



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

**ISSUES PAPER**

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Commission for Aviation Regulation

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## 1. Introduction

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- 1.1 The purpose of this paper is to consult with all parties on how the Commission should proceed to determine the next price cap for Aviation Terminal Services Charges (ATSC) as levied by the Irish Aviation Authority (IAA) at Dublin, Cork and Shannon airports. There are a wide range of issues that can potentially influence the final Determination. The Commission is keen to hear from all parties on these matters at an early stage. Comments on policies that the Commission should adopt, methodologies that the Commission should or should not use, and possible data sources that the Commission might rely on are all welcome.
- 1.2 The current process will culminate in the Commission's third Determination on the maximum level of ATSC that may be imposed by the IAA at State airports. The two previous Determinations were in 2002 and 2007. The current Determination is in place until the end of 2011. All of the published documents relating to these Determinations can be downloaded from the Commission's website.<sup>1</sup>
- 1.3 At this early stage in the process, some of the issues which may be relevant for the forthcoming Determination are:
- **Single European Sky II (SES II)** – the SES II package builds on the safety and capacity focus of SES I and moves the initiative into areas of more direct relevance to economic regulation, namely: performance and cost. There are already some specific developments underway – at the Eurocontrol and European Commission legislative level – which are flagged in this Issues Paper. However, more general SES II developments are likely to have a significant impact on all the services provided by the IAA in the future. In commenting on this Issues Paper parties should be mindful of proposed amendments to European Commission Regulation 1794/2006, and the significant alteration to certain aspects of that framework. We return to this issue later in the Paper.
  - **Volume-risk sharing** – the 2007 Determination introduced an approach to volume-risk sharing which insulated 50% of the IAA's allowed revenues from deviations in traffic from forecast in any given year, on both the up- and the down-side. In 2009 and 2010, with traffic well below 2007 forecasts, this has led to an increase in the cap above what it would have been without this mechanism in place. A key consideration for the next Determination is whether the current approach should be reviewed.
  - **Over- and under-recovery against the price cap** – the price-cap formula in the current Determination allows the IAA to roll-forward an unlimited amount of over- or under-recovery of revenues against the price cap to later years of the regulatory period, but not necessarily beyond 2011. In 2010 the IAA ultimately decided to price up to the cap rather than forego revenues if it was unable to collect them at a later date, notwithstanding the concerns of users that this entailed a significant and immediate price rise (itself a consequence of the volume-risk sharing arrangements and prior under-recovery). The treatment of any under or over-recovery is something which the Commission will consider in detail as making the next Determination.

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<sup>1</sup> [http://www.aviationreg.ie/Aviation\\_Terminal\\_Services\\_Charges/Default.118.html](http://www.aviationreg.ie/Aviation_Terminal_Services_Charges/Default.118.html)

- **Operating efficiency** – this Issues Paper presents data to show that growth in IAA’s operating costs since 2007, and staff costs in particular, has outstripped the allowance set by the Commission at the time of the 2007 Determination, both on a total and a unit cost basis. An assessment of the IAA’s operating efficiency will form an important part of the Commission’s assessment of allowed revenues for the post-2011 period.
- **Capex underspend** – this Issues Paper presents data to show that, by the end of the current Determination period (end 2011), the IAA expects to have underspent against the capital expenditure (capex) allowance set in 2007. In the context of the economic downturn, the IAA recently indicated its intention to defer or cancel €40m of capital projects during 2009 and 2010 that do not impact on safety or operations (IAA, 2009 Annual Report).

## Structure of the Paper

- 1.4 The next chapter describes the Commission’s approach to regulation. This includes information on the statutory background, explanations as to how the Commission sets price caps, what inputs feed into the calculation of the price cap, and the relative importance of each of these. This chapter also discusses issues relating to the charging formula, developments under the SES II package, and volume-risk sharing.
- 1.5 *Chapter 3* sets out the Commission’s current thinking on how it will treat service levels in setting the price cap for the next ATSC Determination.
- 1.6 *Chapters 4, 5, and 6* respectively deal with the traditional regulatory building blocks of volume forecasts, operating expenditure (“opex”) and capital costs. Each of these chapters includes data on outturns under the current cap, as well as a discussion of possible methodological and policy issues.
- 1.7 *Chapter 7* sets out other issues that do not fall neatly within one of the traditional ‘building blocks’ but nevertheless may influence the final Determination.
- 1.8 Unless otherwise indicated in the text, all of the monetary values quoted in this report are in 2010 prices. The 2007 Determination used 2006 CPI=115.7 (Dec. 2001 base) as the price basis for the price-cap. The 2010 price basis has been calculated using the September 2010 CPI from the Central Statistics Office, CPI = 120.1 (Dec. 2001 base) or CPI = 101.8 (Dec 2006 base).

## The next steps

- 1.9 The next step is for interested parties to respond to this Issues Paper. The deadline for responses is Wednesday 15 December 2010 at 5pm. Details on how to make a submission are set out in *Chapter 8*. The following chapters highlight some questions that parties may consider important when developing their response.
- 1.10 The proposed timetable leading up to the final Determination in 2011 is set out in the box below. The timetable is also published on the Commission’s website and will be updated to reflect any changes to the key dates and outputs. The website will also be used to notify parties of any developments that might have a material bearing on the setting of the next price cap.
- 1.11 If necessary, the Commission will separately consult with interested parties on how the next price cap should be set to satisfactorily reflect material developments not anticipated in preparing this Issues Paper.

### **Timetable for the 2011 Determination**

- October 2010: Publication by the Commission of Issues Paper
- Wednesday 15 December 2010: Deadline for responses to Issues Paper
- February 2011: IAA to provide the Commission with outturn/projected data on opex, capex and demand for 2007-2011 and capital investment programme for 2012-2016.
- April 2011: Publication by the Commission of **Draft Determination** on 2012 – 2016 ATSC
- June 2011: Deadline for responses to Draft Determination
- September 2011: Publication by the Commission of **Final Determination** on 2012 – 2016 ATSC

## **2. The Commission's Approach to Regulation**

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- 2.1 This chapter sets out the Commission's current approach to ATSCs at Dublin, Cork and Shannon Airports. The chapter discusses:
- the statutory background and the scope of regulation;
  - the current price-capping approach; and
  - issues relating to the charging formula, volume-risk sharing and duration of the cap.

### **Statutory background and scope of the regulation**

- 2.2 One of the principal functions of the Commission is to regulate the level of revenues that the IAA may collect in ATSCs levied on users at Cork, Dublin and Shannon airport. ATSCs are levied in respect of the provision of aviation terminal services for landing and departing aircraft from Dublin, Cork and Shannon airports. The IAA separately charges airlines for en-route air navigation services, but the level of these charges are not subject to regulation by the Commission.
- 2.3 Section 36 of the Aviation Regulation Act, 2001 (the "Act") sets out the regulatory objectives in respect of aviation terminal services charges:

*"36.— In making a Determination, the Commission shall aim to facilitate the development and operation of safe, cost-effective terminal services which meet international standards and shall have due regard to—*

- a) the relevant charging principles of the International Civil Aviation Organisation and of Eurocontrol,*
- b) 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,*
- c) the efficient and effective use of all resources by the Authority,*
- d) the level of the Authority's income from aviation terminal services and other revenue earned by the Authority generally,*
- e) operating and other costs incurred by the Authority in providing aviation terminal services,*
- f) the level and quality of aviation terminal services, and the reasonable interests of the users of these services, and*
- g) the cost competitiveness of aviation terminal services with respect to international practice."*

- 2.4 Figure 2.1 below is taken from the 2006 Issues Paper. It is a figurative representation of Irish airspace, as it relates to air navigation services and their inter relationships in Irish airspace, with the vertical axis representing flight levels. The black boundaries represent the IAA's operational units, while the coloured shading represents delineation between en route and terminal services and, therefore, between what charges are regulated by the Commission and what are not. The Commission defines the cost base for terminal services as including the costs of the Dublin, Shannon and Cork towers and certain proportions of the costs of the Dublin and Ballycasey Area Control Centres (ACCs).

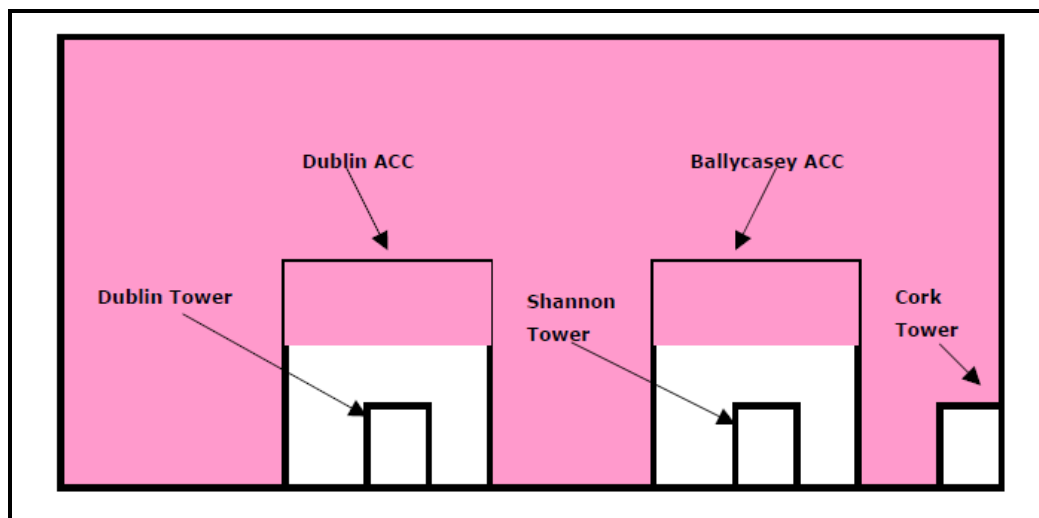


Figure 2.1 : Figurative representation of Irish Air Space

2.5 Article 9 of EC Regulation 1794/2006 refers to "Exemptions from air navigation charges". Paragraphs 1 and 2 list the type of flights that are exempt from terminal charges. The IAA has indicated to the Commission that it conforms with Article 9 in applying the following terminal exemptions:

- Flights performed by aircraft of which the maximum takeoff weight authorised is less than two metric tonnes;
- Search and rescue flights authorised by the appropriate competent body;
- Training flights performed exclusively for the purpose of obtaining a licence;
- Circular flights;
- Flights performed exclusively for the purpose of checking or testing equipment used or intended to be used as ground aids to air navigation, excluding positioning flights by the aircraft concerned.

2.6 Paragraph 4 of Article 9 states that "the costs incurred [by the ANSP] shall not be taken into account for the calculation of the unit rates". The Regulation states that the costs of exempted Instrument Flight Rules (IFR) flights shall be equal to the total costs of providing terminal services for IFR flights multiplied by the proportion of total service units accounted for by the exempted flights, where a service unit for each flight is calculated according to the charging formula set out in the Regulation  $[(MTOW/50)^{0.7}]$ .

2.7 In order to apply the above approach the Commission will need to collect data on the service units for exempted flights. Do parties agree with the Commission's interpretation of the exemptions provision in Article 9 of the Regulation? Are there any categories of exempted flights which should be included in the above list?

2.8 The regulation of ATSC "applies to any airport in the State open to commercial traffic and having an annual passenger throughout of in excess of one million passengers in the previous calendar year".<sup>2</sup> There were in excess of one million passengers per annum at each of Cork, Dublin and Shannon in 2009. The Commission invites views from parties on how it might deal with the prospect of an airport which is covered by a price cap falling below one million passengers per annum during the Determination period; or the prospect of an airport which is not covered by the price cap rising above the one million passenger threshold during the Determination period. One possible solution that may offer a contingency if

<sup>2</sup> See Section 31(1) in the Aviation Regulation Act, 2001

an airport were to fall below the threshold would be for the Commission to set a sub-cap at certain airports, rather than a common charge across all airports as is currently the case. This may involve the separation of costs into the provision of terminal services at individual airports, rather than at the aggregate level.

## Price cap regulation

- 2.9 The regulatory regime operated by the Commission since its first ATSC Determination in 2002 sets a ceiling or cap per unit of the maximum take-off weight (MTOW) of an aircraft. For example, the 2010 price states that if traffic volumes at Dublin, Cork and Shannon airports in 2010 are as forecast at 7,857,000 tonnes then the price cap would be €3.36 per tonne of departing aircraft in 2010.
- 2.10 The Commission sets a multi-year determination, where the price cap is allowed to change each year by CPI+/-X, that is the regulated firm can change its prices on an annual basis by the rate of consumer price inflation plus or minus 'X' percent. The Act, as amended in 2004, now prescribes that each determination be set for a minimum of four years. It has however been the practice of the Commission since its establishment to set the duration of each determination for a five-year period. Additionally in 2007 the Commission moved the basis of the determinations from financial years to calendar years. In the current determination (2007-2011) X is set at +3.75%. Hence if the IAA's unit costs increase by less than 3.75% per annum, after allowing for inflation, it will earn additional profits until the end of the price-control period. The assumptions and calculations leading to this figure are set out fully in CP4/2007: *"Determination and Report on the Maximum Level of Aviation Terminal Service Charges that may be imposed by the Irish Aviation Authority"*.
- 2.11 The per-MTOW ATSC cap is based on a forecast of the total costs of providing aviation terminal services at Dublin, Cork and Shannon airports. 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 operating expenditures (opex, discussed in Chapter 5 of this report);
  - Plus a depreciation allowance (discussed in Chapter 6);
  - Plus a return on capital (discussed in Chapter 6);

The sum of these building blocks is divided by a forecast of MTOW to obtain the per-MTOW price cap.



Figure 2.2 below shows the amount of each of the building blocks in the IAA revenue allowance over the 2007 to 2011 period, excluding any milestone adjustments – i.e. adjustments for the Cork or Dublin Towers. The average percentage shares for opex, depreciation and the return on capital were 59%, 31% and 10% respectively, over the same period.

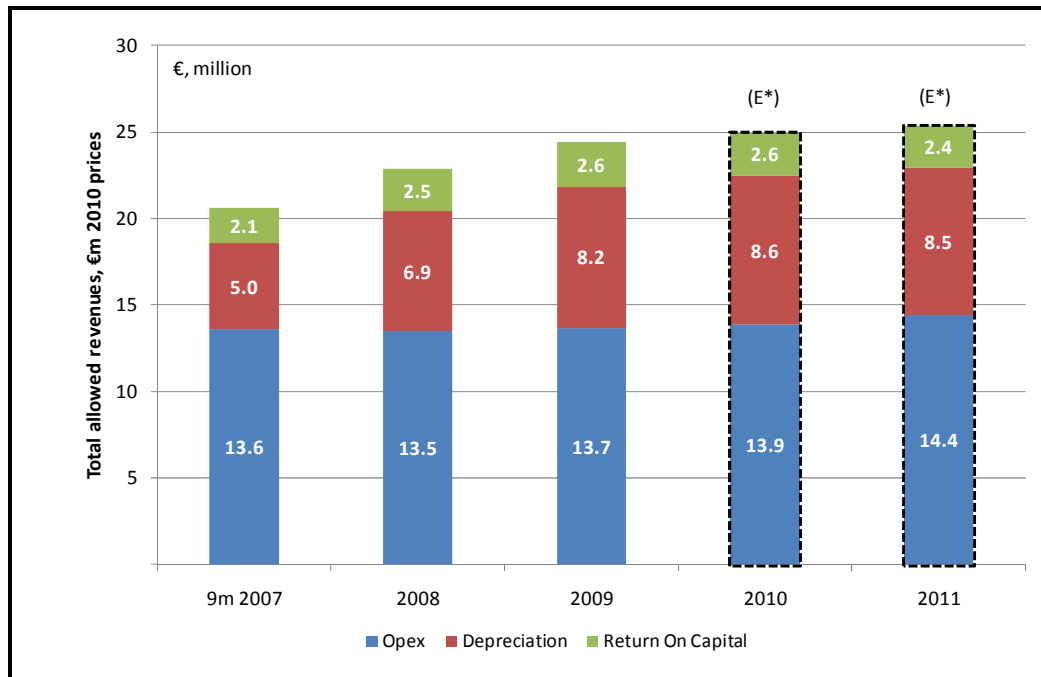


Figure 2.2 : Value of individual building blocks: 2007 – 2011

Source: CAR. Monetary values are real (2010 prices). (E\*) Values for 2010 and 2011 are projections from the IAA. Allowed revenues are not profiled. 2007 was a 9 month year for the purposes of the price cap, arising from the move to calendar year years in 2007. Values for 2007 have all been scaled up by dividing by 0.75 in order to allow for full-year comparisons.

