings in every year.
- The forecast traffic and opex in 2015 will be similar to the levels in 2005 and 2006. During that ten year period, the IAA will have made various investments, some motivated by the scope for efficiency savings. In such circumstances, it is reasonable for users to expect not to have to fund higher opex costs in 2015 than a decade earlier.

7.35 Our allowance has assumed that regulatory levies will total €200,000 in the next four years. Unlike in earlier determinations, we do not propose adjusting the price cap annually should the levy differ to the €50,000 assumed. Instead, we will make a one-off adjustment at the time of the next determination should the total from regulatory levies in the next four years differ to the €0.2m assumed.

Rolling incentive schemes

7.36 No rolling incentive scheme has been introduced.

7.37 The Issues Paper invited parties to comment on the merits of introducing a rolling incentive scheme as a means of providing increased incentives for the IAA to

¹³ See "ESB planning to cut payroll bill by €140m" *Irish Times*, 29 March 2011 and "Eircom staff have accepted a cost reduction programme aimed at saving the company €92m over the next three years" *Irish Times*, 31 March 2011.

manage costs. Both Aer Lingus and IATA welcomed the possibility of such a scheme.

- 7.38 We remain supportive of rolling-incentive schemes, but the uncertainty about the future regulatory environment governing terminal charges means that we do not propose to introduce such a scheme for the forthcoming determination. For such schemes to work, the regulator needs to commit credibly to reward the regulated entity where it successfully realises cost savings beyond the target set by the regulator. Yet from 2014 onwards, the level of charges will have to be set with reference to calculations described in the SES II regulations. Thus the earliest date at which the effects of a rolling-incentive scheme could be reflected in a price cap falls after the date at which the IAA's ATSCs will be subject to SES II regulations and what could be a very different regulatory environment.

8. Capital Costs

- 8.1 The draft determination has assumed the IAA will recover capital costs totalling €23.4m over the next four years. This includes both a return of and a return on capital. The annual sums are shown in the table below.

Yield table (€, 2011)	2012	2013	2014	2015
Return on assets (WACC=5.6%)	1.1m	1.1m	1.1m	1.1m
Depreciation	4.2m	4.7m	5.2m	5.0m
Capital costs	5.2m	5.8m	6.3m	6.1m
Capex allowance (non-milestone investment)	3.9m	5.4m	4.8m	4.4m

Table 8.1: Capitals cost and future allowances for capital expenditure

Source: Commission calculations

- 8.2 The rest of this chapter sets out how we arrived at these numbers. It follows the same structure as used in the Issues Paper, first arriving at an opening regulatory asset base (RAB), then discussing future investment needs and depreciation policy, before finishing with a review of the cost of capital to allow.¹⁴
- 8.3 Annex 4 to this report includes guidance on how we propose to roll forward the RAB. Similar guidance was issued at the time of the last airport charges determination. It sets out how we will reconcile differences between allowed and out-turn capital expenditure ("capex"). The principles have guided us in setting the 2012 opening RAB and we expect to follow them when reconciling allowed and out-turn capex at future determinations.

Regulatory asset base

- 8.4 The opening RAB in 2012 will be €19.9m.

(€m, 2011)	2007 determination opening and closing RAB
Opening RAB 2007	29.2
Allowed capex 2007-2011*	27.4
Regulatory depreciation 2007-2011*	-39.8
Allowed Cork tower capex	5.4
Regulatory depreciation Cork tower	-2.3
Opening RAB 2012	19.9

Table 8.2: Deriving the opening RAB in 2012

Source: Commission calculations, IAA

*The two milestone projects, Cork and Dublin towers, are excluded from these totals.

- 8.5 This is considerably lower than the closing RAB in the 2007 determination of €38.9m. The difference arises because the IAA undertook much less investment than envisaged in the capex allowance included in the 2007 determination. All three respondents to the Issues Paper agreed that the RAB should be adjusted to account for this under spend of €17.6m. The adjustment claws back both depreciation charges and interest payments that were factored into those

¹⁴ In keeping with previous Commission papers, the term cost of capital refers to the rate of return allowed on the RAB. This differs to the meaning given to the term in recent SES documents where it refers to the product of the asset base multiplied by the rate of return.

calculations on the basis of investment occurring that ultimately did not take place.

- 8.6 The RAB has also been updated to reflect the €5.4m spent building Cork tower. This was a milestone event, for which the Commission allowed €10.9m in 2007. The IAA spent considerably less. In adjusting the RAB to reflect this lower out-turn spend, we have not sought to claw back the higher interest payments that the IAA has received for building Cork tower below the original allowance.
- 8.7 The opening RAB does not include any allowance for the building of Dublin tower, since this milestone was not reached. So the €1.7m spent getting planning permission for such a tower has not been included in the RAB. This sum will fall to be considered, along with other amounts, if and when the trigger for a new tower at Dublin airport (or alternative to a tower) is satisfied. Such a possibility is discussed below.

Post-2011 capex

- 8.8 The table below shows the level of investment during the next four years assumed in the draft determination. The allowance corresponds to the amount sought by the IAA in its submission to the Commission in February 2011. For the purposes of future RAB roll forward decisions, there are no specific outputs associated with this level of capex. It represents a general level of investment in aviation terminal services that we believe should suffice to meet current and prospective needs of the airline industry in line with safety requirements and commercial operations.

	2012	2013	2014	2015
Draft Determination	3.9	5.4	4.8	4.4
IAA Submission	3.9	5.4	4.8	4.4

Table 8.3: Capital expenditure (€m, 2011)

Source: Commission calculations, IAA.

- 8.9 In addition, we also propose to adjust the cap to allow the IAA to recover €4.1m extra annually in subsequent years of the determination should more than 23.5 million passengers use Dublin airport in a 12 month period. This trigger is the same as the one used in the airport charges determination for a runway. The sum permitted is considerably less than the IAA estimates a new tower will cost: we do not discount the possibility that a larger sum will ultimately be needed but for reasons discussed below believe the sum proposed here is appropriate for the purposes of this determination.
- 8.10 The IAA presented its investment plans to airline users at a meeting in April 2011. The plan covered the five years, 2012 to 2016, one more than the duration envisaged in this draft determination. The total planned investment in that period was just over €100m, of which about 60 per cent was allocated to terminal services. The cost of a new tower at Dublin airport represented the most expensive investment plan, with expected costs of about €35m in the next five years (and a further €15m after 2016 to complete). The IAA indicated that it would defer building a new tower unless and until it was needed for a second runway at Dublin airport. The table below provides a breakdown of planned terminal capex for the period 2012 to 2015 (so it excludes the 2016 investments and non-terminal costs included in the IAA's forecast.)

Category	2012-2015	Planned projects
Voice and data communications	2.3	Replace existing switches, upgrade to VoIP; upgrade existing switches
Flight data processing	6.0	COOPANS
Surveillance and navigation	8.6	Surface movement radar at Dublin, NAVAIIDs, Multi-lateration ADS B, ART AS, airfield cabling
Information technology	1.0	Systems upgrade
Buildings	0.5	
Dublin tower	21.6	

Table 8.4: Forecast capex on terminal services by category (€m, 2011)

Source: Commission calculations, IAA.

- 8.11 Ryanair has raised a number of concerns with the IAA's investment plans. It has queried the need to replace voice switches at Dublin and Shannon before a decision about the possible closure of the Dublin control centre is made. Ryanair has also expressed concern that users not be asked to pay for any consequential system harmonisation costs arising from the decision of the IAA to adopt COOPANS and NATS (the IAA's functional airspace block (FAB) partner) to select a different system. Finally, it considers the proposed expenditure on information technology business, surveillance and navigational systems as grossly excessive and not required by users.
- 8.12 We have made an allowance for capex of €18.5m in the forthcoming price cap period, the same level as sought by the IAA. This allowance is intended to cover all capex needs that the IAA may have in the next four years, with the exception of a new tower discussed below. Excluding Dublin tower, the IAA forecasts spending an average of €4.6m per annum in the next four years. This compares with average capex of €4.9m per annum since 2002. If Shannon/Ballycasey ACC, Cork Tower and the COOPANS project are treated as one-off projects, then the annual level of "maintenance capex" envisaged in the next four years compares reasonably with the past decade.
- 8.13 The capex allowance includes the sums sought for the COOPANS project. This is with the proviso that the investment should only proceed if it is more economical than harmonising systems with NATS now. We share Ryanair's concern that it would be unreasonable to expect users to pay for a failure on the part of the two ANSPs in a FAB to harmonise their systems. Any future requests from the IAA for an allowance to harmonise its systems with NATS are likely to be rejected if the evidence suggests users have previously been asked to fund investments now being made redundant because of harmonisation requirements that should have been foreseen at the time of the original investment.
- 8.14 As in 2007, we have excluded the forecast costs of a new tower at Dublin airport from the general capex allowance. To ensure that there is a constraint on general investment levels, we are keen to make a separate, specific allowance that the IAA will only be able to collect should it have to build a new tower. With the tower, there were two further questions we have had to consider: how much to allow for such a project and when to allow any sum into the RAB.
- 8.15 We have decided to apply the same trigger for a new tower as the trigger governing when the airport charges price cap will start allowing the DAA to recover the costs of a new runway: when passenger numbers exceed 23.5 million in a 12 month period. We want to limit the risk that users are asked to pay for a tower when there is no second runway, or a second runway when there is no tower. Users should be aware that the IAA's project timetable envisages a new tower taking almost 4 years to complete (see table below), whereas the DAA's

Capital Investment Programme estimates 2.5 years to build a new runway. If these estimates are correct, then it is possible that for over a year after completion of a second runway there will not be a fully operational tower.

Task	Time (months)
Produce detailed tender and construction drawings	6
Tender for construction	6
Construction	18
Installation, commissioning and testing	19

Table 8.5: Timetable for building a new tower at Dublin airport

Source: IAA.

- 8.16 The total cost of a new tower, rather than the amount the IAA envisages spending in 2015 or 2016, is our primary concern when deciding on what sum to allow for such a project. The IAA estimates the total cost of a new tower might be €50m, but has committed to consult with users and develop a business case nearer the time before proceeding with such a project. We have decided to allow the IAA to recover €4.1m in each year of the forthcoming determination after the tower trigger is met; this corresponds to the annual sum from an annuity of €50m to be recovered over 20 years (given a cost of capital of 5.6%). However, the IAA should not automatically assume that it can spend €50m and have the sum included in the RAB. At the time of the next determination, we will need to be satisfied that the IAA consulted with users and identified the most cost effective option before proceeding to invest in a solution capable of permitting terminal services at Dublin airport if a second runway of 3.1km is built. This includes the possibility of alternative solutions to a tower, such as cameras on the runway, options that by the time the trigger is satisfied might be more viable. Should the DAA decide to proceed with a runway longer than 3.1km, the IAA should advise of the cost implications (if any) to it of facilitating a longer runway. We would not expect these costs to be recovered from the generality of airline users unless there was clear evidence of general support for a new runway with a length different to 3.1km.
- 8.17 Because of uncertainty about what technologies might be viable in 2014 or 2015 and exactly what the needs for a new tower might be, we have not sought to set a firm budget for a new tower in 2011 since the scope of any such project remains unclear. Given the trigger we have proposed and the IAA's suggested timeline, we expect that we will be able to provide firmer guidance on budget for the project at the time of the next determination, prior to the IAA actually committing large sums to the project. It would take a dramatic and unexpected upturn in traffic in the next 18 months at Dublin airport for this not to be the case.

Approach to depreciation

- 8.18 Depreciation charges have been calculated with reference to both straight-line depreciation and annuity calculations. For most assets, we have continued to use straight-line depreciation, allowing the same amount of depreciation for every year of the asset's life. For Cork tower, we have used an annuity approach, selecting a depreciation profile such that the sum of the return on and return of the costs of the asset is the same every year of the asset's life. We will also apply an annuity for the purposes of recovering the costs of a Dublin tower should the trigger for that project be met.

