

**Christchurch International
Airport Limited**

**Response to Commerce Commission
Draft Report**

14 August 2001

PART A

GENERAL SUBMISSIONS

Overview

- 1 CIAL pursues four main arguments:
 - (a) The Commission has seriously underestimated the countervailing power of the airlines as well as the extent of regulation presently existing in relation to airports (medium-powered regulation when assessed on an international scale). In several important ways the Commission ignores the reality of the situation and focuses on pure economic analysis.
 - (b) The Commission's use of optimised depreciated historic cost to value the sealed asset component of airfield activities is in error. The Commission should have used ODRC. Fundamentally, the problem arises because the Commission has wrongly used opportunity costing to undertake the necessary valuations.
 - (c) The particular asset beta used in calculating WACC for airfield activities at Christchurch Airport is too low because it is based on erroneous analysis and incomplete data.
 - (d) The conclusion that the holding of "surplus land" causes dynamic efficiency losses is flawed. That is because the Commission has used a short-run view. The Commission should have taken a long-run view and recognised that "surplus land" has an option value.
- 2 There are other issues in the Draft Report with which CIAL disagrees. Some of these are identified below. By and large, however, CIAL has avoided addressing those issues which would not have significant outcomes, if corrected. Failure to address any particular point, accordingly, should not be assumed to imply its acceptance by CIAL.
- 3 CIAL has discovered a serious flaw in the Commission's calculations. This appears in Appendix 10, page 275. The Commission has assessed annual revenue from airfield charges on the basis that there will be some 4000 plus annual movements of a Tupolev TU154. In the same schedule it has assessed some 2 movements, only, of the Metroliner. CIAL has reworked this schedule and the correct version appears as part of the evidence of Mr Peter Seed.
- 4 Amendment of the Draft Report in response to one or more of the above four factors, as well as to correct the error at page 275, will eliminate (or at least reduce) the findings of excess returns and inefficiencies assessed by the Commission in the case of CIAL (see Part E of Mr Seed's evidence). CIAL strongly argues that there have been and will be no such excess returns, nor will there be inefficiencies.

Structural Problems

- 5 While the Commission has faced an enormous task in producing the Draft Report – and has had to reduce a substantial volume of data to manageable proportions –

there are two structural features of the Draft Report with which CIAL has particular concerns. First, there is little apparent engagement with the arguments put forward by CIAL in its submissions dated 27 April 2001. Indeed, there is little apparent reference to the submissions made by any of the parties. Of course, aspects of their arguments appear (largely unattributed) in the Draft Report. CIAL submits that the final report must explicitly engage with CIAL's arguments.

- 6 Secondly, the Draft Report appears to have been prepared from a pure economic perspective. There appears to be little acknowledgment that the competition standard is that of workable and effective, not perfect, competition. The modelling work undertaken has assumed perfect competition – ideal circumstances – rather than the real world situation of the airports and the airlines. In that regard, the failure to recognise the substantial countervailing power of the airlines (particularly Air New Zealand) has led the Commission to adopt models that are more appropriate to multi-acquirer situations than is the case here.
- 7 The distinction between the two thresholds (perfect/workable and effective) was addressed by the High Court of Australia in *Melway Publishing Pty Limited v Robert Hicks Pty Limited* [2001] HCA 13. While dealing with the position of Section 46, Trade Practices Act, the Court's following comments are apposite:

“An absence of a substantial degree of market power does not mean the presence of an economist's theoretical model of perfect competition. ... [T]he hypothesis that [the firm] lacks a substantial degree of power in the market does not require the assumption that [inter alia] there exists a state of perfect competition ... It is one thing to compare what [the firm] has done with what it might be thought it would do if it lacked that power. It is a different thing to compare what it has done with what it would do in circumstances that are completely divorced from the reality of the market.”
(paragraphs 52 and 58)

CIAL's First Main Argument: Countervailing Power of Airlines

- 8 The Commission concludes that there is limited competition in the relevant markets, partly as a consequence of there being limited countervailing power by the airlines. CIAL does not accept that the airlines have limited countervailing power. It believes the Commission has not had sufficient regard to the realities of the marketplace. While the details of this argument are set out more fully below, there are three main issues to be considered.
- 9 First, as Dr Lawriwsky will say, the existing regulatory environment, assessed on an international scale, can be characterised as medium-powered. That is, the regulatory system, of itself, places significant constraints upon CIAL.
- 10 Secondly, and related to the first point, the consultation requirements significantly constrain CIAL. The Commission appears to have accepted, uncritically, the airlines' complaints about consultation. But the reality of the case is that consultation does constrain CIAL. It is not able unilaterally to increase prices in response to fluctuating market conditions. The last consultation round took 18 months. At the end of that prices were set for a three year period. Effectively,

CIAL is locked into that. Subsequent changes in market conditions – Korean Air dropping out of Christchurch and the collapse of Qantas New Zealand – has resulted in losses to be absorbed by CIAL. If the consultation requirements did not provide a constraint, CIAL would have been able to respond to these fluctuations by increasing its airfield charges.

