Determination on Maximum Levels of Aviation Terminal Service Charges

Commission Paper 2/2011

24 October 2011

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Foreword

1. This is the third determination on aviation terminal service charges made by the Commission for Aviation Regulation. This determination applies to the maximum level of such charges that the Irish Aviation Authority (the IAA) may levy for the years 2012 to 2015 inclusive at any airport in the State open to commercial traffic and having an annual throughput in excess of one million passengers in the previous calendar year. For the time being, this means Cork, Dublin and Shannon airports.

2. The determination sets a series of annual price caps broadly in line with those proposed in the draft determination. The 2012 annual price cap implies a reduction of about 25 per cent on the 2011 price cap. Thereafter, it is expected to fall a further 6 per cent per annum. We have included financial incentives for the IAA to avoid delays and cancellations due to equipment failure or staffing problems, in line with those proposed in the draft determination. The trigger for an increase in the price cap should the IAA need to build a new tower at Dublin airport is also the same as in the draft determination.

3. The significant fall in the price cap in 2012 is primarily due to the reduced allowance for capital costs in the calculations. The allowance for future investment needs is lower than it was in 2007. Moreover, this determination adjusts for the fact that in the period 2007-11 the price cap allowed the IAA to collect revenues in part to fund investments it subsequently did not make. For the remaining years of the forthcoming determination, we have set progressively lower annual price caps so that by 2015 the calculations assume levels of operating expenditure similar to that incurred in 2006 (when traffic levels were similar to those forecast in 2015).

4. We have updated our traffic forecasts and cost of capital since the draft determination to reflect information that has subsequently become available. The cost of capital was also revised to reflect some of the comments made by respondents to the draft determination. It is 20 basis points lower than in the draft determination, at 5.4 per cent. The responses to the draft determination also persuaded us to increase the opening value for the regulatory asset base by €2m. These changes resulted in an annual price cap between two and five per cent higher than would otherwise have been the case.

5. There were four representations received responding to the draft determination. Copies of those representations are available on our website. The rest of this report includes material describing how we have addressed these representations in making this final determination.

6. I would like to thank those who made representations or in other ways assisted the work of the Commission in the course of the price review that led to this determination.

Cathal Guiomard
Commissioner

24 October 2011

Price Cap

This determination shall enter into force on 1 January 2012.

The Irish Aviation Authority ("the IAA") shall ensure that, for each year of the regulatory period 2012–15, the level of revenue collected from aviation terminal services charges (ATSCs) on flights departing from Cork, Dublin, and Shannon airports does not exceed the maximum permitted revenue per terminal service unit (TSU), t_t, as set out in the following formulae. When calculating t_t, the calculations will be rounded to two decimal places (i.e. to the nearest cent). Should the IAA collect more than permitted, it shall arrange to rebate users within 90 days of the year ending a sum sufficiently large that the revenues collected net of this sum, on a per TSU basis, do not exceed the maximum permitted revenue per TSU.

For the purposes of this price cap, the definition of a TSU will be calculated using the formula (MTOW/50)^0.8 when applied to aircraft departing from Cork, Dublin, or Shannon airports in 2012 or 2013, and using the formula (MTOW/50)^0.7 for aircraft departing from Cork, Dublin, or Shannon airports in 2014 or 2015. MTOW refers to the maximum certified take-off weight of an aircraft in metric tonnes as shown in the certificate of air worthiness or any equivalent official document provided by the aircraft operator.

Regulatory period 1 January 2012 to 31 December 2012

The maximum permitted revenue per terminal service unit (TSU) for the regulatory period 1 January to 31 December 2012 shall be equal to:

$$t_{2012} = (€158.94 + k_{2011} + w_{2011}) * Q_{2012}$$

where,

k_{2011} is a correction per TSU to be made in the regulatory year 2012 because of any over or under collection by the IAA in the regulatory year 2011. It is derived from the following formula:

$$k_{2011} = (€1.24 * N_{2011} + €19{,}119{,}474 - R_{2011}) * (1 + I_{2011}) / 138{,}311$$

where N_{2011} is the sum of the weight of aircraft, measured as the maximum certified take-off weight of the aircraft in metric tonnes, that departed from Cork, Dublin and Shannon airports in 2011; R_{2011} is the total revenues collected by the IAA from aviation terminal services charges levied at Cork, Dublin and Shannon airports in 2011; and I_{2011} is the average daily three-month interest rate between 1 November 2010 and 1 November 2011 using the Euribor rate or some other suitable measure. The total revenue that the IAA may collect under the 2011 price cap is made up of a variable per unit amount and a fixed amount: these take the values €1.24 and €19,119,474 respectively. The forecast number of TSUs in 2012 is 138,311.

w_{2011} is a correction per TSU to be made in the regulatory year 2012 because of the difference for the year 2011 between the Commission's actual and budgeted costs and expenses that are recoverable through

aviation terminal service charges levied by the IAA at Cork, Dublin and Shannon airports. It is derived from the following formula:

w_{2011} = -€315,885 *(1 + I_{2011})/ 138,311

Q_{2012} represents a quality of service adjustment that takes a value between 0.9 and 1 depending on how many days the IAA fails to satisfy the service quality target set. It equals 1 if the IAA achieves all targets. If the IAA fails to meet the target for 30 or more days, it would equal 0.9 and the level of charges would be 10 per cent lower.

Q_{2012} = one minus

> (1/300) * number of days in 2012 when the IAA is deemed to have caused cancellations or delays in excess of 15 minutes, subject to this never exceeding 0.1 (10 per cent).

The IAA will be deemed to have caused a cancellation or delay in excess of 15 minutes if either (a) there is an Air Traffic Flow Management (ATFM) regulation delay of 15 minutes or more reported in the Control Flow Management Unit (CFMU) data for Cork, Dublin or Shannon airports with one of the following causes – "Industrial Action ATC", "ATC Equipment", "ATC staffing" and "ATC Capacity" or (b) an airline provides documentary evidence that shows that its decision to cancel a flight was justified by the reasonable prospect of equipment failure or staffing problems (including industrial action) preventing the IAA from providing adequate aviation terminal services at Cork, Dublin or Shannon airports.

Regulatory period 1 January 2013 to 31 December 2013

The maximum permitted revenue per terminal service unit (TSU) for the regulatory period 1 January to 31 December 2013 shall be equal to:

$$t_{2013} = (€151.83 + Trigger_{2013}) * (1 + CPI_{2013}) * Q_{2013}$$

where,

$Trigger_{2013}$ is an increase in the maximum permitted revenue per TSU arising should triggers for additional capital projects be met.

$Trigger_{2013}$ = €27.52 if annual passenger numbers at Dublin airport in a 12-month period prior to the end of 2012 exceed 23.5 million or €0 otherwise.

CPI_{2013} is the percentage change (whether of a positive or negative value) in the consumer price index between that published in October 2011 and October 2012.

Q_{2013} represents a quality of service adjustment that takes a value between 0.9 and 1 depending on how many days the IAA fails to satisfy the service quality target set. It equals 1 if the IAA achieves all targets. If the IAA fails to meet the target for 30 or more days, it would equal 0.9 and the level of charges would be 10 per cent lower.

Q_{2013} = one minus

(1/300) * number of days in 2013 when the IAA is deemed to have caused cancellations or delays in excess of 15 minutes, subject to this never exceeding 0.1 (10 per cent).

The IAA will be deemed to have caused a cancellation or delay in excess of 15 minutes if either (a) there is an Air Traffic Flow Management (ATFM) regulation delay of 15 minutes or more reported in the Control Flow Management Unit (CFMU) data for Cork, Dublin or Shannon airports with one of the following causes – "Industrial Action ATC", "ATC Equipment", "ATC staffing" and "ATC Capacity" or (b) an airline provides documentary evidence that shows that its decision to cancel a flight was justified by the reasonable prospect of equipment failure or staffing problems (including industrial action) preventing the IAA from providing adequate aviation terminal services at Cork, Dublin or Shannon airports.

Regulatory period 1 January 2014 to 31 December 2014

The maximum permitted revenue per terminal service unit (TSU) for the regulatory period 1 January to 31 December 2014 shall be equal to:

$t_{2014} = [(€150.05 + Trigger_{2014}) * (1 + CPI_{2014}) + k_{2012} + Vol_{2012}]* Q_{2014}$

where

$Trigger_{2014}$ is an increase in the maximum permitted revenue per TSU arising should triggers for additional capital projects be met.

$Trigger_{2014}$ = €27.84 if annual passenger numbers at Dublin airport in a 12-month period prior to the end of 2013 exceed 23.5 million or €0 otherwise.

CPI_{2014} is the percentage change (whether of a positive or negative value) in the consumer price index between that published in October 2011 and October 2013.

k_{2012} is a correction per TSU to be made in the regulatory year 2014 because of any under collection by the IAA in the regulatory year 2012. It is derived from the following formula:

k_{2012} = minimum $[(t_{2012} – t_{2012,\ outturn}), (0.05*t_{2012})]*(1+I_{2012})*(1+I_{2013}) * (138,311/140,472)$

where $t_{2012,\ outturn}$ is the revenue per TSU collected by the IAA from aviation terminal services charges levied at Cork, Dublin and Shannon airports in 2012; I_{2012} is the average daily three-month interest rate between 1 November 2011 and 1 November 2012 using the Euribor rate or some other suitable measure; and I_{2013} is the average daily three-month interest rate between 1 November 2012 and 1 November 2013 using the Euribor rate or some other suitable measure. Forecast TSUs in 2012 and 2014 are 138,311 and 140,472 respectively.

Vol_{2012} is a correction per TSU to be made in the regulatory year 2014 to partially offset the effects on the IAA's revenues of outturn traffic levels in 2012 not corresponding to the forecast used in this determination. It is derived from the following formula:

$Vol_{2012} = 0.5*(138,311 – TSU_{2012}) * t_{2012} * (1+I_{2012})*(1+I_{2013}) /140,472$

where TSU_{2012} is the out-turn volume of traffic in 2012 paying for aviation terminal services at Cork, Dublin and Shannon airports, measured in terms of TSUs as defined for the year 2012. Forecast TSUs in 2012 and 2014 are 138,311 and 140,472 respectively.

Q_{2014} represents a quality of service adjustment that takes a value between 0.9 and 1 depending on how many days the IAA fails to satisfy the service quality target set. It equals 1 if the IAA achieves all targets. If the IAA fails to meet the target for 30 or more days, it would equal 0.9 and the level of charges would be 10 per cent lower.

Q_{2014} = one minus

> (1/300) * number of days in 2014 when the IAA is deemed to have caused cancellations or delays in excess of 15 minutes, subject to this never exceeding 0.1 (10 per cent).

The IAA will be deemed to have caused a cancellation or delay in excess of 15 minutes if either (a) there is an Air Traffic Flow Management (ATFM) regulation delay of 15 minutes or more reported in the Control Flow Management Unit (CFMU) data for Cork, Dublin or Shannon airports with one of the following causes – "Industrial Action ATC", "ATC Equipment", "ATC staffing" and "ATC Capacity" or (b) an airline provides documentary evidence that shows that its decision to cancel a flight was justified by the reasonable prospect of equipment failure or staffing problems (including industrial action) preventing the IAA from providing adequate aviation terminal services at Cork, Dublin or Shannon airports.