Capital expenditure grouping	IAA Accounts	EUROCONTROL Principles
Buildings	20	20-40
Completed installations and other works	8-12	
Motor vehicles	5	4-10
Office equipment	3-5	
Leased assets	Period of lease	Period of lease
Furniture and fittings		10-15
Electronic equipment (including telecommunications equipment)		7-15
General equipment		7-10
Computer equipment		3-10
Software		3-8
Aircraft		10-20
Land		Infinite

Table 8.6: Asset lives

Sources: IAA 2009 Annual Report, Commission calculations; EUROCONTROL (2010) "Principles for Establishing the Cost-Base for Route Facility Charges and the Calculation of the Unit Rates", www.eurocontrol.int/crco/public/standard_page/reference_documents.html

- 8.19 Both Aer Lingus and IATA responded to the Issues Paper by suggesting that the Commission should revisit the assumed asset lives. IATA queried the asset lives for buildings and towers used in the 2007 Determination when EUROCONTROL principles suggested 20-50 years for freehold buildings.
- 8.20 The table above shows the asset lives used by the IAA in its most recent set of accounts and those set out in the latest set of EUROCONTROL principles. We have decided to use the same asset lives as those used by the IAA. This is in keeping with the approach used in 2007.

Cost of capital

- 8.21 We have applied a pre-tax real rate of return on capital of 5.6 per cent. To arrive at this figure, we have generally followed a similar methodology to that used in previous determinations governing both ATSCs and airport charges.

Responses to Issues Paper

- 8.22 The IAA referred to the amended SES II charging regulation in its response to the Issues Paper's question about how the Commission should determine a rate of return.
- 8.23 IATA suggested that the cost of capital should be at the same level as government bonds. It referred to both the EUROCONTROL principles and the International Civil Aviation Organisation (ICAO) requirements to support its case. IATA argued that ANSPs enjoy enviable low-risk environments because they
- are monopoly providers;
 - have a large, guaranteed revenue stream;
 - have a very efficient and long-term recovery rate; and
 - are allowed full cost or determined cost recovery, backed by late payment penalties and enforced recovery.

IATA also argued that since governments had signed international agreements to provide air navigation services, it was inappropriate to use the opportunity cost of capital. Noting that the ICAO principles recommended government bond rates or enterprises of comparable low risk, IATA argued that other infrastructure utilities such as water, gas and electricity with steady income streams have lower betas.

Commission's approach

8.24 We have estimated the real pre-tax cost of capital as a weighted average of the firm's cost of equity (r_e) and cost of debt (r_d), i.e. a weighted average cost of capital or WACC:

$$WACC = G * r_d + (1 - G) * r_e$$

8.25 This is similar to the approach used in both 2002 and 2007, and is broadly in line with the amended SES II charging regulations. Perhaps the biggest difference is that we have estimated a real rate of return, consistent with the use of indexed historic costs to update the RAB; under the SES II charging regulations we would have estimated a nominal rate of return and an asset base expressed in nominal terms.

8.26 The table below sets out the various parameters that the Commission has used, and how these values compare with the 2007 determination.

Rate of return component	2007	2011	Rationale for 2011 value
Cost of debt (r_d)	2.22	2.25	Euribor plus mark-up
Cost of equity (r_e)	7.34	5.09	Derived using CAPM
Risk-free rate (real)	1.84	1.64	10-year German govt bonds
Equity risk premium	5.0	5.0	Dimson, Marsh, Staunton
Asset Beta [β_a]	0.65	0.65	Past CAR and CAA decisions
Equity Beta [$\beta_e = \beta_a / (1 - D/E)$]	1.1	0.74	
Tax	12.5	12.5	
Gearing (G)	35.5	6.5	
Debt: equity (D/E)	75.4	7.0	Actual rather than notional
Real pre-tax cost of capital	6.2	5.6	

Table 8.7: Calculating the rate of return

8.27 For interest rate on debts, we have used the average interest rates that the IAA currently pays on its debts. We have assumed that the IAA will roll-forward any debt on the same terms to those it is currently paying. The IAA advised the Commission at the time of the Issue Paper that its borrowing costs were Euribor plus 110 basis points. The current 12-month Euribor rate is 2.15 per cent.¹⁵ Taking the IAA's National Performance Plan forecast 2011 inflation of 1.0 per cent, this implies a real cost of debt of 2.25 per cent, very similar to the rate assumed in 2007.

8.28 We have continued to rely on the capital asset pricing model (CAPM) to determine the cost of equity. Under CAPM, a firm's cost of equity is defined as the sum of: the risk-free rate (r_f) and the product of the equity risk premium (ERP) and a company-specific parameter, beta (β):

$$r_e = r_f + \beta \times \text{ERP.}$$

¹⁵ Source: www.euribor-rates.eu/current-euribor-rates.asp, 17 May 2011.

8.29 This requires estimation of three parameters: the risk-free rate, the ERP and beta. Of these parameters, only the value of beta is firm specific. As the table below shows, the values we propose for the risk-free rate and the ERP are within the ranges that we suggested seemed reasonable at the time of the draft determination for airport charges in 2009, and are also in line with more recent recommendations from consultants advising the CAA on the cost of capital for NATS and the Commission for Energy Regulation (CER) on the costs of capital for electricity transmission and distribution operators.¹⁶ In selecting point estimates for these parameters, we have been guided by the approach used by our consultants Hutson and Kearney at the time of the 2007 Determination.

Regulated entity	Risk free rate	ERP
Dublin airport (2009)	1.5-2.5	4.0-5.0
Electricity distribution and transmission operators (2010)	1.6-2.2	4.5-5.4
NATS (2010)	1.5-2.25	5.0-6.0

Table 8.8: Risk-free rate and equity-risk premium – recent regulatory decisions

Source: Commission, CAA, CER

8.30 The real risk-free rate we have adopted is 1.64 per cent. For the 2007 Determination, the Commission’s consultants estimated a risk-free rate with reference to Irish ten-year government bond rates. This approach was adopted to align the calculations with European regulations. These regulations require that the return on equity be calculated using the national bond rate as a guide when considering the financial risk of the ANSP. The economic situation in Ireland is very different today to what it was in 2007. Irish government bond yields are much higher – the monthly average nominal rate in March 2011 was 9.67 per cent.¹⁷ In contrast, the monthly average nominal rate on German ten-year bonds was 3.24 per cent.¹⁸ The large difference arises mainly because of investor concerns about the riskiness of Irish government bonds. In such circumstances, we do not believe it appropriate to rely on Irish government bond rates to determine the risk-free rate. Instead, we have set a risk-free rate of 1.64 per cent, consistent with the yield on German ten-year government bonds and a 2010 Eurozone inflation rate of 1.6 per cent.¹⁹

8.31 We have assumed the same ERP of 5 per cent that we used in 2007 (and in the more recent determination governing airport charges at Dublin airport). The ERP is the additional return investors require to invest in equity rather than in a risk-free asset. Its value continues to be a source of debate in the academic and investment community. In the most recent update to their investment returns sourcebook, Dimson, Marsh and Staunton’s best estimate for the long-run ERP for regulatory and other purposes is in the range 4.5 to 5 per cent.²⁰ Their earlier studies looking at historical returns have been cited in past determinations by the Commission and our consultants when deciding on an appropriate ERP.

¹⁶ See Commission for Aviation Regulation (2009) “Draft Determination – Maximum Level of Airport Charges at Dublin Airport 2010-14”, www.aviationreg.ie; Europe Economics (2010) “Cost of Capital for NATS (En Route) plc for CP3”, www.caa.co.uk; and Europe Economics (2010) “Cost of Capital for Transmission Asset Owner (TAO), Transmission System Operator (TSO), Distribution System Operator (DSO)”, www.cer.ie.

¹⁷ Source: www.tradingeconomics.com/Economics/Government-Bond-Yield.aspx?symbol=IEP, 14 April 2011

¹⁸ Source: www.tradingeconomics.com/Economics/Government-Bond-Yield.aspx?symbol=DEM, 14 April 2011

¹⁹ Source: epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/, 14 April 2011.

²⁰ Elroy Dimson, Paul Marsh, and Mike Staunton (2011) *Credit Suisse Global Investment Returns Sourcebook 2011*, Credit Suisse Research Institute, Zurich.

- 8.32 The asset beta assumed in this draft determination is 0.65, the same value Hutson and Kearney recommended in 2002 and 2007. We continue to believe that the exposure of the IAA's ATS business to general market fluctuations is greater than for utilities, but that the correlation is less than one. The beta captures the extent to which returns from the asset are correlated with the market and therefore non-diversifiable; a value less than one implies that the asset tends to move by less than the market.
- 8.33 There does not appear to be any compelling evidence to suggest that the systematic risk of the IAA's ATS business has changed markedly since the 2007 determination. The estimated asset betas for comparator companies referred to when calculating the cost of capital in 2002 and 2007 have remained broadly constant. The comparator companies in previous IAA determinations have been NATS (the UK ANSP) and airports. Last year, the CAA's consultants recommended an asset beta for NATS of 0.6, with a range of 0.5 to 0.64.²¹ This is not too dissimilar to the point estimate of 0.55 and range of 0.5-0.6 for NATS' asset beta that Hutson and Kearney quoted in 2007 when suggesting the value of 0.65 for the IAA's asset beta.
- 8.34 We have not accepted IATA's suggestion that we should adopt a lower asset beta than previously. IATA refers to features of the market to justify a lower beta, yet the IAA's position in the market is unchanged from 2002 and 2007. We are not aware of any evidence supporting a conclusion that the exposure of ANSPs to general business risk is lower today than it was in 2007. Indeed, the CAA's 2010 decision involved a marginally higher asset beta than in 2004 (when its consultants suggested 0.55). Nor do we believe that the reference to the lower asset betas for utilities should lead us to revise down the assumed asset beta. Reasons have previously been given for why an ANSP might warrant a higher beta than utilities, such as the fact that ANSPs tend to be relatively more labour intensive. Events of the last few years suggest that on the demand side the IAA's terminal business is more closely related to the general economic environment than utility firms. The chart below plots changes in IAA demand (measured in MTOWs), total system demand for electricity and total energy demand for gas (measured in gigawatt hours) and Irish gross domestic product (GDP); the IAA experienced the largest year-on-year increases during the boom period in the middle of the last decade, and the largest drop in demand in more recent years as the economy deteriorated.