- 11 The Commission has not addressed the conclusion of McGechan J in *Air New Zealand Limited v Wellington International Airport Limited* (unreported, High Court Wellington, CP 403/91, 6 January 1992), at page 8, that consultation provides a:

“compulsory opportunity for vigorous and informed objection by powerful airline interests, and the political and consumer consequences which may follow.”

- 12 Thirdly, the relationship between the airport and the airlines has not been fully analysed. This is a market where there is mutual dependence. It has some unusual features. For example, there are no contracts between airlines and airports. Airlines can, and do, unilaterally change schedules. They can reduce flights in and out of the airport by forming strategic alliances. They can, and do, enhance their market power by negotiating collectively (through BARNZ).
- 13 While CIAL can reasonably anticipate a continued use of its airport by airlines, it has no certainty. It must undertake planning in an environment reflecting that uncertainty. Equally, it has to have a long planning horizon. Excess terminal capacity cannot be added on an ad hoc and as-required basis. Excess land cannot be acquired as and when it is needed. Such planning assumes a minimum of a ten year horizon.
- 14 All of these factors impact on the Commission’s inquiry in different ways. For example, the Commission’s slogan “used and useful” (which appears to have been adopted from the airlines) appears to take no account of the inherent need to have excess capacity at an airport (to accommodate future growth as well as unilateral schedule changes by airlines). The Commission’s views on “used and useful” also impact on its conclusions about dynamic inefficiency, and the calculation of an asset beta.
- 15 Some of these problems appear to flow from the Commission’s adoption of an overly pure structure for its analysis. The relevant standard, however, is that of workable or effective competition. The Commission must acknowledge the real world. It must also acknowledge the margins of error that any calculations inevitably have. In calculating monopoly rents, for example (which is what the Commission is doing in its calculation of excess returns), there is no acknowledgment of the well recognised difficulty in undertaking such a calculation in the first place.

CIAL’s Second Main Argument: Historic Cost

- 16 The Commission’s approach to valuation of assets is curious. It starts with opportunity costing, appropriate only in a perfect market. It has no regard to the usual valuation approach (as set out in the evidence of Professor Boyd and Mr Seed) which is to use ODRC.

- 17 In any event, the opportunity cost approach does not seem to have resulted in any actual valuation conclusions. The land valuations prepared by CIAL on an ODRC basis are not significantly challenged. And, in the case of sealed assets, the Commission agrees that opportunity costing is not appropriate.
- 18 The Commission has then looked at alternatives to value the sealed assets. It has compared historic costing with replacement costing. It has preferred the former to the latter. That is an unorthodox conclusion and cannot be supported. It is against the weight of all authority.
- 19 Yet the Commission, in complete reliance upon that unorthodox argument, then concludes that CIAL has made excess returns and is allocatively inefficient. That is unacceptable. The sealed assets should be valued at ODRC as CIAL has done.

CIAL's Third Main Argument: WACC

- 20 While CIAL challenges various aspects of the WACC calculation, the main failure, in its submission, lies in the calculation of the asset beta. The Commission has substantially relied on the report prepared by its expert. CIAL's experts (principally Dr Lawriwsky but also Mr Seed) will show the flaws in that approach.
- 21 CIAL believes its asset beta of .65 is supportable.

CIAL's Fourth Main Argument: Dynamic Inefficiency

- 22 The Commission has made a finding that there is a substantial dynamic efficiency loss related to the holding of "surplus land" for future development. Reliance upon the undefined slogan "used and useful" seems to lie behind this conclusion. Yet there is a real uncertainty as to the timeframe incorporated within the "test". If it is anything more than a snapshot, the Commission has implicitly approved pre-financing. On the other hand, if it is a snapshot, the airport would never recover its cost of capital. See the answers to Question 17.
- 23 An important point that CIAL makes is that such "surplus land" was not included in the prices set by it for airfield charges. Consequently, there can be no efficiency benefits if these charges are netted out (as the Commission appears to assume).
- 24 In any event, the Commission's conclusions that this land is surplus, and that is an inefficiency, assumes a short-run view. Because of the long-run planning horizon necessary for an airport, and the substantial risk that future growth will be constrained if land is not held, such holdings result in dynamic efficiency gains, not losses.

Regulation

- 25 The Commission fails to address the fact that overseas trends in regulation lie towards less, rather than more, regulation. Moreover, there is no recognition of the fact that by regulating part of AIAL's operation (should that be the final outcome), it will have inevitable consequences in other aspects of AIAL's operation as well as, ultimately, in other airports. The act of regulating any part of a utility is to stand at the top of a slippery slope. Once the first step is taken, it is necessary to keep

taking further steps until, ultimately, the originally anticipated benefits have long been lost.