2.12 As well as providing aviation terminal services at Dublin, Shannon and Cork airports, the IAA also provides en route navigation for movements in Irish-controlled airspace, and is responsible for Shanwick Communications, safety regulation, air navigation for exempt air traffic and commercial and training activities. The turnover (nominal) associated with en route, terminal and these other activities since 2001 is shown in Figure 2.3.

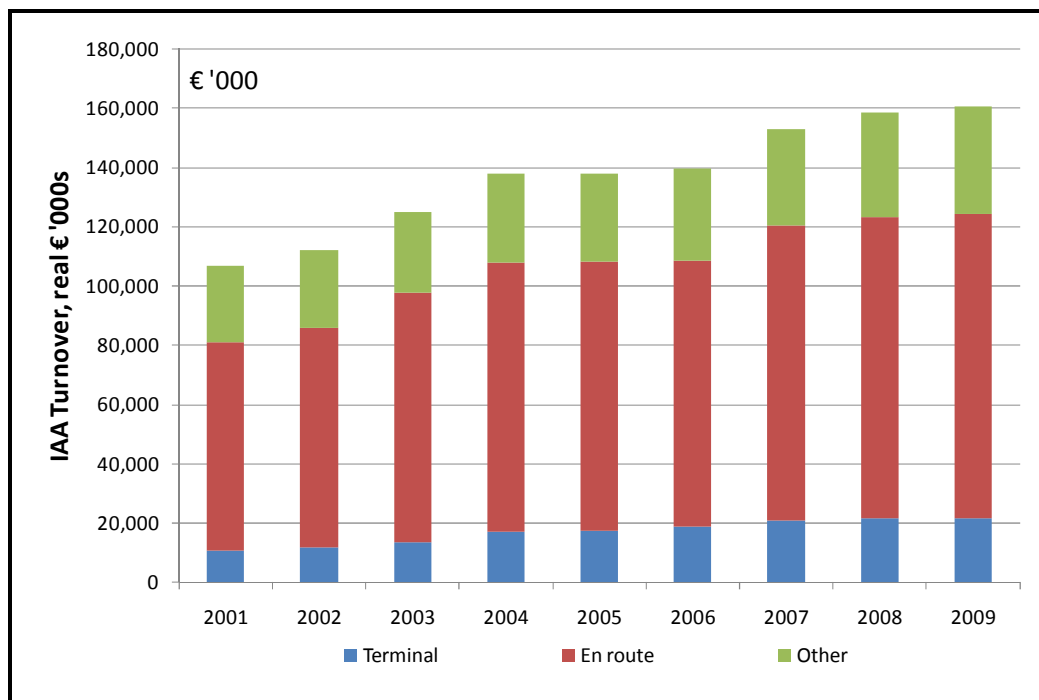


Figure 2.3 : IAA turnover 2001 – 2009  
Source: IAA Annual Reports

## Other issues on the approach to regulation

2.13 This section discusses three inter-related issues relevant to the Commission's approach to regulation:

- the terminal charging formula;
- volume-risk sharing; and
- other developments under Single European Sky II.

### *Calculation of terminal charges*

2.14 European Commission Regulation EC 1794/2006 sets out a common charging scheme for air navigation services. Article 11 of the Regulation on the "Calculation of terminal charges" entered into force only on 1 January 2010 by virtue of the derogation afforded in the Regulation which was invoked by Ireland. The Article (along with Annex V) states that "the terminal charge [for a given flight]... shall be equal to the product of the **unit rate** for [the] terminal charging zone and the **terminal service units** for [the] flight". The Terminal Service Units (TSU) for a given flight should, according to Annex V of the Regulation, be calculated as MTOW divided by 50, to the power of 0.7. Formulaically, this is expressed as follows :

$$TSU = (MTOW / 50)^{0.7}$$

The Regulation allows for a transitional period of up to five years, following the calculation of the first terminal rate under the Regulation, when the exponent in the above formula can be between 0.5 and 0.9.

2.15 The IAA has indicated in response to a Commission information request that it plans to move towards full compliance with the charging formula as follows:

- the quotient to the power of 0.9 for the years 2010 and 2011
- the quotient to the power of 0.8 for the years 2012 and 2013
- the quotient to the power of 0.7 for the years 2014 and thereafter.

2.16 The Information Circulars published by the Central Route Charges Office (CRCO) of Eurocontrol present the terminal charge for Ireland. Since the beginning of 2010 there have been two Information Circulars (EI 2010-01 and EI 2010-02)<sup>3</sup>:

EI 2010-01, effective 1 January 2010:  $\text{€}133.23 \times (\text{MTOW}/50)^{0.9}$

EI 2010-02, Effective 1 July 2010:  $\text{€}176.93 \times (\text{MTOW}/50)^{0.9}$

(the first term in the formula is the unit rate and the second term is the terminal service unit)

2.17 The years 2010 and 2011 are both within the current regulatory period, and the IAA is required to comply with the Determination. Therefore, while the above charging formulae apply for each individual departing movement, over the year as a whole, total aviation terminal services revenues divided by total MTOW (i.e. the charge per MTOW) must be less than or equal to the cap set by the Commission.

2.18 An important question for the forthcoming Determination is whether the form of the price cap should be more closely aligned with the charging formula in the European Regulation. The Commission is interested in parties' views on this issue. To provide a starting point for a discussion on the issues, the table below presents some options for consideration. This is not an exhaustive list of options, and parties are welcome to propose alternatives.

Option	Commission comments
Retain the current form of the price cap as a per-MTOW cap	<p>One attraction of retaining the current approach is that it is relatively simple to understand and parties are familiar with the approach.</p> <p>The obvious issue with this approach is that it will be at odds with the formula the IAA employs to charge customers. Compliance with the price cap will require the IAA to meet a per-MTOW cap while actually charging on different basis.</p>
Set a cap on the unit rate element of the charging formula	<p>This has the attraction of aligning the Commission's price cap with the charging formula that the IAA has to adopt under European regulations.</p> <p>It increases the complexity of the traffic forecasting exercise undertaken at each review. The Commission would need to consider the distribution of traffic (i.e. MTOW by movement), in addition to a forecast of either total MTOW or ATM.</p> <p>Such a change might also have implications for the possible design of any volume-risk sharing arrangement that the Commission might want to include in its Determination.</p>
Set a total revenue cap	<p>This avoids having to decide on the appropriate charging unit for the purposes of making a Determination.</p> <p>Setting a pure revenue cap has implications for the allocation of demand risk. A revenue cap means that customers face all the demand risk (upside and downside), where as a per-unit cap means that the company faces the demand risk.</p>

<sup>3</sup> [http://www.eurocontrol.int/crco/gallery/content/public/docs/circulars/EI\\_2010-01.pdf](http://www.eurocontrol.int/crco/gallery/content/public/docs/circulars/EI_2010-01.pdf)  
[http://www.eurocontrol.int/crco/gallery/content/public/docs/circulars/EI\\_2010-02.pdf](http://www.eurocontrol.int/crco/gallery/content/public/docs/circulars/EI_2010-02.pdf)

### Volume-risk sharing

- 2.19 A key factor that determines the per-MTOW price cap during each year of the current regulatory period is the Commission's approach to volume-risk sharing. The idea of volume-risk sharing, which was introduced for the first time at the 2007 Determination, is that the IAA has little control over deviations from the traffic forecasts used to calculate the per-MTOW price cap.
- 2.20 The impact of the volume-risk sharing term basically means that a proportion (50%) of IAA's *total* aviation terminal services revenues are invariant to changes in MTOW. In order to achieve this, for a given fall (rise) in total MTOW relative to the forecast MTOW at the time of the Determination, the per-MTOW price cap must rise (fall) in response. Therefore, during times when outturn traffic is below (above) forecast customers face a higher (lower) price cap than would otherwise be the case.
- 2.21 Absent any volume-risk sharing in the current price cap formula the price cap during the current regulatory period would have been lower. This is because outturn traffic volumes have been significantly below those projected at the time of the 2007 Determination, as shown in the figure below. The effect of the volume-risk sharing term in 2009 and 2010, where traffic volumes were 18% and 33% below forecast, has been to *increase* the price cap by 9% and 16.5% (because only 50% of the deviation is taken into account) above what it would have been without volume-risk sharing.

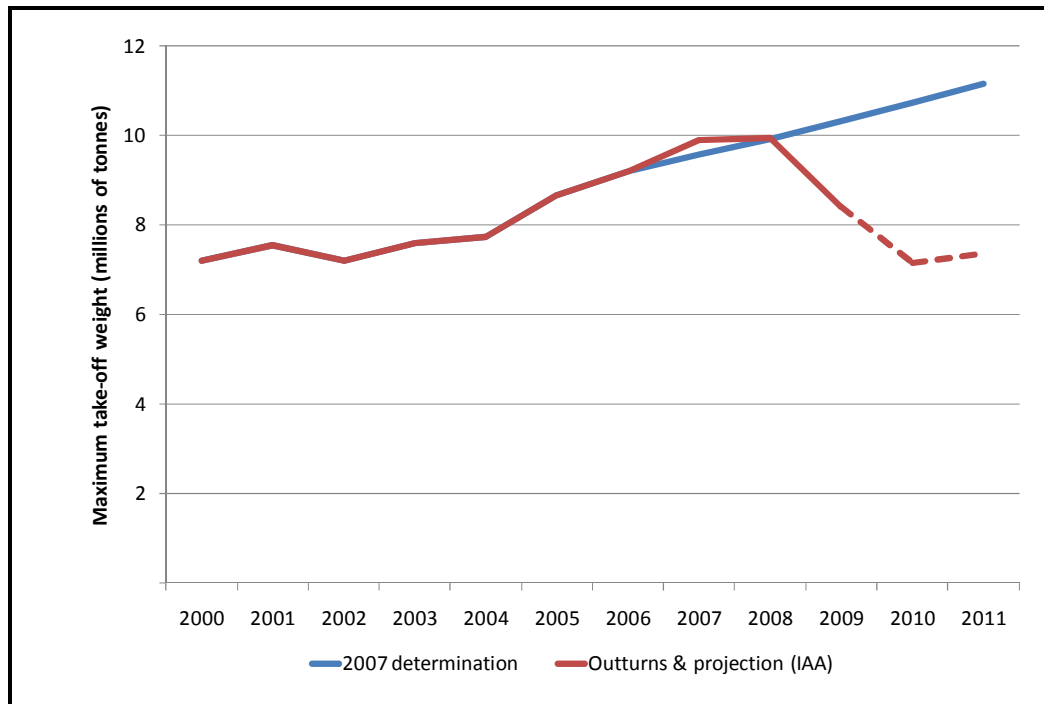


Figure 2.4 : MTOW forecasts at time of 2007 Determination versus outturn (projection for 2010-11)

Source: IAA and CAR

### Duration of the price cap and Single European Sky II (SES II) developments

- 2.22 The Commission's Determination can be no less than four years, according to national legislation, and no more than five years, according to European Commission Regulation 1794/2006. This leaves limited discretion as to the duration of the next Determination. There are a number of developments under

the SES II initiative which would point towards a four- rather than a five-year Determination.

- 2.23 The first issue relates to initiatives by Eurocontrol to set EU-wide performance targets in line with the Single European Sky legislation (SES II).<sup>4</sup> Eurocontrol has indicated its intention to set performance targets for terminal services from 2014 onwards (the 'Second Reference Period'). Eurocontrol's approach to setting performance targets, as set out in the consultation document published in August 2010<sup>5</sup>, indicates a degree of overlap with the Commission's own approach to evaluating IAA's costs. There is therefore an obvious question as to how Eurocontrol analysis on benchmarks and performance targets might be used by the Commission in the future. Should Eurocontrol successfully develop an EU-wide performance regime for terminal services – and this remains uncertain at the present time – a shorter Determination, i.e. only four years, would allow the Commission to consider any such analysis shortly after its publication.
- 2.24 The second issue relates to the proposed amendments to EC Regulation 1794/2006. Earlier this year, the European Commission published a number of proposed amendments to the Regulation. The amendments reflect to a large degree changes in other European legislation relating to SES II. In addition, the European Commission has used the opportunity to change some of the language in the Regulation. The current proposed timetable in the amended Regulation allows for deferral of implementation in respect of terminal charges until 1 January 2015. Therefore, a shorter duration Determination, i.e. only four years, would also be more amenable to developments on this front.

#### **Main consultation questions**

- What form should this price cap formula take - should the Commission continue with a per MTOW cap, or consider alternatives such as a terminal service unit rate or total revenue cap?
- What approach should the Commission adopt to volume risk – what adjustment should be made to the price cap, if any, if demand does not match forecast?
- What should the duration of the next Determination be?

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<sup>4</sup> Under Article 3 of Commission (EU) Regulation 691/2010, Eurocontrol's Performance Review Commission (PRC) has been designated as the Performance Review Body to assist the Commission in the implementation of the performance scheme set out in that Regulation.

<sup>5</sup> [http://www.eurocontrol.int/prc/gallery/content/public/Docs/PRC\\_Consultation\\_Document\\_EU\\_wide\\_targets.pdf](http://www.eurocontrol.int/prc/gallery/content/public/Docs/PRC_Consultation_Document_EU_wide_targets.pdf)

### **3. Quality of Service**

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- 3.1 This chapter sets out issues relating to quality of service that the Commission might have regard to when making the next determination. Section 36(f) of the 2001 Act requires the Commission to have due regard to “the level and quality of aviation terminal services, and the reasonable interests of the users of these services.”
- 3.2 Currently, the Commission does not include in its price cap an explicit system of financial bonuses or penalties linked to service quality. The Commission would be open to considering the addition of such a service quality term to the formula, as it has done for the DAA price cap at Dublin airport. However, some key conditions would have to be met in order for this to happen: most importantly, any modification would have to be supported by service users and be capable of being designed on the basis of robust metrics. Parties should also be aware that, depending on how it is actually achieved, the inclusion of a target quality of service regime could have implications for both forward-looking efficient opex and capex projections.

#### **Assessing Quality of Service (QoS)**

- 3.3 There are three issues relating to *assessing* quality of service (QoS): how to measure it; how to set targets against these measurements; and, what financial incentives to attach to these targets. We address each of these issues in the following sub-sections. An over-arching question in the debate is whether there is any reason for treating the three airports in the terminal charging zone – Dublin, Cork and Shannon – differently from one another in considering service quality issues.

