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**Submission to the
Commission for Aviation
Regulation**

on

**Proposed Maximum Level of
Airport Charges
Draft Determination and
Explanatory Memorandum
CP6/2001**

AerRianta

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EXECUTIVE SUMMARY

This submission is being made by Aer Rianta in response to the Commission's request to interested parties and the public to make written representations in respect of the Draft Determination and Explanatory Memorandum on the Proposed Maximum Levels of Airport Charges (CP6/2001) and in the context of consultation as set out in Section 32 of the Aviation Regulation Act, 2001. The key points raised in the submission are as follows

It is critical that the regulation of maximum levels of airport charges is based on economic principles from the outset as this will be a key factor underpinning the company's ability to invest in airport infrastructure in the future and the sustainability and value of the company itself.

Aer Rianta welcomes some elements of the approach to regulation as set out in CP6/2001 which has been adopted by the Commission in order to achieve the maximization of economic welfare on the basis of the ten statutory factors set out in Section 33 of the Aviation Regulation Act 2001. The framework adopted is similar to that used for regulation of airport charges in the UK. This is appropriate in the context of similarities in market conditions with the Irish airports.

Aer Rianta does not agree with the bases underlying some elements of the Draft Determination and the company's proposals on the key matters which are discussed in detail in the sections that follow are:

- Aer Rianta should be regulated as a single entity, not on an individual airport basis, in order to ensure that maximum benefits from economies of scope are maintained, the efficient and effective use of resources by the airport authority as set out in Section 33 (c) of the 2001 Act is achieved, the regulatory burden is minimised and the role of airports as engines of growth at a regional level is preserved.
- Aer Rianta agrees with the use of an incentive regulatory price cap of the form CPI+X, applied to the average aeronautical yield per work load unit (WLU). In this instance, a +X factor is required due to the heavy investment in capacity which is required over the period of the determination. This model will provide Aer Rianta with appropriate commercial incentives, ensure that economic welfare is optimised and will provide for the sharing of ongoing efficiency benefits between the airport authority and users. It is the appropriate basis to enable the company to carry out its statutory mandate for the proper operation, development and maintenance of the airports and permits the company the flexibility required through the pricing structure to effectively manage the efficiency and effectiveness of its operations.
- A tariff basket approach to setting airport charges would be an inappropriate option to apply as it would limit the company's

flexibility to react to market dynamics and would be almost impossible to implement given the company's stated intention to restructure its pricing.

- Aer Rianta does not consider the use of sub caps to be appropriate. Their use is inconsistent with the objective of imposing the minimum restrictions on the airport authority consistent with the functions of the Commission and with the statutory requirement set out in Section 33 of the Act, where the Commission is obliged to have due regard to the efficient and effective use of all resources by the airport authority.
- It is essential that a correction factor be incorporated into the regulatory formula to account for prior year errors and cost pass through mechanisms should be applied to take account of externally imposed risks and uncontrollable circumstances including sudden and unforeseen increases in security costs, corporate tax charges and the cost associated with economic regulation.
- Aer Rianta believes that dual till regulation is the most appropriate form of economic regulation for airport charges. We welcome the Commission's consideration of a dual till approach to regulation in line with international precedent. Consistency in application of approach to the three airports would be important to delivering a stable regulatory environment for all airport users. The application of the dual till to airports should not be predicated on capacity constraints. The single till approach extends the scope of economic regulation, distorts investment incentives within the till and provides inappropriate incentives to develop activities outside of the till as these factors apply equally at congested and uncongested airports.
- CP6/2001 refers to excluding income and costs from "new commercial investments" at Dublin airport from the regulatory till. It is unclear how the Commission might implement this proposal. A practical way of implementing this approach might be to cap the single till contribution from commercial revenues at Dublin airport to a set level obtaining at an agreed point in time, whilst retaining the associated assets in the regulated asset base. The treatment of operating and maintenance costs related to future investment must also be considered.
- Aer Rianta is strongly opposed to the Commission's proposed reduction in the value of its asset base in relation to Pier C and the Shannon Airport Terminal Development. Apart from this adjustment being unwarranted, these developments were also approved by the regulator of the time. Any attempt at this stage by the Commission to disallow already incurred costs would be a retrospective exercise of regulatory power under the Aviation Regulation Act, 2001. Regulatory risk of this kind could also be seen as setting a precedent which could

potentially have serious negative consequences for future investment.

- Aer Rianta strongly disagrees with the use of historic cost net book value for the valuation of the regulated asset base (RAB) as it has no economic justification. The application of a replacement cost methodology best fulfils the requirement of the 2001 Act.
- In order to ensure that Aer Rianta is capable of delivering facilities to meet customer demand and requirements in the future, the appropriate methodology for the valuation of assets within the regulatory till would be replacement cost and the asset values should be rolled forward in a manner designed to ensure that development can be sustained. Aer Rianta has assessed the replacement net book value of assets at 31st December 2000 as being IR£660m.
- The application of an indexed historic cost approach is superior to the historic cost methodology in terms of its ability to maximise welfare, however, it may send inadequate price signals to the market about the cost of capacity maintenance or expansion and may not generate sufficient revenue to fund capital programmes. Aer Rianta has also calculated the valuation of its asset base on an indexed historic cost basis and this amounts to £510m at 31 December 2000.
- An appropriate approach to calculating the RAB at future price reviews consistent with the approach to the valuation of the RAB is necessary. A financial capital maintenance (FCM) approach to the rolling forward of the asset base would be a superior method when assets are valued on the basis of replacement cost in order to ensure that shareholder and debtor value is maintained. The only appropriate option available to the Commission at this stage is to state that at the next price review, the RAB will be rolled forward on the basis of Aer Rianta's actual capital expenditure.
- The Commission in CP6/2001 formulated its estimate of capital investment for the three airports over the ten year period. Aer Rianta does not have enough information from the Commission to understand how it arrived at this estimate in the context of its regard to the factors set out in Section 33 of the 2001 Act. The Commission must recognise and take account of the statutory responsibilities on the company as set out in legislation, regulations and directives and in the company's Memorandum and Articles of Association in making its determination. In particular the Commission must be cognisant of the statutory mandate on the company as set out in Section 16 of the 1998 Act whereby it must ensure the provision of such services and facilities as are in the opinion of the company necessary for the operation, maintenance and development of the airports.

- The capital investment plan 2001-2010 included in this submission includes the projects which the company considers, with the assistance of extensive expert advice, to be necessary for the proper operation, maintenance and development of the airports. Aer Rianta believes that the plan is required to facilitate the development and operation of cost effective airports which meet the requirements of users and expects the Commission to adopt the capital expenditure plan in full.
- It is critical that the determination on the maximum levels of airport charges allows for the quantum of the necessary investment projects put forward by the company. The consequences of not being allowed sufficient quantum for investment will include capacity constraints, congestion, inadequate service levels, safety risks and will inhibit the growth and development of new routes and services and the entry of new airlines into Dublin, Shannon and Cork airports.
- It is necessary to ensure that all capital and operating costs are recovered, from the time that they are incurred, to ensure sustainability of operations.
- Aer Rianta's ability to fund ongoing investment in the future is dependent on achieving a reasonable rate of return on assets. The rate of return permitted should be equivalent to the cost of capital, which must be derived in the light of the specific market conditions within which Aer Rianta operates. Aer Rianta proposes a real pre-tax dual till rate of return of 9.8 % and on a single till basis this should be 10.8%. The Commission's inference that the cost of capital for Aer Rianta has been estimated with reference to other regulatory decisions introduces the possibility of significant biases. There is no objective and theoretically rigorous method to adjust cost of capital estimates for such factors.
- Benchmarking can provide useful information for the Commission where appropriate comparisons are made, although there are many difficulties in obtaining accurate comparative data. In particular, comparisons must be made on the basis of similar investment and operating profiles. Aer Rianta considers that the methodology used and the conclusions drawn from the Commission's benchmarking exercise were seriously flawed and do not provide a basis for determining efficiency factors.
- Aer Rianta has factored challenging operating efficiency targets into its airport charges proposal for the forthcoming regulatory review period. Aer Rianta considers that its projections in relation to operating efficiency provide the best available information in order to set targets. These projections are firmly set in an understanding of Aer Rianta's actual cost base and scope for efficiencies (rather than a high level and unreliable efficiency comparison with other

airports), and they assume that Aer Rianta will continue to achieve significant gains in operating performance.

Overall, Aer Rianta is committed to assisting the Commission in its task of ensuring that the requirements of current and prospective users are met in an economically efficient manner, while retaining for itself the commercial and operational mandate conferred in the Air Navigation and Transport (Amendment) Act, 1998 and other legal and regulatory mandates under which it must operate.

Following careful consideration of the Commission's determination Aer Rianta has developed a proposal for a maximum level of airport charges which incorporates elements of the Commission's draft proposals and some essential elements of Aer Rianta's original submission to the Commission. In this context Aer Rianta proposes:

- The determination of maximum levels of airport charges in the form of a price cap based on average yield per work load unit on a group basis of £6.52
- A single till composition which excludes ARI, Great Southern Hotels and joint venture property companies
- The valuation of the asset base at 31 December 2000 on an indexed historic cost basis at a value of £510m
- A capital investment plan for the three airports over the period 2002-2006 of circa £950m
- A real pre-tax rate of return of 10.8%

Following the Commission's determination on the maximum level of airport charges, Aer Rianta will develop a pricing structure for airport charges at Dublin, Shannon and Cork airports which takes account of the market conditions in which it and its customers operate.

PREAMBLE

The three Aer Rianta airports are among the fastest growing in Europe. Dublin Airport has doubled in size over the past seven years. Cork and Shannon airports have added almost a million passengers each to their total throughput in the same period. 18.3 million passengers passed through the airports in 2000 and this is forecast to grow to 29 million passengers per annum by 2010 and to almost 40 million by 2020.

The Commission for Aviation Regulation was established under the Aviation Regulation Act, 2001(2001 Act) on 27th February 2001. The Act requires the Commission, no later than 6 months from its establishment, to make a determination specifying the maximum levels of airport charges that may be levied by an airport authority at any Irish airport with more than one million passengers in the previous year.

Aer Rianta is the airport authority which owns Dublin, Cork and Shannon airports. All of its airports meet the threshold set in the legislation and airport charges levied by Aer Rianta at the Irish airports are therefore subject to the Commission's determination.

Aer Rianta is a public company limited by shares, operating under the Companies Acts 1963-2000. Its statutory mandate derives principally from the Air Navigation and Transport (Amendment) Act, 1998 (1998 Act). This legislation sets out the duties and responsibilities of the airport authority. The provisions of the 1998 Act are also enshrined in the Company's Memorandum and Articles of Association.

Section 16 of the 1998 Act provides the company with the powers to manage, develop and establish airports

- (1) *The company shall manage and develop the airports vested in it by section 14 and any other airport that may from time to time be established or owned by the company pursuant to subsection (3).*
- (2) *The company shall ensure the provision of such services and facilities are, in the opinion of the company, necessary for the operation, maintenance and development of State airport, including roads, bridges, tunnels, approaches, water supply works and watermains, gasworks and gas pipelines, sewers and sewage disposal works, electric lines, telecommunications facilities, lights and signs, apparatus, equipment, buildings and accommodation of whatever kind.*

Section 23 of the Act determines that the principal objects of the company shall be:

- a) *to own, either in whole or in part, or manage, alone or jointly with another person, airports whether within the State or not,*
- b) *to take all proper measures for the safety, security, management, control, regulation, operation, marketing and development of its airports,*

- c) *to provide such facilities, services, accommodation and lands at airports owned or managed by the company for aircraft, passengers, cargo and mail as it considers necessary,*
- d) *to promote investment at its airports,*
- e) *to engage in any business activity, either alone or in conjunction with other persons and either within or outside the State, that it considers to be advantageous to the development of the company, and*
- f) *to utilise, manage and develop the human and material resources available to it in a manner consistent with the objects aforesaid.*

Section 24 of the Act provides that the general duties of the Company shall be:

- a) *to conduct its affairs so as to ensure that the revenues of the company are not less than sufficient taking one year with another to-*
 - i. *meet all charges which are properly chargeable to its revenue account,*
 - ii. *generate a reasonable proportion of the capital it requires, and*
 - iii. *remunerate its capital and pay interest on and repay its borrowings,*
- b) *to take such steps either alone or in conjunction with other persons as are necessary for the efficient operation, safety, management and development of its airports,*
- c) *to conduct its business at all times in a cost-effective manner, and*
- d) *to regulate operations within its airports.*

In carrying out its functions, the Commission should consider Aer Rianta's statutory obligations in respect of operation and development of the airports.

This submission is being made by Aer Rianta in response to the Commission's request to interested parties and the public to make written representations in respect of the Draft Determination and Explanatory Memorandum on the Proposed Maximum Level of Airport Charges in Ireland (CP6/2001) in the context of consultation as set out in Section 32 of the Aviation Regulation Act 2001. One of the main purposes of CP6/2001 was "*to allow interested parties to ascertain in general terms the impact or effect of the proposed determination and to inform interested parties of the Commission's degree of reliance on the statutory factors*".

Section 33 of the Aviation Regulation Act 2001 sets out the statutory factors which the Commission must have regard to in making a determination in respect of airport charges. It states that the Commission shall aim to facilitate the development and operation of cost effective airports which meet the requirements of users. In carrying out this statutory objective, the Commission must have due regard to

- The level of investment in airport facilities at an airport to which the determination relates, in line with safety requirements and commercial operations in order to meet the current and prospective needs of those on whom the airport charges may be levied

- A reasonable rate of return on capital employed in that investment, in the context of the sustainable and profitable operation of the airport
- The efficient and effective use of all resources by the airport authority
- The contribution of the airport to the region in which it is located
- The level of income of the airport authority from airport charges at the airport and other revenue earned by the authority at the regulated airports and elsewhere
- Operating and other costs incurred by the authority at the airport
- The level and quality of services offered at the airport by the airport authority and the reasonable interests of the users of these services
- The cost competitiveness and operational efficiency of airport services at the airport with respect to international practice
- Imposing the minimum restrictions on the airport authority consistent with the functions of the Commission
- Such national and international obligations as are relevant to its functions.

The Commission has indicated that it will apply a test of economic efficiency in selecting the option which best meets the statutory requirements.

This paper is Aer Rianta's response to the Commission's invitation under the statutory consultation process. In replying to the Draft Determination it requests that the Commission have due regard to its previous formal submission dated 27th March 2001, and its response to submissions by other entities dated 27th April 2001 and our presentation to the Commission at the public meeting on 17th July 2001.

This paper addresses the issues raised and proposals made in the Draft Determination and is arranged in two sections. Section I discusses the Commission's Draft Determination in terms of each of the building block component and attempts to indicate the areas which in our opinion are contrary to the obligations of the Commission under the Aviation Regulation Act, 2001. This section also outlines our views on the appropriate methodologies and approaches which it feels the Commission should adopt in arriving at its final determination with respect to the maximum level of airport charges. Section II comprises our proposal in relation to the maximum level of airport charges and sets out the key components on which our conclusions are based.

It would be impossible to address the issue of airport charges in an Irish context without reference to the heated debate which regularly surrounds this topic, even in the context of a formal submission to the Commission. The level of airport charges has been and remains a very emotive issue in Ireland over the last two years. The provision of airport charges below cost is being promulgated as a measure which will deliver tourism growth, airline profitability, route development etc. These claims are essentially special pleadings for a subsidy usually not supported by any serious economic

analysis. However there is a statutory responsibility on the company under the 1998 Act to ensure the proper operation, management and development of the three airports and to provide such facilities and services as it considers necessary to achieve this objective. It is critical that the determination of maximum airport charges does not contravene this statutory objective for the proper operation and development of the airports.

The consequences of this would be far-reaching and would then have a serious impact on development not just in the regions but in the national economy. In the medium to long term, lack of appropriate infrastructure and services and adequate capacity at airports would constrain growth in access into Ireland far more than any short term reductions in airport charges. Equally, lack of capacity and facilities is the biggest factor which would deter the development of new routes and services in and out of Ireland. Actions which inhibit investment in new capacity and appropriate services levels at airports create a significant barrier to entry for new airlines and services thus generating market power for the incumbent airlines.

It is very clear that Government policy is that the airports must be operated on a commercial basis and there is no recourse to Government funding, grants or guarantees. This was clearly articulated during the Oireachtas debates on the development of the 2001 Act under which the Commission operates. The Minister for Finance indicated to the company's Annual General Meeting that he expects the company to pay dividends to the Minister as shareholder. Aer Rianta fully accepts this commercial mandate.

Confusion is regularly created that airports are in some way inhibiting competition among airlines and therefore impacting on value for the consumers. Airport authorities are the critical players in ensuring that new airline entrants are encouraged to open up new routes and airports thereby encourage competition on all routes and this activity has a greater impact on traffic growth than changes in airport charges.

Aer Rianta is available to discuss this submission in detail with the Commission.

SECTION I: AER RIANITA RESPONSE TO THE DRAFT DETERMINATION

1.1 Introduction

The Commission issued its preliminary determination on the regulation of airport charges in CP6/2001. Aer Rianta agrees with the Commission's assessment that facilitating the development and operation of cost-effective airports and meeting the requirement of all users as required by the Aviation Regulation Act, 2001 is best evaluated by applying the test of increasing economic efficiency. In order to facilitate the statutory requirement for minimising the number of restrictions imposed on the regulated entity the test of economic efficiency should form the basis on which regulation is applied in the case of Irish airports.

Aer Rianta also agrees with the Commission that users should be defined in the widest possible sense to include all users of airport facilities. This would best be achieved by extending the definition of airport users put forward by the Commission in CP6/2001 to include the local communities in which the airports are situated as they are impacted by the development of the airports in their area/region.

Despite general agreement on many issues, Aer Rianta is nonetheless of the view that the preliminary determination was not adequately detailed in some respects so as to allow Aer Rianta to assess fully certain key aspects and therefore the implications of the Draft Determination for the company. Aer Rianta has already sought clarification in respect of a number of key issues without success. The Commission has indicated that it does not believe that any further elaboration of CP6/2001 is required. Consequently, Aer Rianta has been potentially constrained in terms of its ability to deal comprehensively, in this submission or otherwise with the Commission, with all matters relevant to the Commission's draft determination and by extension to its final determination.

This Section presents Aer Rianta's response to the preliminary determination and highlights where there are ambiguities which prevent a clear understanding of the Commission's intentions. The form of the price cap is analysed in Section 1.2. Regulation of the airports as a group is discussed in Section 1.3. Section 1.4 discusses the approach adopted in relation to the regulatory till. Section 1.5 discusses the regulated asset base and the Commission's proposed adjustments to the initial valuation. The Weighted Average Cost of Capital (WACC) is discussed in Section 1.6, followed by a discussion of the proposed capital expenditure in Section 1.7. The Commission's approach to benchmarking is evaluated in Section 1.8. The remaining questions raised by CP6/2001 are discussed in Section 1.8.

1.2 Framework for Regulation

The Aviation Regulation Act 2001 does not prescribe the form of regulation, other than stating that the Commission must determine the maximum level of charges to apply for successive five year periods. Following almost unanimous recommendations from respondents to CP2/2001, we welcome the Commission's indication that it will adopt incentive regulation through the use of a price cap based on a CPI-X formula. In this instance, however, Aer Rianta is of the view that a +X factor is required due to the substantial investment in capacity which is required over the period of the determination.