- 26 If the Commission were to recognise the significant level of regulation as it presently exists (medium-powered) it might be less enthusiastic about recommending regulation. And, bearing in mind all the assumptions and uncertainties that underpin its calculations, it is surprising that the Commission would even consider recommending regulation (in the case of AIAL) when the assessed benefits are so low and probably fall within the margin of error (even assuming the Commission's methodology is correct).

The Future

- 27 The Commission's provisional view is that there should be no additional regulation for CIAL. That conclusion will only be enhanced once CIAL's submissions are taken into account.
- 28 For all that, the Commission's views on appropriate methodologies are likely to have influence in the next consultation round. CIAL's submissions have engaged with the Commission's Draft Report with that in mind. For example, Mr Seed will give evidence about discounted cashflow methodologies, even though DCF is only mentioned by the Commission in passing.
- 29 CIAL has some concerns about the negotiations model discussed by the Commission (for example at paragraphs 12.64 and 13.45). It does not believe that such a model can or should be discussed in the present context – and in any event, would require an amendment to the Airport Authorities Act.
- 30 At the broadest level, CIAL has concerns that the Final Report will have impacts in other industries. At a micro level, of course, that does not concern it but, at the macro level, that should concern the Commission. The Commission needs to be alive to any downstream consequences that its Final Report may have in other industries.

Structure of these Submissions

- 31 CIAL has specifically addressed the Commission's questions and they appear as Part B to these submissions. Those answers are supported by the evidence from various experts and their reports follow. Those experts are:
- Mr Peter Seed
 - Ms Kerrin M Vautier
 - Professor Terry Boyd
 - Dr Michael Lawriwsky
- 32 In addition, Mr George Bellew, CIAL's Chief Executive, will give evidence as to the countervailing power of the airlines. His statement of evidence follows those of the experts.

PART B

COMMERCE COMMISSION QUESTIONS

Question 1: Is the Commission's approach to determining whether Section 52(a) is met correct?

- 1 CIAL assumes the question is directed to the legal framework discussed by the Commission in the Executive Summary at paragraphs 15 and 19 and in the Draft Report at paragraphs 2.18 to 2.36.
- 2 CIAL broadly agrees with the Commission's conclusions which appear to be consistent with the submissions made by CIAL previously.
- 3 As can be seen from its answers to the following questions, however, CIAL disagrees with the Commission in relation to aspects of the implementation of the legal framework and the methodology utilised.

Question 2: Are the markets appropriately defined?

- 4 CIAL believes that, in general, the Commission has defined the relevant markets appropriately. The aircraft movement market and the passenger aircraft access market are consistent with CIAL's primary and secondary markets (as discussed in its previous submissions at Questions 16 to 20).
- 5 In defining the aircraft movement market in its Draft Report, the Commission does not explicitly include (although neither does it explicitly exclude) "facilities/assets held for future activities". This is consistent with CIAL's exclusion of these land holdings for the purposes of asset valuation and airfield charges (cf Question 5). However, in paragraph 29 of the Executive Summary these are clearly included, although not so in paragraph 22. This appears to reflect a confusion as to the status of the held land that reappears later in the Report by reference to the discussion of dynamic (in)efficiency.
- 6 While acquirers of freight carriage are separate from passengers, there seems little, if any, practical relevance in distinguishing freight acquisition in this case, since freight is carried on most aircraft and is covered by the aircraft movement market. The airfield services provided are the same for freight and passenger aircraft. The Commission does not suggest that derived elasticities and competition conditions would be significantly different in the passenger and freight access markets. Indeed, it simply assumes that the price elasticity of demand for airport services will "*be related to the price elasticity of demand for [business and leisure] air travel*" (paragraph 5.62). We return to price elasticities in Question 7 below.

Question 3: Do any additional markets require consideration?

- 7 No. So far as CIAL is concerned, the Commission properly rejected as unnecessary separate markets based on peak periods of demand.
- 8 CIAL notes one qualification. It does not address the possibility that Air New Zealand's existing market power in an airlines market may be enhanced vis a vis other airlines if some form of additional regulation was introduced.

Question 4: Is the Commission's assessment of the nature and scale of current competition in the supply of airfield activities correct?

- 9 CIAL believes the Commission's assessment is broadly correct subject to its answers to Question 8 below. In referring to the Act's definition of competition (paragraphs 2.19-2.29) the Commission makes no reference to "efficient competition" as discussed in both the High Court and Privy Council decisions (in the *Telecom v Clear* litigation), although the link between competition and efficiency is (appropriately) noted in the Draft Report (for example in paragraph 1 of the Executive Summary).
- 10 "Efficient competition" is of particular significance in the context of natural monopolies where a single supplier will typically be more efficient than two or more suppliers (for reasons of economies of scope and scale). Endorsement of the latter market configuration would be tantamount to condoning inefficient competition.

Question 5: Is the Commission's assessment of the likelihood, timing, nature and scale of potential new entry in the supply of airfield activities correct?