#### **Measuring quality of service**

- 3.4 A fundamental issue for the Commission is to understand what aspects of quality of service are important to users of aviation terminal services at Dublin, Cork and Shannon airports. The Commission is aware that delays are important to airlines, so the extent to which these are attributable to aviation terminal services operations may be an important component of any quality of service measuring regime. A practical problem is how to specify an appropriate performance indicator relating to delays such that it captures instances where the IAA is responsible. Thoughts on the metrics that might be used to measure delays are welcome.
- 3.5 The Commission would also like to hear from parties regarding any other performance indicators that they think should be considered when assessing the quality of service provided by the IAA when delivering aviation terminal services at Dublin, Cork and Shannon airports. As with delays, comments on the design of such metrics and how the data might be collected are welcome.

### **Target level of service quality**

- 3.6 In considering an appropriate target level of service quality the question, at this stage, is: is the IAA currently providing a suitable quality of service to its customers? If parties' wish to argue for the provision of a different level of service to that currently being provided, what might be the cost implications of any changes?
- 3.7 Should a given quality of service target be based on a periodic average – such as average delay in a given month – or more absolute targets, such as the number of delays greater than a given threshold? During the consultation on the service quality targets for the DAA security queues, airline users expressed a preference for a move towards more absolute targets.
- 3.8 A relevant factor to consider when setting targets is the costs involved. The costs to the IAA, the Commission, and to IAA customers of collecting information, monitoring performance and achieving targets must also be considered. More frequent monitoring may be more expensive for all parties, depending on how it is undertaken, but the Commission may conclude that the benefits outweigh the costs. Experience from the UK suggests that a significant investment of time is required both to set up a regime and to monitor performance against targets.

### **Size of financial incentives**

- 3.9 The current IAA price cap formula contains no explicit financial incentives for the IAA to achieve a given quality of service target. The most recent DAA Determination (December 2009, CP4/2009) included for the first time incentives in the price cap formula to achieve certain quality of service targets. The total amount of DAA annual revenue at risk under the regime is 4.5%.
- 3.10 The current Heathrow and Gatwick price controls contain an "Aerodrome Congestion" service quality term which places 1% of total airport charges revenue at risk if target service quality is not met. One per cent of Dublin airport charges annual revenue is approximately equal to €1.7 million, or approximately 8% of the total revenues earned by IAA from terminal charges levied at Dublin, Shannon and Cork airports in 2009. The price cap for Stansted airport does not include an aerodrome congestion term. The CAA noted that congestion was not raised as an issue for Stansted as it had been for Heathrow and (to a lesser extent) for Gatwick.
- 3.11 Where an indicator of service quality can be collected more frequently than once a year, the Commission will consider whether the price-cap should respond to failure to meet agreed standards at a more frequent interval than annually. If it decides to make adjustments more frequently than annually, the Commission will also have to decide how much money should be put at risk for each failure. There will be trade-offs to consider. The Commission would prefer to avoid a scheme likely to create perverse incentives, such as ceasing to give the IAA any reason to care about a particular metric because it had already incurred all the penalties that could apply for the year, or to create penalties each so small that the IAA did not have a sufficient financial incentive to care about realising the standard required in certain periods.

3.12 The possibility of circumstances beyond the IAA's control will also be considered when designing any financial incentives associated with quality of service. In the UK, where the charge for aviation terminal services is bundled in the overall airport charge for London airports, the service provider does not have to pay a quality rebate to Heathrow and Gatwick users when factors contributing to a 'material event' are deemed outside of its control, such as unanticipated and extreme weather conditions.

### **Main consultation questions**

- Is the IAA currently providing a level of service that users consider appropriate?
- What aspects of quality of service are important for customers purchasing aviation terminal services from the IAA – what information on Key Performance Indicators (KPIs) should be provided, and how frequently?
- What financial incentives, if any, should be in place to achieve a given target level of service quality?



## **4. Traffic Forecasts**

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- 4.1 This chapter discusses traffic forecasts. It begins with a discussion of the relevance and role of the traffic forecast in the regulatory Determination. This is followed by a summary of recent out-turns including a comparison of outturns against forecast.

### **The role of traffic forecasts**

- 4.2 The traffic forecast has two uses – as a measure of demand with associated cost implications and as a unit of output for which charges are levied. Firstly as a measure of demand, the forecast is one of the inputs into determining annual operating costs and annual capital costs. The level of forecast demand may for example drive the number of employees or employee-related costs and, along with maintenance and renewals, is often a key criterion in determining the need for new capital investments.
- 4.3 The second use is as a measure of output for charging purposes. Under the current Determination, ATSCs are capped per unit of the MTOW of the aircraft concerned, expressed in metric tonnes. Until January 2010 IAA levied its terminal charges on a per MTOW basis, however arising from the 2006 Charging Regulation its charges are now levied per TSU.

### **Recent out-turns**

- 4.4 It has been the Commission's practice in past Determinations to use the IAA's own forecast of terminal traffic, expressed in MTOW tonnes. These forecasts were not generated in-house by the IAA as it does not have a forecasting unit. Instead it relies on medium term movement forecasts generated by STATFOR, Eurocontrol's statistics and forecasting unit. These forecasts presented a baseline, low-growth, and high-growth scenario. The IAA assumed the baseline scenario and used the annual growth rate implicit in STATFOR's movement forecast in presenting its own projections for MTOW.
- 4.5 The figure below sets out the outturn MTOW level as a whole across the three State Airports from 2000 to 2009 with the forecast for the current Determination included from 2007. The last two years of the outturn series include IAA's most recent expectation for outturn in 2010 and 2011. As can be seen the outturn level was in line with forecast for 2007 and 2008 but trailed the forecast by approximately 18% in 2009 and is currently expected to fall short of forecast by 31% and 38% respectively in 2010 and 2011.

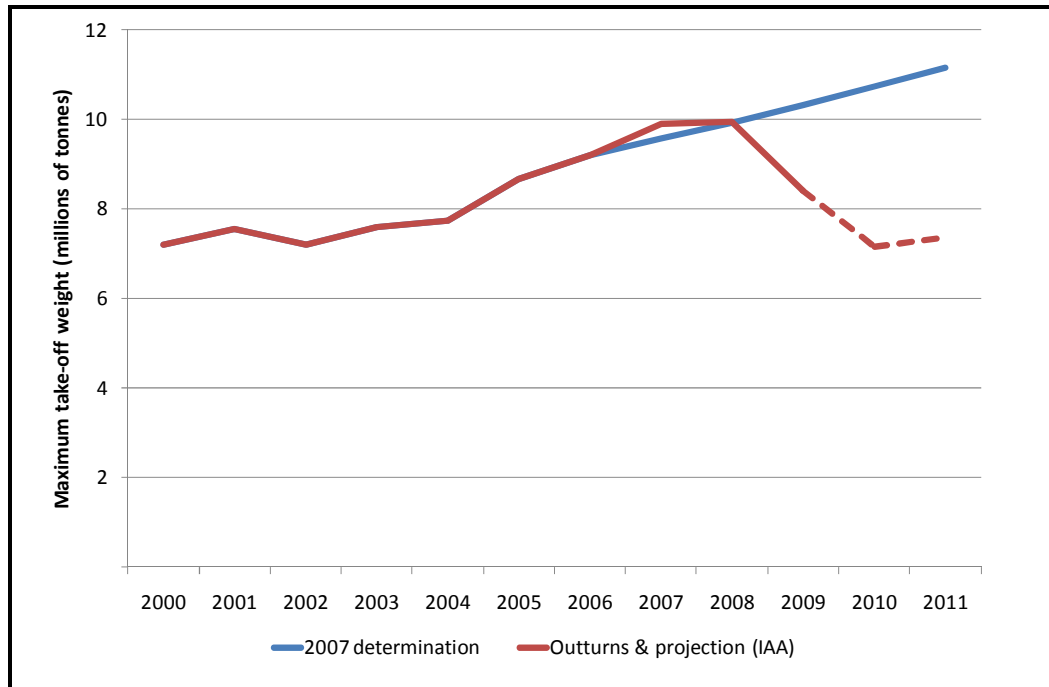


Figure 4.1: Outturn MTOW against forecast MTOW at the 2007 Determination  
 Source: IAA

- 4.6 Past Determinations have been based on MTOW as a unit of output. While international convention has been to charge on an MTOW basis, for the purposes of developing a cost allowance the number of movements may also be a relevant unit of demand. Another unit of demand might be the TSU as described in EC Regulation 1794/2006 which equals the  $(MTOW/50)$  to the power of 0.7 and is the unit of charging mandated by the regulation.
- 4.7 We present below the trends from 2000 to 2009 in MTOW, movements and terminal service units for the Cork, Dublin and Shannon terminal charging zone. We express the data as an index with the year 2003 equal to 100. This is the earliest year for which we have sufficient data on aircraft weights to calculate the TSU.

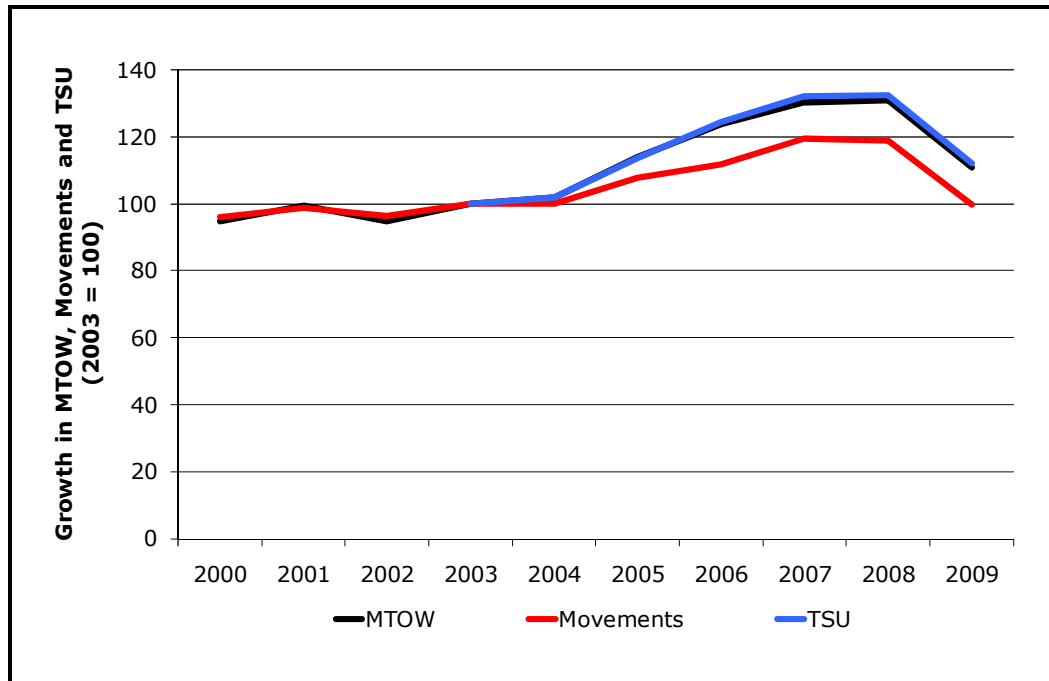


Figure 4.2 Recent trends in MTOW, Air Traffic Movements and Terminal Service Units

Source: TSU has been calculated using the formula  $(MTOW/50)^{0.7}$  for each movement. Data on movements, MTOW and aircraft types at each of Cork, Dublin and Shannon has been provided by Eurocontrol.

- 4.8 We note from the data the similarity in the growth trends for total annual MTOW and total annual TSU both of which grew by more than 30% by 2008 relative to the 2003 level. The rate of growth in movements trailed that of MTOW and TSU, growing by only 20% between 2003 and 2008. If the weight of aircraft did not change during a period we would expect to see the same growth in MTOW and movements. However during this period the average weight of aircraft also grew year on year ensuring a greater rate of growth for MTOW over movements.
- 4.9 One of the issues we wish to explore and are inviting comments on is whether, from a cost perspective, heavier aircraft would impose a higher cost burden on the IAA.
- 4.10 The latest Eurocontrol flight movement forecast for take-off and landing of aircraft at the three State Airports for 2010-2015 is presented below. It is expected that another medium term forecast may be available by the time of the Determination. Parties are asked to consider the plausibility of the forecast and whether the Commission should rely on it for the purpose of making a Determination.

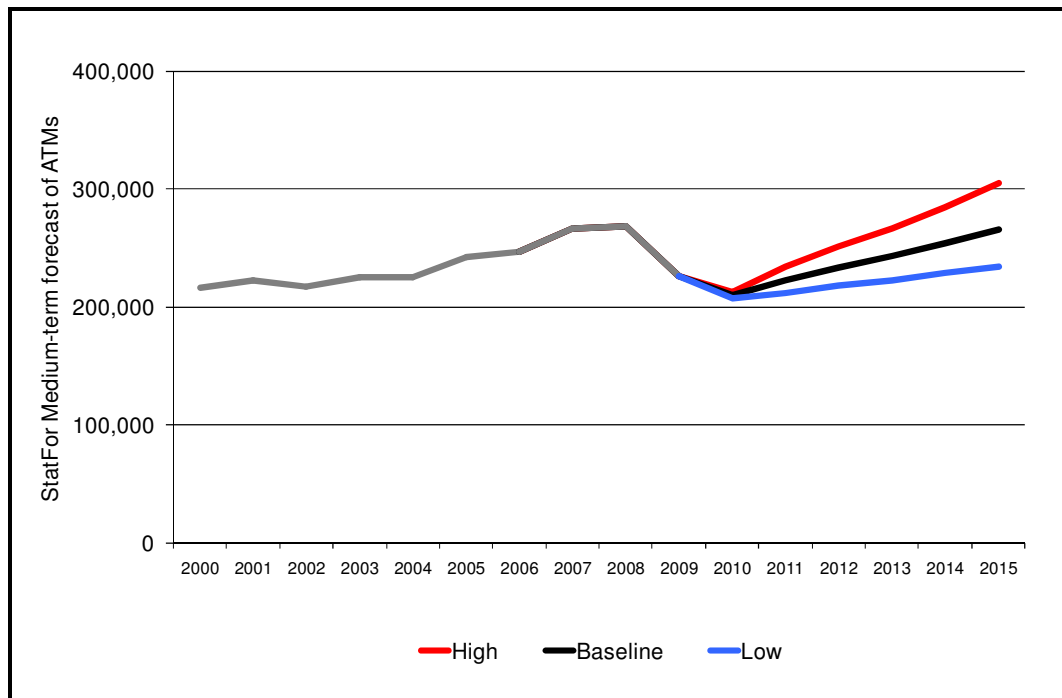


Figure 4.3: STATFOR forecast of ATM growth 2010 - 2015

Source: Eurocontrol STATFOR, September 2010

- 4.11 As well as using third-party forecasts from the likes of Eurocontrol, the Commission could undertake its own forecasting exercise. Such an approach might relate changes in ATMs to changes in macro-economic factors, such as economic growth or other drivers. This is similar to the approach the Commission adopted to forecasting passenger growth at Dublin airport. Parties are asked to comment on whether the Commission should generate its own forecast, what drivers of traffic-growth should be considered, and why.
- 4.12 As discussed in Chapter 2 of this paper, the terminal services charging formula employed by the IAA since the beginning of 2010 is equal to the product of the **unit rate** and the **terminal service unit**. The terminal service unit for each departing movement is defined in the Regulation as:  $(MTOW/50)^{0.7}$ . For the next Determination, one option available to the Commission is cap the unit rate of the charge.
- 4.13 For a given revenue requirement, a cap on the unit rate would effectively require the Commission to also forecast TSUs. Because each aircraft type has a specific MTOW assigned to it, and the charging formula is on a per-departing-movement basis, the Commission would need to take a view on the likely distribution of aircraft types using the State airports in each year of the Determination.
- 4.14 The Table below shows the distribution of aircraft weights in ten tonne intervals since 2003. More than half (61% in 2009) of departing aircraft movements are in the 71–80 tonnes bracket.<sup>6</sup>

<sup>6</sup> In 2009 the 71-80 tonne category included the following aircraft types (ICAO categories): MD83, MD88, A319, B721, A320, B738, MD90, B739, C130, C30J.