Regulatory period 1 January 2015 to 31 December 2015

The maximum permitted revenue per terminal service unit (TSU) for the regulatory period 1 January to 31 December 2015 shall be equal to:

$$t_{2015} = [(€136.96 + Trigger_{2015}) * (1 + CPI_{2015}) + k_{2013} + Vol_{2013}]* Q_{2015}$$

where,

$Trigger_{2015}$ is an increase in the maximum permitted revenue per TSU arising should triggers for additional capital projects be met.

$Trigger_{2015}$ = €26.91 if annual passenger numbers at Dublin airport in a 12-month period prior to the end of 2014 exceed 23.5 million or €0 otherwise.

CPI_{2015} is the percentage change (whether of a positive or negative value) in the consumer price index between that published in October 2011 and October 2014.

k_{2013} is a correction per TSU to be made in the regulatory year 2015 because of any under collection by the IAA in the regulatory year 2013. It is derived from the following formula:

k_{2013} = minimum $[(t_{2013} – t_{2013,\ outturn}), (0.05*t_{2013})]*(1+I_{2013})*(1+I_{2014})*$ (142,135/145,358)

where $t_{2013,\ outturn}$ is the revenue per TSU collected by the IAA from aviation terminal services charges levied at Cork, Dublin and Shannon airports in 2013; I_{2013} is the average daily three-month interest rate between 1 November 2012 and 1 November 2013 using the Euribor rate or some other suitable measure; and I_{2014} is the average daily three-month interest rate between 1 November 2013 and 1 November 2014 using the Euribor rate or some other suitable measure. Forecast TSUs in 2013 and 2015 are 142,135 and 145,358 respectively.

Vol_{2013} is a correction per TSU to be made in the regulatory year 2015 to partially offset the effects on the IAA's revenues of outturn traffic levels in 2013 not corresponding to the forecast used in this determination. It is derived from the following formula:

$Vol_{2013} = 0.5*(142,135 – TSU_{2013}) * t_{2013} * (1+I_{2013})*(1+I_{2014})$ /145,358

where TSU_{2013} is the out-turn volume of traffic in 2013 paying for aviation terminal services at Cork, Dublin and Shannon airports, measured in terms of TSUs as defined for the year 2013. Forecast TSUs in 2013 and 2015 are 142,135 and 145,358 respectively.

Q_{2015} represents a quality of service adjustment that takes a value between 0.9 and 1 depending on how many days the IAA fails to satisfy the service quality target set. It equals 1 if the IAA achieves all targets. If the IAA fails to meet the target for 30 or more days, it would equal 0.9 and the level of charges would be 10 per cent lower.

Q_{2015} = one minus

> (1/300) * number of days in 2015 when the IAA is deemed to have caused cancellations or delays in excess of 15 minutes, subject to this never exceeding 0.1 (10 per cent).

The IAA will be deemed to have caused a cancellation or delay in excess of 15 minutes if either (a) there is an Air Traffic Flow Management (ATFM) regulation delay of 15 minutes or more reported in the Control Flow Management Unit (CFMU) data for Cork, Dublin or Shannon airports with one of the following causes – "Industrial Action ATC", "ATC Equipment", "ATC staffing" and "ATC Capacity" or (b) an airline provides documentary evidence that shows that its decision to cancel a flight was justified by the reasonable prospect of equipment failure or staffing problems (including industrial action) preventing the IAA from providing adequate aviation terminal services at Cork, Dublin or Shannon airports.

Explanatory Memorandum

Purpose of the formulae

The Commission has structured the formulae and determined values of key terms in the formulae to effect the following policies:

- Provide a reasonable prospect for the IAA's aviation terminal services business to make a reasonable rate of return on the regulatory value of assets employed in providing those services

- Reflect the level of costs involved in providing aviation terminal services that the Commission believes it is reasonable to assume, taking into account the scope for the IAA to be cost effective

- Secure economic incentives for the IAA to be cost effective

- Provide for a sharing of risk between the IAA and its users with respect to uncertainty in projections of traffic volumes, thereby permitting a lower cost of capital than would otherwise have been necessary for the benefit of users and providing a more secure foundation for the IAA to finance its activities

- Provide for increases in revenue allowances should certain milestones occur that warrant additional, substantial levels of capital expenditure by the IAA

- Provide for decreases in revenue allowances should the IAA fail to provide a suitable quality of aviation terminal services for users at Cork, Dublin and Shannon airports

- Provide for the IAA to carry forward under-recovery of allowed revenues into subsequent regulatory periods provided the amount is relatively small

- Provide for the IAA to carry forward any over or under-recovery of allowed revenues in 2011 to be consistent with the approach adopted in earlier regulatory years governed by the second determination

- Provide for the automatic correction of allowed revenues for the effects of inflation or deflation.

Forecast revenues arising from the formulae

We have specified the terms of the formulae to provide a reasonable prospect for the IAA to make a reasonable rate of return on the regulatory value of the asset base employed in providing aviation terminal services at Cork, Dublin and Shannon airports. We consider this prospect is secured if the discounted present value of revenues from aviation terminal service charges over the period of the determination, given our assumptions about traffic levels, equals the discounted present value of the relevant costs we have assumed during the period and changes in the value of the regulatory asset base at the start and end of that period. This equation is set out as a yield table below, based on the scenario that the capital expenditure trigger does not occur, the IAA always provides the required quality of service, and (k_{2011}+w_{2011}) equals zero.

Yield table (€, 2011)	2011	2012	2013	2014	2015
RAB at start of year		**22.5m**	22.1m	22.6m	22.1m
Investment (non-milestone)		4.0m	5.5m	4.9m	4.6m
Depreciation		4.4m	5.0m	5.4m	5.3m
RAB at end of year		22.1m	22.6m	22.1m	**21.4m**
Discounting rate of return		5.4%	5.4%	5.4%	5.4%
Rate of return on average RAB		5.26%	5.26%	5.26%	5.26%
Return on assets		1.2m	1.2m	1.2m	1.1m
Operating costs		16.4m	15.4m	14.4m	13.5m
Depreciation		4.4m	5.0m	5.4m	5.3m
Regulatory levy		0.1m	0.1m	0.1m	0.1m
Required revenues		**22.0m**	**21.6m**	**21.1m**	**19.9m**
Forecast traffic (all in 000s)*					
MTOW		7,608	7,818	8,063	8,344
TSU (quotient to the power of 0.9)		145	149	153	159
TSU (quotient to the power of 0.8)		138	142	147	152
TSU (quotient to the power of 0.7)		133	136	140	145
Price cap (€)*					
MTOW	**3.85**	2.89	2.76	2.61	2.39
TSU (quotient to the power of 0.9)		152	145	137	125
TSU (quotient to the power of 0.8)		**159**	**152**	144	131
TSU (quotient to the power of 0.7)		166	158	**150**	**137**
Total allowed revenues		**22.0m**	**21.6m**	**21.1m**	**19.9m**

Table 1: Yield table

Source: Commission calculations
**The current cap is expressed per MTOW, although the IAA sets charges in TSUs with a quotient to the power of 0.9. For 2012 and 2013, the cap will be expressed in TSUs with a quotient to the power of 0.8, and in 2014 and 2015, the cap will be expressed in TSUs with a quotient to the power of 0.7. To permit comparison, we have included projections for all four series, although in any given year the cap is with reference to only one of these measures of traffic.*

Trigger

The Commission has included a trigger in the formulae that will increase the price cap should passenger numbers at Dublin airport exceed 23.5 million in a 12-month period. The increase is calculated to be sufficient to allow the IAA to build a new control tower or adopt an alternative technological solution such that it can continue to provide aviation terminal services at Dublin airport should the DAA build a second runway there.

Quality of service

The formulae include a quality of service term that decreases the maximum level of aviation terminal service charges per TSU that the IAA may collect should the IAA fail to provide a suitable service quality.

The service quality term provides that the IAA will suffer a penalty if, due to problems with staffing or equipment, flight delays in excess of 15 minutes occur or airlines have been prompted to cancel flights in anticipation of such problems. A single cancellation or delay in excess of 15 minutes due to these

reasons will suffice for the IAA to be deemed not to have provided an adequate level of service on that day. Each day that the IAA fails to provide an adequate quality of service will result in that year's price cap falling by 0.33 per cent. In any given year, the price cap cannot fall by more than 10.0 per cent, i.e. there are no additional penalties should the IAA fail to provide an adequate service on more than 30 days in a year.

The IAA will be responsible for providing the Commission with relevant data on delays in a timely manner. This includes notifying the Commission of months when there were no delays in excess of 15 minutes. If the IAA fails to provide such data in respect of any time period during the determination, it will be assumed to have failed to meet quality of service criteria for those dates where data are unavailable. Should the IAA advise that it is unable to provide the required data, the Commission may waive the target or substitute an alternative means for measuring and recording delays. Any such changes will be notified to all parties.

Airlines will be responsible for providing the Commission with evidence that they cancelled a flight in anticipation of equipment or staffing problems at the IAA adversely affecting terminal services within two months of the flight being cancelled. Ordinarily, we would expect the airline to be able to provide evidence of communications from the IAA advising the airline of possible future problems. The evidence envisaged is similar to that airlines sometimes provide to justify a cancellation in the context of passenger complaints arising under Regulation (EC) No 261/2004. We will consider the evidence airlines provide and decide if it constitutes a cancellation for which the quality of service adjustment in the price cap should apply.

Applying the formulae

To implement the Commission's policy of providing for decreases in the maximum per TSU level of aviation terminal service charges should the IAA fail to provide a suitable quality of service, the level of allowed revenues in a regulatory year will not be determined definitively until the end of the regulatory year.

The formulae include a correction term that allows the IAA to carry forward an under recovery from one regulatory period to a future one. Unlike in past determinations, this carry forward is capped at 5 per cent. Moreover, there is no provision to carry forward any over recovery. To comply with the cap, the IAA will be expected to effect a rebate to users within 90 days of the regulatory year ending should it over collect, i.e. no later than 31 March. The formulae do provide for the possibility of carry forward of any over or under recovery in the last year of the previous determination, i.e. 2011.

As in the previous determination, there is an adjustment included to compensate the IAA should traffic volumes be lower than forecast or to compensate users should volumes exceed the forecast used in making this determination. Such adjustments will be applied with a two-year lag; in the previous determination there was no such lag.

To assist in understanding how the formulae will work, the following tables set out examples dealing with the possibility that:

- The trigger is activated – passenger numbers at Dublin airport exceed 23.5 million between June 2012 and May 2013

- The IAA's equipment fails causing six days of delays in excess of 15 minutes

- The level of traffic exceeds the forecasts included in this determination by 10 per cent in all years of the determination

- The IAA collects revenues from aviation terminal services that are 10 per cent less than the maximum permitted by this determination in 2013.