Incentive regulation puts the onus on the business to achieve efficiency improvements and meet customer requirements. Aer Rianta is of the opinion that the most effective way to do this is to provide the company with appropriate commercial incentives. These can be achieved by the Commission through the adoption of standardised economic asset valuation processes, allowing a rate of return that is commensurate with risk and the implementation of appropriate processes to facilitate the sharing of out performance.

The Commission's approach as set out in the Draft Determination indicates that it will take a "building block" approach to determining the price cap from which Aer Rianta will develop a pricing structure for airport charges at Dublin, Shannon and Cork airports in the context of the market conditions in which it operates. In its most basic form, this revenue requirement is normally assessed as the sum of the return on capital, the return of capital and operating costs. Each of these elements will be discussed in detail in subsequent sections.

Form of Price Cap

The Commission's stated intention is to implement regulation on the basis of the average aeronautical yield per work load unit. The precise composition of the Commission's work load unit is not clear to Aer Rianta at this point. Aer Rianta would welcome clarification on the elements included in the Commission's final determination e.g. Aer Rianta has been unable to determine whether transit passengers have been included for the purpose of calculating the Commission's WLUs. This is an important point - though transit passengers are not levied with a passenger charge at present they utilise the runways, taxiways, apron etc. Aer Rianta believes that the most appropriate WLU formulation would be to include all air traffic.

Aer Rianta agrees that regulation of average aeronautical yield is the best approach for the following main reasons

- It is simple to apply, especially in situations where customers often require a complex range of inter-related services.
- It facilitates changes to the structure of charges, the introduction of new services and charges within the regulated till, or the withdrawal of old charges that are no longer appropriate, as market conditions and customer requirements change over time.
- The revenue yield approach gives Aer Rianta the incentive to stimulate growth of new routes and services from the three airports. This would allow Aer Rianta to comply with the requirement under Section 24 (3) of the Air Navigation and Transport (Amendment) Act, 1998 i.e. that it should have due regard to the development of air transport in carrying out its functions and the policy objectives set by the Minister.
- By allowing the airport operator the flexibility to set its own pricing structure in response to market imperatives, the revenue yield approach facilitates the minimisation of restrictions imposed on the airport operator in accordance with Section 33 of the Act and encourages more effective and efficient use of resources.
- Mainly for these reasons, it is commonly applied in the case of airports, most notably in the UK and in Australia. It has been applied consistently by the CAA in the regulation of the designated UK Airports since the enactment of the Airports Act 1986

Tariff Basket Approach

In CP6/2001, the Commission has invited consideration of the "*feasibility of a tariff basket of revenues given Aer Rianta's stated objective to substantially restructure its charges*". The tariff basket approach involves the application of a price cap to the weighted average charge, as developed from weighting individual charges in a 'basket' of charges with their share of the revenue in the previous period - for example, a weighted average of airport charges with weights based on revenue from terminal, runway and parking charges in the previous period.

Aer Rianta considers that the application of a tariff basket approach to setting airport charges would be an unsuitable option to apply in this context for the following reasons:

- Problems arise in applying the tariff basket approach when new products, with no previous revenue weight, are introduced. As indicated in its initial submission to the Commission for Aviation Regulation dated

27th March 2001, Aer Rianta is proposing a new structure for airport charges, which is designed to encourage behaviour modification on the part of users so as to ensure efficient use of facilities in the future. To apply a tariff basket form of the price cap would be inappropriate in such circumstances as it would be inaccurate to base future projections on historic patterns which would no longer be applicable. The existing charges structure was developed pre 1987 and no longer meets the business requirements to ensure the efficient and effective use of all resources at the airports.

- While it allows some flexibility for rebalancing charges between existing services, the tariff basket is much less suited to situations where substantial changes to the structure of charges may be required. If charges are found to have been inappropriately structured over the period of the price determination, the risk of economic failure and damage to the regulated entity or to its customers is high. This is particularly relevant in the case of Aer Rianta as the existing charging structure has pertained for three decades and the company has already indicated to the Commission in previous submissions that significant changes to the charging structure will be required.
- To fully meet the requirements for the introduction of a tariff basket for airport charges would prove a costly and time-consuming exercise, which would not be in keeping with the provisions of Section 33 of the Aviation Regulation Act 2001, relating to the minimisation of costs and restrictions on the regulated entity. This complex approach would also pose a significant challenge to implement given the tight time constraints implicit in the six months allowed to reach the first determination.
- It may be difficult for firms to change price part way through the year under the tariff basket approach. Thus a tariff basket might make it more difficult for Aer Rianta to react appropriately to changing market conditions.
- Since the Commission has not put forward a preliminary assessment of the appropriate values in applying a tariff basket to Aer Rianta's airport charges structure as part of its Draft Determination, it has not afforded the airport authority, the airport users or the public the opportunity for adequate consultation on this matter. Therefore it would not be appropriate for the Commission to introduce a tariff basket structure in its final determination on the maximum level of airport charges.
- The tariff basket is more appropriate to the regulation of industries such as telecommunications, where there is a series of distinct and independent activities and services to which the basket can be related. However, the use of the tariff basket is less appropriate in the case of airport operations where a number of charges have inter-related cost drivers.

- The tariff basket approach is not widely supported. According to MMC4¹, following extensive experience of regulation, neither the airlines, the CAA or the BAA in the UK expressed any support for a tariff basket approach.

Aer Rianta considers that the determination specifying the maximum level of airport charges should provide for an overall limit on the level of airport charges as set out in Section 32 Subsection 6(a) (i) rather than individual charges or to a basket of charges. The company recommends a revenue yield price cap on the basis that capping the charge based on revenue per WLU would be the most appropriate way of expressing the determination for maximum airport charges for Dublin, Cork and Shannon Airports. In addition this approach allows for greater simplicity of administration, pricing flexibility in the context of changing market conditions and resulting advantages in terms of increasing economic welfare.

Sub Caps

The Commission has made a number of different statements with respect to its intentions regarding the application of price caps. Under point 9 ("imposing the minimum restrictions on the airport authority consistent with the functions of the Commission") it suggests the possibility of one other sub cap in addition to the revenue cap per workload unit. In the explanatory memorandum this sub cap is mentioned in the context of off peak use of the runway at Dublin Airport. However, under point 7 there is also a mention of consideration of sub caps on particular services/facilities at Dublin Airport in the context of addressing lower cost facilities.

Aer Rianta is opposed to the application of any sub caps, as they will severely restrict the ability of the airports to use the structure of airport charges to maximise economic efficiency. The application of sub caps would also conflict with the Commission's stated intention to afford Aer Rianta discretion in structuring its airport charges thereby enabling it to comply with Section 33(i) of the 2001 Act. The ability to adjust pricing structures in response to market dynamics is an essential requirement for any business, and is also fundamental to the principles of competition and the desire of the Commission as expressed in CP2/2001 to reflect as closely as possible through its function a competitive market environment.

Sub Caps on Service

Aer Rianta believes that sub-caps for different levels of service quality are inappropriate as, in CP6/2001, the Commission accepted Aer Rianta's submission that the basic standards for passenger terminal buildings should be set with reference to IATA service standard B and ICAO and other industry standards for other facilities. Under the proposals put forward by Aer Rianta, and agreed with the Commission, this basic standard will apply

¹ MMC4, A Report on the Economic Regulation of the London Airports Companies, June 1996

to all passenger groups. Airport users willing to pay for additional service elements above this basic minimum will then be able to purchase additional services. For example, air bridges are charged on a separate and independent basis allowing user groups to choose a higher quality of service than the agreed minimum. Similarly, Aer Rianta proposes to offer rebates to carriers which use remote stands as opposed to building served stands.

It is not easy, in practice, to differentiate the service provided within most of the passenger handling facilities at an airport. Many facilities (access roads, kerb, landside concourse, departures concourse, security, immigration and customs) are common to all passengers and differentiated lower services levels are difficult, if not impossible to justify, particularly given the stringent regulatory requirements with respect to safety and security which must be upheld. Some, facilities such as check-in and baggage reclaim have been designed as common systems and a reduction in service level to one airline would have an adverse impact on other adjacent facilities. (For example, increasing check-in times would increase queue lengths and these queues could then extend across the circulation routes used by passengers of other airlines).

When low cost carriers request low cost facilities they usually mean efficient facilities at less than cost. It does not necessarily follow that these are cheap to provide. For example, low cost carriers preference for contact stands to facilitate quick turnaround of aircraft requires extensive expenditure on the part of the airport operator. Furthermore, there is no evidence to suggest that the airport facilities required by passengers travelling with low cost carriers are materially different to those of other passengers. The CAA noted this when it stated that²

Even where multi-lateral contracting is feasible, there will be services which are not valued strongly by airlines but would be valued by passengers. In these cases leaving standards to be determined by direct contracting runs the risk that these preferences will not be met.

The use of sub caps in this manner could give rise to a number of potential distortions, particularly if the differential were set at too high a level vis

- inaccurate price signals, leading to overuse of the designated "lower cost" facilities and under use of other parts of the airport, even though these facilities were provided in response to airlines' demands in the absence of market distorting differentials;
- penalisation of those airlines still choosing to use Aer Rianta's normal facilities. Within an overall price cap, the impact of offering too high a discount for "lower cost" facilities is that other airport users will be left to fund a disproportionate share of Aer Rianta's costs.

² CAA, *Direct Contracting Between Airports and Users: A Default Price Cap Consultation Paper*, February 2001

Given the Commission's stated commitment to IATA standard B, the potential for distortions in pricing signals and the implications for other airport users, Aer Rianta is of the view that sub caps for facilities of a standard lower than the agreed default level is not appropriate.

With respect to sub-caps for off-peak use of the runway at Dublin airport, the Commission would need to ensure that any sub cap applying to off peak runway charges at Dublin still allowed Aer Rianta to recover the full cost (taking account of all demands made on airport services) of providing airport services at off-peak times. Moreover, in order to set up such a sub cap, the Commission would need to take full account of the likely demand response by airlines to differential pricing, both to ensure that Aer Rianta would still be able to finance its activities and also to take account of "shifting peak" phenomenon, whereby the introduction of peak pricing leads to significant and sometimes undesirable shifts in the pattern of demand.

If the Commission were to set any such sub cap at too low a level, giving an inappropriate incentive for airlines to switch services to off-peak times, this could result in many passengers being forced to travel at inconvenient times, simply because of the pricing distortions caused by the price cap. At the same time the Commission would need to be able to model such shifts accurately in order to avoid serious under-recovery of costs and financial damage to the company over the course of a quinquennium.

Sub Cap for Cargo

At the Commission's public hearings, concerns were expressed that cargo charges would increase substantially under the present Draft Determination, and therefore the Commission should set a sub cap for this particular user group. However, the perception that cargo charges would increase under the present proposals appeared to be based on the misconception that the yield per WLU implied a relative pricing structure between passengers and cargo. As the Commission already stated at the hearings, the proposed price cap does not set relative prices; the ability to set prices for different services is being retained by Aer Rianta subject to a constraint on maximum yield. Aer Rianta would like to reiterate that the structure of prices, as set out in its initial submission to the Commission, will be cost-reflective, and thus a sub cap for cargo services is not required.

In conclusion, notwithstanding the overwhelming case against sub-caps, were the Commission to determine that any sub caps be introduced they must be based on robust evidence about Aer Rianta's current and future cost structures. Any proposed sub cap reflecting supposed lower cost facilities, for example, would need to be based on reliable estimates of the current and future costs of such facilities, as compared with the current and future costs of Aer Rianta's normal service.

Aer Rianta does not consider the use of sub caps to be appropriate. Their use is inconsistent with the objective of imposing the minimum restrictions

on the airport authority consistent with the functions of the Commission. If sub caps were set at too low a level, for example because the Commission had not been able accurately to estimate the relative variable costs necessary to set such caps, this could result in significant distortions and a substantial loss of economic efficiency. The use of sub-caps is inconsistent with the statutory requirement set out in Section 33 of the Act, where the Commission is obliged to have due regard to the efficient and effective use of all resources by the airport authority.

Other Elements of the Price Formula

CP6/2001 does not provide details of the proposed pricing formula which will be used to derive the maximum level of airport charges. The important components of the formula are set out below

With a revenue yield approach to a price cap, it is essential that there is a correction factor for prior year errors in the regulatory formula. This need arises from forecasting uncertainty. When airport charges are set, Aer Rianta is basing its revenue projections on forecast data, and the actual outcome may show differences for a number of reasons including the contribution from the various revenues streams diverging from the forecast, the number of workload units and the number of aircraft movements may differ from forecast. This will distort the revenue yield per passenger from the projected value in either case. Hence there should be a provision for adjustment (upwards and downwards) of the revenue yield allowed in later years. Such adjustment mechanisms are widely used in other regulatory regimes where prices caps are set on a revenue yield basis.

One of the most important aspects in the design of a robust regulatory system is the striking of a proper balance between risk and reward. Unanticipated cost changes can come from exogenous factors which are not within the control of the company. The size of these effects should be measured and the company should be insured against them by passing the impact through to customers by way of price adjustment. Cost pass-through mechanisms exist to take account of these effects. This is entirely consistent with the workings of a competitive market, whereby exogenous cost changes affecting all firms will be entirely passed on to consumers.

One of the key externally imposed risks and uncontrollable circumstances, which impact on aeronautical revenue is the additional security costs which may be exogenously imposed in accordance with new directives /legislation at national or international (e.g. ICAO or EU) level. Airports must implement these regulations regardless of the cost implications. For example, recent decisions by the UK Government in respect of greater segregation of arriving and departing passengers has resulted in the BAA increasing planned spend by 10% over the next ten years to fund the resultant required changes to infrastructure in its forthcoming capital investment programme.

The UK airports regulator allows the BAA and Manchester airport to pass through sudden and unforeseen increases in security costs at a level of 95 per cent (the S factor in the UK pricing formula). Partial pass through ensures that the airport authority has an incentive to find the least cost method of implementing the new security arrangements while the requirement that the cost be passed through one year in arrears affords the regulator an opportunity to verify the additional costs. It is debatable, however, whether there should be any reduction in the allowance against costs imposed by mandatory security requirements.

Aer Rianta is proposing that its corporate tax charge be treated on a cost-pass through basis and that tax costs are directly included in allowed revenue as an operating cost. This relates to the fact that the cost of capital is proposed to be set on a post-tax basis. This approach has the advantage that is more likely to give a more accurate estimate of Aer Rianta's tax liability over the regulatory period than the application of a simple tax-wedge to a post-tax Weighted Average Cost of Capital formula given the substantial uncertainty surrounding Aer Rianta's future tax liability in the context of recent changes to corporate tax rates. This approach also requires the agreement of an appropriate correction mechanism to correct for deviations of forecast tax liabilities from outturn.

The cost associated with economic regulation is also a legitimate externally imposed expense over which the airport authority has no discretion and should constitute part of the overall airport cost base which is taken account of through the pricing formula.

Incentive Mechanism

Implicit in the concept of independent economic regulation is the principle that the regulated company should be incentivised to improve productivity and efficiency. By making a cost saving, the company demonstrates to the regulator that a saving is possible. In some early applications of incentive regulation, regulators have immediately confiscated the benefits of such savings, by insisting they are reflected in lower prices at all future reviews. Over the long term, this "ratchet effect" significantly weakens the incentive for the company to make the cost saving in the first place. Particularly towards the end of each price control period, companies will have incentives to delay making cost savings until after the next price review has been completed, in order to retain the benefits of such savings for a longer period of time.

In the medium and long term, the interests of the consumer, the users, the regulated company and the shareholder are best served by a charging regime which allows for the sharing of both operating efficiencies and capital efficiencies on an ongoing basis. Best practice regulation now involves rolling efficiency allowances under which the regulated entity keeps the benefits of operating expenditure reductions for a fixed period of

time e.g. five years, regardless of when gains occur in relation to price reviews. This approach is the one best geared to drive continuous innovation, efficiency and service improvements to the benefit of both consumer and regulated company.

Aer Rianta appreciates that the implementation of this approach is primarily a matter for future price reviews and would invite the Commission to clarify its intentions at an early stage to provide regulatory certainty during the current review period and in order to ensure the maximum effectiveness of incentive regulation. Aer Rianta would welcome the opportunity to discuss the concept in detail with the Commission.

1.3 Regulation as a Group

Section 32 subsection 4 of the Aviation Regulation Act, 2001 states that

Where it appears to the Commission that two or more airports are either-

- a) managed by the same airport authority, or*
- b) that they are owned by the same person and operate as a group of airports whose activities are co-ordinated by that person,*

any determination in relation to any one of those airports may be made by reference to the aggregate of amounts levied by way of airport charges at that airport and amounts so levied at the other airports.

The Commission is thus granted the discretion to choose to apply a single price cap to a group of airports or to set individual price caps at each airport. In its Draft Determination and Explanatory Memorandum CP6/2001, the Commission proposes the application of individual caps at the three Aer Rianta airports.

Aer Rianta is strongly of the opinion that Dublin, Cork and Shannon airports should be regulated as a group. This is consistent with company strategy as discussed and submitted to Government in 1999. This allows the company to best achieve its statutory obligations set out in the Air Navigation and Transport (Amendment) Act, 1998 and meets the statutory objective and the ten statutory factors set out in Section 33 of the Aviation Regulation Act, 2001.

Economies of Scope and Cost Efficiencies

The nature of the airport business is such that it is characterised by

- a high level of fixed and sunk costs
- a ratio of fixed to variable cost which is extremely high
- investment which is subject to lumpiness and indivisibility
- economies of scale and economies of scope.

If the three Aer Rianta airports are regulated as a single unit this would present opportunities for maintaining benefits derived from economies of scale, scope and density. This is essential to the continuing long-term development of cost effective airports at Dublin, Cork and Shannon.

Economies of scope and scale occur in the airport industry where airports can spread corporate functions, compliance and regulatory costs, research and development, maintenance and engineering and other specialist skills across a number of aeronautical and non-aeronautical related functions. The operation of the three Aer Rianta airports as a group gives rise to cost efficiency gains through the pooling of resources in areas such as human

resources, retailing, property, finance, compliance/regulation, information technology marketing, procurement and technical/engineering.

The introduction of separate price caps across the three airports at Dublin, Cork and Shannon will increase the regulatory burden experienced by each individual airport. Additional management and administrative requirements will be placed on the airports in meeting the demands of regulation. In addition the marketing strategy of the company to utilise effectively capacity at all three airports would be affected. The cost efficiency gains derived through economies of scale from the operation of the airports as one unit would be diminished. Such an approach would be contrary to the requirement in Section 33 of the Aviation Regulation Act, 2001 whereby the Commission is obliged to have regard to the efficient and effective use of all resources by the airport authority. In order for the benefits of effective networking and economies of scope to be realised in the aviation sector, it is essential that a single price cap be introduced across the three regulated airports.

Implications for Capital Investment

The regulation of Aer Rianta as a unit is necessary to ensure a balanced and effective approach to the capital investment programmes. The regulation of the three airports under individual price caps would have serious negative implications for the extent, financiability and timing of the capital investment programmes at the individual airports.