<b>Share of departing aircraft movements</b>							
<b>Aircraft take-off weight (tonnes)</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
0-10	4%	4%	4%	4%	4%	3%	3%
11-20	14%	12%	11%	8%	7%	7%	7%
21-30	6%	7%	7%	7%	8%	7%	5%
31-40	1%	1%	1%	1%	1%	1%	1%
41-50	10%	6%	5%	4%	4%	4%	4%
51-60	24%	25%	15%	2%	2%	1%	0%
61-70	8%	9%	6%	5%	5%	4%	3%
<b>71-80</b>	<b>14%</b>	<b>19%</b>	<b>33%</b>	<b>52%</b>	<b>55%</b>	<b>58%</b>	<b>61%</b>
81-90	8%	8%	7%	6%	5%	5%	6%
91-100	0%	0%	0%	0%	0%	0%	0%
>100	10%	10%	11%	11%	9%	10%	9%

Table 5.4: Distribution of aircraft weights in 10 tonne intervals, 2003-2009

Source: Based on movement data provided by Eurocontrol STATFOR

- 4.15 Parties are asked to comment and provide input on whether the share of aircraft weights of recent years is likely to remain constant over time and to identify specific factors that may affect these shares, for example plans by airlines to change their fleet distribution or an expected entry into the Irish market of airlines with significantly different aircraft to the incumbents.
- 4.16 The main consultation questions raised in this chapter are summarised in the box below.

<b>Main consultation questions</b>
<ul style="list-style-type: none"> <li>▪ How should the Commission arrive at a forecast for Air Traffic Movements (ATMs) – does it suffice to take a third party forecast, e.g. Eurocontrol’s forecast, or should the Commission conduct its own forecasting exercise?</li> <li>▪ If the Commission were to carry out its own forecasting exercise for ATMs, what factors should it take into account?</li> <li>▪ Are there reasons to expect a significant change in distribution of aircraft types using the three state airports – in particular is there reason to expect a change from the recent trends observed?</li> </ul>

## 5. Operating Expenditure

5.1 This chapter reviews the IAA's operating expenditure (opex). It looks at performance over the current regulatory period, and seeks to identify certain issues that may be relevant when forecasting the level of opex for the next regulatory period.

5.2 This chapter discusses:

- Trends in IAA opex over time, and the variance in the IAA's opex against the Commission's assumptions in the 2007 Determination;
- The trends in some of the larger opex items over time and against trends in potential comparators; and,
- Potential measures of productivity and trends in these measures over time.

### Analysis of opex out-turns

5.3 In the 2007 Determination the Commission made an allowance for the 2007-2011 regulatory period of €67m which can be split into €38m in respect of staff costs and €29m relating to non-staff costs. The evolution of IAA's total opex over time (IAA forecast for 2010 and 2011) is presented in Figure 5.1 below, with the Commission's 2007 Determination allowance included for comparison for 2007-2011. The opex allowances and outturns for the period are disaggregated into staff and non staff costs in the figures that follow.

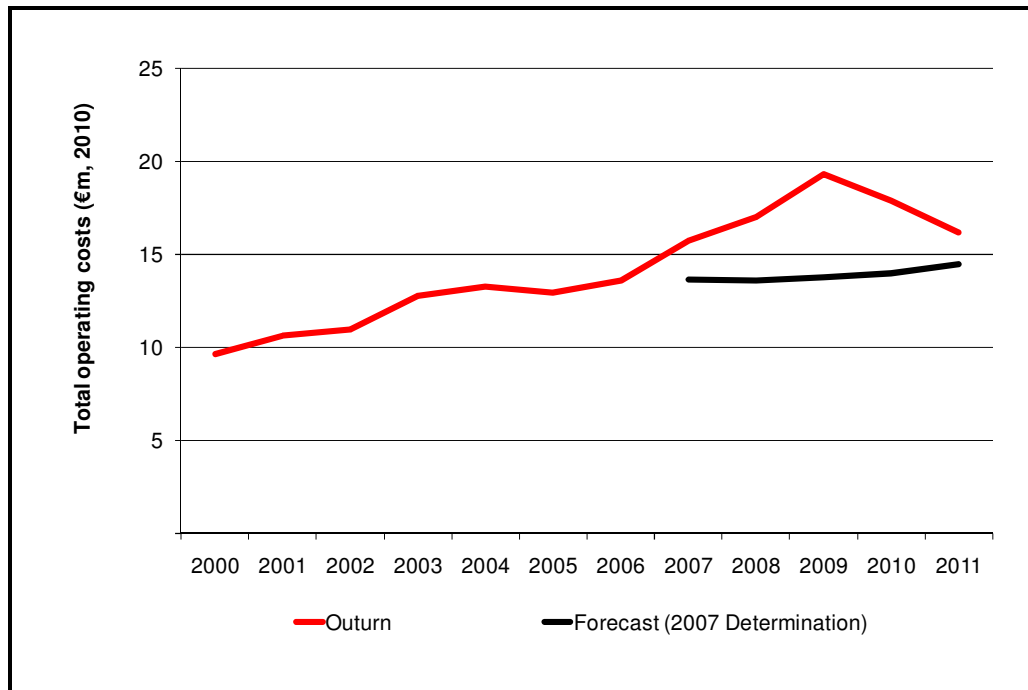


Figure 5.1: Operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

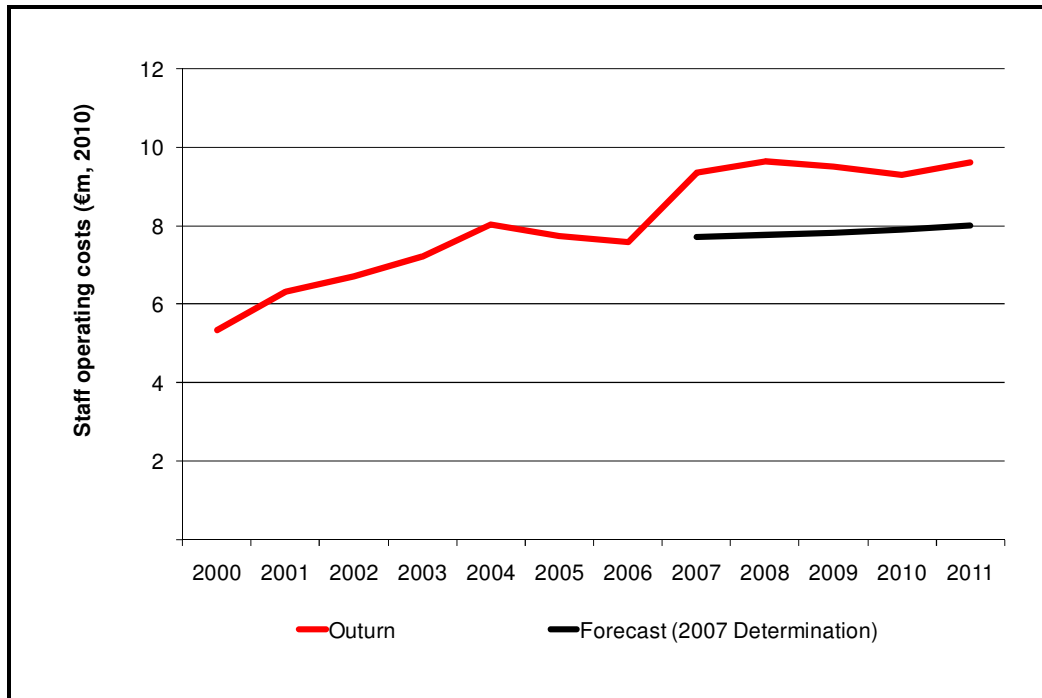


Figure 5.2 Staff operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

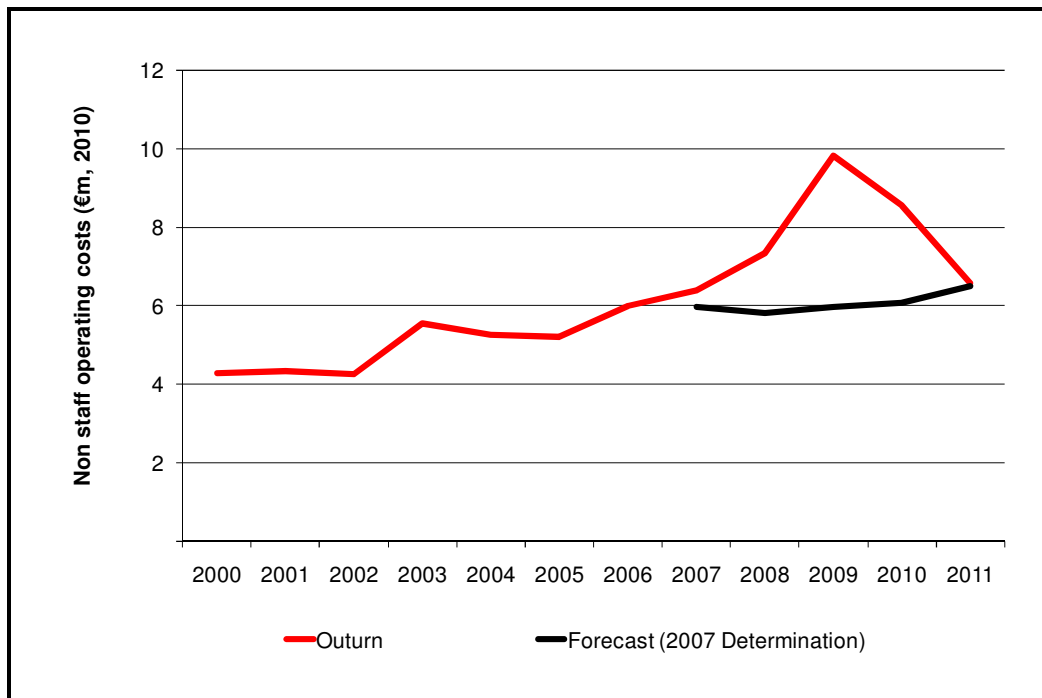


Figure 5.3: Non staff operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

5.4 Compared with the Commission’s opex allowance at the time of the 2007 Determination, the IAA has over-spent in each of the years 2007-2009, and this pattern is expected to continue into 2010 and 2011. The incentive scheme

operated by the Commission ensures that the risk and cost of underperformance against an opex allowance is incurred by the firm and not by its users within a regulatory period. The sharp rise in opex during 2009 and 2010, in particular non-payroll opex, contrasts with the fall in traffic during this period.

- 5.5 The previous chapter illustrated the fall in traffic experienced by the IAA since 2008 which for total movements has seen levels fall to those last experienced in 2001. It is interesting to look at how the unit cost, that is costs per charging unit or MTOW, has evolved over time. We focus initially on costs per MTOW as this is the charging basis under which the 2007 Determination was set. Later in the chapter we look at certain costs on a per movement and per-TSU basis.
- 5.6 A company with high fixed costs would normally be expected to exhibit falling unit costs through economies of scale as volumes increase, and vice-versa as volumes fall. During the period 2000 to 2009 MTOW at the three State airports fell in only two years – 2002 and 2009. For all other years it experienced year on year growth in volumes with annual average growth of approximately 6% between 2002 and 2008. If IAA’s costs were purely fixed we would have expected diseconomies of scale in 2002 and 2009 with falling unit costs for all other years. The actual costs per MTOW for the period are illustrated below with the 2007-2011 forecast included for comparison. As with earlier figures in this chapter we include IAA’s current projections for 2010-2011 in the outturn series.

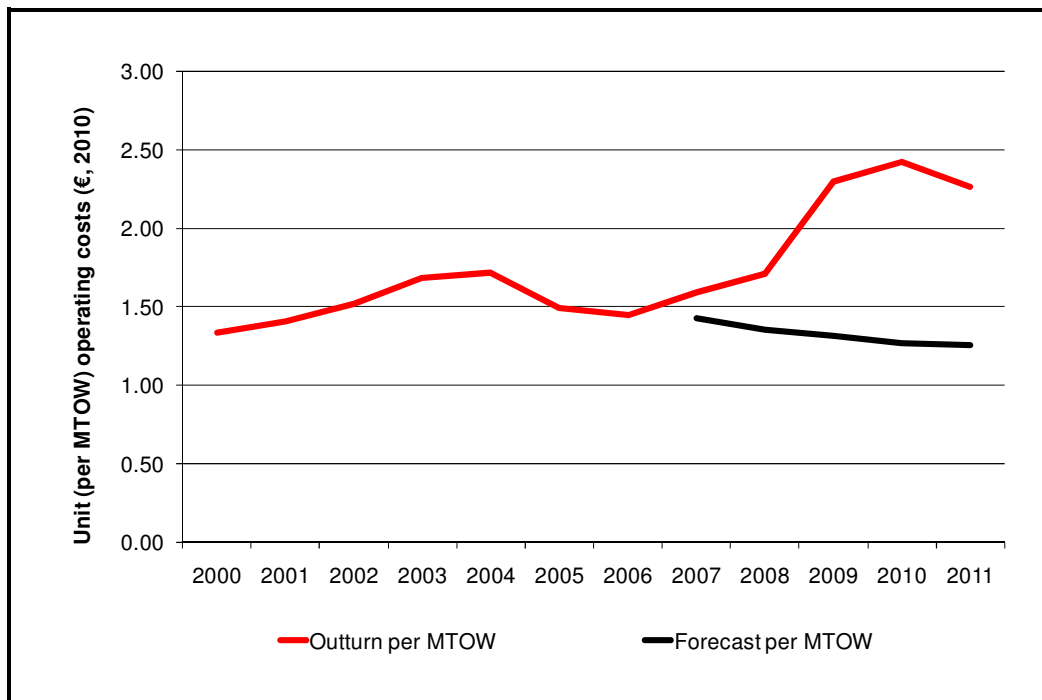


Figure 5.4: Unit (per MTOW) operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

- 5.7 The following two figures split out the unit cost analysis into staff and non staff costs. Again we include IAA’s forecasts in the outturn series and present the 2007 forecast for comparison.