Example one: no adjustments

	Assumptions
Inflation and interest rates	0% all years
TSUs	As per Commission forecast
Passenger numbers at Dublin airport	Below 23.5m in all 12-month periods
Quality of service	No delays or cancellations
Under recovery of airport charges	No

Table 2: Assumptions for worked example one

		2012	**2013**	**2014**	**2015**
(a)		158.94	151.83	150.05	136.96
(b)	$Trigger_t$	n.a	0	0	0
(c)	=(a)+(b)	158.94	151.83	150.05	136.96
(d)	CPI_t	n.a	0	0	0
(e)	=(c)*(1+(d))	158.94	151.83	150.05	136.96
(f)	k_{t-1}	0	n.a	n.a	n.a
(g)	k_{t-2}	n.a	n.a	0	0
(h)	w_{t-1}	0	n.a	n.a	n.a
(i)	Vol_{t-2}	n.a	n.a	0	0
(j)	=(e)+(f)+(g)+(h)+(i)	158.94	151.83	150.05	136.96
(k)	Q_t	1	1	1	1
Maximum allowed revenues per (MTOW/50)^0.8 (t_t) [=(j)*(k)]		**158.94**	**151.83**		
Maximum allowed revenues per (MTOW/50)^0.7 (t_t) [=(j)*(k)]				**150.05**	**136.96**

Table 3: Deriving the price cap in worked example one

Figures subject to rounding.

Example two: new control tower required

	Assumptions
Inflation and interest rates	0% all years
TSUs	As per Commission forecast
Passenger numbers at Dublin airport	Exceeds 23.5m between June 2012 and May 2013
Quality of service	No delays or cancellations
Under recovery of airport charges	No

Table 4: Assumptions for worked example two

		2012	**2013**	**2014**	**2015**
(a)		158.94	151.83	150.05	136.96
(b)	$Trigger_t$	n.a	0	27.84	26.91
(c)	=(a)+(b)	158.94	151.83	177.89	163.87
(d)	CPI_t	n.a	0	0	0
(e)	=(c)*(1+(d))	158.94	151.83	177.89	163.87
(f)	k_{t-1}	0	n.a	n.a	n.a
(g)	k_{t-2}	n.a	n.a	0	0
(h)	w_{t-1}	0	n.a	n.a	n.a
(i)	Vol_{t-2}	n.a	n.a	0	0
(j)	=(e)+(f)+(g)+(h)+(i)	158.94	151.83	177.89	163.87
(k)	Q_t	1	1	1	1
Maximum allowed revenues per (MTOW/50)^0.8 (t_t) [=(j)*(k)]		**158.94**	**151.83**		
Maximum allowed revenues per (MTOW/50)^0.7 (t_t) [=(j)*(k)]				**177.89**	**163.87**

Table 5: Deriving the price cap in worked example two

Figures subject to rounding. Although the 23.5 million passenger threshold in a 12-month period was passed in May 2013, it only affects price caps commencing in subsequent years. Both the 2014 and 2015 price cap calculations include a positive adjustment on account of the trigger having been satisfied.

Example three: delays caused by the IAA in 2013

	Assumptions
Inflation and interest rates	0% all years
TSUs	As per Commission forecast
Passenger numbers at Dublin airport	Exceeds 23.5m between June 2012 and May 2013
Quality of service	Six days of cancellations in 2013
Under recovery of airport charges	No

Table 6: Assumptions for worked example three

		2012	**2013**	**2014**	**2015**
(a)		158.94	151.83	150.05	136.96
(b)	$Trigger_t$	n.a	0	27.84	26.91
(c)	=(a)+(b)	158.94	151.83	177.89	163.87
(d)	CPI_t	n.a	0	0	0
(e)	=(c)*(1+(d))	158.94	151.83	177.89	163.87
(f)	k_{t-1}	0	n.a	n.a	n.a
(g)	k_{t-2}	n.a	n.a	0	0
(h)	w_{t-1}	0	n.a	n.a	n.a
(i)	Vol_{t-2}	n.a	n.a	0	0
(j)	=(e)+(f)+(g)+(h)+(i)	158.94	151.83	177.89	163.87
(k)	Q_t	1	0.98	1	1
Maximum allowed revenues per (MTOW/50)^0.8 (t_t) [=(j)*(k)]		**158.94**	**148.79**		
Maximum allowed revenues per (MTOW/50)^0.7 (t_t) [=(j)*(k)]				**177.89**	**163.87**

Table 7: Deriving the price cap in worked example three

Figures subject to rounding. Q_{2013} is equal to one minus 6(1/300) because of the delays assumed to occur in that year from equipment failures or staffing problems associated with poor performance by the IAA.*

Example four: traffic above forecast

	Assumptions
Inflation and interest rates	0% all years
TSUs	10% above Commission forecast in all years
Passenger numbers at Dublin airport	Exceeds 23.5m between June 2012 and May 2013
Quality of service	Six days of cancellations in 2013
Under recovery of airport charges	No

Table 8: Assumptions for worked example four

		2012	**2013**	**2014**	**2015**
(a)		158.94	151.83	150.05	136.96
(b)	$Trigger_t$	n.a	0	27.84	26.91
(c)	=(a)+(b)	158.94	151.83	177.89	163.87
(d)	CPI_t	n.a	0	0	0
(e)	=(c)*(1+(d))	158.94	151.83	177.89	163.87
(f)	k_{t-1}	0	n.a	n.a	n.a
(g)	k_{t-2}	n.a	n.a	0	0
(h)	w_{t-1}	0	n.a	n.a	n.a
(i)	Vol_{t-2}	n.a	n.a	-7.82	-7.27
(j)	=(e)+(f)+(g)+(h)+(i)	158.94	151.83	170.07	156.59
(k)	Q_t	1	0.98	1	1
Maximum allowed revenues per (MTOW/50)^0.8 (t_t) [=(j)*(k)]		**158.94**	**148.79**		
Maximum allowed revenues per (MTOW/50)^0.7 (t_t) [=(j)*(k)]				**170.07**	**156.59**

Table 9: Deriving the price cap in worked example four

Figures subject to rounding. The assumption that interest rates are zero in all years means that $(1+I_{t-2})*(1+I_{t-1})$ equals one. Hence the volume adjustment terms simplify to Vol_{2012}=0.5(138,311-152,142)*158.86/140,472, where 152,142 is the outturn level of TSUs and 158.86 was the cap in 2012; and Vol_{2013}=0.5*(142,135-156,349)*148.77/145,348, where 156,349 is the outturn level of TSUs and 148.77 was the cap after the adjustment for the failure to meet the quality of service standard in 2013.*

Example five: IAA under collects in 2013

	Assumptions
Inflation and interest rates	0% all years
TSUs	10% above Commission forecast in all years
Passenger numbers at Dublin airport	Exceeds 23.5m between June 2012 and May 2013
Quality of service	Six days of cancellations in 2013
Under recovery of airport charges	Yes, by 10% in 2013

Table 10: Assumptions for worked example five

		2012	**2013**	**2014**	**2015**
(a)		158.94	151.83	150.05	136.96
(b)	$Trigger_t$	n.a	0	27.84	26.91
(c)	=(a)+(b)	158.94	151.83	177.89	163.87
(d)	CPI_t	n.a	0	0	0
(e)	=(c)*(1+(d))	158.94	151.83	178.89	163.87
(f)	k_{t-1}	0	n.a	n.a	n.a
(g)	k_{t-2}	n.a	n.a	0	7.27
(h)	w_{t-1}	0	n.a	n.a	n.a
(i)	Vol_{t-2}	n.a	n.a	-7.82	-7.27
(j)	=(e)+(f)+(g)+(h)+(i)	158.94	151.83	170.07	163.87
(k)	Q_t	1	0.98	1	1
Maximum allowed revenues per (MTOW/50)^0.8 (t_t) [=(j)*(k)]		**158.94**	**148.79**		
Maximum allowed revenues per (MTOW/50)^0.7 (t_t) [=(j)*(k)]				**170.07**	**163.87**

Table 11: Deriving the price cap in worked example five

*Figures subject to rounding. The formulae only allows the IAA to roll forward an under recovery no greater than 5 per cent of what it was allowed to collect, the correction term in this case is 0.05*148.77*(142,135/145,358), and not (148.77-133.90)*(142,135/145,358). Assuming that interest rates are zero in all years simplifies the calculations, since this means that $(1+I_{t-2})*(1+I_{t-1})$ equals one.*

1. Introduction

1.1 This paper presents the Commission's determination capping the level of aviation terminal service charges that the Irish Aviation Authority (the IAA) may levy at Cork, Dublin and Shannon airports. Charges for aviation terminal services (ATS) are for the provision of air traffic control services in and around Cork, Dublin and Shannon airports. The determination covers the four-year period from 1 January 2012 to 31 December 2015.

Process leading to this Determination

1.2 This determination has been made following careful consideration of representations to a draft determination made in May 2011. As required by legislation, we allowed parties two months to respond to the draft determination. There were responses from the following four parties: the IAA, the Dublin Airport Authority (the DAA), the International Air Transport Association (IATA) and Ryanair.

1.3 All respondents were offered an opportunity to meet with the Commission to discuss their responses furthers. The DAA and the IAA availed of this opportunity and met with the Commission in September.

1.4 Prior to the draft determination, we had published an issues paper in October 2010 which invited parties to comment on how they thought work leading to the making of this determination might best proceed.

1.5 Since summer 2010 we have maintained on our website an indicative timetable for the making of this determination. Consequently, parties were made aware of any changes to the timetable, most notably the decision to delay publication of the draft determination due to uncertainty about the implementation of relevant European regulations into Irish law.

Structure of the Report

1.6 The remainder of this report follows a similar structure to both the issues paper and the draft determination.

1.7 *Chapter 2* describes the Commission's approach to regulation. This includes issues relating to the charging formula and volume-risk sharing.

1.8 *Chapter 3* outlines the quality of service regime that has been developed for this determination.

1.9 The traffic forecast is set out in *Chapter 4.*

1.10 *Chapters 5* and *6* discuss the assumed operating and capital costs respectively of providing services for this volume of traffic.

1.11 *Chapter 7* describes how any over or under recovery of ATSC revenues relative to the annual price cap will be treated for the purposes of assessing compliance with the price cap.

1.12 In *Chapter 8*, we explain how this determination satisfies the statutory objective and the degree to which we have had regard to the prescribed statutory factors. This is done primarily by referring to the relevant chapters in which we address individual subject matters.

1.13 There are two annexes. One provides a glossary of terms, the seconds lists the respondents to the draft determination. A copy of the spreadsheet model with relevant calculations is available on our website.

1.14 Readers of this report should have regard to the contents of the issues paper and draft determination to be familiar with the totality of our lead-in work and policies underpinning this determination. Consequently, not all of the material in those documents is repeated here.

1.15 The full texts of representations made to the Commission are available on our website. As required by legislation, we have considered all these representations thoroughly. In each chapter of this report we have sought to summarise, without comment, the points raised by different parties in their representations. We subsequently give our reasons for accepting or rejecting these representations.

1.16 Unless otherwise stated, numbers in this report are in October 2011 prices. We have assumed that the Central Statistics Office's consumer price index (Dec 2006=100 base) will take a value of 104.5 in October 2011. This value reflects recent information available from the Central Statistics Office (i.e. consumer price index values up to August 2011) and assumes a constant monthly inflation rate after August that would realise an annual inflation rate in 2011 of 3 per cent, which corresponds to the inflation rate forecast by the Economic and Social Research Institute.[1] Where we refer to costs and prices from the draft determination, we have revised the number to take account of the assumed inflation since January 2011 (the reference month when giving values in real terms in the draft determination).