The aeronautical sector is characterised by the lumpiness of its investment. There are exceptionally high costs associated with the development of new aeronautical capacity. If the capital expenditure requirement at each airport is compared with the revenue derived from each airport under individual price caps, investment incentives will be constrained at certain times at the individual airports.

Dublin, Cork and Shannon airports are currently at different stages in their development cycles, therefore the investment requirement at each airport differs considerably. Dublin airport is presently in the midst of a major development programme while a significant investment project was completed at Shannon airport in early 2000. Aer Rianta will need to undertake significant capital expenditure to provide greatly expanded capacity at Cork airport in the forthcoming regulatory period.

Regulation of the airports on an individual basis will restrict capital investment at the individual airports leading to losses in dynamic efficiency. This would call into question the ability of the individual airports to meet the long-term requirements of users in terms of capacity provision and the prospects for future development of the Irish airports. This is contrary to the stated statutory objective of the Commission to facilitate the

development and operation of cost effective airports which meet the requirements of users.

Individual airport caps based on the Draft Determination will not meet the users needs at Cork and Shannon airports as it will divert the development of routes and services to Dublin airport. Because Ireland is such a small country the impact of such a price cap strategy will be very significant in terms of market and demand distortion.

Regulation as a unit would allow Aer Rianta to balance the capital expenditure requirements across the three airports with respect to the investment cycles of the individual airports. This would lead to improved dynamic efficiency.

Regional Policy

The requirement of a single price cap in relation to the three airports is important not only for market stability but also in the interests of regional policy. In its Draft Determination and Explanatory Memorandum document CP6/2001 the Commission acknowledges the important economic contribution of all three Aer Rianta airports to their respective regions.

While it is clear that all three Aer Rianta airports make a valuable contribution to their respective regions, the relative economic contribution of Cork and Shannon as regional airports is proportionally more significant to those regions. Dublin is in fact a national gateway but has less relative significance in the regional context than Cork or Shannon in their regions. The airports are strategically placed to serve the transport infrastructural needs of their regions. They play a critical role in providing the necessary accessibility to maintain regional competitiveness.

The Irish Government has placed the development of the regional and international airport capacity as a core objective in its National Development Plan.

The draft NSS (National Spatial Strategy) recognised this in its recommendations and analysis.

- The airports act as economic hubs for both physically manufacturing goods and interactive goods (i.e. people) in a mature economy.
- The demands or demographics and road/rail infrastructure set the backdrop for the airport catchment area. The airport as an intermodal facility is recognised.
- That airports, in themselves, act as distorting magnets for development and demographics (like the cities they serve).

- That the requirements of the NSS will drive increasing development and spend in all the airports.

By setting maximum airport charges on an individual basis, Aer Rianta believes that the Commission is not having adequate regard to its statutory objective under Section 33(d) in relation to the contribution of the airport to the region in which it is located.

The Commission states in section 3.4 of CP6/2001 that it believes that by raising the maximum level of airport charges permitted at airport B in order to provide a regional subsidy to airport A, this will benefit region A at the expense of region B and therefore is not an appropriate option. The analysis fails to take account of the proportional effect of a subsidy of airport A by airport B and amounts to a very narrow interpretation of the statutory requirement under the Aviation Regulation Act, 2001 and does not reflect the views expressed by the Legislature during the Oireachtas debates on the Act.

The Commission indicated at its public meeting that it has not seen any evidence pointing to the net economic welfare effect of the use of a subsidy to promote the development of a regional airport. In the case of Dublin airport the proportionately small increase in airport charges necessary to provide further support for traffic development at Cork or Shannon airport will have a negligible effect on the economic contribution of Dublin airport due to the scale of operations at the airport.

However the corresponding support to Cork and Shannon airports may be sufficient to attract additional airline services which will benefit the airports' economic contributions to their regions. This is due to the fact that Cork and Shannon airports have a higher proportion of marginal traffic due to the comparative scale of their operations and therefore the price elasticity of traffic demand is believed to be relatively higher at these airports. The overall effect of such an approach is a net economic benefit to the country as a whole.

In its Draft Determination and Explanatory Memorandum the Commission has introduced higher maximum levels of airport charges at Cork and Shannon airports compared to Dublin airport. This will have the effect of increasing the relative competitiveness of Dublin airport at the expense of Cork and Shannon airports. This will potentially divert traffic away from Cork and Shannon airports towards Dublin airport, thereby reducing their collective contribution to economic welfare.

The Commission has suggested that Aer Rianta or Aer Rianta under the direction of the Government as shareholder could address the needs of the regional airports by the introduction of pricing below the maxima, however this would require that the company earn a rate of return below the cost of capital. The long term adoption of such a strategy could seriously damage the financial position and credit standing of the company. It would clearly render Aer Rianta unable to fulfill its mandate under Section 24 of the 1998

Act. It is inconsistent to determine the cost of capital and then to suggest that the fundamental principles of economics should be somehow suspended so that a non-existent surplus can be used to subsidise investment in the airports.

Aer Rianta believes that the Commission will best serve the interests of the development and operation of cost-effective airports which meet the requirements of all users by regulating the airports at Dublin, Cork and Shannon as a unit. The introduction of a single price cap for the three airports will permit a structure of relative charges that will promote overall economic efficiency. Regulation as a single entity will allow Aer Rianta to continue its successful strategic approach to balanced airport management and development. The Commission, in adopting this approach, will comply with its requirement under Section 33 of the 2001 Act to have due regard to the contribution of the regions in which airports are located and to the requirement that it place the minimum restrictions on the airport authority.

1.4 Regulatory Till

The consideration of the composition of the regulatory till is an extremely complex area and it is currently generating much debate in other jurisdictions. Before assessing the proposals put forward by the Commission it is necessary to examine the economic implications of a single or dual till approach to the regulatory till.

The Single Till

The single till principle has been widely applied in the airport industry since the Chicago Convention of 1944. The underlying premise is that due to the complementary relationship that exists between aeronautical and some other selected airport activities, revenue from the latter should be used to supplement aeronautical revenue thereby allowing for the subsidy of aeronautical activities by non-aeronautical activities.

Under the single till airport charges are derived from an asset base composed of aeronautical and non-aeronautical assets, although there has never been a consensus on which activities should actually comprise an appropriate single till. Revenues generated from non-aeronautical activities are used to cover a proportion of the common costs incurred in the operation of an airport facility. Thus aeronautical pricing proposals are formulated by combining net revenue from the aeronautical activities and net revenue from some selected airport activities. Airport charges under the single till may be lower than if they were based on the stand-alone costs of aeronautical assets.

A trend away from the single till has been observed in a number of jurisdictions. For example in Sydney, Schiphol, South Africa, Germany and the UK, the single till approach has been abandoned or is under review.

There are a number of implications arising from the application of the single till principle.

- The single till fails to provide cost reflective price signalling in the market. Under the single till prices for aeronautical services are supplemented by revenue from non-aeronautical activities therefore prices do not signal the stand-alone cost of provision of aeronautical services.
- The single till may give rise to under-priced aeronautical services, inflated demand, and the possibility of congestion. The price of aeronautical service derived from the single till may be artificially low and may in certain circumstances prohibit the market from clearing.

- The single till mechanism may distort future investment incentives in both aeronautical and non-aeronautical activities. Since the return on aeronautical assets through airport charges is not required to cover the full stand-alone costs incurred in the provision of aeronautical services, this dampens the incentive for investment in aeronautical capacity going forward.
- The fact that non-aeronautical revenue streams are used to supplement aeronautical revenue through the single till may act as a deterrent to investment incentives in non-aeronautical airport activities included in the single till. This approach creates additional incentives for investment in activities outside the single till. The combined effect of this is reduced dynamic efficiency in the airport sector as investment is discouraged in single till activities.³ This is an important factor as airport congestion and insufficient infrastructural investment reflects a lack of dynamic efficiency over time.
- The single-till mechanism extends the remit of regulation beyond the confines of aeronautical charges where the airport authority may have some market power into commercial non-aeronautical activities which are subject to vigorous competition. An airport regulator is permitted to extend the scope of ex-ante regulation into commercial and retailing activities in a manner in which there is no legal precedent.

Airports concerns with respect to the application of a single till framework were set out in an ACI-Europe working paper for the ICAO Conference of the Economics of Airports and Air Navigation Services (ANSConf) in June 2000. The paper states that while the single till helps to reduce airline operating costs in the short term through lower airport charges, in the longer term it distorts the market and gives rise to many of the problems listed above.

There is no regulatory precedent to support the introduction of the single till principle in the economic regulation of Irish Airports. All other regulated sectors which comprise businesses combining regulated and non-regulated activities apply a dual till.⁴

The debate on the single/dual till approach to airports regulation is best illustrated by reference to the UK, one of the most evolved regulatory environments for this sector. During its last review of BAA, the MMC⁵ found that:

there are, in our view, evident problems with the single till approach. Charges are lower than the overall cost of supplying the airport

³ Starkie, D. & Yarrow, G. *The Single Till Approach to the Price Regulation of Airports*, July, 2000

⁴ With the exception of rail networks

⁵ MMC4, BAA plc - *A Report on the Economic Regulation of the London Airports Companies*, Monopolies and Mergers Commission, 1996

services to airlines which is not in principle an economically efficient way of pricing.

The UK airports regulatory authority the CAA acknowledges the cross-subsidisation effect of the single till⁶,

Depending on the level of commercial profits, the single till may result in the commercial activities bearing a substantial share of an airport's common costs. It may even result in cross-subsidisation of the aeronautical activities if these fail to cover their incremental cost.

The CAA published an important consultation paper last December entitled "*The 'Single Till' and 'Dual Till' Approach to the Price Regulation of Airports*".⁷ The CAA concludes that the single till mechanism extends the parameters of airport regulation into non-aeronautical activities,

The most basic argument against the single till approach is that it is aeronautical charges relating to services provided by a firm with substantial market power which should be subject to economic regulation, not the commercial side of the business. To incorporate the commercial costs and revenues into the equation therefore widens the scope of the regulatory framework beyond the basket of services for which a robust diagnosis of market dominance is possible and for which price controls have therefore been deemed appropriate.

To conclude the application of the single till principle does not facilitate the statutory objective of facilitating the development of cost effective airports under Section 33 of the Act.

The Dual Till

The dual till system separates aeronautical and non-aeronautical activities of an airport enterprise as they are treated as separate and independent segments of the business. Airport charges are levied to cover the costs directly attributable to aeronautical activities plus the aeronautical share of common costs incurred by the airport facility. Application of a dual till would, in practice, result in an increase in airport charges, above single till levels. The introduction of a dual till offers substantial economic benefits over the single till approach as it provides for the possibility of enhanced economic efficiency.

- The dual till methodology offers benefits in terms of dynamic efficiency as it increases the incentive to invest in both the aeronautical and non-aeronautical sectors of the business. The incentives for investment in aeronautical assets are increased as the airport authority can earn a full return on aeronautical assets. The incentives for investment in non-aeronautical activities are also

⁶ CAA, *Issues for the Airports Review, Consultation Paper*, June 2000

⁷ CAA, *The 'Single Till' and the 'Dual Till' Approach to the Price Regulation of Airports Consultation Paper*, 2000

enhanced as the entity is entitled to a proper competitive return on these activities also.

- In the adjustment from a single till to a dual till mechanism the prices of under-valued aeronautical services increase, this ensures an improvement in allocative efficiency as prices become more cost reflective.
- The dual till approach also ensures efficient signals in the market regarding new investment in capacity. This eases congestion and allows the market for aeronautical services to clear. It also enables a more equitable distribution of scarcity rents between the airport and airline industry.
- The dual-till approach focuses regulation exclusively on the natural monopoly elements of the airport business, which is the only area where economic regulation is justified. There is a consequently lower level of uncertainty in forecasting a return on aeronautical investment as the risk factor involved relates solely to aeronautical activity.
- The dual till approach is increasingly gaining currency amongst experts in the area of airport regulation as the most rational approach from an objective economic viewpoint.

There are some concerns about the transition from single to dual till. They principally relate to the fact that the airport authority could achieve a windfall profit gain.

The CAA discusses the potential benefits to be gained in the move to a dual till. It recognises that windfall gains may occur through the removal of the single till where earnings are redistributed from airlines to airports. However, this redistribution is seen as a by-product of the improvement in economic efficiency associated with a dual till approach⁸,

a dual till would increase an airport's incentives to invest appropriately in new facilities, the scarcity rents would in the long run decrease (subject to exogenous constraints, such as restrictions on planning permission).

Even if planning restrictions constrained new investment, a move to a dual till would probably also increase pricing efficiency at congested airports because the difference between the prevailing and the market-clearing level of airport charges would become smaller. This would then be accompanied by a non-transitory transfer of scarcity rents from the airlines to the airports. This redistribution would be a by-product of an increase in economic efficiency....

In examining the Sydney Airports Corporation Ltd pricing proposal for Sydney airport, the ACCC concluded in its draft decision of February 2001

⁸ CAA, 2000, *op cit*

that the preferred approach was that of a modified dual till where certain non-aeronautical activities are considered when pricing aeronautical services.⁹

The model is applied as follows. Services defined as 'aeronautical' under Declaration 89 are incorporated into the cost base from which a 'dual till' estimate of aeronautical revenues is determined. The contribution from aeronautical-related services is then subtracted from this figure to generate the total allowable revenue from aeronautical services

The ACCC in its final decision of May 2001 on the aeronautical charges proposal for Sydney Airport concluded that the adoption of a dual till was the appropriate methodology.¹⁰

In general, it is the Commission's view that the dual till approach to pricing aeronautical services has considerable merit, as it focuses regulation on areas where the airport has market power and is more likely to promote efficient pricing outcomes than the single till.

In conclusion the dual till approach offers superior benefits in terms of overall economic welfare. It facilitates the development of a pricing structure for airport charges that allows for the effective and efficient use of all resources by the airport authority consistent with the statutory requirement under Section 33 of the Act.

Commission's Proposal For The Regulatory Till

In formulating the regulatory till, the Commission is determining the appropriate revenue streams that must be taken into account when deriving the maximum level of airport charges under Section 32 of the Aviation Regulation Act, 2001. The Commission states in its draft Determination and Explanatory Memorandum CP6/2001 that it "*must assess what are the appropriate revenues to be taken into account in determining maximum levels of airport charges so that economic welfare is enhanced*". The Commission also refers to the need to ensure that the airport authority is given the "*correct incentives in relation to the future development of the airport and (that) users should benefit from economic activity which they, in part, generate at the airports*".

In its draft determination on airport charges it appears that the Commission considers that a single till should initially be applied at Dublin, Cork and Shannon Airports as it suggests, "*the regulatory tills will include all airport charges revenues and all commercial revenues*". The Commission acknowledges the disadvantages associated with applying the single till principle to the regulatory till. Aer Rianta concurs with the Commission's view that a single till approach to the regulatory till will diminish economic

⁹ ACCC, *Sydney Airports Corporation Ltd Aeronautical Pricing Proposal, Draft Decision*, February 2001

¹⁰ ACCC, *Sydney Airports Corporation Ltd Aeronautical Pricing Proposal, Decision*, May 2001

efficiency, and has already discussed in detail the reasons why it considers the dual till a superior option. The potential adverse consequences associated with a single till approach include

- an aeronautical pricing structure which introduces or accentuates allocative inefficiency
- inefficient use of airport infrastructure
- reduced incentives for investment in both aeronautical and non-aeronautical activity by the airport authority resulting in a loss in dynamic efficiency

Aer Rianta welcomes the exclusion of Aer Rianta International and Great Southern Hotel from the regulatory till, as these activities occur in competitive markets. Thus inclusion of such incomes streams which do not have a sufficient nexus to the regulated activities would introduce a significant market distortion which would be totally contrary to the purpose of market regulation. Directly analogous considerations apply in relation to a further series of activities undertaken by Aer Rianta adjacent to its Irish airports, e.g. joint venture business parks. It is appropriate that these should also be excluded from the regulatory till.

The Commission's draft determination appears to indicate that while aeronautical and commercial revenues have been included in the regulatory till, the capital expenditure associated with the commercial revenues has been excluded. This is inconsistent, as without provision being made for the capital investment to deliver a revenue stream, the income will not materialise. If a single till is applied then the underlying costs associated with the activities within the regulatory till must be taken into account as well as revenues.

The Commission mentions that it is considering the possibility of excluding from the regulatory till the income and costs associated with new commercial investments at Dublin Airport in the future. This may be interpreted as allowing for the introduction of a dual till approach to the regulatory till at Dublin Airport. This is consistent with trends in aviation regulation in other jurisdictions and with Aer Rianta's submitted position in relation to the regulatory till.

CP6/2001 refers to excluding income and costs from "new commercial investments" at Dublin airport from the regulatory till, Aer Rianta has considered how this specific approach could be implemented in practice. The strict interpretation of the Commission's suggested approach would require separate identification and recording of all revenues and costs associated with new commercial investments, and would raise definitional problems (for example, in terms of defining whether extensive refurbishment of existing commercial facilities constitutes "new" investment). More importantly, it would create undesirable incentives for Aer Rianta to seek to transfer costs and revenues from existing commercial activities to "new" commercial activities.

Instead, Aer Rianta suggests that the most practical way of implementing this approach would be to cap the single till contribution from commercial revenues at Dublin airport to a set level obtaining at an agreed point in time, whilst retaining the associated assets in the regulated asset base. This measure will go part of the way, but will certainly not remove, the distortions created by single till regulation.

Aer Rianta continues to be firmly of the view that dual till regulation is the most appropriate form of economic regulation for airports. It is important to recognise that this argument is not limited to airports subject to capacity constraints. The fact that the single till approach unjustifiably extends the scope of economic regulation, that it distorts investment incentives within the till and that it provides inappropriate incentives to develop activities outside of the till, apply equally at congested and uncongested airports.

It appears, from the Draft Determination that the Commission's primary justification for a transition from single till to dual till is based on the level of available capacity at a facility, although it does not suggest its application at Cork. In practice, this would result in significant uncertainty as a reversal to a single till environment could be envisaged when capacity constraints are removed. This would provide a perverse incentive to the airport operator to ensure that capacity increases trailed increases in demand. In addition this approach would also translate into sharp price discontinuities for customers.

A dual till approach to the regulatory till is entirely justifiable on economic grounds and consistency in approach across the airports would be key to delivering a stable regulatory environment for all airport users. Aer Rianta strongly believes that the dual till approach should be adopted in formulating the regulatory tills for the three Aer Rianta airports as this will provide a superior welfare outcome when applying a test of economic efficiency. The company takes the view that the costs of the provision of aeronautical services must be recovered through airport charges, so as to ensure better allocative efficiency and price signalling. The use of the dual till principle in determining the regulatory till will enhance dynamic efficiency and therefore will best serve the long-term development of the airports sector.

1.5 Regulated Asset Base

One of the key decisions in arriving at the maximum level of airport charges is the appropriate scope and valuation of the regulated asset base (RAB). There are three aspects to be considered - the definition of the regulated asset base, the valuation of the assets themselves and the manner in which they are rolled forward.

Definition of the Regulated Asset Base (RAB)

This report has already set out Aer Rianta's view on the composition of the regulatory till. The regulated asset base in turn should derive from this composition. Thus the exclusion or inclusion of specific assets must be clearly mirrored by the treatment of related revenues, capital expenditure and operating costs.