- 11 CIAL believes the Commission is broadly correct from an economic perspective.
- 12 The Commission clearly recognises the potential at existing airports for economies of scale, including in the context of potential competition. It notes non-peak excess capacity and the ability to expand incrementally (paragraph 5.46), i.e. the potential to realise economies of scale (and scope).
- 13 Indeed, the holding of the assets for future airfield activities is enabling of achievement of future economies of scale. It is ironic that CIAL is being disadvantaged by the Commission putting more weight on alleged short term dynamic inefficiency than on the potential longer term scale economies arising from the investment in future capacity represented by the land holdings. The option value of the investment will out-weigh any short-term inefficiencies.

Question 6: Is the Commission’s assessment of the degree of constraint imposed on AIAL, WIAL and CIAL by the acquirers of airfield activities – in terms of the ability of acquirers to substitute for the airfield activities provided at another airport - correct?

- 14 CIAL believes the Commission is broadly correct on the basis of the Commission’s findings that:
- there are three distinct geographic markets;
 - there are no substantial near entrants (“regional” airports) to compete effectively with the three large airports for domestic commuter and international traffic (paragraph 5.56);
 - potential competition from entry of new airports is weak (paragraph 5.47).
- 15 As CIAL pointed out in its previous submission, however, there is scope for bypass at the margins (eg over-flying Christchurch to Queenstown, or in the case of international arrivals and departures.)
- 16 Question 6 implies, correctly, that there are other considerations relevant to the constraints which acquirers may impose on airports cf Question 8.

Question 7: Is the Commission’s assessment of the price elasticity of demand for airfield activities at Auckland, Wellington and Christchurch International Airports correct?

- 17 For reasons found in the Commission’s report, it is not possible to say definitively whether or not its assessment is “correct”. These reasons include:
- derived demand complicates the picture, with estimates of price elasticities having to be inferred (paragraph 5.58);
 - available studies are country-, not airport-based (paragraph 5.60) and they are overseas studies (paragraph 5.64-5.65);
 - the elasticities relate more to the substitutability (by passengers) between air travel and other discretionary expenditures, including other transport modes (i.e. cross-elasticity of demand in response to relative price changes), than to substitutability (by airlines) between airports (in response to a change in one airport’s landing charges).
- 18 Although CIAL is not able to say, definitively, whether the assessment is correct or not, it inclines to the view that the assessment could well be incorrect.
- 19 The Commission also points to differences in price elasticities between:
- business and leisure passengers (paragraph 5.64); and

- domestic and international passengers (paragraph 5.66) which, in view of the international traffic figures provided in paragraph 5.87, indicates a higher price elasticity for AIAL than for CIAL or WIAL. It is not clear if sector length (ref. paragraph 9.11) is taken into account in the elasticity estimates for international passengers.
- 20 The estimate of 7% (as the proportion of landing charges to total ticket prices) is too high (paragraph 5.72). CIAL has already undertaken a similar analysis and this was included in section 11 of the December 2000 charging document. A figure closer to 3% for domestic services and around 1.5% for international services would be more correct. This will result in the derived elasticity being less than the Commission has calculated. That conclusion is consistent with the consequence that as long as capacity is more or less adequate, traffic flows will be influenced almost solely by non-airport issues. The cost of airport charges (etc) would typically not be part of the passenger's decision equation.
- 21 We are not informed as to the time periods covered by the studies, nor the expected speed with which increased charges are likely to be transmitted into ticket prices, and then into passenger responses.
- 22 The Commission adopts the same figure for price elasticity of (passenger) demand (-1.5) as it did in Air New Zealand/Ansett Holdings. While that figure was said to be specific to domestic air travellers, the studies on which it was based do not appear to exclude international air travel. The figure is at the top end of the range for the studies cited and 15% higher than the mid-range figure of -1.3. Even so, the Commission concluded in respect of the derived position for New Zealand airports, that:
- *airports' ability to influence travellers' ultimate destination choices through varying their charges seems slight (paragraph 5.81)*
 - *demand for the services provided by the three major airports (natural monopolies) appears to be highly price inelastic (paragraph 5.124)*
- 23 While CIAL concurs with these broad conclusions, it does not agree that the actual figure adopted by the Commission is "correct". The actual figure used is important to the calculation of any allocative inefficiency (cf Question 32), but the Commission does not show a sensitivity analysis, which CIAL believes it should do. If the Commission were to recognise that it may have adopted a figure that is too high, that would have a considerable influence on subsequent calculations undertaken using the figure of -0.105 (which is used in the calculation of allocative inefficiency).
- 24 Overall, it is difficult to link a final (passenger) demand response (based on estimated price elasticity of demand) - measured by fewer airline seats sold - with fewer aircraft landings/tonnages landed at a particular airport, given that any impact is likely to be diffuse (across airlines, countries and over time). Hence, one should be wary about attaching too much precision to the derived "output" effect in the relevant market in a twelve-month period.