[1] Economic and Social Research Institute (2011) "Quarterly Economic Commentary, Summer 2011", www.esri.ie

2. Approach to Regulation

2.1 The determination will last for four years, from 1 January 2012 until 31 December 2015.

2.2 For each of the four years there will be an annual cap. Each year the annual cap will change from the previous year's cap according to changes in the consumer price index (CPI) and an X factor. This is sometimes referred to as CPI-X regulation. For the forthcoming determination, the price cap falls by about six per cent per annum in real terms subject to the caveat that it will increase to permit funding of a new control tower at Dublin airport should passenger numbers at that airport exceed 23.5 million passengers in a 12-month period. The formulae do not explicitly include the X factor since its effect can already be estimated today. This permits the formulae to be presented in a marginally less cumbersome manner.

2.3 The Commission has expressed the cap on aviation terminal service charges as a maximum charge per terminal service unit (TSU). The definition of a TSU will be calculated using the formula (MTOW/50)^0.8 when applied to aircraft departing from Cork, Dublin, or Shannon airports in 2012 or 2013, and using the formula (MTOW/50)^0.7 for aircraft departing from Cork, Dublin, or Shannon airports in 2014 or 2015. These definitions for TSUs align with the charging units that the IAA has indicated it will use in the respective years, as it alters its charging units to comply with European regulations.

2.4 The annual price caps have been derived from a series of inputs known as 'regulatory building blocks'. These building blocks are:

- An estimate of efficient future opex
- Plus a return on capital
- Plus a depreciation allowance.

2.5 The sum of these building blocks is divided by a forecast of TSUs. Chapters 4-6 of this report explain how we arrived at an estimate for each of these building blocks.

2.6 Should the outturn traffic levels not accord with the forecast number of TSUs in a year, there will be an adjustment to the annual cap that applies two years later. This adjustment will lower the price cap if volumes had been above forecast, and increase the cap if volumes had been below forecast. The adjustments will amount to 50 per cent of the difference in revenues received versus the revenues that the IAA would have received had outturn traffic levels corresponded to the forecast used in this determination.

Representations by Interested Parties

2.7 The IAA supported the proposed use of TSUs as the basis for the cap. It objected to the time lag of two years before it could recover funds should out-turn traffic volumes be below forecast. This requirement was seen as unreasonable given its adverse implications for cash-flow and the fact that the IAA's terminal business costs are predominantly fixed. The IAA also thought that the requirement was not consistent with EC regulations. The IAA suggested that it was entitled to recover any shortfall in revenues within one year. In the case of out-turns exceeding forecast, the IAA was content for an adjustment to the cap to be made with a lag of two years. The IAA thought the determination should align with the Single European Sky (SES) II Reference Period 2 process. Since SES II would apply to terminal services at the beginning of 2015, there was the potential for unnecessary difficulties if the Commission's determination lasted until end 2015.

2.8 IATA was content with the proposal to continue with a four-year determination. It generally supported the continuation of a volume-risk sharing arrangement, with adjustments to partially compensate the IAA if traffic was lower than expected and to partially compensate airlines if traffic exceeded forecast.

2.9 Ryanair disputed some of the points made concerning the volume risk facing the IAA. Ryanair argued that the cost of capital allowance already incorporated a provision for risk. Moreover, it disputed the notion that the IAA had no control over traffic volumes, claiming that the increase in IAA charges was a significant factor in Ryanair's decision to reduce capacity at Dublin airport in March 2009.

Commission's Response

2.10 We have opted to retain the proposed approach to regulation outlined in the draft determination.

2.11 We have chosen the shortest duration for the determination that is permissible under the current legislation. We do not have the discretion to make a determination with a shorter duration than four years.

2.12 On volume-risk sharing, we have decided to retain a two-year lag when applying the adjustment to the price cap. As noted in the draft determination, the volume-risk sharing regime is counter-cyclical: it requires higher prices when demand falls and vice versa. We believe that applying a two-year lag will partially alleviate this concern. At the very least, it will allow parties an opportunity to prepare for higher or lower unit charges following a demand shock. The change should also enhance transparency about the price cap for ATS charges, since it will be possible to make more definitive statements about the price cap in advance for a given year. Under the existing determination, the annual price cap is only known definitively after the year to which is applies has ended and traffic numbers become available. Our approach is consistent with the SES II requirements, while limiting the discretion the IAA has to decide when to collect or reimburse revenues due to the volume-risk sharing arrangement. In thinking about the effect of different volume-risk sharing regimes on cash flow, we have considered the interests of both the IAA and of users. We believe that the regime we have proposed (with its two-year lag) strikes the right balance between allowing the IAA ultimately to recover costs that are to some extent fixed, and offering some protection to airlines against having to pay higher ATS charges immediately there is a fall in demand for air travel.

3. Quality of Service

3.1 The Commission has introduced a quality term to the price cap formula for this determination. This will create a direct link between the price cap on aviation terminal service charges and the quality of service provided by the IAA. The service quality term can reduce the price cap by a maximum of 10 per cent per annum.

3.2 The determination provides a financial incentive for the IAA to avoid delays due to staffing problems, including industrial action, and equipment failure. The scheme is the same as the one proposed in the draft determination. The annual price cap is reduced by 0.33 per cent if, on a given day

a there are one or more air traffic flow management (ATFM) delays in excess of 15 minutes at Cork, Dublin or Shannon airports reported in the Control Flow Management Unit (CFMU) data with the codes "ATC Industrial Action", "ATC Equipment", "ATC Staffing" or "ATC Capacity"; or

b airlines have cancelled flights departing from Cork, Dublin or Shannon airports on the basis of communication from the IAA indicating that problems with staffing or equipment failure will impair aviation terminal services at those airports.

3.3 In any year, the maximum reduction in the price cap would be 10 per cent. This would arise if a combination of staffing problems and equipment failure caused delays and cancellations for 30 or more days in the year. The quality of service regime focuses on two factors within the IAA's control – problems with staffing and equipment – but we have included more than two ATFM delay codes to try and capture all delay reports that might relate to problems with staffing or equipment.

Representations by Interested Parties

3.4 The IAA supported a quality of service regime consistent with the ATMAP framework and EC regulations, forming part of a European-wide delay management KPI programme. The IAA felt that the Commission's scheme was unclear and counter-productive, punishing the IAA for delays outside its control. It expressed concern about the administrative costs that it might incur providing accurate information at all times. The IAA gave statistics showing it had one of the lowest levels of ATFM delays in Europe so queried the value in introducing a scheme for which delays are extremely rare.

3.5 IATA fully supported the proposed introduction of a service quality term incentivising the IAA to avoid delays due to industrial action, equipment failure and other factors within its control.

3.6 Ryanair supported the Commission's proposed reductions in the price cap for delays and flight cancellations arising from IAA staffing shortages, industrial action or equipment failure. It queried the Commission's reasoning for exempting from the scheme delays due to volcanic ash, claiming that European regulations allowed airlines to recover the costs associated with passenger rights regulations from third parties responsible for such costs. Ryanair argued that traffic shortfalls arising from cancellations subject to penalty should be excluded from any volume-risk sharing arrangement. It also wanted a deterrent against false reporting introduced given the IAA was responsible for providing CFMU data in the first instance.

Commission's Response

3.7 In the absence of an agreed European approach to measuring service quality for terminal services, we have developed our own metric. Based on the responses received from users, our focus on extreme events which ought to be within the control of the IAA appears to have user support. As indicated at the time of the draft determination, we do not believe that the scheme proposed imposes a large administrative burden on the IAA. Nor should it have significant financial implications for the IAA, if the IAA conducts its business efficiently and effectively.

3.8 The report by Steer Davies Gleave annexed to the draft determination shows that in 2010 there were just two CFMU delays in excess of 15 minutes with the regulation cause listed at ATC Industrial Action, and one with the regulation ATC Capacity. The majority of CFMU delays were weather related, a type of delay that will not result in any adjustment to the price cap in this determination. The price cap is calculated such that the price cap will be reduced by 0.33 per cent should there be a relevant CFMU delay on a given day in excess of 15 minutes or a cancellation attributable to problems with staffing or equipment failure. There is no additional penalty for further delays or cancellations that day.

3.9 We will require regular updates from the IAA about whether there have been days with relevant delays. It will be for airlines to provide evidence that they had to cancel flights because of IAA staffing problems or equipment failure. Given such events occur infrequently if at all, but have a potentially significant detrimental effect on users at the affected airport(s), we think there is limited scope for the IAA to attempt to provide false reports. We have not included an explicit penalty for false reporting by the IAA but would clearly treat such an outcome seriously, as we would the submission of false data on any subject from any regulated body.

3.10 The scheme we have proposed is not intended to penalise the IAA for delays outside its control. This category includes natural occurrences, such as disruption associated with volcanic ash or adverse weather conditions. Our scheme focuses narrowly on areas where the regulated entity, as opposed to any third party or other outside factors, is responsible for a diminution of the service it provides, either due to staffing problems or equipment failures. It is possible that the IAA may wish to assign responsibility to a supplier for equipment failures, but even in such circumstances introducing some financial incentive for the IAA to avoid such outcomes is no different to the financial incentives that face most service providers in the economy. Service providers do not normally get paid if they are unable to provide their service because of staffing problems or equipment failures.

3.11 The current level of satisfaction with the service that the IAA provides does not obviate the benefit of having an explicit service quality regime. It is intended to reinforce the incentives for the IAA to provide an adequate service level and offer some protection to users against a significantly impaired service. The regime as set out in this determination should not ordinarily be invoked, but is included as a precautionary measure.

3.12 The volume-risk sharing arrangement is not intended to protect the IAA's revenues in the event that it fails to provide a suitable service quality level. But there are practical problems with attempting to quantify precisely the effect on traffic levels, measured in TSUs, of delays and cancellations. Instead, we have opted for a slightly larger penalty than would otherwise be the case, so that the volume-risk sharing arrangement is unlikely to offset completely the reduced revenue allowance associated with a failure to provide an adequate service.

4. Traffic Forecasts

4.1 Our traffic forecast for the next regulatory period is shown in the table below. As for the draft determination, we have provided forecasts for the number of movements and TSUs. The forecast for the number of movements has informed our decision concerning allowances for opex. The price cap is set on a per TSU basis and the volume risk sharing scheme relates to deviations between forecast and outturn TSUs.

	2012	2013	2014	2015
Movements	217	223	230	238
(MTOW/50)^0.9	145	149	153	159
(MTOW/50)^0.8	**138**	**142**	147	152
(MTOW/50)^0.7	133	136	**140**	**145**
TSUs	**138**	**142**	**140**	**145**

Table 4.1: Traffic forecast (000s)

Source: Commission calculations, STATFOR

4.2 As indicated at the time of the draft determination, we have updated our traffic forecast to reflect the latest available forecast from EUROCONTROL Statistics and Forecast Services (STATFOR). The revised traffic forecast is not significantly different to that used in the draft determination. The table below shows the forecast traffic growth in movements that we have assumed, along with the forecast growth at the time of the draft determination.