In CP6/2001, the Commission has suggested that it should define the RAB on the basis of existing assets, excluding those assets, the replacement of which, in its opinion, "*is not critical to the sustainable operation of Aer Rianta's airports in the future*". Specifically the Commission has adjusted downwards the value of Pier C at Dublin Airport by IR£20,968,000 and the value of the terminal building at Shannon Airport by IR£7,242,000.

Despite a number of requests to clarify its methodology, the Commission has not clarified the criteria used for this adjustment to the RAB other than stating that the proposed new valuations reflect the value of "hypothetically efficient equivalents" for both facilities. Aer Rianta disagrees with the Commission's proposal to reduce the valuation of these facilities and believes that this adjustment is totally unwarranted in the context of efficient equivalent facilities and the sustainable and commercial operation of the airports.

Pier C and Shannon Terminal Development

Pier C was constructed in line with good practice, in accordance with the specific requirements of the regulatory authorities at the time and following extensive consultation with users. Costs were benchmarked against peers at the time of construction, the development took place following competitive tendering procedures under EU public procurement requirements and was delivered in a cost effective manner within sanction. The development of Pier C was approved by the regulator at the time the Minister for Transport, following recommendations from independent consultants engaged by the Department of Transport.

Pier C and Terminal West Key Facts	
Designed to IATA service standard B requirements	
Total Area 18,704 sq.m	
Total Cost IRE50.4m	
Construction Cost of IRE2,262 per sq.m compares very well against prevailing market levels and similar airport developments in the UK	
Pier C	Provides bus lounge with six departure gates serving remote aircraft stands
	Provides 6 airbridge served gates including gate lounge areas, café, travellers and toilets
	Complies with all customs and immigration requirements and is the only Pier at Dublin Airport which now fully meets these requirements
Terminal West	Provides enlarged security friskem area, baggage hall, customs facilities and Immigration Hall
	Includes expanded shopping area and additional airside circulation space

Aer Rianta considers that the total cost of this facility including all the elements was very cost effective when assessed against other such projects and should be recoverable in full. The company would be pleased to meet with the Commission to ascertain what specific concerns that it has (which appear to be the basis for its draft determination valuation adjustment) and to allow the company the opportunity to fully address these.

Similarly, the Shannon terminal was recommended as the appropriate course of action by successive master planning documents prepared for Aer Rianta as the original terminal, which was developed in the 1940s, was inappropriate to meet the demands of modern aviation. These documents have been made available to the Commission in response to various statutory requests for information. The then Minister for Transport also approved the investment in this development and this development also took place following competitive tendering procedures under EU public procurement requirements

Shannon Airport Terminal Key Facts	
Designed to IATA service standard B requirements	
Total Area 10,800 sq.m	
Total Cost IRE28.35m	
Construction Cost IRE2000 per sq.m	
Provides 40 check in desks, 7 airline desks, friskem area, circulation area and baggage hall	
Project costs included road realignment and provision of 2025 public car parking spaces	

The Commission's Draft Determination agrees that IATA standard B and ICAO standards are the standards and regulations for delivery of facilities at the airport. Consequently it is inconsistent and inequitable to disallow a

proportion of the cost or valuation of two of the projects which are clearly consistent with this standard. In the case of the Pier C development this difficulty is further compounded as the pier capacity constraints at Dublin Airport are widely acknowledged. Clearly both projects are critical to the sustainable and commercial operation of Aer Rianta's airports and it is thus wholly appropriate that their full valuation be retained within the regulatory asset base.

These investments were implemented on the understanding that over time a full recovery of all costs would be made. This is an absolutely defensible approach and one adopted following the approval of the regulatory authorities at the time. Any attempt at this stage by the Commission to disallow already incurred costs would be a retrospective exercise of regulatory power under the Aviation Regulation Act, 2001 which took effect on February 27th 2001. This would be questionable, as the legislation does not expressly or unambiguously permit such a retrospective effect.

Such retrospective withdrawal of approval for some capital investment projects could be seen as setting a precedent and could potentially have serious negative consequences for future investment. Investment might be deterred by the possibility of a regulator's decision at a future date reducing the likelihood of earning a reasonable return on the investment within the expected timeframe. Regulatory risk of this kind would undermine the ability of Aer Rianta to continue to put in place airport facilities "*in line with safety requirements and commercial operations in order to meet the current and prospective needs of users.*"

Appendix 1 gives comprehensive details of the development of Pier C and a full analysis of the Shannon terminal development is provided in Appendix 2. It is clear from the documentation that these developments were necessary, cost efficient and appropriately managed and the Commission should not disallow a portion of the cost or value associated with the same.

Valuation of the RAB

Among the factors that the Commission is directed to consider in setting prices is "*the efficient and effective use of resources by the airport authority*". The elements of efficiency described in the Commission's consultation paper CP2/2001 tend to support the view that asset values should reflect some measure of their current cost. Aer Rianta will need to undertake capital expenditure to provide significantly expanded capacity at Dublin and Cork airports in order to meet the current and prospective needs of airport users. In order to fund this expenditure and repay existing debt, the company will require strong cashflow. It is therefore critical that the asset valuation methodology agreed by the Commission in determining the maximum level of charges is consistent with the need to provide expanded capacity for airport users. International precedent would support the need

to set asset values at a level that allows for the funding of capital expenditure.

Determination of the value of the RAB is central to the determination of two key components of the overall regulatory revenue requirement - the return of capital (i.e. depreciation) and the return on capital (i.e. the cost of capital). These components typically represent a significant proportion of allowable revenues¹¹.

After the RAB composition has been defined, therefore, it is important that the appropriate values are attached to the included assets. This is particularly relevant in the context of a capital-intensive industry such as airports where many assets are relatively long-lived and expensive. Under-valuation of assets and inadequate depreciation provisions will not allow enough cash for expansion or replacement capital projects. The decisions on the valuation and depreciation policies of the RAB are therefore of long-term strategic importance.

The regulatory criteria set down in the Aviation Regulation Act, 2001 determine to a large extent the appropriate valuation methodology for the regulatory asset base (RAB). A number of factors outlined in Section 33 of the Act may be categorised in terms of allocative, productive and dynamic efficiency. Specifically the following are identified as falling into this category

- a) the level of investment in airport facilities at an airport to which the determination relates, in line with safety requirements and commercial operations in order to meet current and prospective needs of those on whom the airport charges are levied
- b) a reasonable rate of return on capital employed in that investment, in the context of the sustainable and profitable operation of the airport
- c) the efficient and effective use of all resources by the airport authority
- f) operating and other costs incurred by the airport authority at the airport

Different approaches to setting the value of the RAB and providing a return of that value provide different incentives in relation to the provision of new capacity, the timing of such provision and the quality of the capacity and services made available.

The Commission accepts the principle of economic efficiency, specifically in terms of maximising economic welfare. The three dimensions of economic efficiency - allocative, productive and dynamic efficiency, must be balanced and maintained within the regulatory framework. This has been considered by the CAA¹²

¹¹ For example, in the case of the recent transmission price control review of the National Grid Company in the UK, the depreciation allowance and the return on the capital each represented approximately a third of allowable revenues.

¹² CAA, Issues for Airport Reviews: Consultation Paper, July 2000, p.6

While efficient operation of airports could, for example, require the CAA to put heavy weight on an airport's achievement of cost efficiency and to transfer any cost savings into lower airport charges, such a regulatory policy could limit the airport's incentive to take risks and invest in new facilities. Once such a trade-off is accepted, it may be a superior long-term strategy to sacrifice the immediate transfer of some short-run efficiency gains to users in order to incentivise the appropriate enhancement of capacity.

Thus in considering the various valuation methodologies, economic efficiency, and specifically the balance of the various elements must be a key consideration.

The Commission in its Draft Determination used the historic cost net book value of assets on the basis that it was the best available information capable of verification by the Commission at that point in time. However, it recognised that alternative approaches are available the use of which might be preferred. The Commission signalled that this was an area warranting full consideration following the Draft Determination. Aer Rianta strongly disagrees with the use of historic cost net book value for the valuation of the RAB as it has no economic justification. The application of a replacement cost methodology best fulfils the requirement of the Act.

Historic Cost (HC)

Historic cost valuation is an accounting-based approach, where the current book values are used. Historic costs are generally reported in an organisation's annual accounts and for this reason are easily obtainable and verifiable. The key issue in relation to the use of a HC approach to the RAB is that the determination of an allowable return will require the use of a nominal cost of capital since the assets are valued in nominal terms.

The main shortcoming of the historic cost approach is that, in times of rapidly changing prices or technological changes, the historic value of assets will cease to bear much relationship to the cost of a new and efficiently constructed airport with the same capability as the existing facilities. Even in times of low inflation, historic costs can diverge considerably from current costs for those assets over long periods. Prices based on a historic cost asset valuation will not achieve an economically efficient allocation of resources. Such prices will not allow for the future replacement of the existing airport facilities as required for the sustainable operation of the business.

This implies the application of inflation forecasts in the setting of prices and the need to develop a mechanism that allows for the recovery of forecasting errors. On the assumption that all such errors can be recovered this is not a significant risk but it does introduce the possibility of timing differences as well as issues associated with transparency and intergenerational equity. The cost of capital, prepared for Aer Rianta by NERA is discussed in detail in Appendix 5.

By valuing the RAB using historic costs, the resulting level of depreciation will understate the required level of investment to replace the assets when it comes to the end of their useful lives. This would prevent Aer Rianta from replacing the existing fabric of the airports. This valuation approach would not provide Aer Rianta with adequate cashflow to fund its capital programme going forward. Taking these two factors together, the use of historic cost is contrary to the requirement under Section 33 of the Act that the Commission should have due regard to

- a) the level of investment in airport facilities at an airport to which the determination relates, in line with safety requirements and commercial operations in order to meet current and prospective needs of those on whom the airport charges are levied
- b) a reasonable rate of return on capital employed in that investment, in the context of the sustainable and profitable operation of the airport
- g) the level and quality of services offered at the airport by the airport authority and the reasonable interests of the users of these services

The an extremely low valuation for the RAB, such as would be the outcome of a HC approach, would result in Aer Rianta's cashflow being inadequate to allow it to invest in the capital projects necessary for full efficiency and would thereby conflict with the statutory requirement for the Commission to have regard to the efficient and effective use of all resources by the airport authority.

The assets that comprise Aer Rianta's RAB were acquired or constructed over the period from the 1920s, when operations commenced at Dublin Airport, up to the present day. Over this time there have been enormous changes in: the general level of prices; technology; safety standards and other applicable legislation and requirements; passenger and airline expectations and requirements as well as the cost of performing construction work and acquiring land. There is no reason to suppose that the net book value historic cost valuation of these assets has any relationship to the cost of assembling or replacing a set of assets with the same functionality today. For example the land on which Dublin Airport is built has a commercial value that would have little relationship to the cost of acquiring the original airport land in what was then an agricultural area.

In order to earn a reasonable return on its actual investment in its business, an issue which the Commission is obliged to have regard to in accordance with the Aviation Regulation Act 2001, Aer Rianta's RAB must be valued at some measure of its current worth. If Aer Rianta is not allowed to earn a return that reflects the market value of its assets, it will have insufficient incentive to plan for the long-term development of the airports. For example, there would be no incentive to pursue the land acquisition necessary to enable the expansion of airport capacity.

A net book value HC approach to asset valuation has been heavily criticised in the UK and elsewhere as understating the real economic amount of

capital employed in a business, providing poor economic signals to users and airports, and being a poor base on which to make decisions on real allocations that depend on regulated prices. As a result of this criticism, the BAA and British Telecom both revalued their assets using a replacement cost approach in the late 1980s and 1990s.

Even when regulated companies prepare their main published accounts using the HC convention, economic regulation is generally carried out on a replacement (or current) cost basis. Regulators have opted for valuation methodologies that most accurately reflect the economic measurement of costs and profits, rather than those that are favoured for statutory accounting purposes. Separate regulatory accounts are generally prepared and either included as an annex to the company's published accounts or submitted to the regulator (and made available to the public) as a stand-alone document. Aer Rianta understands that Eircom's accounts are presented in this way. Section 28 of the Aviation Regulation Act 2001 facilitates this by providing for the preparation of separate audited regulatory accounts if required.

The choice of the historic cost net book value basis for valuing Aer Rianta's RAB is totally contrary to the statutory objective of the Commission and with the Commission's stated aim of promoting economic welfare and efficiency.

Replacement Cost (RC)

The most appropriate valuation methodology for the RAB and price setting is replacement cost. This approach determines asset values by identifying the current market cost of purchasing new assets, which provide the same services and capacity as the existing asset. The use of replacement costs would ensure that prices more accurately reflect the economic cost of the underlying assets and is thus consistent with the assessment criteria concerning allocative efficiency. This valuation basis is the only one which is consistent with the requirements under Section 33 of the Aviation Regulation Act 2001 and the maximisation of economic welfare.

In order to earn a reasonable return on its actual investment in its business, Aer Rianta's RAB must be valued at some measure of its current worth. A replacement cost methodology provides the best estimate of this value. In addition, the adoption of a replacement cost valuation will support Aer Rianta's profile on the capital markets, which will facilitate the cost efficient funding of investment.

As a forward looking measure, using replacement costs will ensure that assets can be replaced as they reach the end of their useful lives. It also provides appropriate signals to the marketplace by ensuring that prices more accurately reflect the economic cost of the underlying assets than the historic cost methodology. It is thus consistent with the Commission's assessment criteria in terms of both allocative and dynamic efficiency.

The use of replacement cost to value RAB is well supported by regulators in other jurisdictions and by Irish regulators for other industries. The most common valuation base now used in the UK for regulated industries (i.e. water, electricity, gas and telecommunications) is current replacement cost. As mentioned previously, the BAA revalued its assets using replacement cost methodology in 1991 and has rolled this value forward by the Retail Price Index each year since that date.

In Australia the Australian Commerce and Competition Commission accepts the use of optimised depreciated replacement cost for the valuation of specialised airport assets.

The New Zealand Commerce Commission's review of charges at Auckland, Wellington and Christchurch International Airports is ongoing. The Commission aims to complete its work by November 2001. However its draft report issued earlier this month favours the use of opportunity cost to value land as this sends out the appropriate signals as to whether the land should continue in its existing use as an airport or whether it should be put to an alternative use.

In Ireland the ODTR favours the use of current cost valuations for assets. The Commission for Electricity Regulation (CER) has issued a consultation paper that discusses this issue¹³. In this paper the CER concludes that optimised replacement cost is the ideal approach as it gives the correct incentives to optimise investment decisions.

Finally, the Commission itself has recognised the superiority of replacement cost valuations and used a historic cost net book value valuation for the purpose of its Draft Determination on the basis that it was "the best available information capable of verification" at that point in time.

Aer Rianta with the assistance of Arthur Andersen undertook a comprehensive exercise to arrive at a replacement cost valuation as at 31 December 1999. A structured and detailed approach was developed for the replacement cost valuation exercise. The approach required the input and involvement of a large number of people in Aer Rianta over a number of months. Full details are enclosed in Appendix 3.

Indexed Historic Cost (IHC)

Indexing the historic costs to present them in current terms may not be as correct as using replacement cost in determining the economic costs to society of the assets employed in airport operations, however, the application of an indexed historic cost approach is superior to the historic cost methodology in terms of its ability to maximise welfare. Valuation on an indexed historic cost basis will enable the asset base to keep pace with

¹³ CER/99/04 Draft Principles for the Regulation of Distribution and Transmission Revenues

inflation and technological changes to some extent and the resulting valuation typically avoids much of the harm done by using historic net book value as the basis for valuing the RAB.

In the Irish context, current replacement costs are higher than indexed historical costs because Irish tender price inflation greatly exceeds CPI on all but short life assets. The use of indexed historic cost will therefore send inadequate price signals to the market about the cost of capacity maintenance or expansion and may not generate sufficient revenue to fund capital programmes, thus reducing dynamic efficiency. Although indexed historic cost cannot take account of changes in the cost of airport assets that diverge from general increases in prices, it will result in prices which are closer to opportunity costs than a simple historic cost approach.

Development of an indexed historic valuation requires little independently verifiable data other than an appropriate index. The Australian airport regulator favours valuation of land at historic cost inflated by the CPI, mainly on the basis that it is well documented and easy to apply. In Ireland the transmission assets of Bord Gais are currently valued using indexed historic cost.

The simplest approach is to index the historical cost to current values either using an inflation index or an industry/asset specific index. This approach has the advantage of being a relatively transparent calculation, which may be easily verified by reference to the historic cost reported in the company accounts and publicly available information on indices.

Using an inflation index has an advantage in that it ensures that the value of capital held in the company is maintained in real terms. The disadvantage of using an inflation index is that it may result in values, which do not precisely reflect asset replacement costs if actual costs have not moved in line with general prices. Consequently, inaccurate signals may be sent about the efficient allocation of resources. This would be the case, for example, if the cost of rebuilding an airport increased in real terms due to tender price inflation being faster than CPI inflation. However, on balance, if an indexed historic cost valuation approach is used the appropriate index is CPI over the longer term.

As discussed earlier, the valuation of the RAB is a key driver of the price cap set by the Commission and hence on the return on capital earned by Aer Rianta. Given the rise in general prices since many of Aer Rianta assets were purchased or constructed, a historic cost net book value RAB is clearly insufficient to give a reasonable return on shareholders' current investment. Indexing historic costs implies using a lower "real" rate of return so the return allowed to Aer Rianta will still be low. However indexed historic cost will result in returns approaching a more necessary and realistic level.

In the context of the request by the Commission for the best available information capable of verification and the short timeframe afforded to the

Commission, Aer Rianta is enclosing as Appendix 4 a report prepared on the indexed historic cost of assets.

Aer Rianta suggests that the replacement cost valuation submitted provides the Commission with a robust, verifiable approach and urges that the Commission adopt its recommendations. Aer Rianta has included an IHC valuation to facilitate the Commission in its assessment as between the differing valuation approaches and to demonstrate how replacement cost more accurately reflects the economic cost and therefore the most appropriate basis for valuation of the RAB in order to maximise economic welfare.

Rolling Forward the RAB

In the Draft Determination, the Commission is silent on the way in which the RAB will be "rolled forward" at the time of the next price review, presumably because it only addresses Historic Cost. An appropriate approach to calculating the RAB at future price reviews consistent with the approach to the valuation of the RAB is necessary. The Commission's approach to this issue will have profound implications for the investment incentives placed on Aer Rianta, and it is absolutely essential that this be clarified in the final determination.

In order to ensure that the asset book value continues to provide appropriate signals about the costs of equivalent assets to provide the same level of service, the RAB would need to be rolled forward at an appropriate measure of the trend in the replacement cost of assets i.e. an Operating Capital Maintenance (OCM) approach. It is nonetheless recognised that the inflation index used may result in values which do not adequately reflect asset prices. This approach does not guarantee that shareholders' funds are conserved in real terms, and is likely to have implications for the Weighted Average Cost of Capital WACC.