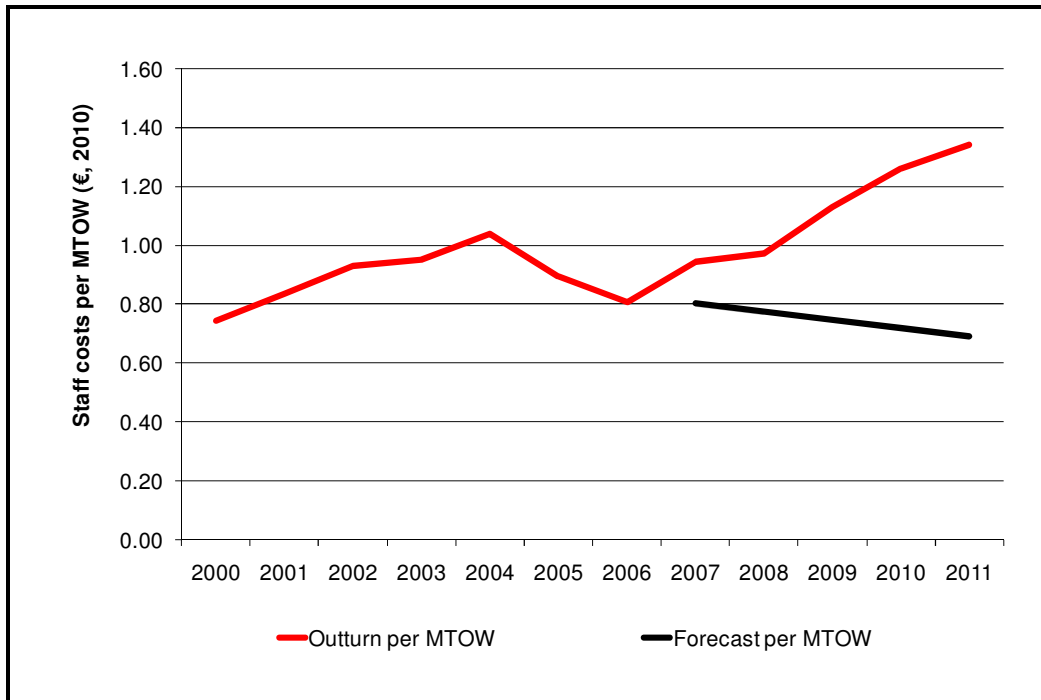


Figure 5.5: Unit (per MTOW) staff operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

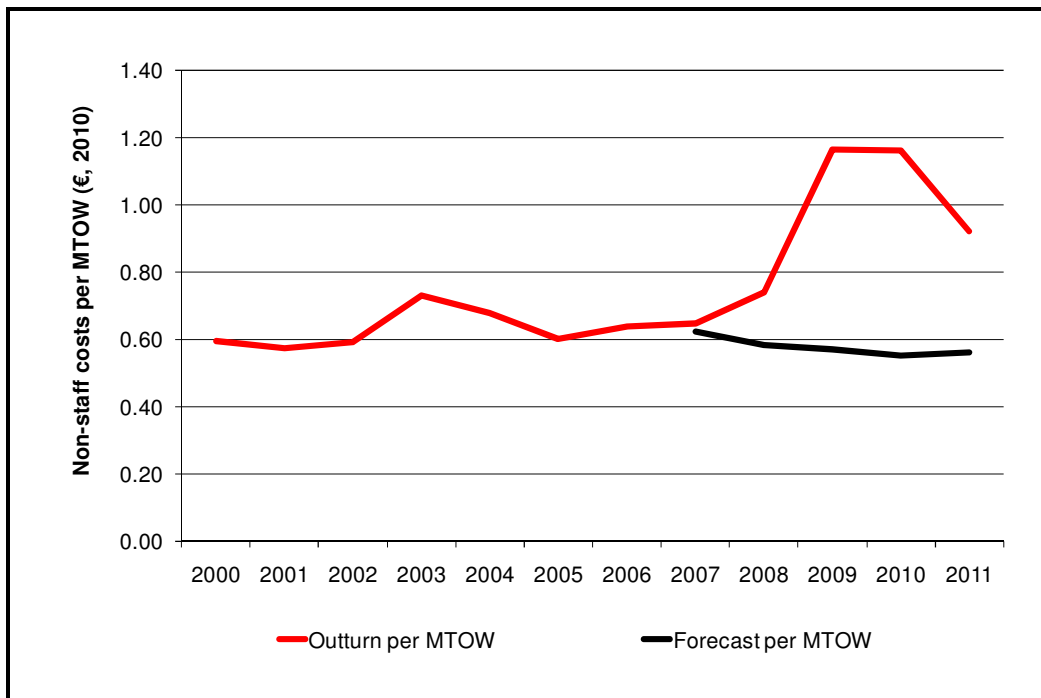


Figure 5.6: Unit (per MTOW) non-staff operating costs, 2000 to 2011

Source: CAR analysis of IAA data, 2010 prices

5.8 We observe a very similar trend in staff and non-staff costs on a per MTOW basis as we do for total opex. While not presented here we also observe the same trends on a per ATM basis although the growth rate in costs per ATM is slightly

higher than the per MTOW series. We return to the issue of fixed and variable costs later in this section.

- 5.9 A breakdown of the IAA's main opex categories for 2002 and 2009 is provided in the Table below. We look at 2002 as it was the year in which price cap regulation was introduced and compare it to 2009 the most recent year for which final end of year data were available.

	2002	% of Total Opex	2009	% of Total Opex	% Change (2002–09)
<b>Staff costs</b>					
Wages and salaries	5.7	52%	7.6	39%	33%
Pension contributions	1.0	9%	1.9	10%	97%
<b>Total Staff costs</b>	<b>6.7</b>	<b>61%</b>	<b>9.5</b>	<b>49%</b>	<b>42%</b>
<b>Non-staff costs</b>					
Training	.8	7%	.8	4%	4%
Travel and subsistence	.2	2%	.2	1%	-2%
Administration	1.8	17%	5.7	30%	211%
Other Operating costs	.5	4%	1.0	5%	103%
Telecommunications	.1	1%	.2	1%	53%
Utilities	.1	1%	.1	0%	-14%
Meteorological	.3	3%	1.7	9%	498%
Finance	.0	0%	.1	0%	
Regulation	.4	4%	.1	0%	-86%
<b>Total Non-staff</b>	<b>4.3</b>	<b>39%</b>	<b>9.8</b>	<b>51%</b>	<b>130%</b>
<b>Total Opex</b>	<b>11.0</b>	<b>100%</b>	<b>19.3</b>	<b>100%</b>	<b>76%</b>

Table 5.7: IAA Operating costs, 2002-2009 (€m, 2010 prices)

Source: CAR analysis of IAA data, 2010 prices

- 5.10 Total staff costs have risen by 42% in real terms since 2002. The share of staff costs in total costs has fallen from 61% to 49%. Non-staff costs have increased by 130% and the share has grown from 39% to 51%. The main drivers of the non-staff costs have been administration costs (increasing to €5.7m from a base of €1.8m) and meteorological costs (increasing to €1.7m from a base of €0.3m). It is possible that 2009 was an atypical year for the IAA where one-off costs may have arisen. Whilst not presented in Table above we can see from the figures presented earlier in the Chapter that the IAA is forecasting non-staff costs to return to 2007 levels by end 2011.
- 5.11 We present the full series in real terms for each of the staff and non-staff sub-categories from 2000-2011 in the figures below. For the staff costs series we see a continuous upward trend in both payroll and pensions with pensions expected to increase from 15% of staff costs in 2000 to almost 25% in 2011. On the non-staff side there is a significant jump in administration costs during 2009 and 2010 but this category is expected to return to its 2007 level in 2011. If the two-year shock to non-staff costs is a temporary phenomenon, as the IAA projections would suggest, then this series essentially remains constant in real terms during the

current Determination period (2007-2011): on current projections, between 2007 and 2011 non-staff costs will have grown broadly in-line with inflation.

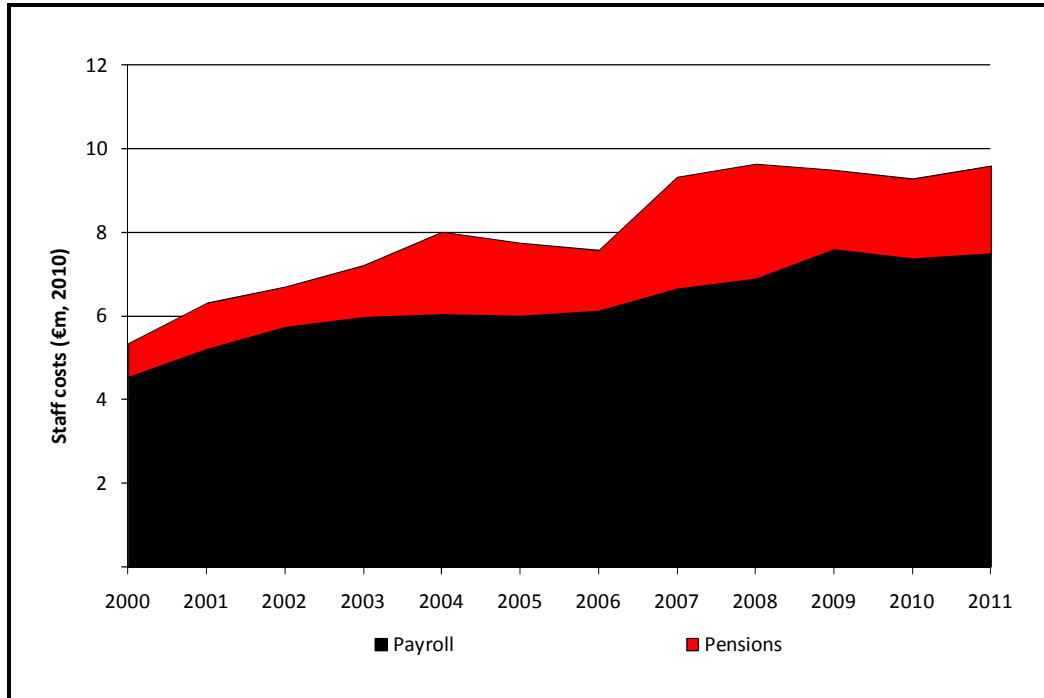


Figure 5.8: Breakdown of staff costs, 2001-2011 (€m, 2010)

Source: CAR analysis of IAA data, 2010 prices

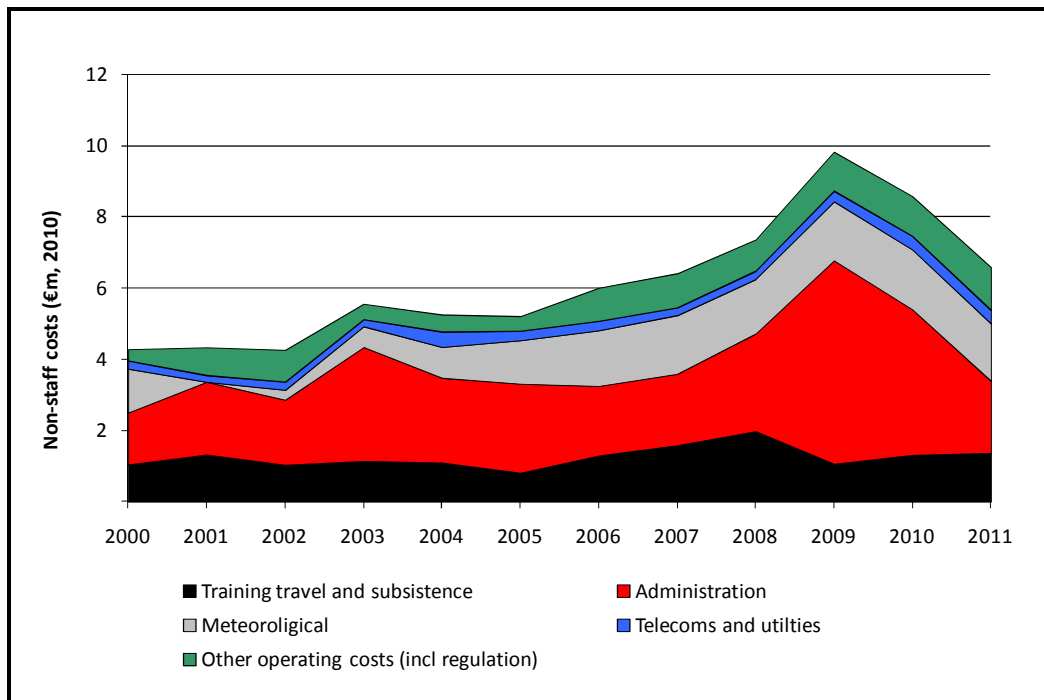


Figure 5.9: Breakdown of non-staff costs, 2001-2011 (€m, 2010)

Source: CAR analysis of IAA data, 2010 prices

- 5.12 As well as looking at the absolute level of efficiency on a total or unit cost basis the Commission could also compare relative levels of efficiency against benchmark levels. Possible comparators include other Air Navigation Service Providers (ANSPs), economy wide economic indicators, or other firms or economic sectors in Ireland.
- 5.13 Figure 5.11 below compares the growth in IAA payroll with industrial earnings (to 2006 only), pay in the public sector, pay in other semi-state companies and the consumer price index during the period. The series are expressed as an index, with 2001 levels equal to 100 such that a reading on any series of, say, 110 would indicate a 10% growth over the 2001 level. For the purposes of the following figures, all data is nominal. We exclude pensions for comparability purposes. Against this group of comparators the IAA's terminal services staff has exhibited a higher rate of payroll inflation.

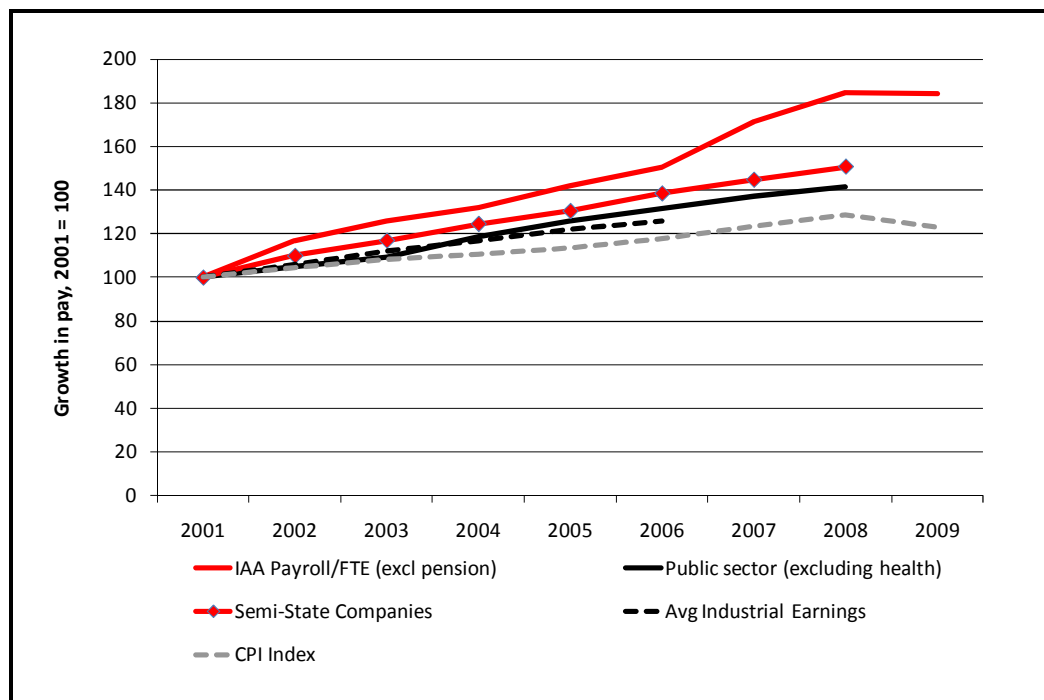


Figure 5.11: Change in average weekly earnings

Source: CAR analysis of IAA data and CSO.

- 5.14 The Commission would welcome any comments on how to benchmark IAA's cost levels. Examples may include but are not limited to other ANSP's, the IAA's own operational locations (i.e. comparing Dublin, Shannon and Cork against each other), other economic sectors in Ireland, or economic series (e.g. CPI).
- 5.15 One possible explanation for higher than CPI-measured rates of inflation in average pay may be where firm's employees deliver productivity improvements such that the same number of employees deliver more output or alternatively where fewer employees deliver the same or greater output. In such situations, there might be higher than inflation pay growth as a reward for productivity improvements. The table and chart below show the total movements, MTWO, and FTE's from 2001 to 2009, and movements handled per FTE over this period.