²¹ Europe Economics (2010) "Cost of capital for NATS (En Route) plc for CP3" www.caa.co.uk

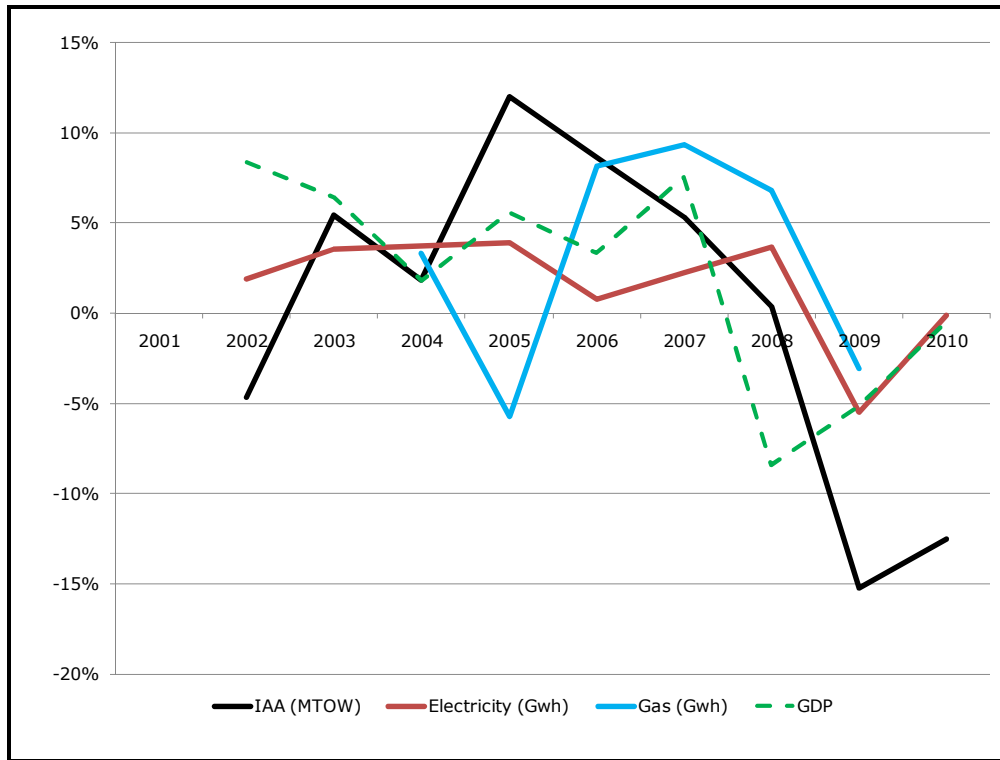


Figure 8.1: Annual changes to GDP and demand for ATS and energy

Source: CAR calculations, CSO and CER data. The raw data for gas measure annual demand over the period October to September; the other series accord with the calendar year.

8.35 For gearing, we have used the same approach as our consultants followed in 2007 and arrived at a gearing ratio of 6.5 per cent. We are required to have regard to the IAA’s actual gearing for the purposes of estimating a return on capital. We have used the average debts to total assets for the last four years for which audited published accounts are available (2007-2010). The calculation divides long-term debts, i.e. creditors with amounts due in more than one year, by total assets to get a gearing ratio. The series are volatile, which is one reason for using a four-year average rather than just the most recent set of accounts.

	2007	2008	2009	2010
€000s				
Total assets	151,056	163,686	171,266	194,266
Bank loans due after > 1 year	20,000	0	0	0
Income equalisation (en-route)	579	3,708	532	2,902
Creditors (amounts due after > 1 year)	20,579	3,708	532	2,902
%				
Long-term debt: total assets	13	3	0	9

Table 8.9: Estimating actual gearing

Source: IAA Annual Reports, Commission calculations

8.36 The pre-tax real cost of capital, from combining the various constituents, is 5.6 per cent. This is 60 basis points lower than the cost of capital used in 2007.

9. Other Issues

- 9.1 This chapter presents the Commission's proposals on a number of miscellaneous but potentially important topics relating to the determination that were identified in the Issues Paper. The IAA identified two additional issues – the possibility of deflation and the impact of further volcanic activity in Iceland – that it wanted the Commission to consider. These are also discussed in this chapter.
- 9.2 IATA referred to a number of recent developments that it thought might be considered, such as the outsourcing of tower services in some Member States or the inclusion of approach and tower services into airport charges. The former would generate competitive pressure to reduce prices to win tenders, while the latter would see competing airports take a keen interest in the level of ANSP costs. We do not have the powers to implement such approaches, which are outside the scope of a determination and so not discussed further in this document.

Compliance and treatment of over- and under-recovery

- 9.3 We have decided to require the IAA to comply with the price cap annually, reimbursing users within 45 days of the calendar year if it ever exceeds the price cap for a given year. The IAA will be allowed to roll-forward any under-collection, subject to the sum being roll forward not exceeding 5 per cent of the revenues that the IAA was entitled to collect in the year in question. This is a change from previous ATSC determinations, but is similar to the treatment of over- and under-recoveries by the DAA in the current airport charges determination.
- 9.4 Aer Lingus did not think the service provider should be permitted to collect an under-recovery in subsequent years when it arises because of a commercial decision by the service provider to price below the cap. When it is appropriate to permit their recovery in later years, Aer Lingus thought that they should be dealt with in a manner that minimises the cost to airlines of financing them, since the deferment simply postpones a certain liability.
- 9.5 The IAA argued that over- and under-recoveries are a fundamental component of a risk-sharing model. It was concerned that no rolling forward of any under recovery would increase its risk profile, resulting in a higher cost of capital. The IAA supported the discretion to defer collection of any under-recoveries to later years, to allow it to smooth any increases in charges.
- 9.6 Given the proposed structure of the price cap in the forthcoming determination, we think that any under or over-recoveries should be minimal. The price cap will be expressed in the same units as the IAA uses when setting its charges. The proposed deferral by two years of any adjustment to the price cap to reflect deviations in forecast traffic levels means that the only uncertainty about the price cap within the year to which it relates will concern whether the IAA can meet all the service quality targets set. In these circumstances, the Commission thinks that if compliance with the determination is to mean anything, it should require the IAA to refund users at the earliest opportunity should it ever collect more in a year than allowed under the price cap.
- 9.7 For under-recoveries, the Commission has granted the IAA some discretion to defer collection to a later date. But this is capped at 5 per cent of what the IAA could have collected in the year, to protect future users from especially steep price increases in later years. The IAA is welcome to price even lower if it chooses to do so, but such an action would be viewed as a commercial decision and future price caps would have no regard to the additional revenues foregone.

- 9.8 We do not believe that this approach has significant implications for the risk sharing alluded to by the IAA. A mechanism to protect the IAA from some of the risks associated with traffic deviating from forecast remains in place.
- 9.9 As a transitional arrangement, any under-recoveries or over-recoveries in 2010 and 2011 will be rolled forward in the same manner that under and over recoveries in the earlier years of the 2007 determination were treated.

Developments under the Single European Sky II package

- 9.10 As alluded to in Chapter 4, the implications of the SES II package for this determination are limited because the government has decided to defer implementation as it relates to terminal services.
- 9.11 The IAA indicated it supported the SES II requirements. IATA thought it would be practical to consider earlier implementation of the scheme, rather than have a relatively short-lived continuation of the national system.
- 9.12 We have considered the merits of adopting approaches in the SES II on a case by case basis, in each instance considering whether the adopting such an approach would enable us to satisfy our own statutory objective better. But we have not been bound by requirements for which Ireland has deferred implementation, and we have not adopted approaches where we believe to do so would be in conflict with our statutory obligations set out in the Aviation Regulation Act 2001.
- 9.13 It is possible that the transition from the current regulatory regime to one consistent with the SES II requirements will entail significant one-off adjustments. In particular, there appears to be significant scope for one-off changes in the level of capital costs used to calculate charges. For example, SES II regulations specify straight-line depreciation for the purposes of determining cost-based charges. Such an approach would result in a significantly higher level of charges in the years immediately following completion of a major new investment than the annuity approach we have favoured for Cork and Dublin towers. The revised requirements may alter both the time profile of charges and allow the IAA to gain or lose revenues in net present value terms. However, we have not attempted to quantify the scale of such changes nor set a cap that attempts to permit a smoother transition between regimes. To do so would require knowledge of exactly how the regulations will be applied in Ireland.

Allocation of costs

- 9.14 This draft determination does not envisage setting any sub caps. There will not be separate caps for the charges at Cork, Dublin and Shannon airports.
- 9.15 The IAA and IATA expressed opposing views on whether there should be separate caps for each of the airports. IATA supported separate caps, to be estimated following an allocation of costs between the various airports. The IAA opposed such an approach, citing the evidence from most Member States in the European Union where a single charging zone applies, as is the case in Ireland.
- 9.16 The government has designated a single charging zone in Ireland, so there does not currently appear to be scope for the Commission to set separate caps at the three airports.
- 9.17 The IAA argued that exempted IFR flights accounted for 0.04 per cent of TSUs, such that any attempt to collect data on the costs of such flights would be more expensive than the actual costs of such flights. We concur, and have decided not to attempt to identify separate costs for IFR flights.

Deflation

- 9.18 We propose to continue treating inflation and deflation in a symmetrical manner, setting a price-cap formula in real terms: the cap will increase in years when the CPI increases and fall in years when CPI falls.
- 9.19 The IAA raised the possibility that inflation could be negative during the next determination. It argued that the price cap formula should not include an adjustment for negative inflation, arguing that the IAA's cost base is fixed and it had limited ability to adjust as quickly as consumers can. Furthermore, with 50 per cent of its cost base made up of staff costs and data showing worldwide shortages in the sector and Irish air traffic controllers paid below the European average, it was unrealistic to assume that the IAA could reduce wages other than for a very short period of time.
- 9.20 We have rejected these arguments. The volume risk sharing arrangement discussed in chapter 4 already reflects a judgment about the extent to which the IAA and airlines respectively should assume the risks to the IAA of a downturn (or upturn) in traffic. We do not believe a case has been made for treating deflation and inflation differently on account of staff costs and the IAA's ability to compete in the international market for air traffic controllers. The choice thus comes down to choosing between a real or a nominal price cap; we have chosen to persist with a real price cap.

Volcanic Activity

- 9.21 The determination will not include any special feature to address the possibility of further volcanic activity in Iceland.
- 9.22 The IAA noted that last year's eruption of volcano Eyjafjallajokull may be followed by an eruption of volcano Katla, accompanied by heightened activity from other volcanic centres. It was worried about how this might affect the IAA's revenues, given uncertainty about the response of airlines and the safety regulator (another division of the IAA). It wanted an "alert mechanism" to provide an additional potential safeguard for it should the traffic risk sharing arrangement prove insufficient.
- 9.23 We are not convinced of the need for any particular mechanism to be included in the determination to account for the possibility of volcanic activity. For periods when Irish airspace is closed down, the design of the determination will be irrelevant since the IAA will be unable to collect any revenues from ATSCs. There is a mechanism in place to address the possibility of deviations in traffic from forecast, an arrangement that could significantly increase the unit charges in later years which should protect the IAA from some of the cost implications of a lengthy closure of the airspace. It does not appear to be realistic to expect airlines to bear even more of a financial exposure in such a scenario, given that their business will also suffer substantial losses in such circumstances.

10. Compliance with Statutory Requirements

10.1 Section 36 of the Aviation Regulation Act 2001 sets out the Commission's statutory objective, and also the statutory factors to which the Commission must have regard when making a determination governing ATSCs. This chapter sets out how the Commission believes that this draft determination complies with these statutory requirements.

10.2 When making a determination, the Commission is required to

"...aim to facilitate the development and operation of safe, cost-effective terminal services which meet international standards..."

10.3 As outlined in the rest of this document, we have sought to set a price cap that will allow the IAA to collect sufficient revenues from terminal services to provide a cost-effective service that meets international standards. We must have regard to seven statutory factors in making a determination. The extent to which the reliance on any one of these factors contributes to the achieving our statutory objective is a matter for the Commission to determine. Consideration of each the seven statutory factors is set out below.

- *the relevant charging principles of the International Civil Aviation Organisation and of Eurocontrol,*

10.4 We have considered the latest charging principles of these two organisations. In the case of ICAO, the two most relevant publications appear to be documents 9082 and 9161. The editions that we have referred to were published in 2007 and 2009 respectively.²² We believe that the proposals in this draft determination are consistent with those charging principles, which themselves are generally similar to the principles in place at the time of the 2002 and 2007 determinations.

10.5 EUROCONTROL's charging principles and the SES project are now closely linked. By having regard to SES developments, as they relate to Ireland, we believe that we have made a draft determination that is consistent with the charging principles of EUROCONTROL. We have also had regard to documents issued by EUROCONTROL setting out its charging principles, in particular the March 2010 publication setting out charging principles for en route charges.²³ While the focus of that document is en route rather than terminal charges, there are principles set out in that document for the calculation of costs that could apply to other services, including terminal services.