	2011	2012	2013	2014	2015
Final determination	4.9	0.5	2.8	3.1	3.5
Draft determination	4.4	2.3	2.7	2.7	3.0

Table 4.2: Forecast traffic growth (%)

Source: Commission calculations, STATFOR

4.3 We have assumed that the number of movements and the level of TSUs will grow at the same rate. There is no specific evidence we are aware of to justify assuming either a significantly lower or higher growth rate for TSUs relative to the growth rate for movements.

Representations by interested parties

4.4 The IAA felt it was inappropriate to use STATFOR's baseline forecast when a more modest growth forecast for 2012 onwards would be appropriate. It argued that the volume-risk sharing arrangement was not an acceptable reason for using the baseline traffic forecast. The IAA stated that it is not responsible for attracting traffic into airports. It felt the cost of capital would need to be much higher if the low traffic growth forecast was not used. If the Commission was to persist with use of the baseline forecast, the IAA wanted the Commission to justify its use and consider the possibility of annually updating the forecast to help manage the volume risk of the IAA.

4.5 No other party commented directly on the appropriateness or otherwise of proposed traffic forecast. Ryanair claimed to observe that the Commission had

abandoned IAA's traffic forecast in favour of STATFOR's services, in contrast to its decision to use the DAA's forecast in its 2009 airport charges determination.

Commission's Response

4.6 We have continued to use STATFOR's baseline forecast. It is almost certain that outturn traffic will not correspond to the forecast. The allowed cost of capital and the volume risk sharing arrangements are the appropriate tools for addressing that risk, rather than adopting a traffic forecast that is expected to be too high or too low. For the purposes of setting a price cap, we regard the choice of a traffic forecast that minimises the expected deviation between outturns and forecast traffic (both positive and negative) as the better option. For this reason, we have chosen to continue using STATFOR's baseline forecast. Absent evidence that STATFOR deliberately seeks to make overly optimistic traffic forecasts, we believe it is more appropriate to use the forecast STATFOR describes as a baseline scenario rather than the low growth scenario.

4.7 Practical considerations make updating the forecast annually unattractive. It would potentially require us to conduct interim reviews of the determination annually, to re-assess all the components feeding into the determination. More deterministic options, such as revising the price cap to reflect a revised traffic forecast are little different in effect to the volume risk sharing scheme we have in place which revises the price cap (albeit with a lag) to reflect differences between forecast and outturn traffic levels.

5. Operating Expenditure

5.1 This section presents the Commission's assessment of the IAA's opex needs for aviation terminal services over the period 2012–15.

5.2 We have revised the opex allowance from the draft determination to reflect the revised traffic forecast and calculated a transition path from current opex levels to the target level in 2015 with reference to total opex rather than just staffing costs. Otherwise, the amounts allowed have not changed from the draft determination. The determination implies a target opex saving of six per cent per annum in real terms. The table below shows the opex totals each year used in calculating the price cap, and provides the corresponding totals from the draft determination to permit comparison.

	2012	2013	2014	2015
Final determination (€m)	16.4	15.4	14.4	13.5
Draft determination (€m)	16.4	15.4	14.5	13.5

Table 5.1: Opex allowance

Representations by interested parties

5.3 The IAA argued that

1. Opex over spends in the period 2007-11 that were beyond its control should be included in the next determination – it suggested that payroll, pension and training costs all fell into this category;

2. The Commission should focus on the factors behind increasing opex rather than using a flawed assumption of a cost elasticity of 0.3;

3. There was a risk to service quality and its ability to provide a public safety service given the proposed reductions in staff costs contained in the draft determination;

4. Public safety would also be jeopardised by the proposed reductions in training costs;

5. It was an efficient ANSP, comparing favourably with its European peers; and

6. It is inappropriate to compare its staff costs with Irish manufacturing industry earnings.

5.4 It elaborated on each of these points in more detail.

5.5 On overruns, the IAA cited the UK regulator's treatment of NATS pension costs to supports its contention that it was conventional for regulators to take account of opex overruns when setting a price cap. It also suggested that scenario 2 of the RAB roll-forward principles, whilst drafted for the treatment of capex, could nevertheless be applied to opex. For payroll costs, the IAA argued that it was constrained by the framework of national agreements between social partners, and that it had strictly adhered to the National Wage Agreements. It also claimed Labour Court rulings limited its scope to avoid paying increases. On pension costs, the IAA outlined the measures it had agreed in November 2010 to address a pension deficit brought about by the global recession which had devastated pension funds. It also cited SES II's amended Charging Regulation which protected pension contributions as a "pass through" cost. For training costs, the

IAA claimed that it was not responsible for determining its training requirements, and that all such costs since 2007 were necessarily incurred. It gave examples of new programmes, such as dual-runway operations, that had met the needs of its airline customers but had entailed a training cost.

5.6 The IAA pointed out that the elasticity of 0.3 that the draft determination referred to was consistent with the elasticity the CAA used for its cost projections for NATS in 2005. It argued that for terminal services there was comparatively less variance between minimum and maximum staffing configurations than for en route. The IAA also produced data analysis for the period 2002-2009 that it claimed showed high variation in data and no particular correlation between cost increases and changes in traffic. Most importantly, the IAA argued, it was difficult for an ANSP to respond to unanticipated traffic downturns. It cited reports from EUROCONTROL's PRU to support this contention.

5.7 To realise the target levels for staffing costs included in the draft determination risked adverse consequences for public safety and an increase in costs for airlines, the IAA claimed. It was concerned that staff retention would suffer, as its controllers were tempted to work elsewhere in the world. There was also a possibility of industrial action. Understaffing could affect quality of service and have a negative impact on safety levels. It pointed out that in 2010 airlines had expressed the highest level of satisfaction with the IAA's safety levels.

5.8 The IAA thought there was no justification for the proposed cut in the training budget, and that the Commission was unaware of the consequences. There was no relationship between wages and training costs. The training requirement was governed, in part, by the number of air traffic controllers (ATCOs) and the number of ratings they hold. The delay in building a control tower at Dublin airport did not mean that the IAA's ATCO training costs must be reduced, since the IAA's training budget was not affected by the deferral of the tower. The IAA has mandatory requirements to provide training, and there was no option for it to make cuts from international safety standards. Training was not one-off, but an ongoing and repetitive requirement tailored to meet individual controllers' needs. Furthermore, some of the training responded to evolving needs and efforts to seek greater efficiencies, such as the Point Merge project. The new radar system had also created an additional training burden not experienced in the last regulatory period.

5.9 Findings from the most recent ACE report were cited to support the IAA's contention that it was an efficient ANSP that compared favourably with European peers. Among the findings the IAA referred to were:

1. It was the 4th most cost-effective provider of terminal services
2. It ranked as one of the most efficient ANSPs in terms of staff unit costs
3. IAA ATCOs are rated for both en route and terminal activities so individual costs were higher than for other ANSPs
4. IAA ATCOs are paid less when the cost of living is factored in
5. ATCO productivity is above average
6. ATCO unit costs rose because of the significant drop in traffic, a feature experienced in other jurisdictions.

5.10 The IAA did not think it was appropriate to compare the IAA's employee costs with Irish manufacturing earnings. Aviation industry staff are highly skilled and have a responsible job. The technologies and work practices are constantly evolving, with

an upgrade in controllers' and engineers' required skill sets – the IAA referred to the falling level of pass rates for trainee recruits from 90 per cent to 80 per cent as evidence of the role's increased complexity. Finally, the ATCO market was highly mobile and just in the last year a number of ATCOs had resigned to pursue more lucrative contracts elsewhere.

5.11 IATA fully supported requiring the IAA to achieve operating efficiencies of around 6 per cent per annum in real terms. It also understood the Commission's decision not to introduce a rolling incentive scheme.

5.12 Ryanair welcomed the Commission's "belated recognition that the IAA's costs are excessive..."[2] It argued that the IAA should be incentivised to challenge Met Eireann's costs, and suggested that the costs allowed for these should be reduced by 90 per cent. Ryanair argued that the training allowance needed to distinguish between initial and ongoing training, with only recurrent training costs allowed in the calculations. It disputed the IAA's contention that it was hard to respond to unplanned reductions in traffic, claiming Ryanair provided an example of successfully overcoming challenges. Ryanair also criticised the inclusion of certain costs from the Dublin and Ballycastle Area Control Centres, arguing that the duplication was unnecessary.

Commission's Response

5.13 In finalising the opex allowance, we have considered both the responses to the draft determination that we received and new information that has become available since the draft was published.

5.14 Aside from revised traffic forecasts, there have not been any developments since we published our draft determination that have caused us to revise our opex allowance. The available evidence for the Irish economy continues to suggest that the current economic environment is putting downward pressure on costs in many sectors. In May and June EUROCONTROL's Performance Review Commission (PRC) and Performance Review Unit (PRU) published reports updating earlier studies that we referred to in the draft determination.[3] Although the data were more recent, the findings concerning the IAA were broadly similar to those from the earlier studies we had quoted in the draft determination. The IAA's 2009 costs per instrument flight rules (IFR) airport movement were the 5th lowest in the sample – it had been 3rd lowest using 2008 costs. Its gate-to-gate employment costs were 13th highest in Europe – they were the 11th highest in 2008. In terms of ATCO productivity for gate-to-gate services, the IAA was 12th out of 37, whereas it had been 7th out of 36 in the earlier PRC report. Among a cluster of peers serving predominantly lower airspace with high structural complexity, the IAA ATCO productivity was second worst; ahead of Palma but behind Amsterdam, Bremen, Brussels, Langen, London TC and Milano.

5.15 Turning to the responses to our draft determination, we have considered these in the context of the trends observed in the overall level of opex. The chart below shows out-turn opex for the IAA since 2002, along with opex allowances used in setting the prices caps in the 2007 determination and for this determination. The costs in the last five years have been significantly above both the level of opex in the preceding five years, and significantly above the target level for opex set in the last determination. We have previously observed that the discrepancy between out-turn and the 2007 opex allowance is even greater when looking at

[2] Page 3, Ryanair response to CP1/2011.
[3] See Performance Review Report (2011) "An Assessment of Air Traffic Management in Europe during the Calendar Year 2010", www,eurocontrol.org and Performance Review Unit (PRU) with the ACE Working Group (2011) "ATM Cost-Effectiveness (ACE) 2009 Benchmarking Report", www,eurocontrol.org.

unit costs, given the economic downturn has resulted in traffic volumes considerably below the levels forecast in 2007.