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Movements ('000)	222	217	225	225	242	252	269	267	224
MTOW (million tonnes)	7.6	7.2	7.6	7.7	8.7	9.4	9.9	9.9	8.4
FTEs	77	76	76	75	71	71	71	71	75
Movements ('000) per FTE	2.89	2.85	2.96	3.00	3.41	3.55	3.79	3.77	2.99
MTOW per FTE ('000)	98	95	100	103	122	132	139	140	112

Table 5.12: Productivity in flight movements per FTE

Source: CAR analysis of IAA data

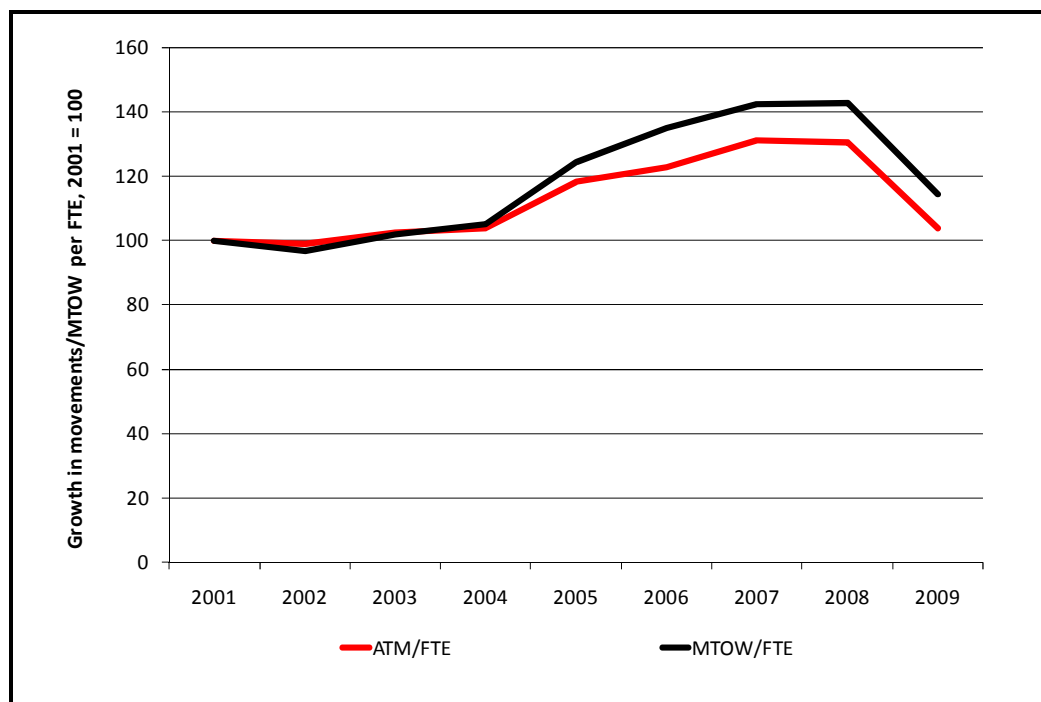


Figure 5.13: Movements and MTOW per FTE

Source: CAR analysis of IAA data, 2010 prices

- 5.16 Both movements and MTOW per FTE rise between 2004 and 2009. In 2009, with the fall in traffic, both measures have fallen. Given the closeness observed in changes in traffic levels and movements/MTOW per FTE, it may be that fluctuations over the period are driven by economies of scale as opposed to productivity changes. We return to economies and diseconomies of scale in a discussion on fixed and variable costs below.
- 5.17 One final point on this topic relates to improvements in staff performance during the period with increases in real (inflation-adjusted) wages. Comparisons such as this control for the expected increase in staff costs that are driven by inflation and therefore compare the non-inflation related element with increases in the number of movements handled by each FTE.

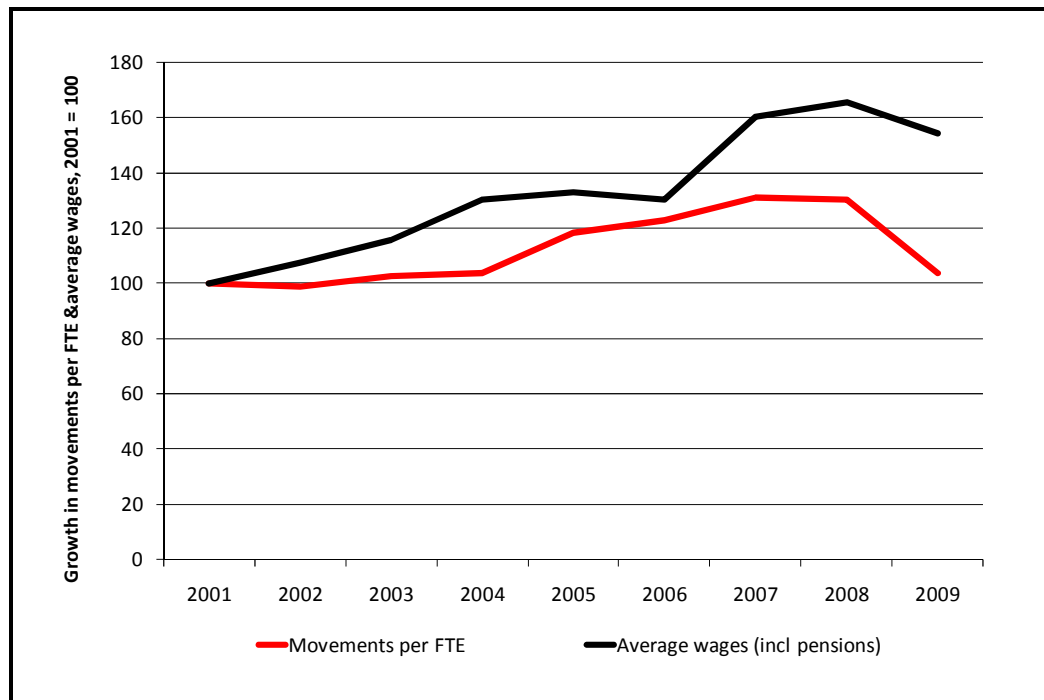


Figure 5.14, Growth in movements per FTE and average staff costs, 2001-2011

Source: CAR analysis of IAA data.

- 5.18 The growth in real wages out-paced the growth in productivity throughout the period. It is possible that there are other determinants of productivity that we have not observed, for example reduction in delays. Parties are asked to consider whether there are other measures of productivity that the Commission should look at in assessing IAA opex performance.

### Fixed and Variable Costs

- 5.19 In determining how opex may evolve over the next regulatory period the Commission will need to establish the extent to which the IAA's costs are driven by volumes. If some or all of the IAA's costs are driven by volumes, such that costs increase or decrease with volumes, these costs are said to be variable costs.
- 5.20 How the data reported earlier on unit operating costs (see figures 5.4-5.6) and on the number of movements per FTE (see figure 5.14) are interpreted will depend in part on the extent to which the Commission concludes that there economies of scale in providing aviation terminal services. For example, figure 5.14 showing the number of movements per FTE shows that the IAA's staff handled more flights per FTE during periods of high traffic growth, and relatively less during periods when traffic was lower. This might suggest that staff levels are relatively fixed, with excess capacity during periods of low traffic levels which can be utilised when traffic levels grow.
- 5.21 The relationship between volumes and costs is known as cost elasticity. The closer the elasticity is to one the more responsive a firm's costs are to volume changes. In the extreme, the growth in costs of a firm with a cost elasticity of one would perfectly match the growth in volumes whereas a firm of elasticity of zero would experience no change in costs as volumes rose or fell.
- 5.22 In its 2007 Determination the Commission assumed an elasticity relationship of 0.3 between staff costs and traffic volumes. So if traffic grew by 10%, the Commission forecast staff costs would need to rise by 3%. The fact that the

elasticity is less than one reflects the Commission's view at the time that a portion of the IAA's operating cost base is fixed and less sensitive to changes in the volumes handled. The CAA applies the same elasticity of 0.3 in its regulation of National Air Traffic Services (NATS) En-Route Limited (NERL), albeit to the entirety of NATS operating cost baseline.

- 5.23 Parties are asked to comment on the extent of fixed and variable operating costs in the IAA's aviation terminal service business and what an appropriate relationship between costs and volumes might be. Such comments might relate to the entire cost base. Alternatively, parties may prefer to comment on specific cost categories for which they have views on the extent to which costs might be expected to vary with traffic volumes.

### **Rolling incentive schemes**

- 5.24 In June 2008 the Commission issued a consultation paper which sought the views of stakeholders on the use of a system of 'rolling' incentives to incentivise greater efficiency by firms subject to a price cap. A system of rolling five year incentives was introduced in the 2009 Determination for airport charges at Dublin airport.
- 5.25 The current system of incentives rewards IAA when it can reduce its costs below the Commission's targets by allowing it retain the benefits until the end of a regulatory period after which they are shared with consumers. The consultation paper demonstrated the IAA has a stronger incentive to achieve efficiencies earlier in a regulatory period as it can retain the associated profits for longer. Towards the end of the period the firm would be better off delaying the efficiency until the next regulatory period. A system of rolling incentives overcomes this problem by ensuring that the incentive for efficient performance is the same for every year. Parties can refer to the consultation document for a full discussion of the mechanics of incentives under the current system and a rolling system.
- 5.26 Parties are asked to comment if a rolling incentive scheme should be introduced in the next Determination and if so to which cost categories should the rolling incentives apply?

### **Main consultation questions**

- What are the key operating cost issues that the Commission should focus on?
- Is the IAA currently utilising its resources effectively and efficiently - what evidence should the Commission rely on to establish whether the IAA is operating efficiently?
- What proportion of operating costs should respond to changes in demand? Which of the categories of operating cost are most responsive to demand changes?

## **6. Capital Costs**

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- 6.1 This chapter discusses the capital costs building block of a price-cap calculation. It begins with a discussion on the regulatory asset base (RAB). We then discuss the approach to depreciation. The chapter concludes with a discussion of the issues around estimating the IAA's regulatory cost of capital.
- 6.2 The Commission has calculated capital costs for the price cap such that for a given project the total revenues accruing to the IAA equals the initial allowed capital expenditure (capex), in present value terms. Over the lifetime of an asset, capital costs allow for a return of capital (a depreciation allowance) and a return on capital (the regulatory cost of capital or WACC). The accumulation of allowed capex over time, net of depreciation, is reflected in the value of the RAB.
- 6.3 Consequently there are three factors that jointly influence the calculation of capital costs:
- IAA capex and associated changes in the RAB;
  - The approach to depreciating assets in the RAB; and
  - The regulatory cost of capital.

The following sections consider each of these factors in turn.

### **Regulatory asset base**

- 6.4 Before considering future capex projects beyond 2011 and how associated capital costs might be remunerated, the Commission must come to a view on the opening RAB for 2012. In order to do so, there are four key inputs/factors that the Commission must consider:
- What was the value of the starting RAB at the beginning of the current regulatory period?
  - What is the level of allowed capex over the regulatory period, as determined by the Commission?
  - What is the cumulative depreciation charge during the regulatory period as determined by the Commission?
  - What is the IAA's actual capex over this period, and how should the Commission treat differences between allowed and actual capex spend?

This section provides information on each of these inputs. The 2007 Determination included both an ongoing capital allowance and milestone capital allowances, the latter which would be triggered by the completion of the Cork and Dublin Towers. The two allowances, and subsequent RAB adjustments, are discussed separately in this section.

- 6.5 The 2007 IAA ATSC Determination moved the annual regulatory period to calendar years (December – December) from financial years (March – March). The first 'year' of the Determination, 2007, therefore consisted of just nine months, hence the references throughout this section to 2007 should be taken to relate to the nine-month period in that year which relates to the Determination. For the purposes of this paper, outturn capex for the 2007 has been multiplied by 0.75 in order to compare it with the 9m 2007 allowance in the Determination.



*Non-milestone capital allowance*

- 6.6 The opening RAB in 2007 was €29.3 million. Table 6.1 shows total allowed capex and regulatory depreciation over the 2007-2011 period, excluding any milestone capital expenditure.

€, million (2010 prices)	<b>2007 Determination, opening and closing RAB</b>
Opening RAB 9m 2007	29.3
Allowed capex 9m 2007 - 2011	45.1
Depreciation 9m 2007 – 2011	(36.1)
Closing RAB 2011	38.3

Table 6.1: Opening and closing RAB (9m 2007 – 2011) from the 2007 Determination

*Source: Commission for Aviation Regulation. 2010 prices*

- 6.7 In July 2010, the IAA provided the Commission with an update on actual outturn capex for the regulatory period. This included outturn capex for 2007-2009 and projected capex for 2010 and 2011. The IAA data indicates that total expected non-milestone capex for the 2007-2011 period is €30.2 million, that is an underspend against the regulatory allowance (€45.1m) of €14.9 million. These numbers exclude both the Cork and Dublin milestone/trigger capital investments. Figures 6.2 and 6.3 below show outturn capex against the capex allowance set at the time of the 2007 Determination. Data for 2007 is for 9 months only, numbers for 2010 and 2011 are expected capex outturn as provided by the IAA. The first figure shows year-by-year non-milestone capex; the second figure shows capex outturn for the entire regulatory period (including expected 2010 and 2011 capex) for the different expenditure categories.

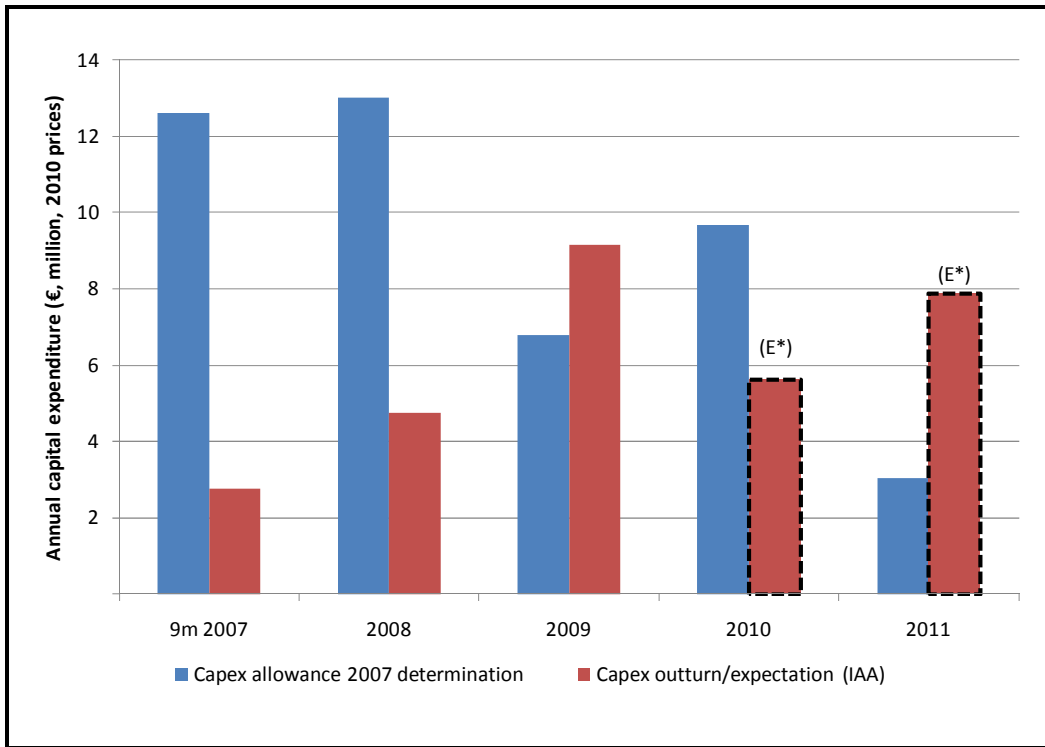


Figure 6.2: Capex outturns versus capex allowance 9m 2007 – 2011

Source: CAR analysis of IAA data, 2010 prices. (E\*) Data for 2010 and 2011 are IAA projections provided to the Commission in July 2010.