Question 8: Is the Commission's assessment of the extent to which any countervailing power of the acquirers of airfield activities constrains AIAL, WIAL and CIAL – the ability of acquirers to exercise countervailing power correct?

- 25 The question addresses the Draft Report at paragraphs 5.92 to 5.108 and 5.125.
- 26 As CIAL has submitted before, the source of the countervailing power seems to reside in the airports'/airlines' mutuality of interest/mutual dependence and the fact that they have to work together on a continuing basis. A key question is how CIAL has behaved differently as a result of influence from an airline, or airlines acting collectively. There is, for example, considerable evidence already before the Commission that CIAL's pricing conduct was constrained by the consultation process.
- 27 The countervailing power of airlines that constrains CIAL includes the following:
- The airlines act collectively through BARNZ
 - CIAL's major customer provides in excess of 60 % of its business
 - CIAL does not have contracts with any of its airline customers.
 - CIAL is vulnerable to the collapse of airlines (such as occurred in the case of Qantas New Zealand).
 - CIAL is vulnerable to unilateral schedule changes and the development of strategic alliance between airlines. Airports are more or less forced to accept the scheduling arrangements agreed to by airlines through IATA.
 - The freedom of action for airports to price discriminate is circumscribed by the ICAO.
 - CIAL has a higher dependence on leisure and domestic travel than the other two airports.
- 28 There is virtually no scope for an airport unilaterally to reduce "the supply of airfield activities" (cf Executive Summary, paragraph 28). Rather, CIAL is performing an unwritten contract to satisfy both present and prospective demands, at whatever level. Consequently, CIAL is most unlikely to cause welfare loss by deliberately restricting its output (supply of airfield services) independently of demand.
- 29 CIAL believes that the Commission has significantly under-estimated the countervailing power of the airlines. It appears that it has, uncritically, adopted airline submissions that the consultation process is an ineffective constraint, a view that CIAL rejects. The Commission appears to have been impressed by the fact that Air New Zealand has issued proceedings in relation to consultation with WIAL (in the early 1990s) and, more recently, in relation to AIAL. However, the Commission needs to look more closely at the outcomes of the WIAL litigation. CIAL does not believe those outcomes support the Commission's conclusion.

- 30 In the first sentence in paragraph 5.93 the Commission states that it would be a rational negotiating tactic for airports to make an initial proposal that is more favourable than they would be willing to accept. This does not make sense, and in any event the airports are not required to negotiate. Certainly, there is no evidence that CIAL has approached the matter on such a basis.
- 31 It is important the Commission properly understand the countervailing power of the airlines in the New Zealand context. While it may not alter a conclusion that competition is limited (as to which, see Question 10 below), it does have consequential effects in relation to assessment of the asset beta and in the Commission's tentative views in relation to a negotiations model (Draft Report, paragraph 12.64).
- 32 Mr Bellew (CIAL's Chief Executive) will give separate evidence in support of this general submission.

Question 9: Is the Commission's assessment of the ability of current or potential competition to constrain AIAL, WIAL and CIAL correct?

- 33 This appears to ask the same questions addressed above.

Question 10: Is the Commission's view that the airfield activities supplied by AIAL, WIAL and CIAL are supplied in markets in which competition is limited correct?

- 34 CIAL understands how the Commission has come to its conclusion that competition is limited. While it does not wish to make any further submissions contrary to that conclusion, it emphasises its view (see Question 8 above) that the Commission has seriously under-estimated the airlines' countervailing power.

Question 11: Are the pricing principles considered by the Commission appropriate?

- 35 This question appears to be directed at the pricing principles summarised in paragraph 31 of the Executive Summary and repeated in paragraph 6.24 of the Draft Report.
- 36 CIAL believes that parts of the Commission's pricing principles are not "appropriate". In fact, CIAL believes that there a number of problems with the Commission's pricing principles which render them functionally useless:
- Key principles are not defined, which has led the Commission to draw incorrect conclusions in a number of areas.

- Key principles are internally inconsistent and contradictory.
 - The Commission's interpretations are out of line with the pricing principles applied by institutions such as the World Bank and the ACCC.
- 37 The Commission has not adequately defined a number of key terms that underpin its pricing principles. Rather it has used the slogans “[t]oday’s consumers should only bear today’s costs” and “used and useful”, without further elaboration or exploration of the issues that lie behind these slogans.
- 38 Further evidence in support of this general submission will be given by Mr Seed and Professor Boyd.

Question 12: Is it correct to value airfield land at opportunity cost?

- 39 No. The airfield land and improvements, as specialised assets, should be valued at their current existing use value. The opportunity cost approach is not a standard valuation approach because the alternative use is not the basis for the valuation. Any valuation of specialised assets, including land and improvements, should take account of the highest and best use, which is an airport, and not the alternative use.
- 40 Further evidence on valuation issues is given by Professor Boyd and Mr Seed.

Question 13: How the opportunity cost of airfield land should be determined?

- 41 Not applicable.