A financial capital maintenance (FCM) approach to the rolling forward of the asset base would be a superior method when assets are valued on the basis of replacement cost in order to ensure that shareholder and debtor value is maintained. This is a key issue for equity or debt holders who will provide capital funds on the basis that charges will be set so as to allow a return on the real value of their investment. If there is a risk of holding gains or losses due to changes in asset prices relative to inflation, then investors will require a higher cost of capital to compensate for this risk.

Rolling forward the value of the RAB ensures that the RAB more closely represents the shareholders' investment in the company, but implies a very high pre-commitment from the regulator not to act opportunistically. If credible this should reduce the cost of capital and encourage appropriate and efficient investment. The regulatory treatment of future capital investment is discussed under the capital investment section below.

1.6 Rate of Return and Cost of Capital

In the regulation of airports the required return on investment and the implications for the financing of the capital programme are critical matters. This arises because the investment at airports is both long-lived, expensive and occurs in large tranches. According to the Aviation Regulation Act, 2001 the Commission must aim to facilitate the development and operation of cost effective airports which meet the requirements of users with due regard to allowing the airport *"a reasonable rate of return on capital employed in that investment, in the context of the sustainable and profitable operation of the airport"*. This requires that the allowed rate of return is sufficient to attract new capital investment for future service obligations and to ensure that the regulated activities of Aer Rianta are financially viable.

Expert consultancy group NERA has prepared a detailed report for Aer Rianta on the most appropriate cost of capital in the context of the market conditions specific to the company. This report was previously submitted to the Commission in response to a statutory request for information and is also attached to this document as Appendix 5.

Commission's Approach

The Commission makes the following statement in the Draft Determination in relation to Aer Rianta's cost of capital

the Commission has reviewed recent decisions concerning the cost of capital by Irish economic regulators and also decisions of a similar nature elsewhere. A careful examination of these decisions, and the extent to which the circumstances of Aer Rianta's business corresponds to those of other regulated companies and other regulated airport operators, has led the Commission to a preliminary view that Aer Rianta's cost of capital lies somewhere in the range of 8% and 9% (exclusive).

It can be inferred from this statement that the Commission has based its estimate of Aer Rianta's cost of capital on previous regulatory decisions. No details are given about the other companies and/or regulatory jurisdictions that have been considered. No more information is provided in the draft decision about the precise methodology that was used to arrive at an estimate of between 8% and 9%, though the Commission specifically invited submissions in CP2/2001 on the question of how the cost of capital should be calculated. The majority of respondents to this request replied that the Capital Asset Pricing Model would be the most appropriate methodology to adopt.

Specific questions that are raised about the Commission's approach and conclusions include:

- Is the estimate of the cost of capital of Aer Rianta of between 8% and 9% pre- or post- tax?
- Is the estimate of the cost of capital of Aer Rianta of between 8% and 9% on a nominal or real basis?
- What other regulatory decisions have been considered by the Commission as appropriate benchmarks for estimating a cost of capital for Aer Rianta?
- What account has been taken of the differences in regulatory risk across regulatory systems, and the maturity of the regulatory system, and the affect of this on the cost of capital?
- What "circumstances" of Aer Rianta's business did the Commission consider distinguished Aer Rianta from other regulated utilities?
- What process has been used to adjust the other regulatory decisions concerning the cost of capital for the specific business characteristics of Aer Rianta?
- Has the Commission used formal models (e.g. the CAPM) to verify its estimate of between 8% and 9%?
- Has the Commission taken account of the fact that the cost of capital of a company changes over time?

Overall, the level of detail provided by the Commission on the methodology that was used to determine an appropriate rate of return on capital is minimal. Detailed comments on the approach that is taken are therefore difficult to make. The next sections of this chapter set out some of the key regulatory principles in setting a rate of return based on international best practice which the Commission should consider in formulating its determination. It also considers whether or not the proposals in the Draft Determination satisfy both the statutory obligations imposed on the Commission (as set out in Section 33 of the Aviation Regulation Act 2001) and also the underlying economic objective of maximisation of economic welfare.

The Regulatory Principle of Capital Adequacy

The principles of regulation have been expressed in a variety of formats by various authors but are well summarised in Bonbright (1988).¹⁴ A key principle identified by Bonbright for setting a rate of return is that of capital attraction, which states that tariffs must provide revenue sufficient to meet a "*fair return standard with respect to private utility companies*". This principle encapsulates the need for regulators to offer a reasonable prospect of cost recovery, so that regulated companies can attract capital for investment.

Bonbright derives this principle from two important cases of the US Supreme Court during the first half of the twentieth century: the *Bluefield* and *Hope*

¹⁴ Bonbright, J C, Danielsen, A L, and Kamerschen D R (1988) *Principles of Public Utility Rates* Arlington, Virginia: Public Utilities Reports Inc.

Gas cases. The 1923 Bluefield decision¹⁵ established that regulated companies needed to earn the same rate of return as other companies, after allowing for differences in risk and other circumstances, so that they could attract capital from potential investors. The 1944 Hope Gas decision¹⁶ established that regulatory revenues have to offer a reasonable rate of return on capital after recovery of operating expenses and depreciation (otherwise known as "the return of capital"). The implication of these cases are neatly summarised by Bonbright:¹⁷

... investors by making the decision to invest in the debt or equity of a utility forego the opportunity to invest elsewhere. Accordingly, investors should be compensated such that their expected return on a utility's equity is equal to the returns they could expect on an investment of comparable risk elsewhere in the economy.

In other words, to attract investment, the regulator will set the allowed rate of return equal to (and the term is often used synonymously with) the "cost of capital", i.e. the minimum rate of return demanded by investors if they are to invest in the relevant firm. Although there is normally no guarantee that regulated companies will earn this rate of return, they must be offered the same opportunity to do so as other companies, after covering operating expenditures and depreciation, or else investors will not invest in them. Although these principles emerged from the US legal system, they are not specific to the US and should be applied in an Irish context also.

Appraisal Criteria for Cost of Capital Estimation Methods

The cost of capital is the return on an investment that is required to attract capital, i.e. to persuade investors to invest. Unfortunately, it cannot be directly observed, even in hindsight, and must be estimated.

Regulators and companies can reduce the scope for disagreement by first laying down criteria for assessing whether any particular approach is practical in the context of regulation. These criteria can help to identify both the best method and - just as importantly - where to find and how to use the necessary data. This kind of agreement can subsequently reduce the time and effort spent debating estimates of the cost of capital.

Because the cost of capital cannot be observed, "accuracy" is not a relevant criterion, since it is impossible to say how accurately any method reflects the "true" cost of capital. Instead, methods of estimating the cost of capital can only be appraised from a methodological point of view. The

¹⁵ Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia (262 U.S. 679, 1923)

¹⁶ Federal Power Commission v. Hope Natural Gas Company (320 U.S. 391, 1944)

¹⁷ Bonbright et al., p 316.

following criteria provide an objective assessment of estimation methods for the cost of capital

- Theoretical support: is the method economically sound?
- Clarity: can regulators and regulatees easily understand the method
- Empirical objectivity: is all the required data available on an objective and reliable basis?
- Stability: Does the estimate produced by the method remain stable between time periods?

The last three criteria amount to a practical definition of a transparent regulatory method.

There is no single methodology that is always used by regulators to estimate the cost of capital. The most widely used methodology (outside the US) is the Capital Asset Pricing Model. CAPM has been the dominant method for calculating the cost of capital in the UK since regulation was introduced following the privatisation programme of the 1980s and early 1990s. With very few exceptions, every UK regulatory estimate of the cost of capital has been justified with reference to the CAPM parameters.

In Aer Rianta's case, the absence of a share price means that the CAPM must be applied using data from comparable companies. NERA's report on Aer Rianta's Cost of Capital of June 2001 (see Appendix 5) sets out an appropriate procedure for doing this.

The Commission's Draft Determination provides no details on whether the cost of capital of Aer Rianta of between 8% and 9% has been estimated (or cross-checked) using an objective, generally accepted and theoretical rigorous technique such as the CAPM.

The Importance of Regulatory Precedent

The Commission appears to have placed primary importance on previous regulatory decisions on the cost of capital in Ireland and elsewhere in reaching its views on the appropriate cost of capital for Aer Rianta.

There are several problems with reaching a cost of capital decision in this way

- First, both the market cost of capital and a company's cost of capital changes over time as a result of changes in market conditions, macro-economic factors, changes in investor attitudes to risk, and investment opportunities. Unless appropriate account is taken of the time-sensitivity of cost of capital estimates then biases can result.
- Second, no two regulated companies are identical. There are significant differences in the cost of capital across different industry sectors and

different regulatory regimes that may mean the relevance of other regulatory decisions is very low.

- Third, there is a risk that if the cost of capital is mis-estimated for one company that its damaging effect will be much greater if such decisions are used as precedents for future decisions.

The importance of the first and second of these issues is discussed below.

Time Sensitivity

The weighed average cost of capital parameters are time-sensitive and therefore their estimation should be based on the latest available financial data. However, a reliance on a survey of past regulatory decisions fails to take into account the time-specific nature of a company's cost of capital.

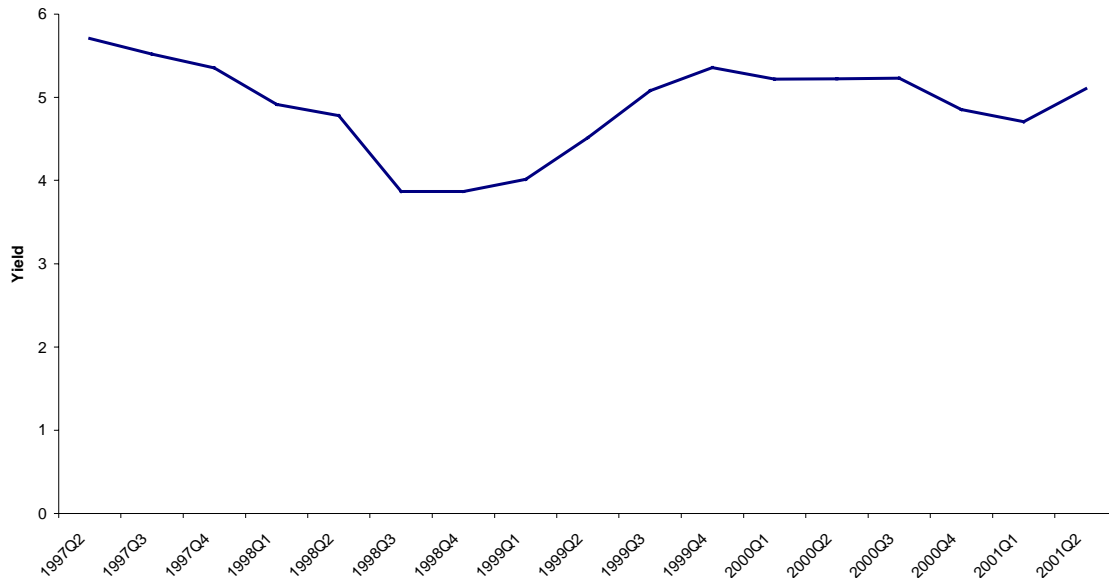
There is powerful empirical evidence, for example, that the market cost of capital is correlated to changes in interest rates, changes in inflation and changes in the business cycle.

An indication of how the cost of capital changes over time can be gauged by looking at changes in base interest rates.

As Figure 1 shows, 10-year German government bonds, NERA's proxy for the nominal risk-free rate, has displayed significant variation over the period shown, 1997 to 2001. The yield-to-maturity has varied from a low of 3.9 to a high of 5.7 over this period. This time-series demonstrates that over reliance on regulatory precedent based on historical data to compute Aer Rianta's present WACC could result in significant mis-calculation of Aer Rianta's present cost of capital.

Figure 1

Time-Series of 10-year German Government Bond¹⁸



In conclusion, a company's cost of capital is time specific and therefore it is necessary to complement a review of past regulatory decisions with own-calculations using up-to-date financial data. However, it is unclear whether the Commission has done this.

Choice of Comparators and Adjustments for Risk Differentials

A detailed appraisal of the theoretical basis on which the Commission has reached its conclusions on the cost of capital for Aer Rianta is not possible given the lack of detail provided in the Draft Determination. However, the Commission appears to base its estimate on previous regulatory decisions. This section sets out important concerns about basing a cost of capital estimate purely on previous regulatory cost of capital estimates in Ireland and elsewhere.

Significant differences exist in the cost of capital of different regulated sectors. Differences in the cost of capital will result from different exposures of regulated companies' returns to variations in market returns. There are a number of fundamental reasons, related to the product and business environment, why the costs of capital for regulated companies will differ such as different product income elasticities, different cost structures, different levels of competition, etc.

¹⁸ NERA calculations using Bloomberg data. The YTM refers to a generic 10 year German government bond, which is a synthetic yield history created by piecing together observed closing yields for benchmark bonds of 10 year maturity.

There is also substantial empirical and theoretical evidence that the form of regulatory regime influences a company's cost of capital. Research for the World Bank has suggested that companies operating under a price-cap regime rather than a cost-plus have to pay about an extra percentage point for their capital to reflect their greater risk exposure¹⁹.

For these reasons, a regulatory approach that estimates a cost of capital for a company based on cost of capital estimates for other companies must be heavily scrutinised. The choice of comparator set, and the process that is used to adjust for risk differentials across the comparator set, is crucial for the robustness of the results.

The report on Aer Rianta's Cost of Capital of June 2001 sets out NERA's views on the appropriate comparator set for Aer Rianta that share similar operating and regulatory environments. In this report NERA advocated that the most appropriate benchmark for estimating Aer Rianta's cost of capital is BAA. NERA do not consider that other regulated industry sectors provide an appropriate benchmark for Aer Rianta.

There is useful regulatory precedent to support the approach adopted by NERA in its report of June 2001 for a non-quoted airport. In the UK, the Monopolies and Mergers Commission (MMC) conducted a price review of Manchester airport. Like Aer Rianta, Manchester is an unquoted operator, and therefore the methodological approach of the MMC is of particular relevance.

In this instance the MMC set the cost of capital using BAA as a benchmark, which could be observed directly from stock market data. The MMC then adjusted this value for the perceived greater riskiness of Manchester's operations. The factors contributing to Manchester's greater riskiness were, according to MMC, MA's greater dependence on charter traffic, the weaker demand of scheduled airlines, particularly compared to BAA, and the lower profitability of scheduled operators.

The Australian Consumer and Competition Commission (ACCC) adopted a similar approach towards airport regulation in Australia. ACCC has recently undertaken price reviews for Adelaide, Brisbane, Perth, Canberra, Melbourne and Sydney airports, all of which are unquoted.

The most relevant price review process is the first, Adelaide, that contains the original analysis for selecting an appropriate comparator set. Subsequent price reviews then set their respective airport's WACC relative to the Adelaide decision. Adelaide's WACC was set according to four quoted benchmarks, Copenhagen, BAA, Vienna and Auckland, and, again, relative operating characteristics (such as Adelaide's non-hub status) were considered.

¹⁹ Alexander and Irwin, *Price Caps, Rate of Return Regulation and Cost of Capital*, World Bank, 1996.

There are two important conclusions to draw from UK and Australian price reviews:

- The comparator set is restrictive, consisting of only BAA in the case of MMC Determination, and a composite set of four airports under ACCC price reviews.
- MMC and ACCC make adjustments to the results of the comparative analysis on the basis of qualitative analysis of their relative riskiness.

Although there might be a number of WACC parameters that are common across some utilities, by relying on regulatory precedent for a range of other utilities in Ireland and elsewhere, the Commission's approach introduces the possibility of important and significant biases in the cost of capital estimate and a degree of unnecessary arbitrariness that increases investor uncertainty.

Internal Consistency

The returns that investors demand will be affected by the projected financial profile of the company. There needs to be consistency between the rate of return that is allowed and the Weighted Average Cost of Capital for that company as established in the market.

A particular test that should be applied by the Commission in checking that its decision is internally consistent is to check whether the regulatory package implies financial ratios that are consistent with an "optimal capital structure". "Optimal capital structure" exists where the proportion of debt and equity in a company is such that the post tax WACC is minimised and hence the present value of a company's expected future cash flows is maximised.

In assessing "optimal" capital structure it is necessary to focus not only on central case scenarios but also on downside scenarios. The possibility, for example, that capital expenditure may be substantially above central case projections may mean that an "optimal" capital structure will allow for unused borrowing capacity to increase debt in adverse circumstances. Some trade-off is likely to exist between minimising the average cost of new finance and minimising the *possibility* of financial distress and bankruptcy.

NERA's Report on Aer Rianta's Cost of Capital of June 2001 suggests that an optimal capital structure for Aer Rianta would be consistent with at least a single A credit rating. NERA estimate that this is consistent with a proportion of debt of around 30%.

Recent UK regulatory decisions highlight the regulatory attention that is given to ensuring that the regulatory package is internally consistent. In ORR's 2000 price review of Railtrack, the proposed range of the permissible rate-of-return was based on regulatory precedent and Railtrack specific characteristics, and then an additional allowance was made to ensure the allowed return was consistent with an ability to finance its capital

expenditure programme²⁰. The MMC review of BAA and Manchester also allows for a check for financial sustainability against the permissible rate-of-return²¹.

The Commission's draft price determination presents only a "headline" WACC figure, and does not explicitly set out the different financial components, i.e. the cost of equity, cost of debt, gearing, credit rating, and assumed financial ratios to maintain the credit rating. These components need to be set out clearly and tested to substantiate (or refute) the bankability of the Commission's proposals.

Overall, the Commission's Draft Determination provides no evidence to suggest that necessary financial modelling has been undertaken to test whether the regulatory package is internally consistent.

In relation to the rate of return that is used in the Draft Determination it is stated that

...a regulator should allow a rate of return slightly greater, over the medium term, than a company's cost of capital...the Commission proposes that the allowable rate of return on capital employed be set at approximately 9%.

The reason given by the Commission for setting a rate of return higher than the cost of capital is to encourage competition into the industry and provide incentives for the firm to grow the business into the future. Aer Rianta supports this and notes that there is regulatory precedent for the approach in other jurisdictions e.g. the MMC's treatment of Manchester Airport. No justification is given by the Commission for how the level of 9% is determined to be appropriate in fulfilling its objective. Aer Rianta considers that the rate needs to be revised upwards in accordance with the WACC calculations prepared for it by expert consultants NERA (see Appendix 5).

Conclusions

The level of detail provided by the Commission in the Draft Determination on the approach that is used to determine the allowed rate of return is extremely limited. A full appraisal of the Commission's approach cannot therefore be made. This section emphasises some key concerns

- There is a lack of clarity on fundamental factors such as the definition of the cost of capital that is estimated (pre/post tax, nominal/real), the financial methodology (if any) that is used, the regulatory decisions that have been considered, and the distinguishing risk characteristics of Aer Rianta.

²⁰ ORR, The Periodic Review of Railtrack's Access Charges, Final Conclusions, Vol I, p39.

²¹ MMC, BAA plc, 1996; MMC, Manchester Airport plc, 1996.

- The Commission's inference that the cost of capital for Aer Rianta has been estimated with reference to other regulatory decisions at different times and across different sectors, with adjustments for Aer Rianta's risk characteristics, introduces the possibility of significant biases. There is no objective and theoretically rigorous method to adjust cost of capital estimates for such factors.
- The Commission's failure to state that its estimates of the cost of capital have been determined using rigorous financial techniques such as the CAPM is a major concern, and questions the theoretical rigour of the Commission's approach.
- The Commission's failure to demonstrate that the regulatory package is "internally consistent", and that the rate of return that is allowed will enable Aer Rianta to finance its future investment programme in an optimal manner, is also a key concern.