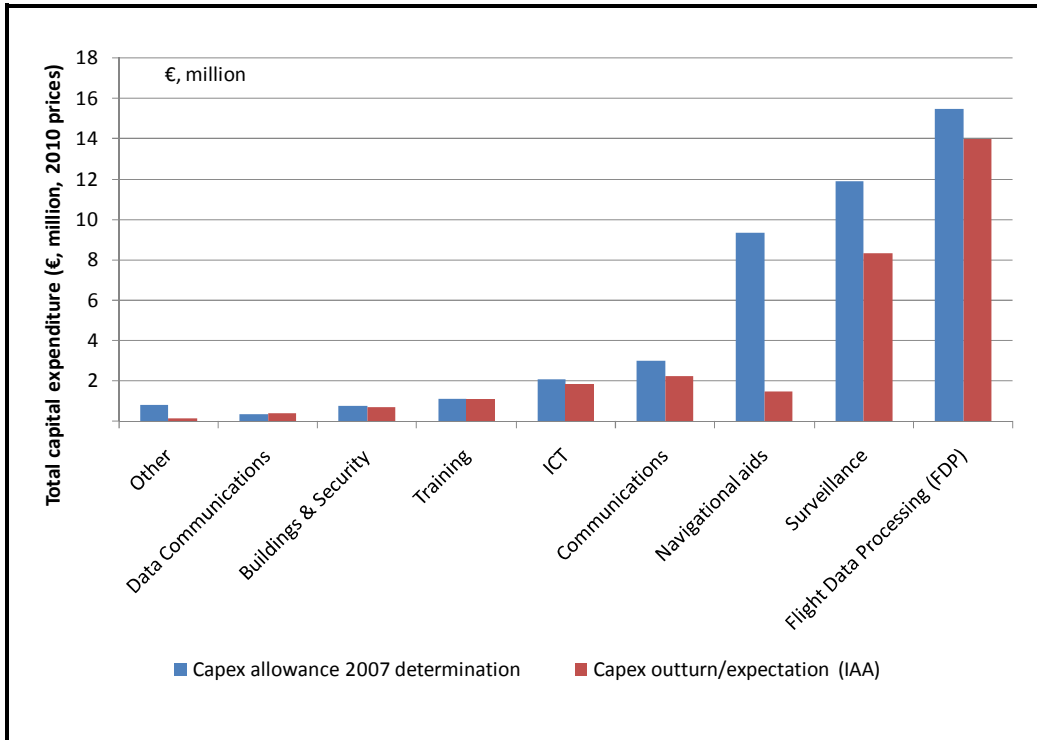


Figure 6.3: Capex outturns versus capex allowance 9m 2007 – 2011

Source: CAR analysis of IAA data, 2010 prices. Totals include expected outturn for 2010 and 2011 based on IAA projections provided to the Commission in July 2010.

6.8 How the Commission treats IAA under-spend is an important question for the Determination. There are a number of options available:

- No adjustment to the opening RAB;
- Reduce the opening RAB by the amount of under-spend (net of cumulative depreciation on the under-spend); or
- Reduce the opening RAB by the amount of under-spend, plus an adjustment for interest earned on under-spend.

6.9 This is not an exhaustive list and the Commission welcomes other proposals. The Commission invites views from interested parties on how it should treat variations between outturn and allowed capex at the next Determination. In responding, parties may wish to refer to Appendix 3 of the final Determination on Dublin airport charges which sets out a number of principles for rolling forward the RAB.<sup>7</sup> Parties are asked to comment on the merit of adopting these principles directly for the IAA also. In particular, is there any reason as to why any of these principles should differ for the IAA?

*Milestone capital allowance*

6.10 The 2007 Determination included two specific capital investment milestones that, when reached, would trigger an increase in the price cap. The milestone concept is equivalent to the trigger concept employed in the recent Determinations governing airport charges at Dublin airport. The first milestone related to the building and completion of a new air traffic control tower at Cork Airport by the IAA. The second milestone relates to the building and completion of a new air traffic control tower at Dublin Airport by the IAA. Table 6.4 shows the capex allowance against outturn for each of these projects:

	<b>Allowance €m</b>	<b>Outturn €m</b>	<b>Milestone achieved</b>
Cork Tower	10.9	6.8	Yes
Dublin Tower	45.7	1.7	No

Table 6.4: Milestone capex, allowance versus outturn

*Source: IAA & CAR, 2010 prices.*

<sup>7</sup> [http://www.aviationreg.ie/\\_fileupload/2009\\_CP4\\_Final%20Determination\\_4DEC.pdf](http://www.aviationreg.ie/_fileupload/2009_CP4_Final%20Determination_4DEC.pdf)

- 6.11 It is important for parties to be aware that the milestone allowances apply to the *current Determination only*. Therefore, if a milestone has not been achieved, as is expected to be the case for the Dublin Tower by the end of the current Determination period, any (milestone) allowance associated with that project does not automatically carry into subsequent determinations.
- 6.12 The Dublin Tower has not yet been, and is not expected to be, constructed during this regulatory period. Therefore, in accordance with the Determination, there is no capex in the RAB relating to this project. The IAA has received no remuneration for the Dublin Tower project during the current regulatory period.
- 6.13 The Cork Tower milestone was achieved on 20 October 2009. The IAA compliance statement for 2009 (CP2/2010, published on the Commission's website), sets out further details of milestone adjustments in the price cap. The 2007 Determination included an allowance of €10.9m for the Cork Tower. The Cork Tower project output has been delivered, but at a lower cost (€4.1m less) than the *ex-ante* allowance. In-line with under-spend on the non-milestone projects, the Commission invites views from interested parties on how it should treat variations between outturn and allowed capex at the next Determination.

### **Post-2011 capex**

- 6.14 As noted in the introduction to this chapter, changes to the value of the RAB can affect overall capital costs. The value of the RAB can change in one of two ways: depreciation of assets in the RAB, and addition of new capex to the RAB.
- 6.15 The Commission published the timetable for the 2011 Determination on its website in August 2010.<sup>8</sup> This timetable states that in February 2011 the IAA is required to provide the Commission with full details of its future capital investment programme (CIP). This information will include details of planned capital projects for the post-2011 period, including costs and timing of projects and evidence of user consultation or support. In November 2007, the Commission published a discussion paper on "Guidance on the approach to capex consultation".<sup>9</sup> The aim of this discussion paper was to provide guidance on how regulated companies should consult with users in advance of carrying out investment projects.
- 6.16 The Commission plans to publish the IAA's CIP when it is received and will afford parties an opportunity then to comment on whether and how such costs should be included in the price-cap calculations. Prior to that date parties may wish to submit preliminary views on either the specific capex projects which will be required post-2011, or the level of overall capex the IAA is likely to need in the forthcoming regulatory period.
- 6.17 Figure 6.5 shows the IAA's annual capex spend on terminal services since 2001. The average is €4.7m. However, excluding two years where large one-off projects were delivered – Cork Tower 2009 and Shannon/Ballycasey ACC 2002 – the average annual spend is €3.4m. Are there specific reasons as to why the annual capex allowance in the future should be higher or lower than this average annual spend?

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<sup>8</sup> [http://www.aviationreg.ie/fileupload/Image/Timetable\\_2009\\_Airport\\_Charges.pdf](http://www.aviationreg.ie/fileupload/Image/Timetable_2009_Airport_Charges.pdf)

<sup>9</sup> [http://www.aviationreg.ie/fileupload/Image/PR\\_Policy\\_PUB1\\_POL\\_CP8\\_2007\\_CAPEX\\_GUID.pdf](http://www.aviationreg.ie/fileupload/Image/PR_Policy_PUB1_POL_CP8_2007_CAPEX_GUID.pdf)

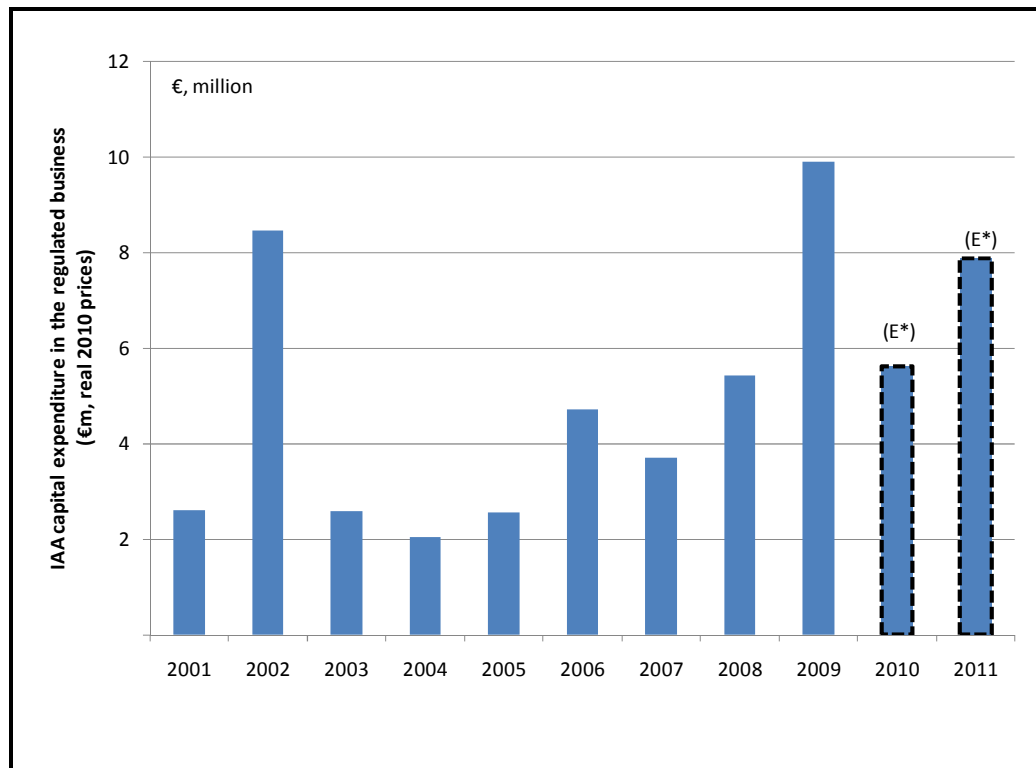


Figure 6.5: Capex outturns 2001 - 2011

Source: IAA. Totals include expected outturn for 2010 and 2011 based on IAA projections provided to the Commission in July 2010.

6.18 In June 2008 the Commission issued a consultation paper which sought the views of stakeholders on the use of a system of 'rolling' incentive schemes. A rolling incentive scheme is one where the costs (benefits) of over- (under-) spend to the regulatory company are only shared with users after a fixed time interval (e.g. five years), regardless of the point in time during the regulatory cycle at which the over- (under-) spend occurs. There was a mixed response on the use of such schemes to incentivise capex efficiency. At this stage, the Commission is minded not to introduce a rolling incentive scheme for future capex. Interested parties are, however, welcome to present arguments either in favour of or against a rolling incentive scheme for capex.

### Approach to depreciation

6.19 The allowance for depreciation is an important factor that can influence the capital costs building block of the price-cap calculation. There are two factors that can influence the depreciation charge in any given year:

- The assumed asset life for assets in the RAB.
- The approach adopted to depreciating the assets themselves, e.g. straight-line or an annuity (equal revenues across time).

6.20 On asset lives, the Commission has previously adopted assumptions similar to those used by the IAA in preparing its accounts. These are summarised in Table 6.7 below. Are there any reasons for the Commission to depart from the existing asset life assumptions that it employs?

Capital expenditure grouping	Asset life (years)
Communications	8
Navigational aids	8
Surveillance	8
Flight Data Processing (FDP)	8
Data Communications	8
ANS Systems	8
Smaller Projects	8
ICT	3
Training	8
Buildings & Security	5
Towers	20

Table 6.7: Asset life assumptions, current policy

6.21 The Commission approach to date has been to adopt a straight-line approach to depreciating IAA capex. This is in accordance with European Regulation 1794/2006.

### Cost of capital

6.22 The regulatory cost of capital determines the return on the IAA's investments that the Commission allows when making a Determination. In the current Determination, the Commission allowed the IAA a real pre-tax return on capital of 6.2%. The IAA's return on assets accounted for about 10% of the sum the Commission allowed the IAA to collect from ATSC during the current regulatory period (about €2.3m per annum).

6.23 The Commission estimates the real pre-tax cost of capital as a weighted average of the firm's cost of equity ( $r_e$ ) and cost of debt ( $r_d$ ), hence the term Weighted Average Cost of Capital or WACC:

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

The weight ( $G$ ) in the formula is equal to a measure of the firm's actual or optimal gearing, i.e. debt/(debt+equity).

## Previous decisions on the IAA cost of capital

- 6.24 The table below shows all the parameters that the Commission used to make its WACC calculations for the IAA in 2002 and 2007. The 2007 Determination included a pre-tax cost of capital for the IAA of 6.2%, compared with a WACC of 7.5% in 2002.

Cost of capital component	IAA 2007	IAA 2002
Risk free rate (real)	1.84%	2.60%
ERP	5.00%	6.00%
Asset Beta [ $\beta_a$ ]	0.65	0.65
Equity Beta [ $\beta_e = \beta_a/(1-G)$ ]	1.1	1.20
Tax	12.50%	12.50%
Cost of equity (pre-tax)	7.34%	9.80%
Debt premium	0.38%	1.20%
Cost of debt (pre-tax)	2.22%	3.80%
Gearing [G]	36.00%	50.00%
<b>Real WACC (pre-tax)</b>	<b>6.20%</b>	<b>7.50%</b>
<b>Real WACC (post-tax)</b>	<b>5.42%</b>	<b>6.50%</b>

Table 6.1: IAA cost of capital at previous Determinations

## Gearing

- 6.25 Gearing, the weight in the WACC formula, measures the ratio of the company's debt to assets or debt to debt plus equity. The 2007 Determination had regard to Article 6(3) of the 2006 Charging Regulation which stated "the weight factors shall be based on the proportion of [company] financing through either gearing or debt". For this reason it used the IAA's actual average gearing level of 36%, equal to IAA's mean debt-to-assets ratio for the four years to 2005.
- 6.26 Figure 6.6 shows the ratio of debt to assets for the IAA since 2001. Following a leveraging of the balance sheet during the early part of the decade, where gross debt levels peaked at €55m, the IAA has recently reduced the amount of debt on its balance sheet. In 2009, the IAA had €15m of debt, giving a ratio of just 8%.