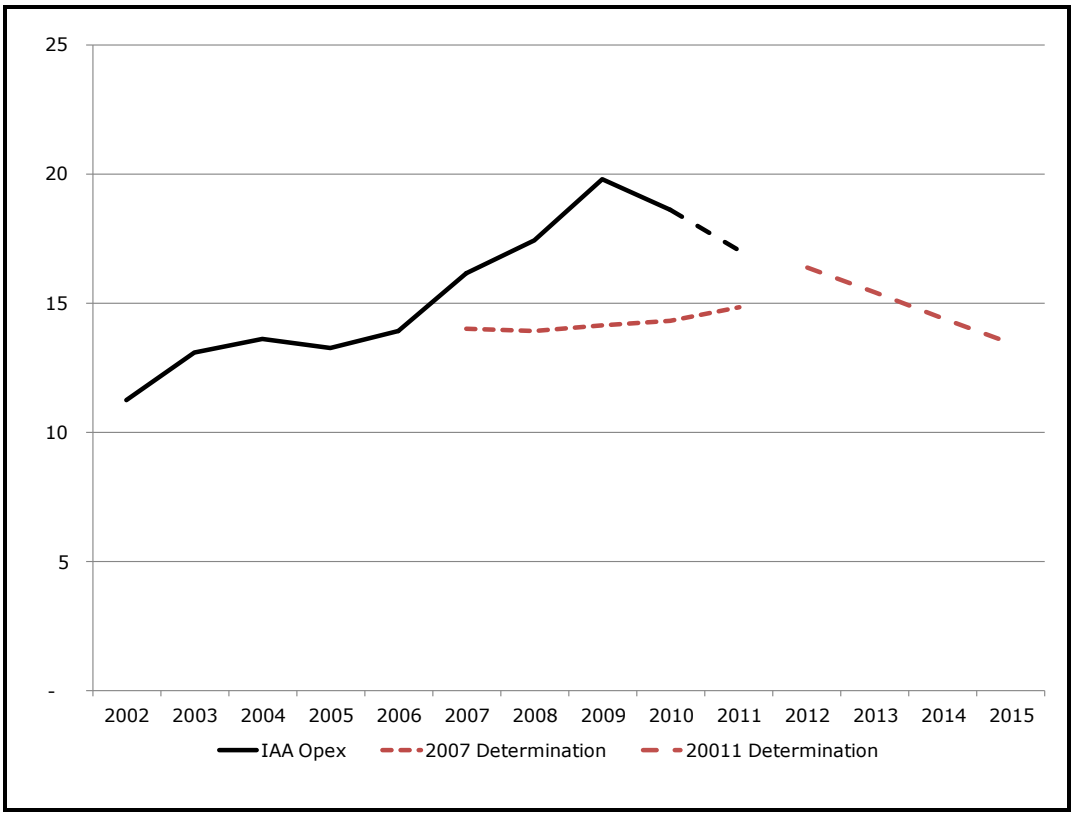

Figure 5.1:Outturn and allowed opex

Source: Commission calculations, IAA

5.16 Notwithstanding this, we have taken the current levels of opex as a starting point when thinking about the future amounts to allow for the purposes of making the next determination. The IAA has already incurred losses from failing to realise the opex allowance at the time of the last determination. Now is a chance to reset the "target". In doing so, we have set a target level for opex in 2015, the final year of the forthcoming determination. Given this target, we have set allowances in the intervening years that permit a smooth transition from current levels of opex. If the IAA has incurred higher opex to increase its capacity, our determination is not requiring it to respond immediately to an unanticipated traffic downturn. Instead, we are using 2015 as the year in which the IAA should seek to get opex back to the levels observed when traffic was last around the levels expected in the next four years. So the determination gives the IAA four years to realise opex savings, and by 2015 it will have had six years to respond to the unanticipated traffic downturn. We do not think that such a timeframe to realise cost savings in response to a change in the economic environment is unreasonable.

5.17 In 2015, EUROCONTROL's baseline forecast envisages a similar level of movements at Cork, Dublin and Shannon airports as the IAA handled in 2006. Our determination includes an opex allowance for 2015 consistent with the level that the IAA incurred in real terms in 2006. The chart below illustrates the outturn and forecasts levels of traffic and opex in 2006 and 2015.

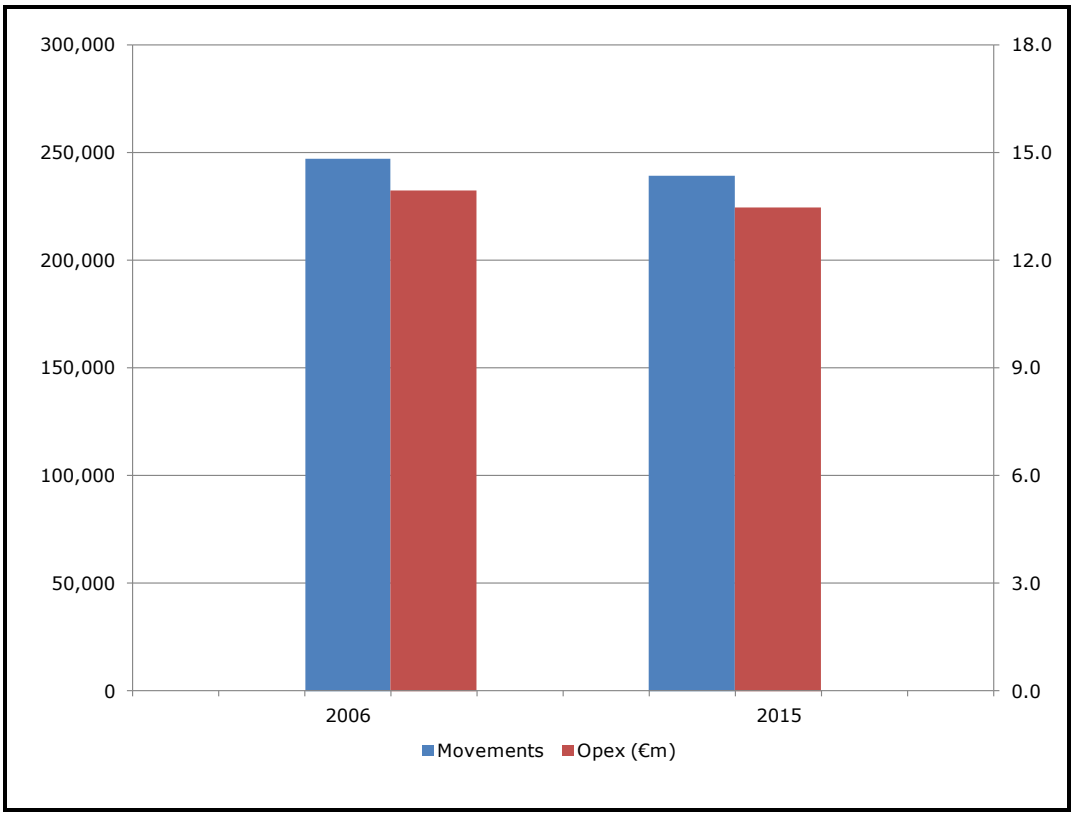

Figure 5.2:Traffic movements and opex in 2006 and 2015

Source: Commission calculations, IAA

5.18 Because the traffic level in 2006 is similar to that forecast in 2015, the assumed cost elasticity is relatively less important. The cost elasticity captures the relationship between changes in quantity and changes in cost. The forecast traffic in 2015 is little changed from the level of traffic in 2006, so almost any elasticity assumed would imply a forecast opex level in 2015 roughly similar to 2006 outturn opex. We used an elasticity of 0.3, but even an elasticity of 0 (consistent with assuming that opex costs are independent of traffic volumes) would have required opex savings of 5.3 per cent per annum between 2011 and 2015. The choice of elasticity is not decisive in determining the level of opex assumed in calculating the annual price caps in this determination.

5.19 Instead, we believe that the more pertinent question is whether there is a fundamental reason why costs in 2015 should be higher than in 2006 in real terms. We have concluded there is not.

5.20 The IAA offered examples of costs where it claimed it had no option but to incur higher costs, such as having to respond to labour court rulings. In contrast, Ryanair identified further examples of what it considered unnecessary costs that should not be included when assessing future opex needs. We have chosen not to adjudicate on the merits of these competing claims on a case-by-case basis. No-one can forecast all the individual savings that might be possible in the next four years, nor unexpected costs that will have to be incurred in the same period.

5.21 We have set a target four years hence, and a path for getting there, that we consider challenging but achievable in the current economic climate. We do not believe that a company subject to competitive constraints would accept that its costs need to be 33 per cent higher in real terms than they were a decade earlier to handle the same level of demand. Where there is upward pressure on costs, we would expect the company to look for ways to mitigate the effects rather than simply seek to pass on the higher costs to users. We do not accept that the IAA

has no ability to control payroll costs because of labour court rulings or demand from overseas for ATCOs. If the IAA is suffering attrition of staff trained at its expense, it could consider ceasing to pay for initial training as an offsetting measure to control costs, in line with a suggestion of Ryanair. If the primary pressure on payroll costs is domestic considerations, we do not accept that the IAA is necessarily more constrained by Irish labour laws than other companies in Ireland. Our draft determination gave examples of other regulated firms in Ireland that have sought to control staff costs.

5.22 In the case of pension costs, we accept that past commitments by the IAA will have implications for future costs incurred. We also note that if the regulated entity is always allowed to recover increases in pension costs from users, its incentives to manage those costs will be muted. For this reason, we have previously indicated in determinations governing both airport charges and aviation terminal services that we do not support passing through increases in pension costs into the price caps. Other regulators may have adopted a different approach, but we are satisfied that the approach we propose is consistent with the development of cost-effective terminal services.

5.23 Another reason for allowing more opex in future dates would be because the IAA was offering a better service in 2015 than in 2006, and this improved service came at a cost. The IAA did not make this a central part of their argument for a higher opex allowance. During and subsequent to our meeting with the IAA, it did identify some developments since 2006 that it claimed users valued. It listed projects such as the 'West End' and 'Lakes' Airspace Projects, and the ongoing TMA Airspace Project. It also described enhancements, such as reduced departure intervals and dual runway operations at Dublin airport, introducing new noise abatement procedures, and PRNAV SID (Standard Instrument Departures) and STAR (Standard Arrival Routes). We have not been convinced that these developments have materially increased the IAA's opex needs. Some of the projects are justified in part by efficiency savings for both airlines and controllers which arguably might be expected to lower opex needs; many others appear to be developments that do not give rise to higher ongoing opex costs once the improvement has been identified and implemented.

5.24 The IAA raised the possibility that it might cease offering to do some things to realise cost savings should it not receive the entire opex allowance it sought. This highlights the tradeoffs involved for all companies providing a service: do they offer a more comprehensive offering at a higher cost or a more basic offering and realise cost savings. In making this determination, we have not been persuaded that users currently want to pay more for enhanced terminal services.

5.25 We do not believe that safety needs to be compromised by our proposals for future opex. The IAA was able to operate safe terminal services in 2006 with a budget similar to the amount we envisage allowing in 2015 in real terms.

6. Capital Costs

6.1 This chapter discusses the capital costs building block of the price cap calculation. It is divided into four sections: the opening regulatory asset base (the RAB), post-2011 capex, depreciation and the cost of capital. From this work, we calculate a return on and a return of capital to include in the annual price cap calculation, as well as an end-2015 value for the RAB.

6.2 The price cap calculations use slightly higher capital costs than assumed at the time of the draft determination, as illustrated in the table below. The opening RAB in 2012 is €22.5m, higher than the €20.5m proposed at the time of the draft determination. This revised opening RAB leads to higher allowances for depreciation and return on capital in subsequent years. The cost of capital is 20 basis points lower, which marginally reduces the return on capital.