Question 14: Should the costs of land include the costs associated with getting the land into airport use?

- 42 The costs associated with getting the land into airport use may be included either in the land value or the improvements value. The better view is that such costs should be included in the land value as it is work done for the benefit of the land.

Question 15: Is it correct to value specialised airfield assets at depreciated historic cost?

- 43 No. Using historic cost for specialised airfield assets will not result in an equitable and defensible value. It will result in a value, and therefore pricing, based on age

or acquisition date rather than asset utility. It is not an accepted valuation approach and is not an accepted alternative to the replacement cost approach. Valuation standards recommend that historic costs should only be used as a last resort and then the historic figures must be indexed to current costs.

- 44 The Commission's use of depreciated historic cost is a major flaw in its reasoning, and is of concern to CIAL as it substantially underpins the Commission's conclusions that CIAL has consistently over-recovered and that its future prices are allocatively inefficient.

Question 16: Is the extent of (and reasons for the) optimisation undertaken by the Commission in determining asset base appropriate?

- 45 The slogan "*used and useful*" which appears to have been used as a synonym for optimisation, is unhelpful and misleading.
- 46 "Used and useful", while primarily used as a synonym for optimisation, has also been utilised by the Commission for other purposes (eg pre-financing and the treatment of surplus land held for future development). This usage will be dealt with elsewhere.
- 47 While the Commission does not appear to have optimised anything at CIAL (unless its approach to "surplus land" can be characterised as optimisation), optimisation is dealt with separately in evidence by Mr Seed.

Question 17: Are the Commission's views on when new investment should be included in the asset base appropriate?

- 48 The Commission's views on when new investment should be included in the asset base are outlined in paragraphs 7.60 to 7.70. The Commission has suggested that "pre-financing of new investment is generally inappropriate" and that only "used and useful" assets should be included in the asset base.
- 49 "Used and useful" is not defined. In particular, the relevant timeframe is not stated. CIAL suggests there are only two alternatives. First, a strict application that takes a static cross-section of time. Secondly, an application that incorporates a temporal element. There may be scope to argue about the length of the relevant period. For the purposes of addressing the conceptual issue, however, the length of that period does not matter. These two approaches are now addressed.
- 50 The strict application of the "used and useful" slogan would result in negative investment incentives for airports. CIAL sees the Commission's view as inappropriate as:

- there is no express quantification of the time over which the assets will be “used and useful”, apart from the discussion of the timing of the investment relative to the price review period (at paragraphs 7.64 et seq);
- the Commission has not addressed the fact that assets that are to be used over the next ten years have been constructed now to minimise expected life-cycle costs under conditions of uncertainty;
- the Commission has not addressed the situation that arises following a unilateral decision by airlines to reduce volumes by changing schedules temporarily. Will the assets that were previously in use, but are now unused, still be classed as “used and useful”?
- investors will never recover their cost of capital.

51 Alternatively, if “used and useful” anticipates new investment in the foreseeable future (a position not clarified by the Commission) the Commission has already effectively allowed for pre-financing, in which case it has contradicted itself.

Question 18: Are the asset values determined for the airfield activities of AIAL, WIAL and CIAL appropriate?

52 The asset base is discussed in section 7 of the Commission’s Report and CIAL assumes that the question is primarily directed at the information contained in paragraphs 7.73 to 7.84.

53 CIAL believes that as the Commission has used optimised depreciated historic cost to value specialised assets, the asset values determined for airfield activities at CIAL are not appropriate.

54 These issues are dealt with in more detail in evidence by Professor Boyd and Mr Seed.

Question 19: Is the appropriate debt premium adopted by the Commission?

55 The Commission discusses the cost of debt at paragraphs 8.6 to 8.12.

56 The degree of subjectivity in the Commission’s approach seems unusual given that there are numerous surveys by banks of the spreads, or margins, over the risk free rate that are paid by borrowers of various credit ratings. For example, Westpac Institutional Bank published the *New Zealand Financial Markets Outlook*, which contains this type of information.

57 Furthermore, the level of subjectivity in Dr Lally’s discussion of relative credit risks seems unusual. Current credit rating data on Australian and New Zealand airports is available from, for example, the Standard and Poor’s website, see :

www.standardandpoors.com/australiaNZ/forum/rtgscommentary/195388f.html.

58 CIAL has no objection to the 1% premium adopted by the Commission.

Question 20: Is the appropriate risk-free rate adopted by the Commission?

59 CIAL has no comment on this issue at present.

Question 21: Is the appropriate asset beta adopted by the Commission?

60 This question relates to paragraphs 8.39 to 8.68 in the Commission's discussion on the weighted average cost of capital (WACC) and the report prepared by Dr Lally contained in Appendix 12.

61 CIAL does not consider that the reasons put forward by the Commission's expert justify the asset beta range used by the Commission. CIAL and its experts do not consider electricity companies in the United States and the United Kingdom to be in any way comparable to the New Zealand airports sector. Further, CIAL considers that the Commission has placed too much weight on the comparability of regulatory frameworks with insufficient weight placed on direct industry comparisons.