- *the level of investment in aviation terminal services by the Authority, in line with safety requirements and commercial operations, in order to meet current and prospective needs of the airline industry,*

10.6 Chapter 8 describes the allowance for capex that we have included in determining a price cap. The level of investment for the forthcoming period corresponds to what the IAA sought to upgrade or maintain facilities related to its voice and data communications, surveillance and navigation activities, flight data processing and information technology. The costs of a new tower or other facility at Dublin airport to permit use of a parallel runway will only be included in calculating the price cap should the project need to proceed.

²² ICAO (2007) "Manual on Air Navigation Services Economics" document 9161, fourth edition, www.icao.int and ICAO (2009) "ICAO's Policies on Charges for Airports and Air Navigation Services" document 9082, eighth edition, www.icao.int

²³ Eurocontrol (2010) "Principles for Establishing the Cost-Base for En Route Charges and the Calculation of the Unit Rates" www.eurocontrol.int

- *the efficient and effective use of all resources by the Authority*
- 10.7 We have analysed both the historic levels of opex by the IAA, and the proposed levels of such costs that the IAA forecasts incurring. In considering an allowance to make, we have looked at a breakdown of the operating cost by category, as well as the overall level, and concluded that a determination that assumes similar levels of costs as incurred in 2006 is consistent with the efficient and effective use of all resources. Chapter 7 provides more details on how we assessed efficiency.
- *the level of the Authority's income from aviation terminal services and other revenue earned by the Authority generally*
- 10.8 The determination seeks to allow the IAA to recover sufficient revenues from ATSCs to cover the costs associated with providing terminal services. As in past determinations, we continue to exclude from our calculations the costs and revenues of the IAA associated with providing en route services in Irish controlled airspace, Shanwick Communications, safety regulation, exempt air traffic and commercial and training activities.
- *operating and other costs incurred by the Authority in providing aviation terminal services*
- 10.9 Chapter 6 sets out the approach taken by the Commission to review historic and projected opex costs with a view to allowing an efficient level of opex to support the IAA's delivery of aviation terminal services.
- *the level and quality of aviation terminal services, and the reasonable interests of the users of these services*
- 10.10 For the first time, the Commission has developed a formal service quality target in making its determination. This is described in Chapter 5.
- *the cost competitiveness of aviation terminal services with respect to international practice.*
- 10.11 The Commission is aware of the global demand for cost competitive aviation terminal services. Given this, the Commission developed a price cap on ATSCs that took account of international practice. We have looked at available data to compare the IAA's costs with those of other European countries. This includes looking at the IAA's cost competitiveness as reported in the ATM Cost Effectiveness Reports.

11. Responding to this Paper

- 11.1 The Commission would like to hear the views of interested parties in relation to the issues discussed in this report. Respondents are asked to support any views and comments expressed in submissions with relevant evidence.
- 11.2 If parties wish to meet with the Commission to discuss any of the issues raised in this paper, or any other issues relevant for the forthcoming Determination, they are welcome to do so. Contact details for the Commission are provided below.
- 11.3 Responses to this consultation paper should be titled "Response to 2011 ATSC Draft Determination" and should be received no later than Wednesday 27 July 2011 at 3pm, and should be sent to

**John Spicer
Commission for Aviation Regulation
3rd Floor
Alexandra House
Earlsfort Terrace
Dublin 2.**

By email to info@aviationreg.ie

By fax to 00-353-1-6611269

- 11.4 Respondents should be aware that the Commission is subject to the provisions of the Freedom of Information legislation. It is the usual practice to place all submissions received on our website. If submissions contain confidential material, it should be clearly marked as confidential, and a version of the submission should be provided which can be used for publication.
- 11.5 The Commission may also include the information contained in responses in reports and elsewhere as required. Ordinarily, the Commission does not edit this material. Any party submitting information to the Commission shall have sole responsibility for the contents of such information and shall indemnify the Commission in relation to any loss or damage of whatsoever nature and howsoever arising suffered by the Commission as a result of publication or dissemination of such information either on its website, in its reports or elsewhere.
- 11.6 While the Commission uses best endeavors to ensure that information on its website is up to date and accurate, the Commission accepts no responsibility in relation to and expressly excludes any warranty or representations as to the accuracy or completeness of the contents of its website.

Annex 1: Glossary of Terms

ACC	Area control centre
ANSP	Air navigation service provider
ATC	Air traffic control
ATCO	Air traffic controller
ATFM	Air traffic flow management
ATSC	Aviation terminal service charge
Capex	Capital expenditure
CAPM	Capital asset pricing model
CER	Commission for Energy Regulation
CFMU	Central Flow Management Unit
CPI	Consumer Price Index
CSO	Central Statistics Office
ERP	Equity-risk premium
ESRI	Economic and Social Research Institute
FAB	Functional airspace block
FTE	Full-time equivalent
GDP	Gross domestic product
IAA	Irish Aviation Authority
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFR	Instrument flight rules
MTOW	Maximum take-off weight
Opex	Operating expenditure
PRC	Performance Review Commission
PRU	Performance Review Unit
RAB	Regulatory asset base
SDG	Steer Davies Gleave
SES II	Single European Skies II
STATFOR	EUROCONTROL Statistics and Forecast Services
TNC	Terminal navigation charges
TSU	Terminal service unit
WACC	Weighted average cost of capital

Annex 2: Letter from Department of Transport

Head Office

Transport House, Kildare Street,
Dublin 2, Ireland.

Príomh-Oifig

Teach Iompair, Sráid Chill Dara,
Baile Átha Cliath 2, Éire.



Department of Transport
An Roinn Iompair



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29th April 2011

Mr. Cathal Guiomard
Commissioner
Commission for Aviation Regulation
3rd Floor
Alexander House
Earlsfort Terrace
Dublin 2

Dear Commissioner

Further to previous discussions and correspondence between the Department and the Commission, I wish to advise you of the decision by Ireland not to apply the provisions of Regulation (EC) No 1794/2006 as amended by Regulation (EU) No. 1191/2010 to terminal charges until 31 December 2014 as allowed under Article 2 of Regulation 1191/2010.

The European Commission has been notified accordingly.

Yours sincerely

Ethna Brogan
Principal Officer
Aviation Services & Security Division

Annex 3: Steer Davies Gleave Report on Quality of Service

Establishing metrics and targets for a terminal ANS service quality scheme

Level of target

Final Report

May 2011

Prepared for:

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Level of target

1 Introduction

Introduction

- 1.1 This report has been produced by Steer Davies Gleave on behalf of the Commission for Aviation Regulation (“the Commission”). It is designed to support the Commission in its work to establish a financial incentive for improved operational performance for Terminal Air Navigation Service (ANS) at Dublin, Shannon and Cork airports.
- 1.2 In this report we analyse historical data in order to understand how drops in runway throughput and Air Traffic Flow Management (ATFM) regulations have been represented in available data, we then go on to review how disruptions caused by the Irish Aviation Authority (IAA) can best be identified and what level of target should be used to incentivise a reduction in those disruptions.

Context

- 1.3 We have identified two data sources which are sufficiently comprehensive and accurate to be used as the primary data source for monitoring service quality in a scheme with financial penalties. These are:
- **CFMU data:** available from IAA; and
 - **Discover database data:** available from the Dublin Airport Authority (DAA).
- 1.4 We have also identified two principal approaches which could be used to identify disruption to at the provision of Terminal Navigation Services at Dublin, Shannon and Cork airports. These were:
- **A delay based metric** which would identify material events based on central Flow Management Unit (CFMU) recorded delays.
 - **A runway throughput based metric** which would identify potentially material events base on analysis of actual runway throughput against planned runway throughput. This approach would be based on data taken from the Discover database maintained by DAA.

Approach

- 1.5 We contacted IAA and DAA to request a sample of CFMU and Discover database data respectively. For each source we asked for data spanning a whole year from 1 January 2010 to 31 December 2010. The rest of this document contains the results of our analysis of the data.

2 Results of analysis

Introduction

- 2.1 We conducted separate analysis on CFMU and Discovery Database data (referred to as “runway throughput data” throughout the rest of this report). For each data set we first describe the structure and content of the data we received, and then review the way in which delay events have been recorded in the data throughout 2010.

CFMU

Data set

- 2.2 We received a record of all Ireland’s daily Air Traffic Flow Management (ATFM) regulation delays during 2010. The following fields were included in the data set:

- Entry Date
- ACC
- ACC name
- Total number of flights
- Number of regulated flights (MP)
- Number of delayed flights
- Total delay (minutes) (*delay per flight * number of flights affected*)
- Airport delay %
- Delayed flights (minutes)
- All flights (minutes)
- Location type
- Start time
- End time
- Regulation cancelled
- Regulation Reason description by ATC to EUROCONTROL
- Regulation reason description
- Location reference

- 2.3 The number of delayed flights, the total delay and the average delay by flight are fields which could be used as indicators in a service quality mechanism. The ACC name would be used to exclude delays caused by IAA’s en-route centre (Shannon ACC) from the target.

Review of data

- 2.4 CFMU data shows a total of 32 delay events in 2010, these were mostly due to weather, with a small number of delays allocated to other causes. Table 2.1 shows the regulation cause of each delay, the number of aircraft delayed and the number of delay minutes.

TABLE 2.1 CFMU ATFM DELAYS IN 2010 OVER 15 MINUTES

Reg. Cause	No. of events	No. Aircraft delayed	No. of Delay minutes	Delay minutes proportion of annual total
Weather	25	586	15,589	55.5%
A-Accident/Incident	1	6	394	1.4%
ATC Capacity	1	9	150	0.5%
Aerodrome capacity	1	7	100	0.4%
Industrial Action	2	34	1,080	3.8%
Other	2	153	10,765	38.3%
Total	32	795	28,078	

Source: CFMU data provided by IAA

- 2.5 The majority (over 55%) of delays have been allocated the regulation code “weather”. Of those identified as “other”, 10,708 of the 10,765 delay minutes in this category contain the description “Lack of stands due to snow”. If we consider this fundamentally as a weather based delay then the total proportion of regulation events attributable to weather rises to 93.7%. This data shows that two events would have triggered a penalty in 2010 assuming that “industrial action” was taken as a material event under the control of IAA. We discuss further the use of regulation codes in chapter three.
- 2.6 Each regulation delay varies in its length and by the number of flights affected. The following table provides an indication of the range of lengths of delay across the year.