	2012	2013	2014	2015
Final determination (€m)	5.6	6.1	6.6	6.4
Draft determination (€m)	5.3	5.9	6.3	6.2

Table 6.1: Capital costs (sum of return on and return of capital)

Calculations assume that the trigger for a new Dublin tower is not met

Opening RAB 2012

6.3 The opening RAB used by the Commission to estimate an appropriate price cap is €22.5m.

6.4 The table below provides a summary of how the Commission derived the opening RAB.

Deriving the opening RAB	Draft(€m)	Final (€m)
Opening RAB 2007	30.0	30.0
Allowed capex 2007-2011*	33.7	35.4
Regulatory depreciation 2007-2011*	-43.3	-42.9
2012 opening RAB	**20.5**	**22.5**

Table 6.2: Deriving the opening RAB in 2012

**Includes costs related to trigger capex projects in the 2007 determination*

Representations by interested parties

6.5 The IAA, IATA and Ryanair all agreed that there should be some claw back where out-turn expenditure on capital projects was less than that allowed in the 2007 determination. There were a few specific points where parties differed.

6.6 The IAA referred to the RAB roll forward principles in annex 4 of the draft determination to support upward revisions to the starting RAB. It suggested that scenario 5 applied in the case of spend incurred to date on a new visual control tower at Dublin airport. Such costs had been incurred prior to the DAA deferring the second runway project, and since then the IAA had stopped incurring costs. The IAA also identified savings of €2.1m on the Display Screen Replacement and

Navaids projects which it argued should be reflected in the opening RAB, consistent with scenario 1 of the roll-forward principles.

6.7 In contrast, Ryanair thought the opening RAB should be revised down further since no justification for the Cork tower capex had been provided.

Commission's Response

6.8 We have adjusted the clawback calculations for the RAB to allow the IAA to retain the interest payments for the savings of €2.1m it identified on projects where it had delivered an output for less than originally allowed. This is consistent with scenario 1 of the roll-forward principles. The adjustment is reflected in the different values in Table 6.1 for regulatory depreciation in the columns for the draft and final determination. Because relatively more of the revenues associated with capital costs in the period 2007-11 are treated as a return on capital, there is a corresponding reduction in the estimated return of capital (or depreciation) in that period.

6.9 The Dublin tower trigger at the time of the last determination was output based: the RAB would be adjusted if the IAA built such a facility. It is better that work on the tower project ceased when it became apparent it was not immediately necessary, than that the IAA proceeded to complete the project. In such circumstances, we have concluded that scenario 5 is relevant here and increased the starting RAB by €1.6m accordingly. The change is due to a revision to allowed capex 2007-11, as shown in Table 6.1. A corresponding negative adjustment has been made to the future allowance for spend on a new tower. Moreover, the initial trigger for a new Dublin tower now specifies the conditions that must apply before any further costs relating to the project will be considered for inclusion in the RAB.

6.10 We have continued to make an allowance for the Cork tower. The trigger for the allowance (completion of the tower) was satisfied. The IAA also provided evidence that it consulted with users at Cork airport about its plans to build a new tower.

Post-2011 capex

6.11 To calculate the annual price caps for the forthcoming determination, the Commission has assumed that the IAA will spend €19.0m on capital projects in 2011-2015. It has also allowed for the possibility of the IAA spending up to €48.4m more should demand growth warrant work commencing on a new tower or equivalent at Dublin airport, i.e. should passenger numbers exceed 23.5 million in a 12-month period.

6.12 The €19.0m allowance is to cover general investment needs for terminal services. There are no specific outputs that the IAA has to deliver in order to have the sum included in future RABs. Any adjustments to reflect over or under spend by the IAA will relate to the total sum, rather than individual projects making up the total.

6.13 Any expenditure in excess of the amounts allowed will only be included in future RABs if the IAA can demonstrate that the additional expenditure was necessary and that it had consulted with users in advance of the investment taking place. This would apply if, for example, the SESAR programme required the IAA to invest substantial additional amounts to comply with the requirements. (The budget of €19m is expected to suffice if the work required to comply with SESAR requirements is relatively small.)

Representations by interested parties

6.14 The IAA welcomed the proposal to allow all of its planned capex. It warned that additional, unbudgeted capex may be necessary because of factors outside its control, but committed to advise airline customers in advance of making any such expenditure.

6.15 In terms of capex consultation, Ryanair regarded the meeting of 11 April 2011 as merely a tick-box exercise, while IATA expressed regret that it had not received an invitation.

6.16 With regard to a possible new tower, the IAA thought it would be unacceptable to have a new runway in place up to 18 months in advance of an operational new control tower. It suggested that the Commission should include a provision to re-open discussion in the event that the issue of a new runway resurfaces within the four-year duration of the determination.

6.17 The DAA also expressed concern about the potential misalignment between completion of a new runway and a new tower. It was worried about having a new runway remaining idle while work on the tower continued. It thought it would be challenging to operate with a single runway for four years after traffic has exceeded 23.5 million passengers, given Dublin airport was seriously constrained in 2008 at such traffic levels. The DAA argued that there would be opportunity costs of 17 to 19 cents per passenger associated with the loss of the economic benefits associated with additional routes and passenger traffic that would be foregone, as well as direct loss of commercial revenues to the DAA. It also expressed concern that uncertainty about exactly what level of costs would be remunerated for a new tower may adversely affect the decision making process for both the DAA and the IAA. The DAA advocated a trigger that was based on movements in the peak operating periods, since these are periods when new runway capacity provided most benefit. It suggested that the triggers might be staggered to accommodate the lead and lag elements of the two construction programmes. One option was to allow the IAA to undertake some of the preparatory work in advance of the trigger without financial risk.

6.18 Ryanair had misgivings about the proposed trigger and the costs of the new tower. It claimed that a tower would only be needed if there was a new runway and a third terminal. It also suggested that construction of a new tower could not commence until a new runway was operational. Consequently, it argued that if there was to be a trigger, it should be when construction of a third terminal commenced, rather than the proposed 23.5 million passenger threshold was reached. Ryanair was also concerned that it was the only airline with the capacity to increase passenger numbers beyond 23.5 million, and such growth would be jeopardised if it prompted increases in airport and air traffic control prices. Regarding the costs of the tower, Ryanair referred to Manchester airport's proposed new 60m tower costing between €16m and €22m and suggested that the IAA's 86m specification costing €35m was excessive. It thought any additional cost to users from the tower should be less than €4.1m per annum.

6.19 IATA supported milestone capital allowances for relatively large investments, such as a new tower. However, it favoured a more symmetrical approach with trigger penalties. IATA welcomed the fact that the Commission had not reached a final conclusion on how much to allow for a tower given uncertainty about viable technologies.

Commission's Response

6.20 We are satisfied that the allowance for investment accords with a sum suitable for the IAA to provide aviation terminal services on an ongoing basis. The IAA will

need to address the concerns about consultation expressed by both IATA and Ryanair should it want to seek allowances for incremental investments above this baseline level.

	2012	2013	2014	2015
Final determination (€m)	4.0	5.5	4.9	4.6
Draft determination (€m)	4.0	5.5	4.9	4.6

Table 6.3: Capex allowance

6.21 For the tower, we have decided to leave the trigger unchanged but for the reasons outlined in paragraph 6.9 we have revised down the allowance by €1.6m. We continue to believe that the trigger should be aligned with the trigger for a new runway, and that it is appropriate to use a measure of demand that relates to general utilisation of the facilities at Dublin airport rather than just peak-time demand. We think the latter issue of peak-time demand is better addressed in the first instance by encouraging users to use facilities throughout the day via peak pricing, rather than by providing additional capacity to users who have not demonstrated a willingness to pay for such expansion.

6.22 We remain concerned about the possibility of a new runway being complete before the tower is ready or vice versa, but have not identified a trigger that would alleviate such concerns satisfactorily. Moreover, we are comforted by the fact that the IAA has indicated that it would be willing to commence work in advance of the 23.5 million passenger trigger being met if another party is willing to indemnify it against the risks of a stranded asset should the threshold not actually be reached. There is therefore scope for parties to liaise with the IAA to address concerns about a potential mismatch in the timing of the work to complete the runway and tower.

6.23 The amount allowed is an indicative amount, and we will expect the IAA to consult with users about various options and to demonstrate that it has chosen the most cost-effective solution to providing aviation terminal services at Dublin airport should a second runway be built. Such discussions should cover matters such as how building work might affect airport operations and the implications for future airport developments of different options. The IAA has indicated to the Commission that the existing tower would not allow operations off a parallel runway and therefore should a new runway be constructed some investment will be necessary whether or not there is a third terminal; neither the DAA nor the IAA believes that work on a new tower needs to be deferred until after the new runway is operational.

6.24 We have not included any negative capex triggers in this determination. However, we may consider such a trigger at a future determination if we conclude it will provide suitable incentives for the IAA to complete in a timely manner work necessary to allow use of a parallel runway.

Depreciation

6.25 We have used the approach to depreciation set out in the draft determination. This includes a mix of straight-line depreciation and, for lumpier investments, annuities. The assumed asset lives are the same as those used by the IAA and reported in Table 8.6 of our draft determination.

	2012	2013	2014	2015
Final determination (€m)	4.4	5.0	5.4	5.3
Draft determination (€m)	4.2	4.7	5.2	5.1

Table 6.4: Depreciation allowances

6.26 No parties commented directly on our proposed treatment of depreciation, and we are not aware of any developments since the draft determination that warrant a change of approach. The changes to the opening 2012 RAB explain the small changes observed in the table above.

Cost of capital

6.27 The Commission has allowed a real rate of return of 5.4 per cent on sums included in the RAB for the purposes of making this determination. This is 20 basis points lower than the value of 5.6 per cent used in the draft determination for the reasons set out below. It is the Commission's estimate of an appropriate real, pre-tax cost of capital. The Commission has estimated this cost of capital using the same approach as in the draft determination, i.e. the weighted average cost of capital (WACC) using the capital asset pricing model (CAPM) to estimate the cost of equity.

Representations by interested parties

6.28 The IAA proposed a real pre-tax cost of capital of 6.9 per cent. In contrast IATA was willing to accept the cost of capital proposed in the draft determination of 5.6 per cent and Ryanair thought that the 5.6 per cent cost of capital reflected a realism about the IAA's actual costs of debt rather than a theoretical approach to future borrowings.

6.29 On the cost of equity, the IAA thought that changes should be made to the assumed risk-free rate, equity beta and level of gearing. It also thought that the cost of debt should be higher, because of different assumptions about the EURIBOR rate, an appropriate premium, and planned inflation. The IAA accepted that a 5 per cent equity-risk premium was appropriate, so long as the risk-free rate was revised up since the two values cannot be seen in isolation.

6.30 For inflation, the IAA thought the Commission should use the IMF's forecast inflation for Ireland of 1.23 per cent. It contrasted this with the 1.6 per cent 2010 Eurozone inflation rate that the Commission used to convert nominal bond rates and the 1.0 per cent forecast inflation rate of the IAA that the Commission had used to determine the cost of debt.

6.31 On the risk-free rate, the IAA quoted Regulation (EC) No 1794/2006's reference to using the national bond rate as a guide. The IAA acknowledged that Ireland's current economic situation was exceptional, but felt that the Commission should use Euro area average bond rates rather than the German bond rate. It also suggested taking a one year average, rather than just the May 2011 rate.

6.32 The IAA acknowledged that the assumptions about what balance sheet items to include in debt and equity had a big impact on the definition of gearing if relying on actual rather than optimal gearing ratios. It suggested changes to the way that the Commission defined both gearing and the debt/equity ratio.