62 The Commission has not adequately explained the difference between its choice of asset betas and the observed asset betas of listed airports, and the airport betas used by the ACCC in its recent Decisions.

63 Further evidence in support of this general submission will be given by Dr Michael Lawriwsky. He will say that the asset beta of 0.65 used by CIAL in its December 2000 charging document falls within an acceptable range.

Question 22: Are the comparators for the airfield activities supplied by AIAL, WIAL and CIAL used by the Commission in order to estimate asset beta appropriate?

64 CIAL notes that the Commission and its expert have justified the choice of the United States and United Kingdom electricity sector on the basis of the industries having large sample sizes and a similar regulatory framework to new Zealand. CIAL believes this conclusion is incorrect.

65 The United Kingdom electricity sector employs a CPI-x framework. Parts of the United States electricity sector are controlled by a regulated rate of return framework. Australian airports, other than Sydney, are regulated under CPI-x. Therefore, if the Commission wished to use information from a similar regulatory

framework, why did it not consider Australian data and attempt to reconcile the difference more adequately?

- 66 Moreover, the regulatory frameworks that each company operates under are not as homogeneous as Dr Lally assumes. There is a mix of “high”, “medium” and “low” powered regulation. Furthermore the companies discussed in the study referred to by Dr Lally are combinations of generation, energy retailing and distribution businesses, plus associated activities. Therefore the companies and the asset beta estimates are hardly as comparable as Dr Lally infers.
- 67 Further evidence on this issue is given by Dr Lawriwsky.

Question 23: Should CIAL’s asset beta be greater than AIAL’s, given the different exposure to domestic demand?

- 68 This question addresses issues raised in paragraph 8.64 and 8.65.
- 69 There are good reasons why the asset betas of the airfield activities of the three airports should differ. The mix of domestic and international traffic at each airport will have a significant impact on the level of systematic risk of each airport. In general, airports with higher proportions of domestic traffic will have higher levels of systematic risk and higher asset betas. Further, an airport at the end of a “spoke” has a higher systematic risk than a “hub”.
- 70 Other factors such as the degree of countervailing power of customers will also affect the systematic risks of the airport. In general, where airports face higher levels of countervailing power, there will be more systematic risk and higher asset betas. This is one of the reasons why using electricity companies as comparators is so inappropriate.
- 71 In general, the electricity companies in the study quoted by Dr Lally have a diversified and dispersed customer base comprising residential, commercial and industrial customers. The countervailing power of the electricity company’s customer base is low. However, AIAL, CIAL and WIAL have at most two or three significant customers. Air New Zealand is CIAL’s major customer and in CIAL’s experience, Air New Zealand wields significant countervailing power. Therefore, CIAL considers that the comparison between New Zealand airports, with predominantly one major customer, and United States and United Kingdom electricity companies that have millions of small customers, is entirely inappropriate.
- 72 Given the importance of this issue for determining the allocative efficiencies estimated by the Commission, and its conclusions for past performance, CIAL believes that these issues must be dealt with in a more considered way.
- 73 These issues are expanded upon in the evidence presented by Dr Lawriwsky.

Question 24: Is the market risk premium adopted by the Commission appropriate?

- 74 This issue is addressed in paragraphs 8.31 to 8.38 of the Draft Report.
- 75 The appropriateness of an 8% market risk premium is by no means clear. The Commission's conclusions rest, to a large degree, on an analysis undertaken by PriceWaterhouseCoopers (PWC). PWC originally estimated the market risk premium for New Zealand to be 9% but in March 2000 changed its estimate to 8%. This was a consequence of using a longer time period in their analysis. In fact, PWC included data from the 1920s and 1930s - a period of time when the share market performed particularly poorly, and when the premium of equity returns over the risk free rate would have been particularly low.
- 76 Moreover, PWC did highlight the uncertainty surrounding the estimate when it stated that:

“Interestingly use of the last 30 to 60 years’ data supports an MRP estimate of around 9%. The addition of data from the 1920s and 1930s (during which time equity market returns were poor) has the effect of pulling the long term average MRP down to around 8%. Questions may then be: How relevant is the New Zealand equity market performance for that [the 1920s and 1930s] period to a current estimate of the expected MRP? Has the MRP changed?”(emphasis added)

(PriceWaterhouseCoopers, New Zealand Equity Market Risk Premium, March 2000, page 5)

- 77 Further, based on PWC's own analysis the average risk premium is significantly greater than 8% for all periods except for any greater than 70 years ago.
- 78 CIAL is of the opinion that PWC's analysis is by no means as definitive as the Commission suggests and that it does not support a move away from the use of a market risk premium of 9%.

Question 25: Is the leverage ratio adopted by the Commission appropriate?

- 79 CIAL has no comment on this topic at present.

Question 26: Are the WACC estimates developed by the Commission appropriate?