TABLE 2.2 LENGTH OF DELAY AND NUMBER OF FLIGHTS AFFECTED BY LENGTH OF EACH DELAY CATEGORY (ALL DELAYS IN MINUTES)

Length of each delay	Regulations	Total delay	Flights affected	Delay per flight
0 - 500	20	3,624	194	19
500-1000	5	3,403	97	35
1000-1500	2	2,529	76	33
1500-2000	3	5,145	237	22
2000+	2	13,377	191	70
Total	32	28,078	795	179

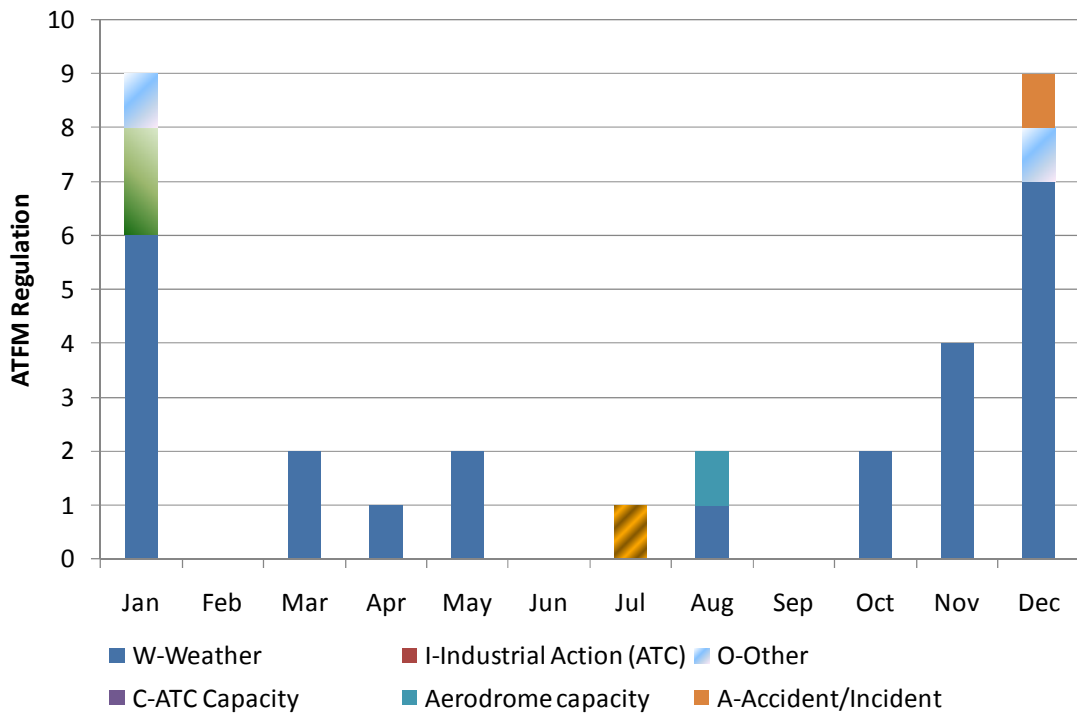
Level of target

2.7 Most regulation delays (20 out of 32) account for no more than a total of 500 minutes of delay. However even these relatively small delays imposed an average of 19 minutes of delay per flight. Larger delays, such as those accounting for over 1,500 minutes of delay in a single event do not always impose longer delays however they do effect hundreds of flights.

Analysis of performance

2.8 The spread of delays throughout the year is consistent with a delay pattern heavily influenced by the weather. Figure 2.2 shows delays grouped around the winter months of November, December and January.

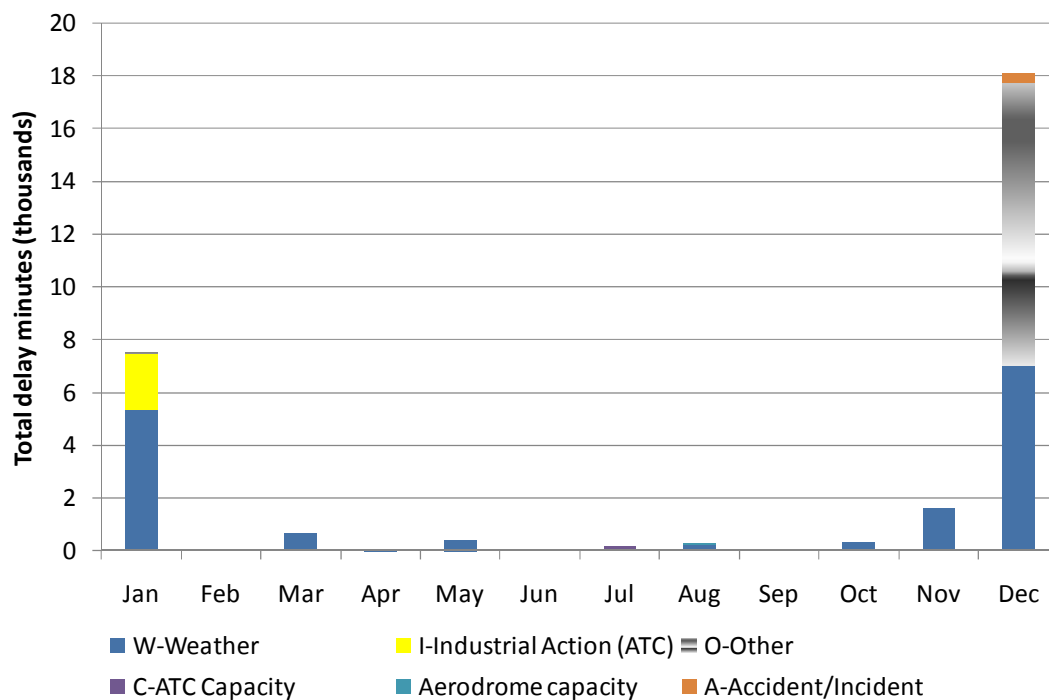
FIGURE 2.1 NUMBER OF ATFM REGULATION DELAYS BY MONTH (2010)



Source: CFMU data provided by IAA, SDG analysis

2.9 Analysis of the length of each delay rather than the number of regulations in Figure 2.2 shows that the majority of delay events result in relatively short delays. The average delay for a single regulation is 877 minutes. In terms of significant events, 2010 was characterised by weather related incidents in January and December and a period of industrial action in January which imposed a total delay of 1,080 minutes across 34 flights.

FIGURE 2.2 TOTAL DELAY MINUTES BY MONTH



Source: CFMU data provided by IAA, SDG analysis

2.10 Figures 2.1 and 2.2 show that the number of ATFM regulation delays in a month may not necessarily correspond to the length of delay, either in total or by category.

Runway throughput

Data set

2.11 We received a record of all planned and actual movements through Dublin airport in 2010, these were broken down by day and by hour. Table 2.3 provides an example of the data we received.

TABLE 2.3 RUNWAY THROUGHPUT DATA EXTRACT - 28 MARCH 2010

Time local (hr start)	Planned movements	Actual movements
0000		
0100		1
0200		1
0300	1	
0400		1

Level of target

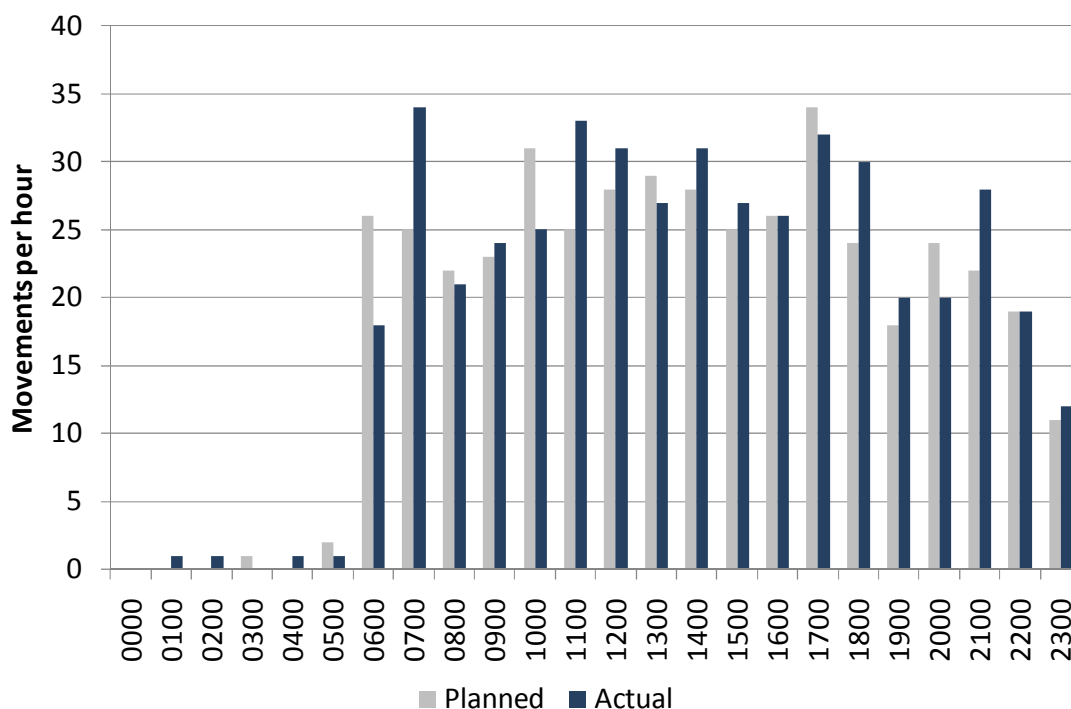
0500	2	1
0600	26	18
0700	25	34
0800	22	21
0900	23	24
1000	31	25
1100	25	33
1200	28	31
1300	29	27
1400	28	31
1500	25	27
1600	26	26
1700	34	32
1800	24	30
1900	18	20
2000	24	20
2100	22	28
2200	19	19
2300	11	12
TOTALS	443	462

2.12 In the data set provided to us by DAA, this data was made available for each day of 2010.

Review of data

2.13 A total of 160,320 movements took place in Dublin in 2010 compared to a planned total of 156,724 (a variance of only 2%). However, actual movements differ to planned movements on an hourly, daily and weekly basis. Figure 2.3 compares planned movements to actual movements on 28 March 2010.

FIGURE 2.3 PLANNED MOVEMENTS VS. ACTUAL MOVEMENTS 28 MARCH 2010



Source: CFMU data provided by IAA, SDG analysis

- 2.14 In this example, the largest drop in throughput (planned against actual) occurs at 06:00 with 26 planned movements compared to 18 actual movements. In the following hour, actual movements exceed planned by the same amount, leaving a neutral balance of movements over this period of the day. As the Discovery database does not contain a reason for delay we cannot identify why actual movements dropped over this period. A cross reference to CFMU data does not reveal the cause of delay as no ATFM regulations were imposed on this day. As set out in table 4.3, actual movements exceeded planned movements by 19 flights over the course of the entire day.

Establishing a target for runway throughput

- 2.15 To allow for small fluctuations in actual movements compared to planned (for example due to operational cancellations by airlines), a trigger level would need to be established. In order to identify an appropriate level for this trigger we have conducted an assessment of:

- The frequency of drops in actual movements against planned;
- The size of those drops;
- The duration of the periods when drops took place; and
- The impact of disruptive events.

Frequency and size

- 2.16 Actual movements dropped below planned movements during at least one hour of each day of 2010. On a number of occasions, the drop was relatively low (two or

Level of target

three movements per hour below planned), on many others the drop is more substantial.

- 2.17 In table 2.4 we express the variance between actual and planned movements as a percentage. This analysis only considers the hour of each day when actual movements differed to planned by the greatest extent (i.e. 06:00 in the example considered in figure 3.1). As actual movements frequently drop below planned by a large amount, any scheme designed to capture exceptional events would need to exclude the relatively frequent occasions when actual movements are in excess of 70% lower than planned movements.