The Commission has a statutory obligation under the Aviation Regulation Act, 2001 to have due regard to a reasonable return on capital employed. It is generally accepted that the rate of return allowed to a regulated company should be at least equivalent to its cost of capital. The cost of capital should be calculated by use of the Weighted Average Cost of Capital (WACC) methodology and the cost of equity component should be estimated by use of the Capital Asset Pricing Model (CAPM). Aer Rianta considers that the Commission should follow this approach in arriving at its estimate of the cost of capital in its final determination.

1.7 Capital Investment

Dublin, Cork and Shannon airport operate in a highly regulated industry in a number of respects. The 1998 Act as set out previously places a clear statutory duty on the company to manage and develop the airports including the provision of services and facilities as are in the company's opinion necessary for the operation, maintenance and development of the airports.

Since 1999, the Irish Aviation Authority licenses the three aerodromes annually. The airports operate in the context of EU and national legislation and directives on ground handling, health and safety, labour laws, planning permissions and associated environmental impact requirements for all new developments etc. All facilities are delivered in the context of ICAO regulations, ECAC requirements, National Civil Aviation Security Council requirements, FAA, CAA, Immigrations and Customs requirements etc. The airports are also key intermodal hubs and the airport system must integrate effectively with other transport modes.

The magnitude of capital spend in an airport context has profound effects on the cashflow and capital structure of the group. Its timing affects the operational throughput of the airport and the cost effectiveness of the capital programme will affect the airport's self-financing capability and impact on user charges.

Section 33 of the Aviation Regulation Act, 2001 stipulates that in making its determination the Commission must aim to facilitate the development and operation of cost-effective airports which meet the requirements of users. In so doing it must also have regard to, inter alia, the level of investment in airport facilities, in line with safety requirements and commercial operations, in order to meet current and prospective user needs. These factors must be applied in the context of the business and industry parameters in which the airports operate as summarily set out above.

The appropriate level of investment is that which delivers the required level of service performance most cost effectively. "Gold-plating" on capital expenditure projects may deliver an acceptable service level but at substantially higher cost than is necessary. Too little investment will result in reduced standards in the long term and potentially heavy costs and considerable delay before required service levels can be restored. Alternatives to capital expenditure are somewhat limited in an airport context but may include increased maintenance expenditure or demand management options in some instances. It is important to recognise and weigh trade-offs between capital expenditure, operating expenditure, service standards and regulatory requirements.

Thus, a key area for consideration by the regulator is the capital investment programme for the period 2001-2010 submitted by Aer Rianta as Appendix

6.²² It is important to distinguish between the role of the Commission in reviewing the cost associated with an appropriate capital investment programme (for inclusion in the base for calculation of airport charges), and a more active role as an evaluator of the capital investment programme presented by Aer Rianta. The former may be a necessary and reasonable function of the Commission, while the latter would not be appropriate as

- the company's statutory responsibility under the Air Navigation and Transport (Amendment) Act 1998 to promote the efficient operation, safety, management and development of its airports would be compromised
- the Commission would be attempting to second-guess airport management decisions which would be contrary to the requirements under Section 33(i) of the Act
- imposing a formal monitoring structure on airports could reduce flexibility to adjust capital spend to react to new information on technology, costs and user demand
- the Commission in a limited timeframe would be second guessing a very complex investment programme which is underpinned by significant expert advice on master planning and development, consultation with users, local authorities, regulatory authorities and other statutory bodies and is grounded in the regulation and standards governing delivery of infrastructure and facilities at airports
- the accountability of airports for investment planned and undertaken and for service levels will be diluted

Recoverable Capital Programme

In CP6/2001, the Commission presented its own estimation of a Recoverable Capital Programme which it proposes to allow Aer Rianta to recover through airport charges. The Commission's proposal differs substantially from the plan presented by Aer Rianta and the company has, without success, requested clarification from the Commission on a number of issues in relation to it.

In determining its recoverable capital programme the Commission has not clearly identified which specific projects it has excluded from Aer Rianta's proposed capital investment programme. Furthermore, the rationale applied to reduce the capital investment plans submitted by Aer Rianta has not been sufficiently articulated to allow Aer Rianta to identify the projects and the basis for their removal. This makes it difficult to clarify whether or not the recoverable capital investment programme retains the ability to meet the company's statutory and regulatory objectives and meets the current and prospective needs of users. This has been made more difficult since the traffic forecasts the Commission has used in coming to its conclusions about

²² This document differs in one respect from that submitted to the Commission in May 2001. The proposed capital spend at Cork Airport has been increased following recent consultation with users on their requirements and a detailed engineering exercise.

the appropriate level of capital investment have not been set out at this point.

It is not immediately evident that the extraction of capital investment has led to the removal of any related revenue streams in the Commission projections. It is clearly inappropriate to include some or all of the revenues deriving from a specific project in arriving at a determination on the maximum level of airport charges if the capital investment required to deliver the revenue has been wholly or partially disallowed. For example, in the draft determination the Commission appears to have included car park activities in the regulatory till definition but excluded car park capital expenditures from the Recoverable Capex Programme.

Aer Rianta does not accept the Commission's suggestion that it has not adequately justified its planned capital investment programme as requested by the Commission. Aer Rianta has complied fully with all of the Statutory Requests for Information, including those pertaining to capital investment. Furthermore, to attempt to ensure that the Commission fully understood the information supplied and its implications, Aer Rianta offered on a number of occasions to meet with the Commission to discuss the capital investment programme in detail, but the Commission has to date declined this offer.

Aer Rianta welcomes the statement by the Commission in CP6/2001 that all safety/regulatory projects have been included in the Recoverable Capital Programme. In the Appendix 6, Aer Rianta has provided comprehensive information on its capital investment plans, including full details on project justification. In this report, the projects are classified in terms of the primary drivers for development - new capacity, safety/regulatory/environmental and refurbishment/upgrade of existing assets.

Aer Rianta believes that the capital investment plan which it has prepared and submitted to the Commission is required to facilitate the development and operation of cost effective airports which meet the requirements of users and expects that the Commission, having re-examined the proposals, will adopt Aer Rianta's capital expenditure plans in full.

It should be noted that failure to deliver the projects set out in the plan which is grounded in expert advice on the proper development of the airports to meet forecast demand could result in severe capacity and operational constraints in the future. This has already been the experience of the company at the airports over the last three years as a result of the delay by the previous regulatory authority to approve investment plans and due to differing positions by its(the then regulator) consultants on forecast demand and cost of development. The challenge for Aer Rianta and the Commission is to ensure the proper, long-term development of the airports to meet current and prospective needs. Airline users and ground handlers because of their particular market focus tend to take a short-term perspective which will not necessarily correlate with the long-term proper

development of the airports in the interests of all users including passengers.

Treatment of Capital Expenditure by the Commission

The treatment of capital expenditure is a difficult and potentially contentious area of regulation since

- capital expenditure tends to be lumpy so history provides a poor guide to future needs. Aeronautical investment is not linear but 'chunked' into target threshold conditions i.e. 2 million additional passengers, 10 megawatts of additional electrical supply, a railway or light-rail interchange etc.
- airports require significant capital front loading into business before incremental growth justifies these works. Each investment project has a lead in time. Usually amounting to 3/5 years in the case of major projects.
- it is difficult to categorise an efficient capital programme in terms of both the value of outputs delivered and the efficiency of capital inputs
- it is difficult to judge *ex post* whether variations between planned and actual capital expenditure are due to changing circumstances, efficiency gains in delivering agreed outputs, or failure to deliver outputs (perhaps over the longer term)

If the Commission underestimates the amount of capital expenditure that Aer Rianta will need to undertake to meet safety requirements and the current and prospective needs of users, Aer Rianta may have difficulties in financing such investment. Beyond a single price control period, however, the implications of underestimating Aer Rianta's investment programme will depend on the way in which the Commission "rolls forward" the RAB at the next price review:

- if the Commission uses Aer Rianta's actual capital expenditure, then the adverse impact of the original underestimate will be limited to the amount of depreciation charged and the return on capital not allowed during the first price control period;
- however, if the Commission uses its original (under) estimate of Aer Rianta's capital expenditure, the impact will be that Aer Rianta will be permanently deprived of a return on that investment (in addition to the impact during the first price control period described above).

Some utility regulators have adopted the second approach, mainly in order to provide incentives for companies to carry out investment efficiently. In such cases, however, it is essential to have a robust method to determine

whether lower than expected capital expenditure is the result of the efficient delivery of investment, or simply under-investment. Equally, if capital expenditure is higher than expected, the regulator must be able to distinguish between simple inefficiency in carrying out the investment and the case where additional investment has been carried out in order to meet customer needs and changing business requirements. There is scope for companies to justify capital expenditure in excess of the original projection and for this to be included in the company's RAB.

The CAA (UK Airports Regulator) has expressed a clear preference for using actual capital expenditure when rolling forward the RAB. In part, this is because CAA does not choose to involve itself in the detailed investment planning and monitoring that is necessary to identify efficiencies in capital expenditure. The main reasons for this are that

- it would result in the CAA becoming involved in approving and disapproving elements of the plans, according to its own views;
- this would involve a much greater degree of regulatory involvement, and signal a more intrusive type of regulation than currently applied;
- specifically, it would require the CAA to "second guess" management decisions, with less information and responsibility than airport management mirroring what happened in the early 90s;
- it would substantially dilute the accountability of airports for the investments planned and undertaken and regulatory compliance
- the formal monitoring that would be required might reduce airport operators' flexibility to adjust capital expenditure to react to changing circumstances

The CAA also notes the role that airport users themselves can play in scrutinising investment plans. Airline user groups currently play a significant informal role in reviewing and influencing capital expenditure plans, and CAA suggests that this role could be enhanced, in particular by requiring full disclosure of information, probably in the form of a fully specified business plan, on demand projections, capacity projections, the capital expenditure plans, operating cost projections and associated charging profiles. The CAA acknowledges that airlines may not properly reflect the views of passengers. But this approach may nevertheless be superior to alternatives.

Conclusions

In its Draft Determination, the Commission has disallowed a significant element of the capital expenditure plans proposed by Aer Rianta, on the basis that Aer Rianta has not provided adequate justification for this expenditure. There is no suggestion that the Commission actually believes this investment is not required, but rather that Aer Rianta has simply not

provided sufficient justification for its proposals. Aer Rianta has no details from the Commission as to the particular projects it feels are not sufficiently justified and therefore is finding it difficult to understand exactly what the Commission requires as significant justification so that it can assure the Commission of the necessity for the investment and the consequences of non-delivery of certain plans.

As with all plans, they are based on the best available information at this time including forecast data and cost estimates and there is a danger that the Commission and its consultants, without having sufficient interaction with the company on its capital investment plans, could be incorrectly interpreting data submitted under statutory requests for information. All companies analyse and present information based on their own understanding and customised formats.

In this situation, it is essential that the Commission provides clarification, in its final determination, of how it intends to deal with capital expenditure at the next price review. In particular, it needs to clarify how it will deal with the situation where Aer Rianta needs to carry out some or all of any of the disallowed projects, in order to meet the current and prospective needs of airport users.

The only appropriate option available to the Commission at this stage is to state that, at the next price review, the RAB will be rolled forward on the basis of Aer Rianta's actual capital expenditure. The Commission could require Aer Rianta to carry out more extensive consultation with users, and indeed could attend such consultation for itself, to satisfy itself that Aer Rianta's capital expenditure plans are necessary and are carried out efficiently. But we see no alternative, at least for the next price review, to rolling forward the RAB on the basis of actual (rather than expected) capital expenditure.

If it is demonstrated that Aer Rianta does need to carry out any of the projects disallowed by the Commission, it should be able to earn a return on this investment, at the earliest possible juncture. In addition, it is necessary that the financing cost of the investment during the current price control period should also be added to the RAB, to compensate for the impact of that investment (and associated depreciation) being excluded from the Commission's projections for the current price review.

The Commission has not carried out the very detailed work required to analyse Aer Rianta's investment proposals and reach an agreed investment programme based on specifically identified projects and deliverables. There is not time to carry out the analysis that would be required to implement this approach within the period remaining before the final determination. This approach is simply not an option for the Commission, at least for the current price review.

If, despite this, the Commission were to decide that the RAB would be rolled forward on the basis of Aer Rianta's projected (rather than actual) capital

expenditure, this would have a very damaging impact on Aer Rianta's investment incentives. Aer Rianta might be unable to raise finance for new investments, because of the apparently arbitrary basis on which it was denied a reasonable return on its investment. Aer Rianta itself would also have strong incentives to undertake as little investment as possible during the price review period, and wherever possible to delay investment in the hope that it will be included in the allowed investment programme for the subsequent price review period.

1.8 Benchmarking and Operating Costs

The assessment of potential efficiency improvements has been one of the most important and challenging issues to be faced by regulators. It is one of the main determinants of "X" factors within RPI+/-X regulation, and is a key component of any regulatory framework based on future estimates of revenues and costs.

Under or over-estimating the scope for efficiency gains or setting targets on a basis that might be considered unreliable, could make it difficult for the regulated firm to raise finance for new investment. Potential investors may be concerned by the risk that the regulator will over-estimate the scope for efficiency gains at future price reviews, and therefore set a price cap that makes it very difficult or even impossible for the firm to earn a reasonable return on past investment.

In CP6/2001 the Commission assumptions for efficiency gains for the duration of the determination appear to be primarily based on a benchmarking exercise for each of the three Aer Rianta airports. Although Commission states that its targets have been based on this analysis "among other things", the targets correspond exactly to those suggested in the Commission's analysis, and there is no evidence in Commission's document to demonstrate what these "other things" were or how they influenced the Commission's thinking. The Commission's provisional efficiency targets have been set at a 15% improvement in operating expenditure per work load unit (WLU) at Dublin Airport and a 25% improvement at Shannon Airport, both to be achieved over five years. In contrast, the Commission analysis suggests that Cork Airport is operating efficiently and therefore it has not set any target for efficiency improvements.

Aer Rianta considers that the methodology used and the conclusions drawn from this exercise were seriously flawed and do not provide a basis for determining efficiency factors. In this chapter Aer Rianta will discuss the deficiencies in the approach adopted by the Commission.

Analysis of the Commission's Methodology

In its Draft Determination of maximum airport charges, the Commission for Aviation Regulation appears to have based its efficiency targets for Aer Rianta almost entirely on a simple set of partial productivity comparisons. Partial productivity measures consist of a simple ratio, typically between a single measure of outputs and a single measure of inputs. For example, the Commission's benchmarking analysis focuses on work load units (WLUs) as a measure of output and operating expenditure as a measure of input. Such measures have the advantage that they can be calculated with relatively little data, and the results are easy to understand (if not to interpret and draw conclusions from). They are often used in cases where firms simply

want to gain a general impression of how their performance compares with similar firms elsewhere. They may also be useful in helping to interpret the results of more sophisticated efficiency analysis of the type described below.

There are a number of reasons, however, why such simple comparisons may be misleading, and why they are not appropriate for assessing differences in firms' efficiency and setting its price cap:

- since they use only a single measure of input, partial productivity comparisons often fail to take account of substitution possibilities between different inputs, or they fail to take account of significant differences in the quality and quantity of other, unmeasured inputs;
- similarly, these simple indicators often measure output very imperfectly, missing out important dimensions of output (including, but not limited to, service quality) and therefore further reducing the usefulness of such comparisons;
- finally, such measures usually fail to take account of important external factors that give rise to legitimate cost differences between firms, even if they are equally efficient.

Applying these criticisms to the Commission's comparisons of operating expenditure per WLU, we find that this measure ignores potentially important differences in the quantity and quality of fixed assets and other capital costs at airports. It also ignores potentially important aspects of output, such as the number and nature of aircraft movements, the proportion of transit passengers, the peakiness of demand and the quality of service delivered, all of which could lead to significant cost differences between apparently similar airports.

Perhaps more importantly, these measures fail to take account of the many external factors that could lead apparently similar and equally efficient airports to have significantly different costs. Such factors include

- economies of scale - larger airports might be expected (unless they are suffering from capacity constraints) to have lower average costs than smaller airports;
- the lumpiness of investment - as some airport facilities (such as runways, roads, rail and to a lesser extent, terminals) can only be provided in relatively large increments, airports may have different costs simply because they are at different positions in the investment cycle;
- differences in input prices - higher wage rates, for example, will be reflected in a higher operating cost per WLU. Where these reflect national wage differentials, however, this higher cost does not

indicate inefficiency on the part of the airport operating in the high wage country.

In addition, such measures could be subject to measurement problems and data inconsistencies. An inappropriate choice of exchange rates can lead to misleading results, and it is important to ensure that data are being compared on a like-for-like basis. Taking the measure of operating cost per WLU, for example, it is important to ensure that comparisons are not distorted by different accounting practices (for example, governing the division between operating expenditure and capital expenditure) or because operating costs are included for activities that are provided at some airports but not others.

For these reasons, we believe that simple partial productivity comparisons of the type used by the Commission are very unreliable indicators of efficiency differences between airports, and are unsuitable as a basis for setting price caps. These indicators fail to measure inputs or outputs adequately, and they do not allow for differences in operating environments that may lead to genuine cost differences between airports, even if they are equally efficient. Further analysis of these measures is contained in the next section.

Analysis of the Commission's Specific Conclusions in CP6/2001

In this section the benchmarking analysis on which the Commission's efficiency targets for Aer Rianta are based is discussed and shown to be seriously flawed. The activities undertaken at peer airports are discussed first of all in comparison with Aer Rianta; then the Commission's methodology in applying partial performance measures (operating costs per WLU) is shown to be subjective and inappropriate. Thirdly, it is shown that the outcome of the Commission's analysis is highly sensitive to the specific choice of comparator airports used.

Finally, it is shown that the Commission has ignored a number of other potential comparator airports and importantly, that the inclusion of these airports significantly changes the results. As a result, a benchmarking study of this sort becomes a rather random exercise: every cost efficiency target could be justified by including or not including certain airports in the analysis. We conclude that the results are not robust, and cannot be used as a basis for the setting of efficiency targets.

Do Costs Cover Different Activities?