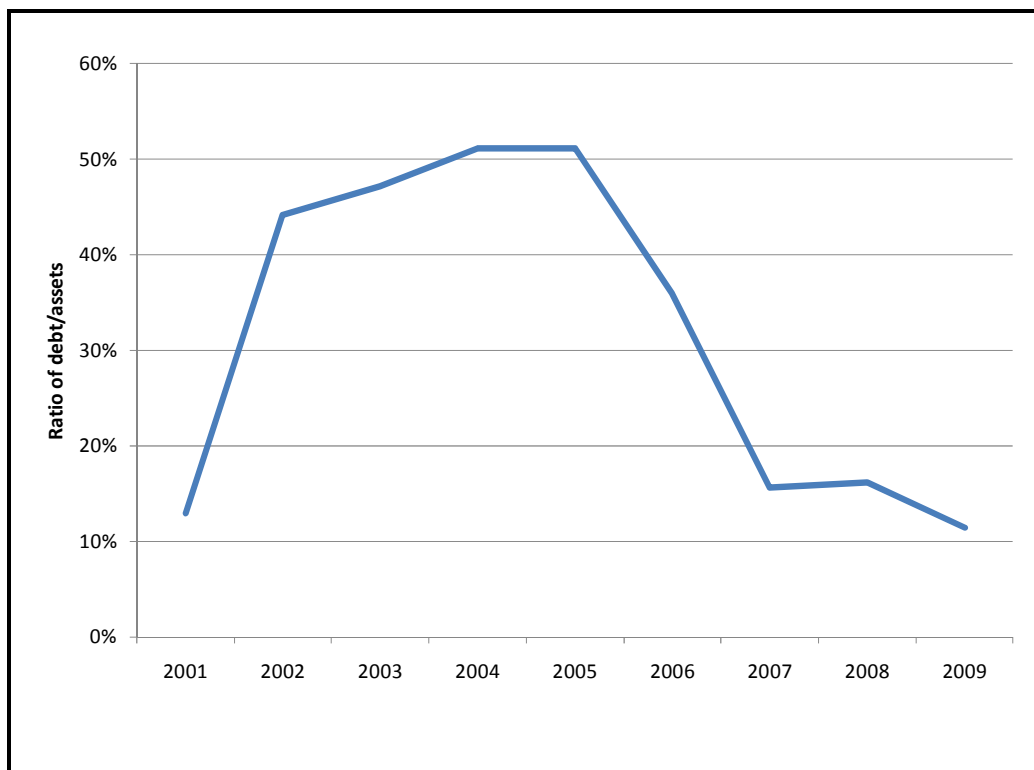


Figure 6.6: Ratio of debt to assets for IAA

Source: IAA Annual Reports. The figure shows the ratio of gross debt to total assets less current liabilities

## Cost of equity

6.27 The Commission uses the Capital Asset Pricing Model (CAPM) as a framework for estimating 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 the company-specific parameter, beta ( $\beta$ ):

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

6.28 In their study on behalf of the Commission in 2007 Kearney & Hutson estimated the real risk-free rate of interest at 1.84%, using the 10 year Irish government bond yield (4.0%) and eurozone inflation rates (1.8%). This approach complies with the requirement in EC Regulation 1794/2006 on common charging principles for ANS.

6.29 The ERP is the premium that investors seek for holding a portfolio of diversified stocks over a risk free asset, usually the risk-free rate. For the market return, regulators tend to rely on past returns on a composite index, for example the Standard & Poor's Composite Index in the US or a similar European or British index, to estimate expected returns. Two issues arise here: firstly, no index contains a basket of all risky securities, and therefore some degree of measurement error must be tolerated. Second, and more crucial, the explicit assumption is that using past returns is a reasonable guide to the future, in other words, investors expect to receive the same 'normal' rate of return revealed by past averages and that any changes in the market return are driven solely by changes in the risk free rate rather than the equity risk premium.



- 6.30 In addition to reliance on past returns the equity risk premium may be based on one or more of the following approaches: regulatory precedent, surveys of investors' expectations and *ex-ante* deterministic models, such as the Dividend Discount Model and the Arbitrage Pricing Theory.
- 6.31 In its 2007 Determination the Commission used an ERP of 5%. In reaching this estimate, the Commission relied mainly on data on historical returns and, to a lesser extent, regulatory precedent. Table shows recent estimates of the ERP by other regulators.

Regulator	Data relied on	ERP
CAA (Oct 2010)	Historical data and dividend growth model (DGM)	5.5%
CER (Aug 2010)	Historical data and regulatory precedent	5.2%
CAR (Dec 2009)	Historical data and regulatory precedent	5%
Ofwat (Nov 2009)	Historical data and regulatory precedent	5-6%
CAA (Mar 2009)	Historical data and dividend growth model	3-5%
ORR (2008)	Historical data and surveyed market expectations	5%
ComReg (2008)	Historical data and Irish regulatory precedent	6%
Ofcom (2008)	Extrapolated observed & adjusted equity risk premia using DGM and survey of expectations	4.5 - 4.75%
CAA (2008)	Historical data and survey of investors expectations	4.5%
CER (2007)		4 - 5%
CAR (2007)	Historical data, practitioners'/academic studies evidence	5%

Table 6.12: Estimates of the equity risk premium from Irish and UK regulators' estimation of the cost of capital free rate

Source: CAA, CER, ORR, Ofcom, Ofgem, Ofwat, Comreg

- 6.32 The beta term in the CAPM indicates the sensitivity of the return on a firm's stock to movements in the market return. Formulaically the beta is expressed as the covariance of the returns of the stock with the market return divided by the market return. Companies with beta greater than 1.0 tends to amplify the overall movement of the market and companies with beta between 0 and 1.0 tend to move in the same direction as the market but not as much, i.e. the returns are less risky.
- 6.33 Given that the IAA is not listed on the stock market it is not possible to use the formulaic approach to estimating how sensitive its returns are to market movements. However economic theory can give some guidance to what it might be. Cyclical firms, in other words firms whose revenues and earnings are strongly dependent on the state of the business cycle, tend to be high beta firms. Financial leverage (i.e. commitment to fixed debt charges) increases the beta of an investor's portfolio. Operating leverage (i.e. commitment to fixed production charges) also adds to a stock's beta.
- 6.34 The Commission used a beta of 0.65 in its calculation of the IAA's cost of capital in both 2002 and 2007. In both cases the Commission has relied on the comparators, taking account of the impact of observable differences in systematic risk between the IAA and comparators, with particular reference to studies on NATS and BAA. Parties are invited to suggest alternative comparator companies that the Commission might use to estimate a beta for the IAA. Parties may also consider the economic characteristics of the IAA that might provide some guidance on the riskiness of its returns against those of the market. Alternatively, parties are invited to consider whether there are any reasons why the riskiness of IAA relative to the market has changed significantly since the 2007 Determination.

## **Cost of debt**

- 6.35 The Commission has previously estimated the cost of debt as the sum of the risk-free rate – an economy-wide parameter - and a company-specific debt premium. The 2007 Determination included a debt premium of 0.38%. In deriving the debt premium the Commission’s advisors were guided by the 2006 charging regulation which stated in Article 6(3) that “the interest rate on debts shall be equal to the average interest rate on debts of the air navigation service provider”. The IAA had bank loan facilities at a premium of 38 basis points over the Euribor rate. Kearney & Hutson used this premium as the debt premium over the risk-free rate.
- 6.36 The IAA has indicated to the Commission that its borrowing facilities are currently costed at Euribor plus 110 basis points.

## **Summary of approach to cost of capital**

- 6.37 The Commission’s current working approach to setting allowed rate of return is to base its estimates on the pre-tax WACC/CAPM model with the gearing ratios and debt premium based on IAA’s actual levels. In respect of the risk free rate the Commission is currently minded to follow an approach similar to that adopted in 2007.

### **Main consultation questions**

- What should the 2012 opening RAB be, given that the IAA is projected to under-spend relative to its 2007 allowance?
- Do parties have preliminary views on either the specific capex projects which will be required post-2012, or the level of overall capex the IAA is likely to need in the forthcoming regulatory period?
- How should the Commission determine a rate of return for the IAA?

## **7. Other Issues**

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- 7.1 The preceding chapters of this report sought the views of users on issues relating to the traditional 'building blocks' that are used to calculate the price cap. This chapter sets out some other issues that do not fit neatly into one of the previous chapters but on which the Commission wishes to consult with stakeholders.
- 7.2 The issues listed herein are not necessarily a complete list and any omission does not imply a deliberate action by the Commission. Stakeholders are welcome to identify any other issues that they believe the Commission should consider in making its forthcoming Determination.

### **Compliance and treatment of over- and under-recovery**

- 7.3 The Commission assesses compliance by the IAA with its Determination annually. The resulting compliance papers are published on the Commission's website.<sup>10</sup>
- 7.4 In the early years of the current Determination, if the IAA prices below the cap it is able to recoup the resulting under-recovery through higher charges in later years of the Determination. Similarly, if the IAA prices above the cap in a year, the price cap in later years will be lower than otherwise would have been the case. The same rate of interest is applied to over and under recoveries when adjusting future caps.
- 7.5 In 2009 and the first half of 2010 the IAA decided to price below the cap. It will have the option to recover the 2009 revenues foregone in 2011; but it is for the Commission in making its third Determination to decide whether to allow the IAA to recoup any under-recovery in 2010 or 2011 in the forthcoming regulatory period. The IAA considered deferring raising its charges for all of 2010, but ultimately decided to increase charges up to the cap; it is possible that it would not have imposed such a price increase had it been certain that it could recover the revenues foregone at a later date.
- 7.6 Parties are invited to comment on how the Commission should structure any price-cap formula to take account of the possibility of an under or over-recovery of regulated revenues relative to that year's price cap. To what extent should the Commission dictate the time profile of when the IAA can collect revenues from users by allowing no roll forward of any under-recovery and insisting on immediately reimbursing users should the IAA collect above the cap? Is there merit in allowing the IAA discretion, such that it can decide to defer collecting revenues allowed under that year's price cap? For example, in an economic downturn, should the IAA have the option of offering to charge less than the cap in exchange for the cap in later years being higher?

### **Developments under the Single European Sky II (SES II) package**

- 7.7 Developments under the European Commission's Single European Sky II initiative, including the SESAR programme, will potentially have implications for both service providers and service users in the next few years. As compared with SES I, the primary focus of which was safety and capacity, the SES II package is arguably of greater relevance to the economic regulation of ANS given that it places a greater emphasis on performance and costs. Further information on this wide-ranging programme can be found on the European Commission's SES II webpage: [http://ec.europa.eu/transport/air/single\\_european\\_sky/ses\\_2\\_en.htm](http://ec.europa.eu/transport/air/single_european_sky/ses_2_en.htm).

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<sup>10</sup> [http://www.aviationreg.ie/Compliance\\_Papers/Default.130.html](http://www.aviationreg.ie/Compliance_Papers/Default.130.html)

- 7.8 Chapter 2 in this paper outlined two current SES II-related developments that the Commission is aware of – amendments to EC Regulation 1794/2006 and Eurocontrol’s approach to setting EU-wide performance targets. However, given the likely timescale for the application of the Commission’s next determination (at least four years from the start of 2012), there are likely to be other SES II-related developments during the Determination period which might be relevant.
- 7.9 The Commission is interested in hearing from parties on whether there are any issues arising from SES II developments, either mentioned in this paper or not, that they think the Commission should be aware of when making its Determination?

### **Allocation of costs**

- 7.10 The terminal charging zone for Ireland consists of Cork, Dublin and Shannon airports. The definition of the charging zone sets the framework for the transparency obligations under EC Regulation 1794/2006 – in other words, cost and charging information tends to be provided at the charging zone level. Parties are asked to express their views of on whether the Commission should continue to set a single cap for regulated terminal charges, or whether setting individual caps at the respective airports would be preferable. If there is support for sub-caps, parties might comment on how the Commission might allocate costs for the purposes of arriving at different sub-caps.
- 7.11 As mentioned in chapter 2 of this report, the IAA does not levy ATSCs on a variety of exempted flights. European regulations require that the costs incurred handling such flights should not be taken into account for the calculation of the unit rates. Under the regulations, the costs of exempted IFR flights shall be equal to the total costs of providing terminal services for IFR flights multiplied by the proportion of total service units accounted for by the exempted flights, where a service unit for each flight is calculated according to the charging formula set out Chapter 2:  $(MTOW/50)^{0.7}$ . The Commission will seek to satisfy itself that the costs of exempted flights are excluded from its calculation when making a Determination.
- 7.12 The Commission would welcome comments from parties identifying other costs that they believe should or should not be considered when making a Determination governing ATSCs. This is a general issue for which the Commission is seeking the views of parties regarding possible areas where regulated charges may cross subsidise non regulated activities or vice versa, and what the Commission should do if there are cross subsidies. For example, in previous Determinations there has been a debate about what proportion of MET costs should be included when forecasting the costs of providing aviation termination services. Are there other costs where parties believe that the allocation between terminal and en route costs warrants careful consideration? Are there issues associated with the allocation of costs between providing terminal services at Cork, Dublin and Shannon airports and providing approach services for other airports in Ireland that the Commission should consider?

### **Main consultation questions**

- What should the Commission do about over- and under-recovery against the price cap between years – for example, should the IAA have the discretion to defer collection to later years in the case of under-recovery?
- Are there any issues arising from SES II developments that parties think should influence the Commission's price cap?
- Are there any potential cross-subsidies the Commission should be aware of, for example, the costs of exempt flights or approach services at other airports?
- Are there any other issues not already mentioned in this consultation paper which the Commission should be aware of in making a Determination on ATSCs?

## **8. Responding to the Issues Paper**

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- 8.1 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.
- 8.2 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.
- 8.3 Responses to this consultation paper should be titled "Response to ATSC Issues Paper, October 2010" and should be received no later than Wednesday 15 December 2010 at 5pm, 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](mailto:info@aviationreg.ie)**

**By fax to 00-353-1-6611269**

- 8.4 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.
- 8.5 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.
- 8.6 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 – Summary of main consultation questions**

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### **Approach to regulation**

1. What form should this price cap formula take - should the Commission continue with a per MTOW cap, or consider alternatives such as a unit rate or revenue cap?
2. What approach should the Commission adopt to volume risk – what adjustment should be made to the price cap, if any, if demand does not match forecast?
3. What should the duration of the next Determination be?

### **Quality of service**

4. Is the IAA currently providing a level of service that users consider appropriate?
5. What aspects of service quality are important for customers purchasing aviation terminal services from the IAA – what information on Key Performance Indicators (KPIs) should be provided, and how frequently?
6. What financial incentives, if any, should be in place to achieve a given target level of service quality?

### **Traffic forecasts**

7. How should the Commission arrive at a forecast for Air Traffic Movements (ATMs) – does it suffice to take a third party forecast, e.g. Eurocontrol's forecast, or should the Commission conduct its own forecasting exercise?
8. If the Commission were to carry out its own forecasting exercise for ATMs, what factors should it take into account?
9. Are there reasons to expect a significant change in distribution of aircraft types using the three state airports – in particular is there reason to expect a change from the recent trends observed?

### **Operating expenditure**

10. What are the key operating cost issues that the Commission should focus on?
11. Is the IAA currently operating efficiently - what evidence should the Commission rely on to establish whether the IAA is operating efficiently?
12. What proportion of operating costs should respond to changes in demand? Which of the categories of operating cost are most responsive to demand changes?

### **Capital costs**

13. What should the 2012 opening RAB be, given that the IAA is projected to under-spend relative to its 2007 allowance?
14. Do parties have preliminary views on either the specific capex projects which will be required post-2012, or the level of overall capex the IAA is likely to need in the forthcoming regulatory period?
15. How should the Commission determine a rate of return for the IAA?

### **Other issues**

16. What should the Commission do about over- and under-recovery against the price cap between years – for example, should the IAA have the discretion to defer collection to later years in the case of under-recovery?
17. Are there any issues arising from SES II developments that parties think should influence the Commission's price cap?
18. Are there any potential cross-subsidies the Commission should be aware of, for example, the costs of exempt flights or approach services at other airports?
19. Are there any other issues not already mentioned in this consultation paper which the Commission should be aware of in making a Determination on ATSCs?