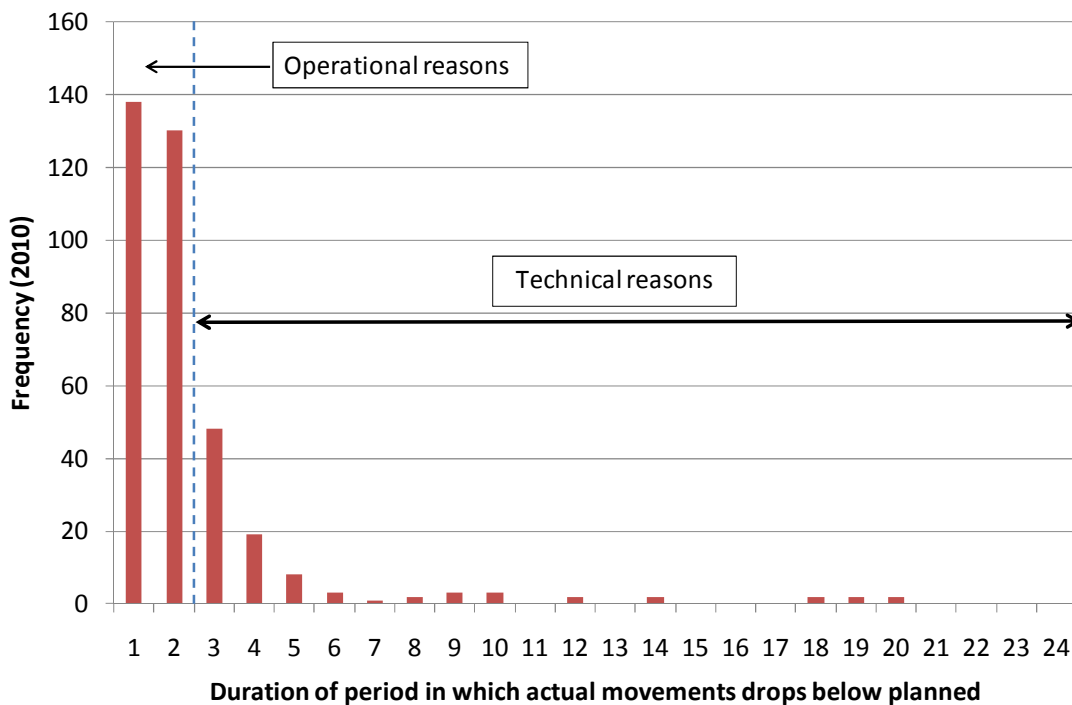
TABLE 2.4 PLANNED FLIGHTS AS A PROPORTION OF ACTUAL FLIGHTS DURING THE HOUR OF EACH DAY WITH THE LARGEST DIFFERENCE BETWEEN PLANNED AND ACTUAL

Planned movements as a proportion of actual movements during the lowest hour of each day	Days in each category
91%-100%	1
81%-90%	67
71%-80%	168
61%-70%	66
51%-60%	25
41%-50%	9
31%-40%	6
21%-30%	3
11%-20%	1
1%-10%	2
0%	17
Total	365

Duration

- 2.18 The duration of periods when actual throughput fell below planned throughput are analysed in Figure 2.4. These periods tends to be relatively short, 74% last no longer than 2 hours, 92% last no longer than 4 hours. In 2010, ten days encountered periods of ten consecutive hours or more when actual throughput dropped below planned throughput.

FIGURE 2.4 DURATION AND FREQUENCY OF PERIODS WHEN ACTUAL MOVEMENTS DROPPED BELOW PLANNED - 2010



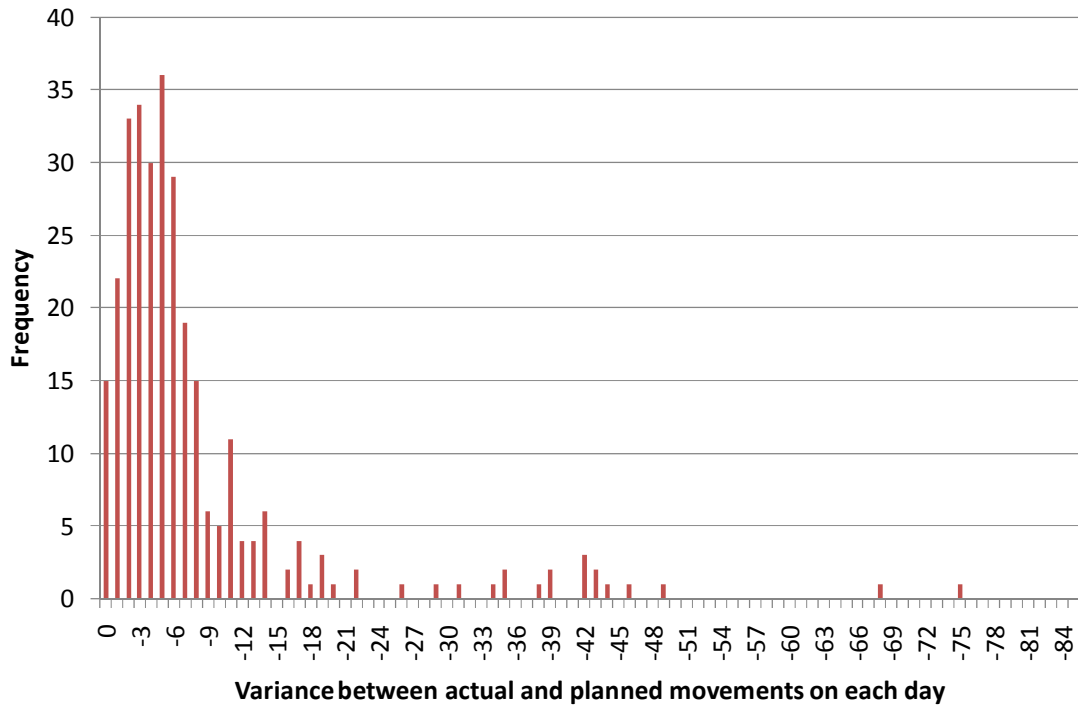
2.19 It is likely that when actual movements drop below planned for a period of one or two hours, this drop will be as a result of operational reasons, for example an aircraft arriving at the airport earlier than planned. When the duration increases to four, five or more hours then the cause of delay is more likely to be systematic, for example a failure in ATC equipment.

2.20 In order to understand the impact of drops in actual movements against planned, we have conducted an assessment of the hours either side of the lowest hour of each day. This allows us to identify the extent to which the drops in traffic identified in Table 2.4 have had a wider effect on movements through Dublin airport. Figure 2.5 shows the summed variance between actual and planned movements in the lowest hour of each day and the two hours either side of this.

Explanation of figure 3.3: If the hour of the day when actual movements were lower than planned movements by the largest amount was 6 am, we would take the variance in movements at 5 am and 7 am and add these to give the total variance in movements over a three hour period. This provides a demonstration of the extent to which dips in actual movements are caused by isolated operational reasons (which are quickly recovered) and which are as a result of systematic issues which impact a longer period of time.

Level of target

FIGURE 2.5 VARIANCE BETWEEN ACTUAL AND PLANNED MOVEMENTS OVER A THREE HOUR PERIOD



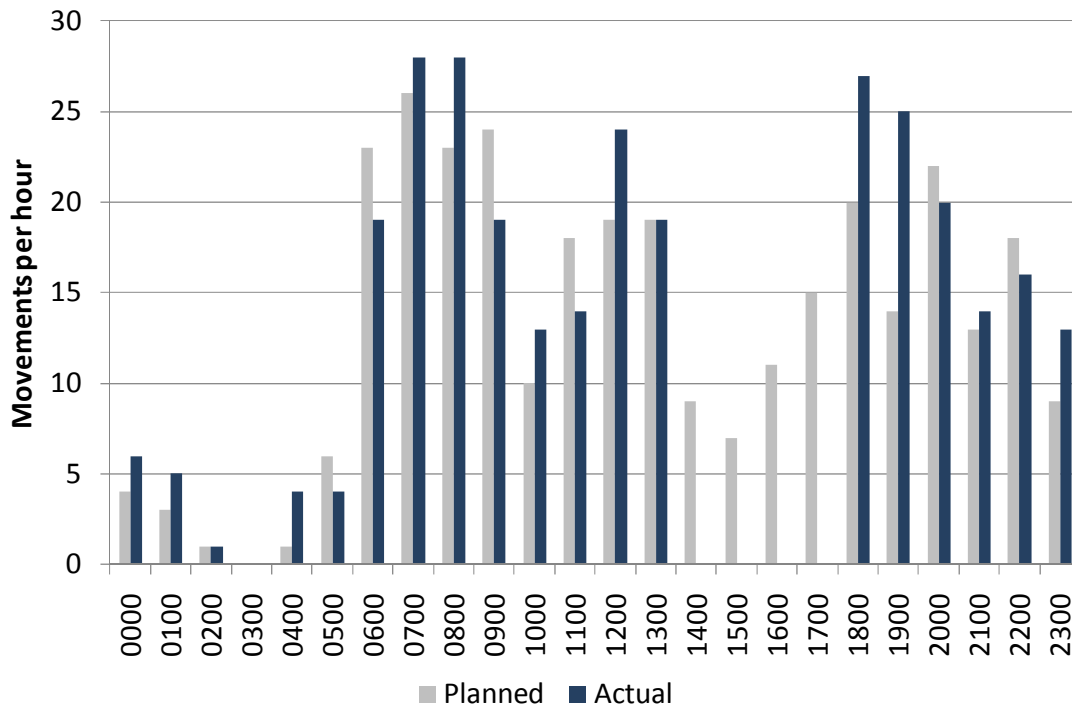
Source: CFMU data provided by IAA, SDG analysis

2.21 This analysis suggests that when a three hour period is considered, the frequency of actual movements dropping below planned reduces significantly. Again, those periods where delays are not quickly reversed are more likely to be as a result of systematic issues.

Disruptive events

2.22 CFMU data shows that on 20 January an ATFM regulation was imposed on Dublin ACC as a result of “Industrial Action (ATC)”, this resulted in a total delay of 1,033 minutes effecting 33 flights. A corresponding analysis of runway throughput rates on the same day shows that for a period of four hours in the middle of the day, actual runway throughput dropped to zero. Figure 2.6 shows planned against actual movements throughout this day.

FIGURE 2.6 PLANNED AGAINST ACTUAL MOVEMENTS - 20 JANUARY 2011



Source: CFMU data provided by IAA, SDG analysis

2.23 Further analysis shows that of the 22 days in 2010 where actual movements dropped to zero between 06:00 and 21:00 (excluding Christmas day), nine had a corresponding ATFM regulation. The other 13 do not have a delay code associated with them and therefore cannot be identified using CFMU data.

3 Summary and conclusions

CFMU

- 3.1 The relatively small number of events which trigger an ATFM regulation delay and the dominance of weather as a reason for delay confirms that CFMU data is only useful for identifying exceptional events within certain narrowly defined criteria, such as “industrial action (ATC)”. The data would be unsuitable for a scheme which imposed a penalty for each unit of delay regardless of cause.
- 3.2 Furthermore, analysis of runway throughput shows that operations at Dublin airport can be severely reduced or even stopped entirely without an event being recorded by CFMU (as no ATFM regulation will have been imposed).
- 3.3 In designing a scheme it is necessary to ensure that penalties will not be incurred for insignificant delays, only events which led to delays over a minimum threshold, to be set by the Commission, would be considered for the financial incentive. This figure would be best set in consultation with the industry however we recommend that a relatively low delay length is set as a trigger (such as 15 minutes) given the exceptional nature of the events the Commission wishes to capture.
- 3.4 In the first instance we recommend that penalties are attached to single events (above a certain threshold) rather than a graduated level of penalty based on total delay minutes. A more sophisticated mechanism may be adopted if necessary in subsequent iterations.
- 3.5 As a minimum the following “reasons for regulation” would be considered as indicators of a material event:
- “Industrial action ATC”; and
 - “ATC Equipment”.
- 3.6 In addition, we would suggest that the definition of material events could be broadened to cover other potential delay causes where these are within the control of the ANSP, although further consultation with industry will be required in order to determine the extent to which these regulation codes can be used to identify events solely under the control of IAA, these would include:
- “ATC Staffing”; and
 - “ATC Capacity”.
- 3.7 A form of manual intervention would be required to ensure that all relevant exceptional events were captured. We discuss this in more detail below.