A crucial issue in benchmarking the performance of airports is to ensure that the costs of non-core activities are included in a similar way, if like is to be compared with like. If airport A operates a non-core activity (e.g. car parking) in-house, then both the associated costs and revenues will appear

in the accounts. If airport B outsources the non-core activity, then the associated costs and revenues will appear in the accounts of the subcontractor. The airport B accounts will only show the concession fee under revenues and nothing²³ under operating costs. Unless these differences are adjusted for, any comparison of the cost accounts of the two airports will be meaningless. The fact that airport A's costs appear lower represents a form of spurious efficiency caused by transferring costs from one company's account to another's. For a meaningful comparison of these airports, it is essential that for airports that operate these facilities themselves, either the additional costs be excluded or the additional outputs are included.²⁴

In the presentation to the Commission for Aviation Regulation of 6 March 2001, Aer Rianta has presented its activity profile. For the activities that generate revenue, the following profile was indicated

Aer Rianta Activity Profile

	Retailing	Car parking	Ground handling	Catering	Fuel
Dublin	Aer Rianta and concessions	Aer Rianta	Concessions	Concessions	Concessions
Shannon	Aer Rianta and concessions	Aer Rianta	Aer Rianta ²⁵	Aer Rianta	Aer Rianta and concessions
Cork	Aer Rianta and concessions	Aer Rianta	Concessions	Concessions	Concessions

It can be seen in the table above that Aer Rianta is heavily involved in the operation of the retail facilities at its airports, in the entire car parking operation and, in the case of Shannon, in catering and in a significant part of the fuel supply business to the airlines. The Dublin, Cork and Shannon airports accounts include the associated operating costs. Any comparisons with airports that do not include the costs associated with these activities in their accounts will be meaningless unless appropriate adjustments are made.

In the table below, a comparison is made between the activity profile of Dublin Airport and its apparently "better performing" peers. The following table contains a similar comparison for Shannon and Cork. Both tables indicate that the Aer Rianta airports, notably Shannon, undertake significantly more activities in-house than the "peer" airports. As a result,

²³ Possibly apart from the costs associated with managing the concession. The airport may retain ownership of the facility, in which case its depreciation costs will also include costs associated with the non-core activity.

²⁴ The distinction is only relevant in the case of activities that generate revenue. Whether for example an airport outsources its cleaning activities is not relevant for the purpose of a benchmarking exercise, since the associated costs will appear in the airport's accounts in either case.

²⁵ Inflight catering & fuel supply only.

the Aer Rianta accounts include the full costs of these activities, as opposed to just the difference between costs and revenues (which, as revenues usually exceed costs, this will appear under revenues with nothing under costs at all).

Dublin Airport Activity Profile Compared with Peers

	Retailing	Car parking	Ground handling	Catering
Dublin	Airport operator and concessions	Airport operator	Concessions	Concessions
Brussels	Concessions	Concessions	Concessions	Concessions
Copenhagen	Concessions	Concessions	Concessions	Concessions
Glasgow	Airport operator and concessions	Concessions	Concessions	Concessions
Oslo	Concessions	Concessions	Concessions	Concessions
Stansted	Airport operator and concessions	Concessions	Concessions	Concessions

Shannon and Cork Activity Profile Compared with Peers

	Retailing	Car parking	Ground handling	Catering
Shannon	Airport operator and concessions	Airport operator	Aer Rianta ²⁶	Airport operator
Cork	Airport operator and concessions	Airport operator	Concessions	Concessions
Leeds-Bradford	Concessions	Airport Operator	Concessions	Concessions
Cardiff	Concessions	Concessions	Concessions	Concessions
Bristol	Concessions	Airport operator	Concessions	Concessions
Southampton	Airport operator and concessions	Concessions	Concessions	Concessions
London Luton	Concessions	Airport operator	Airport operator (in part)	Concessions
Basel-Mulhouse	Concessions	Airport operator	Concessions	Concessions

These are not trivial adjustments, as can be illustrated by the fact that some 50% of Shannon's workforce and 14.1 % of its revenues were attributable to catering in 2000, an activity undertaken by none of its peers.

The conclusion is that the Commission's study fails to take account of the different activities included in the "peer group" airports' costs. Consequently, the results are not comparable and any benchmarking analysis on this basis will not be robust.

²⁶ Inflight catering and fuel supply only

The Impact of Different Measures

In general, the use of partial performance measures in benchmarking studies is problematic. It only measures one isolated aspect of relative efficiency, and fails to take into account many important factors, including differences in operating characteristics and environments between airports. Another difficulty is that partial performance measures can deal with one output only, whereas airports in fact produce multiple outputs that cannot easily be compared with each other. Using partial performance indicators may also provide perverse incentives for airports if they focus their attention just on the measures that are being used, without this necessarily implying a better overall performance. For these reasons, many regulators have not relied on them. To illustrate the difficulties and to show why a more sophisticated approach is needed, this section shows how the efficiency scores change when using just a few other measures.

In the context of comparative analysis even if the peer airports were engaged in the same set of activities, the partial performance indicator "operating costs per Work Load Unit" that has been used by the Commission would not give robust results. There is nothing to suggest that the costs to an airport of processing one passenger are in general equal to the costs of processing 100 kg of cargo.

Moreover, Work Load Units do not take account of the number of aircraft movements at an airport. An airport that would mainly be served by small aircraft or aircraft with low load factors can be expected to have higher costs than an airport mainly served by large aircraft or high load factors. Only to a limited extent can airports influence the mix of aircraft they receive, and they cannot influence average load factors in the planes that serve them. This point has been made, for example, by the UK CAA in its December 2000 consultation paper "The use of benchmarking in the airport reviews".

For this reason, the Transport Research Laboratory (TRL) in conjunction with the French Ecole National des Travaux Publics de l'Etat, developed the concept of Airport Throughput Units. This measure incorporates the relative efficiency of aircraft movements at an airport, as well as the carriage of freight, and is defined as follows

$$ATU = WLU * \frac{WLU}{ATM} = \frac{WLU^2}{ATM}$$

None of these measures is perfect for benchmarking purposes. Taking the example of two airports A and B which have similar passenger numbers and costs, but airport A having higher numbers of ATMs than airport B

- Measures using ATUs would suggest that the airport A was actually less efficient than B
- Measures using WLUs (or passenger numbers) would suggest that both airports were equally efficient.

Without further information (for example about the reason why airport A has a lower ratio of passengers per ATM) it is not possible to conclude that either of these measures is "correct". However, the mere fact that these approaches produce different results highlights the need for any comparative efficiency analysis to be based on more sophisticated methods that are capable of dealing with the multi-dimensional nature of airport outputs.

In addition to the problems with the output measure, it is not clear what has been included in the Commission's cost figures. For example, it appears as though the Commission has included the cost of sales in its analysis. This is a fundamental weakness and creates an immediate source of bias when comparing Aer Rianta airports with other of the Commission's suggested peer airports as these costs will be much lower for those that outsource commercial activities. This is highlighted by the fact that some 50% of Aer Rianta's turnover in 2000 was derived from retailing, catering and fuel sales, resulting in a significant cost of sales element in its base. At an airport level, some two thirds of Shannon's total revenue in 2000 was derived from fuel sales and catering. The inclusion of cost of sales in the benchmarking also raises the incongruity that if retailing was to proportionately increase at the Aer Rianta airports it would have the effect of making the airports appear more inefficient rather than reflecting a more successful commercial outcome.

It is also unclear whether the cost figures include or exclude depreciation, or whether the use has been consistent. The Commission acknowledges that there will be some differences in accounting definitions but the present analysis makes no explicit allowance for these differences.

To show the impacts of these factors, an alternative analysis has been produced using alternative measures, looking at cost figures both including and excluding depreciation.

The key assumptions and data for these and all following analyses are contained in Appendix 6. All figures are denominated in euros.

The table below contains the results of our analysis of the Dublin peers using alternative measures. Since the Commission's cost efficiency target was based on the five best performing peers, we focus on this group as well. It is important to note that this comparison demonstrates the variance in results arising from different measures. The analysis do not, nor do they purport to, suggest that any of these comparisons provide a basis for conclusion - the comparisons suffer from the same fundamental inaccuracy

caused by the non-comparability of the airports activity profiles referred to above.

Benchmarking Dublin Using Alternative Measures

	Dublin	Brussels	Copenhagen	Glasgow	Stansted	Oslo
Operating costs (incl. depr) per WLU	10.40	7.49	7.13	9.24	10.05	10.22
Operating costs (excl. depr) per WLU	9.30	5.67	4.88	7.37	7.95	6.56
Operating costs (incl. depr) per 100 ATU	11.43	8.25	9.87	11.50	11.98	14.42
Operating costs (excl. depr) per 100 ATU	10.23	6.24	6.76	9.18	9.48	9.26
Operating costs (incl. depr) per passenger	11.31	9.95	8.73	9.40	12.12	10.82
Operating costs (excl. depr) per passenger	10.12	7.53	5.98	7.50	9.59	6.95

The table below summarises the results by calculating the difference between the Dublin cost level and the (unweighted) average cost level of the best of its peers as identified by the Commission.

Summary of Dublin Cost Differences Using Different Measures

Measure	Difference between Dublin and peer average (% of peer average)
Operating costs (incl. depr) per WLU	17.8
Operating costs (excl. depr) per WLU	43.4
Operating costs (incl. depr) per 100 ATU	2.0
Operating costs (excl. depr) per 100 ATU	25.0
Operating costs (incl. depr) per passenger	10.8
Operating costs (excl. depr) per passenger	34.8

It can be seen that the differences that result from using alternative output measures are very significant. This applies in particular to using Airport Throughput Units as an output measure, which when including depreciation almost removes the efficiency differences between Dublin and its peers, even when abstracting from the differences in activities the airports undertake. But using passenger numbers too results in material differences, compared to using Work Load Units as an output measure. The differences between analysing the airport costs including and excluding depreciation are striking as well. When including depreciation, the efficiency differences between Dublin and the peers appear much lower than when excluding depreciation. It should again be noted that it is not clear whether Commission have used figures including or excluding depreciation, nor whether they have done so consistently.

It should be stressed that this analysis has made no attempt to adjust for the different activities undertaken by individual airports, as described in the previous section. These variations arising from differences in unit of output are of course material and additional to the serious problems posed by variations in the range of activities undertaken.

In the table below we present the results of the analysis using alternative measures in the case of the Shannon and Cork comparators.

Benchmarking Shannon Using Alternative Measures

	Shannon	Cork	Basel-Mulhouse	Bristol	Cardiff	Luton	Southampton	Leeds-Bradford
Operating costs (incl. depr) per WLU	21.00	10.55	14.15	15.75	12.84	11.06	20.80	13.02
Operating costs (excl. depr) per WLU	20.18	9.63	8.20	14.57	11.76	10.00	17.68	10.87
Operating costs (incl. depr) per 100 ATU	20.92	12.61	32.10	26.63	16.70	10.98	68.55	23.36
Operating costs (excl. depr) per 100 ATU	20.10	11.51	18.60	24.65	15.30	9.92	58.27	19.49
Operating costs (incl. depr) per passenger	24.33	11.33	17.04	16.39	13.11	11.63	20.99	13.04
Operating costs (excl. depr) per passenger	23.38	10.34	9.87	15.17	12.02	10.50	17.84	10.88

The results of this analysis are summarised in the following table

Summary of Shannon Cost Differences Using Different Measures

Measure	Difference between Shannon and peer average (%)
Operating costs (incl. depr) per WLU	49.7
Operating costs (excl. depr) per WLU	70.7
Operating costs (incl. depr) per 100 ATU	-23.3
Operating costs (excl. depr) per 100 ATU	-10.8
Operating costs (incl. depr) per passenger	64.5
Operating costs (excl. depr) per passenger	88.9

It can be seen that using alternative measures here changes the results altogether. Shannon suddenly appears more efficient than its peers when using Airport Throughput Units. The differences between including and excluding depreciation are significant here too.

The Impact of Additional Airports

The Commission analysis has used a number of airports as comparators for Dublin, Cork and Shannon. Whereas it is acknowledged that in a number of cases, differences between these airports may question the possibility of making direct comparisons between airports, such comparisons are still made. Only Brussels is excluded from one of the analyses, but not from the one on which the final cost efficiency target is based.

However, given the fact that most of the peer airports are only imperfect comparators, the question arises why other potential comparators have been excluded. This has not been explained in the Commission's report. In a number of cases, it is not possible to use airports in a benchmarking study, since some belong to larger airport groups that do not publish cost data for the individual airports. In other cases, however, cost data for other airports are available and there is no obvious reason why these should not be used. The fact that the Commission have only looked at a few comparators may bias the results, especially when -as the Commission acknowledge- there are some significant differences between the comparators.

Below, this is illustrated by the extension of the analysis to include four more airports

- Stuttgart
- Geneva
- Hamburg
- Zurich

The results of the analysis using alternative airports are contained in the table below.

Benchmarking Dublin Using Alternative Airports

	Dublin	Stuttgart	Geneva	Hamburg	Zurich
Operating costs (incl. depr) per WLU	10.40	19.90	11.42	14.19	8.64
Operating costs (excl. depr) per WLU	9.30	13.43	8.86	12.06	6.36
Operating costs (incl. depr) per 100 ATU	11.43	26.72	16.85	18.39	9.47
Operating costs (excl. depr) per 100 ATU	10.23	18.04	13.08	15.63	6.97
Operating costs (incl. depr) per passenger	11.31	20.84	12.26	14.98	10.21
Operating costs (excl. depr) per passenger	10.12	14.07	9.52	12.73	7.51

Of these, only Zurich scores better than Dublin, although Geneva is also more efficient in two of the cases excluding depreciation.

Summary of Dublin Cost Differences Using Different Airports

Measure	Difference between Dublin and peer average (% of peer average)	Difference between Dublin and peer average plus Zurich (% of peer average plus Zurich)	Difference between Dublin and peer average plus Zurich plus Geneva (% of peer average plus Zurich plus Geneva)
Operating costs (incl. depr) per WLU	17.8	18.2	13.4
Operating costs (excl. depr) per WLU	43.4	43.9	36.7
Operating costs (incl. depr) per 100 ATU	2.0	4.7	-2.8
Operating costs (excl. depr) per 100 ATU	25.0	28.2	17.5
Operating costs (incl. depr) per passenger	10.8	10.8	7.7
Operating costs (excl. depr) per passenger	34.8	34.8	29.8

It can be seen that the inclusion of Zurich makes little difference, as Zurich happens to be close to the peer group average. Adding Geneva however does significantly change the results and makes Dublin even more efficient

than the peer group on one measure. The fact that the inclusion of just one additional airport can make the difference between being classified as relatively efficient or inefficient again illustrates the lack of robustness of the CAR benchmarking analysis.

For Cork and Shannon, the analysis is extended to consider Aberdeen and Billund. The results of the benchmarking analysis for these alternative airports are contained in the table below.

Benchmarking Shannon and Cork Using Alternative Airports

	Shannon	Cork	Aberdeen	Billund
Operating costs (incl. depr) per WLU	21.00	10.55	10.22	20.11
Operating costs (excl. depr) per WLU	20.18	9.63	9.15	17.82
Operating costs (incl. depr) per 100 ATU	20.92	12.61	33.01	31.29
Operating costs (excl. depr) per 100 ATU	20.10	11.51	29.56	27.71
Operating costs (incl. depr) per passenger	24.33	11.33	10.46	21.03
Operating costs (excl. depr) per passenger	23.38	10.34	9.37	18.63

The results of this analysis in the case of Shannon are summarised in the following table.

Summary of Shannon Cost Differences Using Different Measures

Measure	Difference between Shannon and peer average (% of peer average)	Difference between Shannon and peer average plus Aberdeen and Billund (% of peer average plus Aberdeen and Billund)
Operating costs (incl. depr) per WLU	49.7	47.1
Operating costs (excl. depr) per WLU	70.7	65.5
Operating costs (incl. depr) per 100 ATU	-23.3	-26.2
Operating costs (excl. depr) per 100 ATU	-10.8	-15.9
Operating costs (incl. depr) per passenger	64.5	62.2
Operating costs (excl. depr) per passenger	88.9	83.5

Here, too, it can be seen that the inclusion of additional airports materially changes the results. The differences remain high due to the wide range of activities that Shannon undertakes itself.

Alternative Perspectives on the Aer Rianta Cost Base

The Warburg Dillon Read, SH&E, AIB Corporate Finance *“Review of the Strategic Options for Aer Rianta”*, which was Commissioned by the Ministers for Public Enterprise and Finance, also reviewed the issue of Aer Rianta’s operating costs. The report concluded, *“Aer Rianta’s comparative operating cost performance is in line with airport operators undertaking a similar range of activities”*. The report concluded in broad terms that *“Aer Rianta’s lower profit margins are a result of lower than average aeronautical revenue, rather than an excessive cost base”*.

It is clear that there is little evidence of inefficient or ineffective use of resources by Aer Rianta but that the efficiency of its operations is borne out by various inter-airport comparisons in these analyses.

Conclusions

The evidence apparently used by the Commission for the purpose of establishing efficiency targets for Aer Rianta is unreliable and therefore unsuitable for tariff setting purposes. There are three specific areas of concern

- Comparisons between airports first require a very careful evaluation of the range of activities carried out by each airport, and how these activities impact on specific comparators. This does not appear to have been undertaken in the Commission exercise.
- Alternative, equally plausible, partial productivity measures can lead to very different results.
- The specific choice of peers can significantly affect the results. Alternative peers, with arguably equally valid reasons for inclusion, yield very different efficiency scores. This raises very serious concerns about the robustness of Commission’s current analysis.

Thus not only does Aer Rianta consider that the specific kind of analysis undertaken by Commission may produce misleading results, but we are strongly of the view that no form of partial productivity comparison should be used by regulators for tariff setting purposes. We have also drawn attention to the fact that cost differences identified by such exercises cannot simply be assumed to represent efficiency differences. These are difficulties that cannot be addressed by refining or improving the Commission’s benchmarking analysis. The methodology is simply unsuitable for the purpose of setting regulated charges.

The Commission has a statutory requirement under Section 33 to have due regard to the cost competitiveness and operational efficiency of airport services at the airport with respect to international practice. It is therefore appropriate that the Commission adopts best international regulatory practice in relation to its benchmarking analysis. Appendix 7b attached to this document summarises the efficiency reviews adopted by regulators in other jurisdictions.

Where utility regulators in Europe have used benchmarking analysis

- This is usually based on statistical or linear programming techniques that allow for a variety of inputs and outputs to be measured and also seek to adjust for exogenous differences between companies;
- It has always been used in conjunction with other indicators of the scope for efficiency gains, such as detailed bottom up analyses or time series comparisons with productivity gains in similar industries.

It would be extremely risky for the Commission to attempt to set regulated charges on the basis of such unreliable indicators as the benchmarking analysis contained in Annex V of the Draft Determination. If, in reality, Aer Rianta has less scope to improve its efficiency than assumed by the Commission, then prices based on such targets could create significant financial difficulties for Aer Rianta, making it difficult to finance new investment and perhaps even the operation of existing facilities. In addition, the use of such unreliable indicators for price setting purposes is likely to lead to a very significant increase in the regulatory risk associated with all operators regulated by the Commission.

In view of the very serious shortcomings in Commission's own benchmarking analysis, it is important to establish an alternative basis for setting operating efficiency targets going forward.

Aer Rianta considers that the projections presented in Appendix 8 and summarized in Section II provide the best available information in order to set efficiency targets. These projections are firmly set in an understanding of Aer Rianta's actual cost base and scope for efficiencies (rather than a high level and unreliable efficiency comparison with other airports), and they assume that Aer Rianta will continue to achieve significant gains in operating performance.

Aer Rianta believes that it would be highly inappropriate for the Commission to impose more stringent efficiency targets without having robust evidence to demonstrate that these are feasible, that they are achievable in the next control period, and that they can be achieved without jeopardising national and international standards on safety and security, as well as minimum quality service standards.