6.33 For the cost of debt, the IAA thought that the Commission was wrong to have used May 2011's 12 month EURIBOR rate. This was close to historic lows, and ignored the fact that the rate was expected to increase in coming years.

Furthermore, the IAA was now paying a premium of 195 basis points above EURIBOR, rather than the 110 basis points assumed in the draft determination.

Commission's Response

6.34 The table below shows the values we have adopted for this determination for the various components that make up the cost of capital calculation. To permit comparison, it also includes the values used in the draft determination.

	Draft determination	Final determination
Cost of debt	2.25	2.02
Cost of equity	5.09	5.77
Risk free rate	1.64	1.50
Equity risk premium	5.0	5.0
Asset beta	0.65	0.65
Equity beta	0.74	0.85
Tax	12.5	12.5
Gearing	6.5	26.5
Debt/equity ratio	7.0	36.0
Real pre-tax cost of capital	**5.6**	**5.4**

Table 6.5: Return on assets

6.35 The real cost of debt is slightly lower than in the draft determination. It continues to be with reference to the IAA's actual cost of debt, as required under European regulations. We have revised the nominal cost of debt upwards to reflect the 195 basis points premium above EURIBOR that the IAA now pays. This increased premium of 85 basis points is only marginally offset by the lower 12-month EURIBOR rates now observed – 2.07 per cent in late September as opposed to the value of 2.15 per cent used in the draft determination.[4] While the nominal cost of debt is higher, we have increased the assumed inflation rate when converting into a real cost of debt. We have accepted the IAA's contention that we should use the same inflation rate when converting from nominal into real rates for either the risk-free rate or the cost of debt. We have concluded that the financial market will be more interested in Eurozone inflation generally, rather than Irish inflation, when deciding on an appropriate real rate of return. At the time of the draft determination, the Eurozone inflation rate was 1.6 per cent. We have decided not to rely on the current Eurozone inflation rate, now 2.5 per cent, to proxy inflation expectations. Instead, we have assumed inflation expectations of 2 per cent, consistent with the European Central Bank's target rate of inflation.

6.36 The estimated cost of equity is higher than in the draft determination. This is because we have revised the level of gearing used in the calculation. We are required to use actual gearing, but we have accepted the contention that how the actual gearing is calculated could change. We have continued to use creditors (amounts due after more than 12 months) as a proxy for debt in these calculations, but have used shareholder funds as our estimate of equity. Summing these two values generate the total value of assets used in the gearing calculation

[4] These values correspond to the EURIBOR 12 month rate quoted by www.euribor-rates.eu/ on 21 September 2011 and 17 May 2011 respectively.

(debt: total assets). In the draft determination we had estimated the gearing ratio by dividing debt by the total assets before pension liabilities. Because the IAA's pension liabilities are relatively large, netting these liabilities from the total asset valuation of the IAA has a significant effect for estimates of the gearing and debt: equity ratio. The IAA's balance sheet is not quite as attractive to investors as implied by our calculation at the time of the draft determination (when we implicitly ignored the pension liabilities), and the estimated cost of equity is consequently higher. The actual gearing estimate relies on 2010 values, rather than an average for a number of years.

6.37 We have revised the real risk-free rate down to 1.5 per cent, the bottom of the range of values used in other regulatory decisions cited in Table 8.8 of the draft determination. The available evidence suggests that the real risk-free rate is lower than we assumed in May. German ten year bund rates have almost halved since then. It is even possible to argue that real interest rates are now negative.[5] We have decided not to reduce the value of the risk-free rate that aggressively, favouring a more conservative change. We believe it is important to strike a balance between adopting values that correspond to current market conditions and adopting an approach where such values change predictably and gradually. The available evidence points to a very low risk-free rate as investors seek to invest in assets perceived to be safe. In these circumstances, we think the value for the risk-free rate we have adopted is an appropriate compromise between rates implied by current market rates and a desire not to adopt a value very different to recent regulatory precedents. We continue to believe that Irish government bond rates cannot be used as a proxy for the risk-free rate, notwithstanding European regulations requiring the risk-free rate be set with reference to national government bond rates. The IAA's suggestion of taking an average of various Euro area bonds would require us to include bonds for governments that investors almost surely do not regard as risk free given the premium over German bund rates that they require. Therefore, we reject this approach for the same reason that we declined to rely on Irish government bond rates to estimate the risk-free rate: it would not generate a risk-free rate as the concept is understood for the purposes of estimating the cost of equity using the capital-asset pricing model.

6.38 We have retained the same equity-risk premium and corporate tax rate as used in the draft determination. We remain satisfied that the assumed equity-risk premium is consistent with the values recommended by Dimson, Marsh and Staunton.[6]

6.39 The 20 basis point reduction in the cost of capital has almost no effect on the revenues that the IAA will be allowed to collect in the next four years. The return on assets allowed in the calculations is slightly higher, as the table below shows, because of the small increase in the 2012 opening RAB.

	2012	2013	2014	2015
Final determination (€m)	1.2	1.2	1.2	1.1
Draft determination (€m)	1.1	1.1	1.1	1.1

Table 6.6: Return on assets

[5] See delong.typepad.com/sdj/2011/08/treasury-real-interest-rates-now-negative-out-to-ten-years.html for example.
[6] See page 34, Elroy Dimson, Paul Marsh and Mike Staunton (2011) *Credit Suisse Global Investment Returns Sourcebook 2011,* Credit Suisse Research Institutes, Zurich.

7. Other Issues

7.1 The only issue not addressed elsewhere in this document with relevance for the determination concerns how the Commission intends to regard price-cap compliance.

Price-cap compliance

7.2 To comply with the price cap annually, the IAA should re-imburse users within 90 days of the calendar year ending if it ever exceeds the price cap for that year. The IAA will be allowed to roll-forward any under-collection, provided this is no more than 5 per cent of the total revenues that the IAA was permitted to collect under the price cap in that year.

Representations by interested parties

7.3 The IAA proposed that airlines should be reimbursed at the earliest opportunity should the price cap be exceeded. However, it suggested that 90 days would be better than 45 days. This would allow sufficient time for the invoicing procedures established by the Central Route Charges Office (CRCO), the body that carried out all the IAA's invoicing. For under collections, the IAA opposed restrictions on it recovering these at a later date. The deferral of price cap increases to provide airline customers a breathing space should not be penalised.

7.4 IATA supported the Commission's proposed treatment of under and over recoveries, given the background that the IAA had always priced up to the cap.

Commission's Response

7.5 We have accepted the IAA's arguments concerning the practicalities of making reimbursements. For this reason, we have extended to 90 days the period in which the IAA is required to reimburse users should it collect in excess of the annual price cap.

7.6 To protect the reasonable interests of future users, we have decided to persist with a cap on the level of under-collections that the IAA may roll forward between years. The one user to respond specifically to the proposed treatment of under recoveries supported our proposals. In these circumstances, we do not think there is a strong case for allowing the IAA to price significantly below the cap now with a view to setting much higher prices at a later date.

8. Compliance with Statutory Requirements

8.1 Section 36 of the Aviation Regulation Act 2001 sets out our statutory objective, and also the statutory factors to which we must have regard when making a determination governing ATSCs. This chapter describes how this determination complies with these statutory requirements.

8.2 When making a determination, we are required to

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

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

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

8.4 We have considered the latest charging principles of these two organisations. In the case of ICAO, the two most relevant publications appear to be documents 9082 and 9161. The editions that we have referred to were published in 2007 and 2009 respectively.[7] We believe that this determination is consistent with those charging principles, which themselves are generally similar to the principles in place at the time of the 2002 and 2007 determinations.

8.5 EUROCONTROL's charging principles and the SES project are now closely linked. By having regard to SES developments, as they relate to Ireland, we believe that we have made a determination that is consistent with the charging principles of EUROCONTROL. We have also had regard to documents issued by EUROCONTROL setting out its charging principles, in particular the October 2011 publication setting out charging principles for en route charges.[8] While the focus of that document is en route rather than terminal charges, there are principles set out in that document for the calculation of costs that could apply to other services, including terminal services.

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

8.6 Chapter 6 describes the allowance for capex that we have included in determining a price cap. The level of investment assumed for the forthcoming period corresponds to that required by the IAA to upgrade or maintain facilities related to its voice and data communications, surveillance and navigation activities, flight data processing and information technology. The costs of a new tower or other facility at Dublin airport to permit use of a parallel runway will only be included in calculating the price cap should the project need to proceed.

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

[8] EUROCONTROL (2011) "Principles for Establishing the Cost-Base for En Route Charges and the Calculation of the Unit Rates" www.eurocontrol.int

- *the efficient and effective use of all resources by the Authority*

8.7 We have analysed both the historic levels of opex by the IAA, and the proposed levels of such costs that the IAA forecasts incurring. In the process leading to this determination we have looked at a breakdown of the operating cost by category, as well as the overall level. For reasons set out in Chapter 5, we have concluded that a determination that assumes a similar overall level of opex as incurred in 2006 is consistent with the efficient and effective use of all resources.

- *the level of the Authority's income from aviation terminal services and other revenue earned by the Authority generally*

8.8 The determination seeks to allow the IAA to recover sufficient revenues from ATSCs to cover the costs associated with providing terminal services. As in past determinations, we continue to exclude from our calculations the costs and revenues of the IAA associated with providing en route services in Irish controlled airspace, Shanwick Communications, safety regulation, exempt air traffic and commercial and training activities.

- *operating and other costs incurred by the Authority in providing aviation terminal services*

8.9 Chapter 5 sets out the approach taken by the Commission to review historic and projected opex costs with a view to allowing an efficient level of opex to support the IAA's delivery of aviation terminal services.

- *the level and quality of aviation terminal services, and the reasonable interests of the users of these services*

8.10 For the first time, the Commission has developed a formal service quality target in making its determination. This is described in Chapter 3.

- *the cost competitiveness of aviation terminal services with respect to international practice.*

8.11 The Commission is aware of the global demand for cost competitive aviation terminal services. Given this, the Commission developed a price cap on ATSCs that took account of international practice. We have looked at available data to compare the IAA's costs with those of other European countries. This includes looking at the IAA's cost competitiveness as reported in the ATM Cost Effectiveness Reports.

ANNEX 1: Glossary of Terms

ANSP	Air navigation service provider
ATCO	Air traffic controller
ATFM	Air traffic flow management
ATS	Aviation terminal service
Capex	Capital expenditure
CFMU	Control Flow Management Unit
CPI	Consumer price index
DAA	Dublin Airport Authority
EC	European Commission
IAA	Irish Aviation Authority
IATA	International Air Transport Association
IFR	Instrument flight rules
KPI	Key performance indicator
MTOW	Maximum take-off weight
Opex	Operating expenditure
PRC	Performance Review Committee of EUROCONTROL
PRU	Performance Review Unit of EUROCONTROL
RAB	Regulatory asset base
SES	Single European Sky
Statfor	EUROCONTROL Statistics and Forecast Services
TSU	Terminal Service Unit

ANNEX 2: Respondents to the draft determination

The following parties responded to the draft:

- Dublin Airport Authority
- International Air Transport Association
- Irish Aviation Authority
- Ryanair