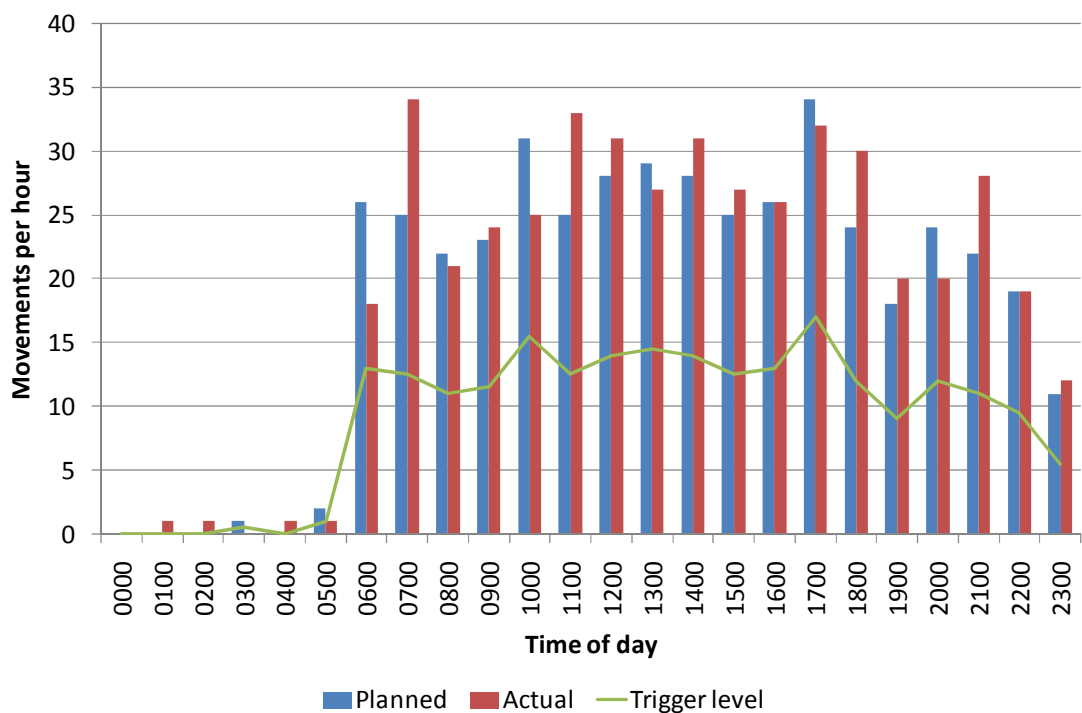
Runway throughput

- 3.8 As an alternative to a delay-based metric, a metric based on runway throughput could be used. The concept calls for differences between planned runway throughput and actual runway throughput to be used as the trigger for further investigation into the cause of delay.

3.9 In order to allow for everyday fluctuations in actual movements compared to planned a trigger level would need to be established. The assessment of planned flights as a proportion of actual flights during the lowest hour of each day conducted in Table 2.4 shows that a trigger level set as a high percentage of planned movements would not be effective. In order to capture only those drops associated with exceptional events a relatively low trigger level, for example at 50%, would need to be applied to planned runway throughput. A low trigger level allows substantial drops in service to go potentially unnoticed, however a higher trigger level would not effectively exclude everyday operational events such as flight cancellations.

3.10 Figure 3.1 shows planned movements against actual movements on the 28 March 2010 with a 50% trigger level. Although actual movements dropped below planned on a number of occasions throughout the day, at no point were actual movements less than 50% of planned. As such, delays which took place on this day would not be subject to further review.

FIGURE 3.1 PLANNED MOVEMENTS VS. ACTUAL MOVEMENTS 28 MARCH 2010 WITH 50% TRIGGER LEVEL



Source: CFMU data provided by IAA, SDG analysis

3.11 A potential approach is to refer exceptional events below the trigger level for further analysis using CFMU data and if this proved inconclusive by a stakeholder committee. Cross reference of CFMU and runway throughput data suggests that the use of a stakeholder committee or some other form of manual intervention would be required for the majority of exceptional events. Notwithstanding this, we note that the occurrence of industrial action which took place on 20 January was recorded in both CFMU and runway throughput data.

Level of target

Conclusions

- 3.12 The choice outlined in this report is between a measure which captures all events but which will require a high degree of interpretation and a measure which captures only exceptional events but which will need very little interpretation.
- 3.13 The concept of a runway throughput based measure assumes that exceptional events can be readily identified from throughput data. In practice, we have found that variations between planned and actual movements are so large and so frequent that material events could only satisfactorily be identified by a high level of manual intervention. Any trigger would need to be set at a level well below the number of planned flights, this risks missing material events and increases administrative resource requirements.
- 3.14 Conversely, CFMU data offers a clear indication of delay causing events within the narrow criteria established by the Commission. It does not identify flight cancellations and on occasions when these took place, there would be a need for manual intervention.
- 3.15 On account of the very large and frequent variations between planned runway throughput and actual runway throughput we recommend that the Commission adopts a delay based mechanism based on CFMU data. In the first instance, penalties would be incurred for events with the following regulation delay reasons:
- “ATC Ind Action” and;
 - “ATC Equipment”.
- 3.16 This is consistent with the Commission’s requirement only to capture significant events. In order to exclude relatively small delays, only events which led to delays over a minimum threshold, to be set by the Commission, would be considered for the financial incentive. For each delay over this threshold a fixed penalty would be applied up to a limit of one per day. For simplicity in this initial iteration of the scheme, we do not recommend that the size of financial penalty be linked to the length of delay.

Cancellations

- 3.17 As a result of the limitations in CFMU data discussed above, in particular the fact that events leading to cancellation of flights would not be reflected, a form of manual intervention would be required to allow the CFMU-based monitoring system to be overridden. As material events are unlikely to take place frequently, and should be easily identifiable, this process should be straightforward. We put forward two suggestions below:
- **Airline application:** In the event an airline considered an event to be material and this had not been identified from the CFMU data, a submission could be made to the Commission requesting a penalty. The Commission would then decide whether the event was material.
 - **Stakeholder group decision:** Through an appropriate consultative committee (examples of which may already be in place), the airlines and IAA would between them decide whether a material event had taken place. In the event of disagreement the Commission would make the final decision.

- 3.18 Both of these mechanisms would draw on data sources such as ecoda data and CFMU capacity limits in reaching a final decision.

Annex 4: Principles for Rolling Forward the RAB

- A3.1 The RAB is the Commission's estimate of the IAA's regulated operating assets. When making a determination, the Commission sets a price cap that is intended to allow the IAA to earn a regulated rate of return. The price-cap calculation also includes an allowance for a return of the RAB, through an annual depreciation allowance. The higher the RAB, all other factors held constant, the higher the cap on ATSCs will be.
- A3.2 This annex sets out the principles the Commission will apply when rolling forward the RAB from one regulatory period to the next. The current Determination has been guided by these principles when determining the opening RAB. The Commission expects the principles to guide it at the time of the 2015 determination. By setting out these principles now, the Commission hopes that it will facilitate the efficient and economic development of terminal services by providing greater certainty about the likely regulatory treatment of future investments.
- A3.3 The Commission anticipates that these principles will guide how capex is treated at subsequent determinations. However, it is possible that particular circumstances will require the Commission to adopt an approach not specified in these principles, for example the full implementation of SES II regulations in Ireland. Nor does the Commission intend to retrospectively apply these principles to past determinations where the RAB was rolled forward. More generally, the Commission believes that revisiting past decisions about how to roll forward the RAB at every subsequent determination would undermine the benefits the Commission seeks to achieve with these principles. They are intended to give the IAA greater certainty about how future regulatory determinations will allow past investments to be remunerated.

Function of the RAB

- A3.4 The RAB is the Commission's estimate of the IAA's regulated operating assets for the purposes of providing terminal services. It represents the Commission's view of capital invested, as opposed to a list of the specific assets on the IAA's balance sheet at any one point in time. As such, the RAB is not a fixed-asset account and there should be no expectation that it will always correspond to fixed-asset accounts retained by other parties, for example the IAA's own fixed asset register.
- A3.5 How the Commission decides to allow the IAA to recover the costs of capital investments is central to the concept of a RAB. In effect, decisions relating to the RAB represent a "regulatory contract" between the regulator and the regulated company. One of the purposes of setting out the RAB principles in this annex is so that all parties can understand clearly the terms of this contract. It details how and under what circumstances the Commission will include allowances for a return on and a return of capital for past investments, as well as how the Commission will treat any asset disposals.

Calculating the value of the opening RAB

A3.6 There are two fundamental issues that need to be considered in rolling-forward the RAB from one regulatory period to the next:

- On what basis will the RAB be valued going forward?
- How will the value of the opening RAB from the beginning of one regulatory period to the next be adjusted for
 - (i) Depreciation;
 - (ii) New investment; and
 - (iii) Changes to the value of assets in the existing asset base?

Valuation basis of the opening RAB

A3.7 The RAB will be valued on an indexed historic cost basis. The historic cost of the investment refers to the allowance made by the Commission at previous determinations. The actual historic cost included in the opening RAB calculation will be subject to adjustments for depreciation, new investments and/or asset sales. These potential adjustments are discussed in the next section.

A3.8 The Commission will use the consumer price index to index the RAB. In determining a suitable return on capital, the Commission will seek to identify a cost of capital that is appropriate given that the RAB is indexed for inflation (or deflation). Allowing a real cost of capital approximates to what an investor is likely to require given that the principal will annually be adjusted for the effects of inflation.

Adjusting the RAB for depreciation, new investment and disposals

A3.9 Changes in the opening RAB from one period to the next reflect the impact of three factors:

1. Depreciation
2. New investment
3. Changes to the value of assets in the existing asset base, including, for example, the sale of existing assets.

Depreciation

A3.10 At the start of a multi-year regulatory period, the Commission sets a depreciation allowance for each year. This allowance is set having regard to the starting RAB and any expected new investment over the forthcoming regulatory period.

A3.11 The depreciation profile will reflect policy judgements by the Commission, made to ensure it meets its statutory objectives. As a general rule, the Commission will favour depreciation profiles that avoid the potential for significant spikes in the annual price cap depending on where in the

investment cycle IAA is at the time of a determination. The depreciation charges may not correspond to those that the IAA applies in preparing its statutory and regulatory accounts. At the next determination, the Commission will apply the depreciation profile outlined at the preceding determination.

A3.12 The Commission will also revise the RAB to account for changes in the CPI, and to account for new investments made and the disposal of any assets by the IAA during the period of determination just ending. The current Determination includes a judgement about how the RAB should evolve in the next four years given current investment needs. Should the actual level of investment deviate from the Commission's ex ante assessment, further adjustments to the RAB may be necessary. Similarly, adjustments will be necessary if the IAA disposes of assets. The extent of any such adjustments depends on the reasons for the divergence. This is the focus of the next two sections.

New investment

A3.13 At the start of each determination the Commission sets a capex allowance for the duration of the determination. If, at the end of the regulatory period, actual capex has not evolved as expected, the Commission may adjust the opening RAB used in the next determination.

A3.14 Whether the adjustment in the rolled-forward RAB is positive or negative depends on the reason for out-turn capex differing to the amount the Commission "allowed" at the last determination. The tables on the following pages present a variety of "scenarios" where a divergence may occur and how the Commission would envisage rolling forward the RAB in each instance.

A3.15 In reconciling differences between capex "allowed" at the previous determination with out-turn capex, the Commission will focus on the outputs delivered and the expected and out-turn costs of delivering these outputs. It is the outputs that airport users ultimately care about. The Commission is keen to allow the IAA the flexibility to respond to changing market conditions and adapt its investment plans within a regulatory period, rather than having to stick rigidly to an investment plan agreed once every four-plus years.

A3.16 The focus on outputs means that in many cases the Commission may set a general allowance for a class of capex. This draft determination is a case in point: the Commission has allowed €18.5m general capex. At the time of the next determination, it will not seek to understand why each of the individual projects in the IAA's technology plan did not cost exactly as much as was projected if, in aggregate, the IAA's spent no more than €18.5m. There will on occasion be large, specific projects (such as a new tower) with a clear output for which the Commission concludes it is inappropriate to group the costs with other capex.