SECTION II: AER RIANTA PROPOSAL ON MAXIMUM LEVEL OF AIRPORT CHARGES

In Section I Aer Rianta discussed the Commission's Draft Determination in terms of each of the building block component and outlined the company's views on the most appropriate methodologies the Commission should adopt in arriving at its final determination with respect to the maximum level of airport charges.

Aer Rianta's recommendations with respect to the key regulatory building blocks are as follows

- The airports should be regulated as a single entity in order to ensure that maximum benefits from economies of scope are maintained, the efficiency and effectiveness in the use of all resources by the airport authority to minimise the regulatory burden and to ensure that the role of airports as engines of growth at a regional level is preserved.
- An incentive regulatory price cap of the form CPI+X, should be applied to the average aeronautical yield per work load unit. In this instance, a +X factor is required due to the heavy investment in capacity which is required over the period of the determination.
- The dual till approach is the most appropriate framework for regulation of airport charges, as it efficiently signals the economic costs of the provision of infrastructure both to airport users and the airport authority.
- In order to ensure that Aer Rianta is capable of delivering facilities to meet customer demand and requirements in the future, it is appropriate that the valuation of assets within the regulatory till be based on a replacement cost methodology and that asset values be rolled forward in a manner designed to ensure that development can be sustained. Aer Rianta has made a detailed assessment, with the assistance of Arthur Andersen, of the replacement cost of its assets. The net book value of these assets at replacement cost as at 31st December 2000 was IR£660m of which IR£435m relates to aeronautical assets within the Dual Till. This is detailed in Appendix 4.
- Aer Rianta's capital programme has been carefully formulated in order to ensure that the necessary facilities are delivered in order to meet the current and prospective needs of airport users. This requires an average capital spend per WLU for the period 2001-2006 of IR£7.24 (expressed in constant 2000 terms). This programme is detailed in Appendix 6.

- Aer Rianta's ability to fund ongoing investment in the future is dependent on achieving a reasonable rate of return on assets. The rate of return permitted should be equivalent to the cost of capital, which must be derived in the light of the specific market conditions within which Aer Rianta operates. A real pre-tax dual till rate of return of 9.8 % should be applied. This is set out in Appendix 5.
- Aer Rianta has factored challenging operating efficiency targets into its airport charges proposal for the forthcoming regulatory review period. This is further referred to below and detailed in Appendix 8. In view of the very serious shortcomings in the Commission's benchmarking analysis, it is important for the Commission to establish an appropriate alternative basis in the context of any assessment of Aer Rianta's operating efficiency targets going forward.

Aer Rianta submitted its airport charges proposal to the Commission based on the above building blocks²⁷ in response to a statutory request for information on 19th June 2001.

Aer Rianta believes that the approach outlined in Section I provides the optimum economic basis for the implementation of regulation at Irish airports. Aer Rianta is conscious of the possible implications in terms of discontinuities in pricing which would arise from the full implementation of all elements of its proposal at this point in time. In particular, Aer Rianta is conscious of the combined impact on charges that a dual till, replacement valuation of the RAB and the substantial capital programme might have.

In this context, as an interim measure and following careful consideration of the Commission's draft determination, Aer Rianta has developed an adjusted proposal which incorporates some of the Commission's draft proposals and retains some of the essential elements of Aer Rianta's original submission.

Aer Rianta feels that it is vital that the following key elements be incorporated in the regulatory framework if the final determination is to facilitate the development and operation of cost effective airports which meet the requirements of all users

- The three airports should be regulated as an entity rather than on an individual price cap basis
- The recoverable capital expenditure programme should fully reflect Aer Rianta's capital investment plan 2001-2006
- The appropriate revaluation of asset base from historic cost

²⁷ The capital expenditure element of the building blocks now differs in one respect from that submitted to the Commission in May 2001. The proposed capital spend at Cork Airport has been increased following recent consultation with users on their requirements and a detailed engineering exercise.

- A rate of return at least equivalent to Aer Rianta's estimated cost of capital which will ensure the sustainable and profitable operation of the airports

Aer Rianta's revised proposal for the maximum level of airport charges for the regulatory period is presented below. Those elements proposed but not reflected in the initial determination should be incorporated into the Commission's next review.

2.1 Regulation of the Three Airports as a Group

In Section 1 Aer Rianta set out its position in relation to the regulation of Cork, Dublin and Shannon Airports as a single unit. By treating the airports as a group, a balance between demand for additional capacity and capital expenditure at the three airports will be maintained while achieving an economically efficient outcome. The role of airports as engines of growth at national and regional levels can also be maintained. In its proposal Aer Rianta has assumed that the airports would be regulated as a unit through the application of a single price cap over the three airports.

2.2 Application of a CPI+X Price Cap

Aer Rianta has assumed the use of a modified price cap based on the formula CPI+X, applied to the average aeronautical yield per WLU. A +X factor is required due to the heavy investment in capacity which is required over the period of the determination.

The CPI index used for this purpose is tabulated below.

Inflation Rate	2002	2003	2004	2005	2006-2010
ESRI rate (%)	2.9	3.0	3.0	2.9	2.6

2.3 Regulatory Till Composition

In Section I of this document Aer Rianta supports the use of a dual till approach for price regulation at Dublin, Cork and Shannon Airports. As airports across the world migrate to the dual till approach to economic regulation, Aer Rianta expects the Irish regulatory approach should follow suit, and carry out future price reviews on the basis of what is becoming international best practice.

Aer Rianta recognises the difficulties with a move to a dual till system in the initial determination. Aer Rianta acknowledges there needs to be an

appropriate "transition path" between the initial determination and the successor determination to reach a full scale dual till approach to price regulation. Its views on the best means of achieving this objective have also been set out in Section I. On this basis Aer Rianta is proposing a single till composition for the initial determination.

Aer Rianta's definition of the activities that should be included within a single till does not differ substantially from the Commission's, except that Aer Rianta believe its joint venture property investments should not be included in the single till. These activities do not have a sufficient nexus to Aer Rianta's regulated activities, and should be excluded for exactly the same reasons that the Commission has already excluded income from Aer Rianta International and Great Southern Hotels. The projected commercial earnings for the regulatory period are attached in Confidential Appendix 9.

2.4 Asset Valuation

Aer Rianta strongly supports the valuation of the regulatory asset base in accordance with replacement costs as set out in Section I. This is consistent with the key criteria of economic efficiency and with meeting the funding requirements of the business. The Commission itself has recognised the superiority of a replacement cost approach to the valuation of the asset base in CP6/2001.

Aer Rianta, with the assistance of Arthur Andersen, has undertaken a comprehensive exercise to arrive at a replacement cost valuation. A substantial revaluation exercise was carried out over a number of months involving expert staff. Using a structured and detailed approach a replacement cost valuation was determined as at 31 December 1999. The results of the valuation exercise are detailed in the report on the regulatory asset valuation prepared by Arthur Andersen on behalf of Aer Rianta and included in Appendix 3.

In its draft determination, the Commission indicated that historic cost was the best available information capable of verification at that point. Aer Rianta disagrees with this and considers that the revaluation report furnished to the Commission provides such a basis. Aer Rianta is also providing the Commission with a revaluation on an indexed historic basis. The development of an indexed historic valuation requires little independently verifiable data other than an appropriate index. Though indexing the historic costs to present them in current terms is not as correct as using replacement cost, such a methodology is superior to the historic net book value methodology in terms of its ability to maximise economic welfare. As an interim measure, up to the next price control review, valuation on an indexed historic cost basis will enable the asset base to keep pace with inflation to some extent and the resulting valuation will avoid some of the harm done by using historic net book value as the basis for valuing the RAB.

The Arthur Andersen report, which has already been made available to the Commission, concludes that:

- Replacement cost valuation methodology should be used as the basis for determining the opening value of the RAB
- The use of the historic cost approach fails to meet any of the economic efficiency objectives and accordingly is not an appropriate basis for valuation of the RAB.
- An indexed historic cost approach is inferior as it is less consistent with the key criteria of economic efficiency and with meeting the funding requirement of the business.

The following table gives the replacement cost valuation (rolled forward to arrive at an estimated valuation as at 31 December 2000) and an indexed historic cost net book value valuations as at 31 December 2000.

Net Book Values IR£(M) ²⁸	Historic Cost	Indexed historic cost	Replacement Cost
Dublin	273	372	478
Cork	55	81	106
Shannon	28	49	71
Information Technology & Misc.	6	8	5
Total	362	501	660

2.5 Rate of Return Proposal

In order to ensure the sustainable and profitable operation of the airports, the allowed return on the regulated asset base (RAB) must be set in accordance with an estimate of Aer Rianta's cost of capital for the regulatory till.

Aer Rianta commissioned expert consultancy group NERA to estimate the cost of capital for Aer Rianta to be used in setting the allowed returns for both single till and dual till regulatory systems. The component elements of the WACC for Aer Rianta's regulated activities are summarised in the table below. NERA's detailed analysis is presented in Appendix 5.

Aer Rianta has followed NERA's advice that the allowed rate of return should be set on a post tax basis with taxes to be included in the revenue requirement separately in accordance with projected tax costs estimated through financial modelling.

²⁸ Expressed in real 2000 terms

Based on NERA’s analysis Aer Rianta’s proposal on airport charges is based on a real post tax “Vanilla” WACC, (calculated as the weighted average of the post tax return on equity and the cost of debt gross of the debt tax shield) of 8.0% under a single till approach.

Parameter	Single till
Cost of Equity	
Nominal risk-free rate	5.0%
Expected inflation	1.7%
Real risk-free rate	3.2%
Equity risk premium	6.0%
Asset beta	0.75
Debt	30%
Equity	70%
Equity beta	1.04
Real post-tax return on equity	9.4%
Cost of Debt	
Debt premia (basis points over riskfree)	150
Real cost of debt	4.7%
WACC	
Real post-tax “Vanilla” WACC	8.0%
Real post-tax “net of debt tax shield” WACC ²⁹	7.7%
Effective tax rate	25%
Nominal “net of debt tax shield” WACC	9.5%
Real pre-tax WACC using “Historical” formula	10.8%

2.6 Capital Expenditure 2001-2006

Aer Rianta has factored into its calculations the capital expenditure plan 2001-2010 previously submitted to the Commission. Capital development strategies for airports are by necessity framed in long-term horizons, typically 20 years or more. In order to evaluate the capital investment plan that Aer Rianta has used to develop its airport charges proposal, it is necessary to consider the current stage of development of each of the airports. As airport managers, one of the biggest challenges for Aer Rianta is to cater for continuing growth at its airports, to ensure that acceptable service standards are offered to both airline and passenger customers at the three airports and to meet regulatory requirements.

Aer Rianta has estimated the capital plan necessary to deliver appropriate facilities at the three airports to meet customer demand, and to ensure that

²⁹ Note: post-tax “net of debt tax shield” WACC = post tax cost of equity * E/(E+D) + cost of debt (1-tax rate)* D/(D+E)

the congestion problems of recent years are not repeated and to ensure that it meets its statutory obligations under the Air Navigation and Transport (Amendment) Act 1998. The total capital plan for the three airports for the period 2002 to 2006 is estimated at IR£891 million (uninflated) or IR£1081 million (inflated) in addition to a budgeted capital spend of IR£107 million in 2001. The equivalent in constant 2000 terms is outlined in the table at the end of this section.

Aer Rianta's capital programme represents the output from a comprehensive process which is rooted in

- Robust passenger / ATM forecasting methodology
- Strategic master plan studies which were conducted by Scott Wilson Kirkpatrick
- Formal structured stakeholder consultation

Aer Rianta's Capital Expenditure Programme is based on realistic demand assessment and controlled procurement costs.

Aer Rianta's plan is based on the centerline demand forecast and the company believes that a responsive approach to capital project delivery is essential to avoid periods of major capacity constraint into the future. In this regard, it is Aer Rianta policy to execute outline design and permitting early in the project lifecycle in order to be able to deliver an appropriate response when growth exceeds forecast. This position has been endorsed by a majority of stakeholders during the recent consultation processes at Dublin and Cork airports

Aer Rianta believes that the capital investment plan which it has prepared and submitted to the Commission is required to facilitate the development and operation of cost effective airports which meet the requirements of users and expects that the Commission, having re-examined the proposals, will adopt Aer Rianta's capital expenditure plans in full.

In the Appendix 6, Aer Rianta has provided comprehensive information on its capital investment plans, including full details on the project justification. In this report, the projects are classified in terms of the primary drivers for development - capacity, safety/regulatory/environment or refurbishment/upgrade.

Capital Expenditure 2001-2006 ³⁰	2001 IRE(m)	2002 IRE(m)	2003 IRE(m)	2004 IRE(m)	2005 IRE(m)	2006 IRE(m)
Dublin	52.6	117.1	116.1	169.0	163.8	148.9
Shannon	23.0	7.9	5.3	17.6	13.5	27.0
Cork	14.3	67.7	31.1	5.1	6.5	8.1
I.T. & Misc.	12.5	5.5	8.9	9.1	9.3	9.4
Total	102.4	198.2	161.4	200.8	193.1	193.4

2.7 Traffic Forecasts

The traffic forecasts which underpin the capital expenditure plan and the other key building blocks in this proposal are set out below.

WLU(m)	2001	2002	2003	2004	2005	2006
Dublin	16.3	17.3	18.2	19.2	20.3	21.2
Shannon	3.0	3.1	3.3	3.4	3.5	3.7
Cork	1.8	1.9	2.0	2.1	2.2	2.3
Total	21.1	22.3	23.5	24.7	26.0	27.2

2.8 Operating Costs

Aer Rianta has undertaken a detailed assessment of its historic operating cost performance over the period 1995-2000 and an analysis of the factors underlying its performance. On the basis of this analysis and taking into account the significant changes in Aer Rianta's operating environment over the next regulatory period, particularly in the context of the significant capacity constraints currently at the airports, the increasing regulatory and compliance cost burden, and forecast traffic growth rates, Aer Rianta has estimated expected future operating costs per Work Load Unit for the regulatory control period 2001-2006. A comprehensive analysis is included as Appendix 8.

Aer Rianta has realised considerable operating cost efficiencies over the period 1995-2000. Operating costs measured in terms of Work Load Units,

³⁰ Expressed in real 2000 terms

have decreased by approximately 20% over the period of analysis. Operating cost decreases at each of the airports amount to 24% in the case of Shannon, 26% at Cork and 13% at Dublin.

There are a number of factors that explain the historic falls in unit operating costs

- The beneficial impact of increased traffic volumes on unit costs. This is particularly true for Shannon and Cork, which are smaller operations and therefore have greater scope to exploit economies.
- Increases in labour productivity. Labour productivity increased by over 40 per cent over the period of analysis (as measured by WLU's per FTE).
- Reductions in unit non-payroll costs. Reductions in non-payroll costs have been secured through restructuring, competitive tendering for all aspects of its non-pay cost base as well as other cost-saving initiatives.

Future Operating Cost Performance

Aer Rianta is taking further measures that will reduce unit operating costs over for the period of the determination. These measures include

- The restructuring of the cleaning department and the Airport Police Fire Service at Dublin Airport. The restructuring of Aer Rianta's finance division with the transfer of all processing functions to a Shared Services Centre.
- The exploitation of new technologies to secure reductions in operating costs.
- The re-design of certain business processes in order to reduce operating costs.
- The establishment of a specialist corporate procurement function in order to secure the benefit from economies of scale in procurement activities.

These measures should ensure that Aer Rianta continues to reduce operating costs over the period 2001-2006.

However, there are also a significant number of factors that will constrain Aer Rianta's ability to reduce operating costs at a similar rate in the forthcoming regulatory period. These factors include

- Demand for higher levels of service from users, industry standards, and regulatory bodies in both the delivery of services and facilities at the 3 airports.
- A reduction in the beneficial effect of traffic volumes on unit costs. The impact of volume growth on unit costs declines with increasing passenger numbers. Traffic growth over the next five years is forecast to be lower than historic traffic growth.
- The impact of major capacity additions such as the terminal building at Dublin, and the new terminal at Cork will impose additional operating costs on Aer Rianta.
- The extension of “flying hours” at Cork to 24 hours per day.
- The geographical expansion of Dublin Airport, particularly as regards long-term car parking and the consequent need to introduce an extensive bus service will add to non-pay operating costs items.
- Additional compliance requirements, particularly with respect to older facilities in terms of fire safety enhancements and inbound/outbound passenger segregation, and also in terms of new requirements such as EU Ground Handling Directive and licensing of aerodromes.
- The impact of national pay awards, pay increments, and external economic pressures on payroll costs. Aer Rianta is a signatory to the Programme for Prosperity and Fairness that commits Aer Rianta to appropriate remuneration for its staff.
- The imposition of local authority rates. Since 2000 Aer Rianta has been subject to local authority rates. In 2001 this exogenous cost will be equivalent to 14 per cent of total non-pay operating costs.
- New environmental costs, such as noise tracking and monitoring, and waste disposal services.
- Further anticipated increases in externally-imposed costs such as rates and insurance.

These factors suggest that the scope for realising efficiency gains in unit costs over the period of the regulatory review will be below historic levels.

Overall Aer Rianta estimates that unit costs will decline by 9.5% over the regulatory period. At airport level, unit cost efficiency is expected to increase by 6% at Dublin; Shannon by 15%; with an approximately stable unit cost performance at Cork, reflecting the fact that Cork, as acknowledged by the Commission, already operates at high levels of efficiency.

The unit cost performance per Work Load Unit for the airports is set out in Appendix.

2.9 Proposed Maximum level of Airport Charges

The Air Navigation and Transport (Amendment) Act, 1998 defines “airport charges” as

- *charges levied in respect of the landing, parking, or taking off of aircraft at an aerodrome including charges for air-bridge usage but excluding charges in respect of air navigation and aeronautical communications services levied under section 43 of the Act of 1993,*
- *charges levied in respect of the arrival at or departure from an airport by air of passengers, or*
- *charges levied in respect of the transportation by air of cargo, to or from an airport, as may be appropriate*

Based on the assumed framework and key components discussed above and in previous submissions, Aer Rianta’s proposed maximum level of airport charges is set out below.

Economic principles have been used to ensure that the new charges encourage the efficient use and management of capital-intensive facilities. Aer Rianta’s proposal on airport charges is for a maximum revenue yield per work load unit of IRE6.52, increasing by CPI+X per annum over the regulatory period, where X = 5.

APPENDICES

Appendix 1	Pier C and Terminal West Development at Dublin Airport
Appendix 2	Shannon Airport Terminal Development
Appendix 3	Arthur Andersen Report on Replacement Cost Valuation of Assets at 31 st December 1999 and details of the roll forward of this valuation to 31 st December 2000
Appendix 4	Indexed Historic Cost Valuation of Assets at 31 st December 1999 and details of the roll forward of this valuation to 31 st December 2000
Appendix 5	NERA Report on Cost of Capital
Appendix 6	Confidential Aer Rianta's Capital Investment Programme for Dublin, Cork and Shannon Airports 2001-2010
Appendix 7(a)	Benchmarking Assumptions and Data
Appendix 7(b)	Approaches to Efficiency Reviews Adopted by Regulators in other Jurisdictions
Appendix 8	Confidential Operating Expenditure for Aer Rianta 2001-2006
Appendix 9	Confidential Projected Earnings from Commercial Activities for the Regulatory Period