A3.17 While this approach allows the regulated company flexibility in delivering a capex-related outputs within a given asset class or grouping, the Commission will monitor the provision of outputs so as to ensure that the original outputs as envisaged at the time of setting the capex allowance

are delivered. In the situation where anticipated outputs have not been delivered and/or other, possibly unanticipated, outputs have been delivered, the Commission will seek to understand the reasons for the divergence before deciding on how to roll forward the RAB.

A3.18 The Commission's principles for rolling-forward the RAB under various scenarios are presented in the table below.

<p>Scenario 1 - The investment delivers the expected outputs, but at a <u>lower</u> cost than allowed.</p>
<p>The regulated company may realise efficiency savings on given projects for a variety of reasons, both internal to the company itself (e.g. management efficiencies) or external to the company (e.g. a general fall in construction costs).</p> <p>Ordinarily, the Commission envisages the IAA retaining any such cost savings until the next determination. At that date, the opening RAB will include an adjustment to reflect project outturn costs. There will, however, be no clawback of the historic cost-savings realised by the regulated company.</p> <p>The length of time between setting the ex-ante capex allowance and reconciliation of this allowance with outturns will be one regulatory period, unless otherwise stated at the time of setting the capex allowance. At the time of setting the capex allowance, the Commission may indicate for some investments that it will defer the reconciliation exercise beyond one regulatory period. Deferring reconciliation in this way will increase the incentives for the IAA to realise savings in delivering the investment. A capital project expected to span a number of regulatory periods is one case where the Commission decide to defer reconciliation, since it would be difficult to reconcile allowed and actual spend at an earlier date given no final output would be expected at this stage.</p>
<p>Scenario 2 - The investment delivers the expected outputs, but at a higher cost than allowed.</p>
<p>As well as efficiency savings, there is also the potential for investments to come in over budget. The ex-post treatment of such costs will depend on the reasons for the project coming in over-budget. The Commission believes that there are three possibilities here:</p> <ul style="list-style-type: none">▪ Over-budgeting resulting from changes in user-requirements;▪ Over-budgeting resulting from factors outside the IAA's

control;

- Over-budgeting resulting from factors within the IAA's control.

Changes in user requirements

If the investment is over-budget as a result of changes in user requirements over time, then the Commission will allow such costs to enter the RAB from the beginning of the following price control period, including an adjustment to allow for the return on this additional capital that the previous determination did not include. The Commission would expect supporting evidence from the IAA demonstrating that users were aware that the changes would result in higher costs and nevertheless supported the changed specification. In the case where not all users support a change in specification, then the Commission is unlikely to include the additional capex in the RAB unless the IAA is able to propose a pricing mechanism that ensures only those users who supported the investment proceeding are required to pay for it.

If the IAA is uncertain whether the Commission will approve a changed scope, it should either proceed with the original plan or wait until a subsequent determination and make the case then for a different capex allowance. It should not assume that the Commission will automatically approve retrospectively increased capex spend because of a changed scope. The IAA should only proceed with spending more than allowed when it is very confident it has support amongst all major stakeholders. The Commission can give no absolute guarantees about what level of general user support is necessary for it to conclude that an over-spend by the IAA should be allowed into the RAB on the basis of changing user requirements. It will assess the evidence at the time of the next determination but will generally favour sticking to the original allowance unless there are strong grounds for allowing the extra money spent.

There are potential gains to both the IAA and users if parties are able to engage in constructive consultation and agree changes to the investment plans during a regulatory period. It will allow for much greater flexibility in responding to changing conditions. Absent general agreement from users for a change, the IAA's incentives will be to stick to the capex plan agreed at the time of the last determination. If parties are unable to consult on and agree changing capex needs within regulatory periods, then development will depend on decisions made by the Commission once every four-plus years on what capex needs there are.

Factors outside of the IAA's control

If the over-budgeting results from factors strictly outside of the regulated company's control then the Commission will allow such costs into the RAB from the beginning of the next determination. In the case where additional costs only become known as a project

proceeds, the Commission would expect users to be informed by the IAA of any additional unforeseen costs. Users would then have the option of telling the IAA whether they still wish for the project to proceed. If users decide that they do not want the project to proceed on the basis of the new cost information, the Commission would be minded to allow capex already incurred to that date, in-line with the principles set out in Scenario 5 below.

The Commission will adopt a sceptical view of any claims by the IAA that additional costs should be allowed because they are outside the IAA's control. The original allowances should include project and programme contingency costs. Moreover, the cost of capital allowance already implicitly includes an allowance for many of the risks associated with cost over-runs. Consequently, the Commission will not include general construction cost movements under this heading. The three occasions where the Commission anticipates that it might accept additional costs arise when there are

- (i) unforeseen environmental costs;
- (ii) unforeseen planning obligations/planning-related contributions; and
- (iii) unforeseen safety or other legal obligations.

Even in these three instances, the Commission would expect to see evidence that the IAA kept users informed of the cost implications, especially if the increases represent a material increase in the total budget. When making a determination, both users and the IAA will have the opportunity to comment on the extent to which additional costs were or were not outside of the IAA's control.

Factors within the IAA's control

If the evidence suggests that the over-budgeting is because of factors within the IAA's control, e.g. mismanagement of the project or changes in specification without any consultation with users, the Commission will not allow the additional costs into the RAB at future dates.

When making a determination, both users and the IAA will have the opportunity to comment on the extent to which additional costs were or were not outside of the IAA's control.

Scenario 3 – The investment is not made and consequently anticipated outputs are not delivered.

Under this scenario the Commission would clawback all of the related capital costs through a one-off adjustment to the opening RAB at the beginning of the following price control period. The

clawback will include interest earned on capital costs for which the IAA was remunerated during the determination, but for which the output was not delivered.

Scenario 4 – The investment does not deliver the outputs envisaged at the time of the original capex allowance, but instead yields a number of other outputs.

Scenarios 2 and 4 are closely linked. Scenario 4 deals with a situation where the output is completely unrelated to what was envisaged at the time the Commission initially made a capex allowance.

If the 'unplanned' outputs met the reasonable interests of users, and there is evidence of adequate consultation with users on such, the Commission would be inclined to allow the costs into the RAB. There would be no adjustment to the opening RAB at the beginning of the following regulatory period, assuming the actual spend was the same as allowed at the previous determination. (The Commission may review its decisions about what depreciation profile to assume for future determinations if, for example, the revised investment has a markedly different asset life.)

As with scenario 2, the Commission would expect supporting evidence from the IAA demonstrating that users supported the new output rather than what was initially envisaged when the capex allowance was made. In the case where not all users were supportive, the Commission is unlikely to include the capex in the RAB unless the IAA can propose a pricing mechanism that ensures it recovers the costs only from those users who supported the investment proceeding.

If the IAA is uncertain whether the Commission will approve capex for different outputs, it should either proceed with the original plan or defer the investment until after the next determination when the Commission has had a chance to consult on the proposals and reach a final conclusion. The IAA should not assume that the Commission will automatically approve capex incurred providing outputs not envisaged at the time of the last determination merely because the IAA has incurred the expense. The IAA should only proceed with new projects not subject to regulatory scrutiny when it is confident it has support amongst all major stakeholders. The Commission can give no absolute guarantees about what level of user support is necessary for it to conclude that spend on outputs not envisaged at the time of the last determination will be allowed into the RAB. It will assess the evidence at the time of the next determination but will generally have a bias towards expecting the outputs to correspond to those envisaged when a capex allowance was made at the time of the last determination.

If the investment yields outputs that did not meet the requirements of airport users, the Commission would follow the same approach outlined in scenario 3. It would clawback all the related capital costs through a one-off adjustment to the opening RAB at the beginning of the following determination.

Scenario 5 – The investment was abandoned prior to completing all the work, such that some outputs were not delivered.

For allowed capex that remains unspent, the same approach as in scenario 3 applies: the Commission would clawback all of the related capital costs (return on capital and return of capital) through a one-off adjustment to the opening RAB at the beginning of the following price control period.

For allowed capex already incurred, the Commission would normally expect to allow the costs to remain in the RAB. This is despite the fact that the investment may ultimately have failed to deliver a beneficial output to users. The Commission believes that this approach provides better incentives for efficient investment decisions than alternatives such as disallowing all the costs. In particular, it avoids providing incentives for the IAA to complete projects when changing circumstances mean that the remaining costs exceed the net benefits of the project. It also allows the Commission to set a lower cost of capital than might otherwise be the case, since there is no need to compensate the IAA for the risk of obsolescence between the start and completion date for an investment.

This approach provides the long-term regulatory commitment that is necessary if the IAA is to undertake large-scale, long-term investments at the airport. It is arguably consistent with the treatment that would arise if the IAA were to enter into long-term contracts with airport users to undertake infrastructure investments.

Changes in the value of existing assets in the RAB

A3.19 Finally, the Commission envisages two possible scenarios where changes in the value of existing assets might have implications for the RAB when rolling it forward. There are discussed in the following table and, following from the previous table, presented as Scenarios 6 and 7. In both scenarios it is assumed that parties act in good faith, and that decisions affecting assets currently in the RAB are not made merely to achieve a more favourable regulatory outcome.

Scenario 6 – An existing asset in the RAB becomes obsolete before the end of its assumed asset life.

'Obsolete' in this context means that, for whatever reason, users no longer get use from or the benefit of the asset in question. This could arise for a variety of reasons, such as shifts in demand patterns or new investment decisions by the regulated company that affect existing assets. It is important to note that the assumed asset life in question is that used by the Commission to depreciate assets in the RAB.

The Commission will adopt a similar approach to that outlined in scenario 5. It will not normally reverse an earlier decision to remunerate investments just because of changed circumstances. If the investment was considered to represent efficient and economic development when it was made, then the IAA needs to know before undertaking the investment that the Commission will not subsequently reverse its decision and disallow the recovery of such costs. To adopt a different approach would require corresponding adjustments to the way that the Commission sets the cost of capital.

Similarly, the Commission will not revise the RAB upwards in instances where an investment has a longer asset life than expected. Users will benefit from an asset that has a zero value in the RAB.

Where the IAA undertakes a new investment that makes an existing asset in the RAB obsolete, it is assumed that the new investment was only allowed into the RAB because it provided a net benefit to users. It will be incumbent on the IAA to provide evidence of consultation with users of any such new investment, and that users are fully aware that the 'cost' of the new investment *includes* the potential for asset obsolescence.

Scenario 7 – An existing asset in RAB is sold by the regulated company to a third party at a value that is different to the current/remaining value in the RAB.

Assets in the RAB can be sold by the regulated company at either a value less than, equal to or greater than the value currently attributed to that asset in the RAB. In all three cases the Commission will reflect the sale value of the asset when rolling forward the RAB. This will apply whether the third party is independent of the IAA, or is part of the IAA group outside the regulated entity.

For assets sold at *less than* the value in the RAB, the issues are similar to those for obsolete assets as described in scenarios 5 and 6. The Commission's approach corresponds to its approach in those two scenarios: the opening RAB would include an adjustment for the sale price (including clawback of capital costs between the time of the sale

and the setting of the new RAB), while the 'obsolete' element of the historical investment would remain in the RAB for the remainder of the asset life.

For assets sold at the value in the RAB, the opening RAB at the next determination will reflect the value of the transaction, including an adjustment to the RAB to repay remunerated capital costs (with interest) for the asset since the date of sale.

For assets sold at a price higher than the value in the RAB, the opening RAB at the next determination will include a capitalised adjustment for the value of the asset in the RAB at the time of the sale, including clawback for capital costs remunerated since the date of sale. The excess, with no claw back, will be netted from the RAB. This provides the IAA with an incentive to seek the highest sale price possible, while sharing the benefits between the IAA and users.

In all cases, as part of the next determination the Commission will independently review the asset sale to satisfy itself that the IAA realised a sale price at or close to prevailing market prices.

This approach to assets sales is symmetric. Airlines share from any gains or losses that are realised by such sales.