80 Based on CIAL's review of the Commission's conclusions, the Commission's WACC estimates are not appropriate. CIAL believes the WACC used by it to set airfield charges is appropriate.

Question 27: Is the Commission's assessment of the allocative efficiency of the structure of the landing charges of AIAL, WIAL and CIAL correct?

81 CIAL assumes that this question relates to paragraphs 9.5 to 9.12 of the Commission's Draft Report.

82 CIAL accepts the theoretical purity of Ramsey pricing and acknowledges the complex informational requirements to apply it in practice. Because of these information difficulties, it does not believe that Ramsey pricing provides practical guidance in the present case.

Question 28: Is the Commission's assessment of the airports' approaches to cost allocation correct?

83 This question addresses paragraphs 9.13 to 9.40 of the Draft Report. As above, CIAL does not believe it helpful to address the issue in terms of Ramsey pricing.

84 As CIAL's December 2000 pricing document shows, it allocated costs on a user-pays basis, assuming that larger planes caused more damage per tonne of aircraft weight to sealed surface assets.

Question 29: Is the Commission's assessment of the extent of compliance with Ramsey pricing correct?

85 As above, CIAL does not believe that the theory of Ramsey pricing (in the range between marginal costs and average fixed costs) provides practical guidance in this case.

86 The statement that "*there appears to be no attempt to integrate information about demand elasticities into price-setting*" (paragraph 9.51) – i.e. where pricing above marginal cost - may be "correct" but comes as an implied criticism, notwithstanding the empirical difficulties and the Commission's acknowledgment that Ramsey pricing represents an ideal way of recouping large fixed costs because

it minimises the allocative inefficiency resulting from pricing above marginal cost (paragraph 9.51).

- 87 But the “desired outcome” from Ramsey pricing itself relies on certain assumptions as to variations in elasticities over a particular segment of the demand curve. The Commission acknowledges that “*Ramsey prices are in fact sensitive to variations in demand price elasticities*” (paragraph 9.40).
- 88 The Commission also acknowledges that it has insufficient information to make a judgment on the implications for allocative efficiency of Ramsey pricing as compared to other cost allocation methods. We agree that the lack of information is a very significant obstacle to the introduction of Ramsey pricing.
- 89 The Commission earlier found that demand for the services provided by the three major airports (natural monopolies) appears to be highly price inelastic (ref. Question 7). In these circumstances, the Commission’s focus on differentiating elasticities in a particular segment of the demand curve seems over-stated and of little practical relevance even though it reflects the regulator’s analytical/welfare framework.

Question 30: Is the Commission’s assessment of whether there is any evidence of cross-subsidisation associated with the supply of airfield activities at Auckland, Wellington and Christchurch International Airports correct?

- 90 The economic framework for the assessment is appropriate.
- 91 The evidentiary approach is noted. CIAL agrees that there is no cross-subsidy (paragraph 9.49).

Question 31: Is the Commission’s assessment of the existence of, or potential for, excess returns correct?

- 92 The Commission’s analysis focuses on three time periods: historically (paragraphs 10.6 to 10.20); 2000 (paragraphs 10.21 to 10.40); and the future period (paragraphs 10.64 to 10.72).
- 93 CIAL believes that the Commission’s assessment of the existence of excess returns (historically and for the future) is incorrect for the following reasons:
- the asset base is incorrectly assessed;
 - the required rate of return and/or WACC is incorrectly assessed;
 - average returns should be calculated using a geometric average instead of an arithmetic average;

- there is a very significant error contained at page 275 which results in an arithmetic error of \$3.7 million in the calculation of excess returns for 2001. By itself, this error results in an overstatement of excess returns by almost 200%, and over 600% when the correct estimate of CIAL's airfield operating costs are used.

94 For the historic period (dealt with in paragraph 10.20) CIAL challenges the characterisation that it has exploited its market power "*in a fairly sustained fashion*" by raising prices above the competitive level. If it were not for the large price spike (caused by a revaluation) in the 1999 period there would be no excess returns (even assuming that the Commission's assumptions are otherwise correct, which is not accepted). As it happens CIAL did not raise its prices between 1991 and 2001. In real terms prices fell during this period.

Question 32: Is the Commission's assessment of the extent of, or potential for, allocative efficiency or inefficiency correct?

95 This question addresses the Draft Report at paragraphs 10.24 to 10.40 and 10.64 to 10.72. CIAL does not believe that the Commission's assessment of CIAL's allocative inefficiency is correct.

96 The Commission employs an orthodox theoretical approach (as depicted in the static model set out in Chart 4), but the apparent precision of the Commission's estimated competitive benchmark prices and output may not match the real-world position. There are also questions surrounding the Commission's allocative efficiency analysis.

97 For a start, the Commission assumes that fixed costs are constant over the Q_M - Q_C range and proceeds to represent the allocative efficiency detriment by the area BFHG. Further, the Commission's analysis infers that the airports started pricing at or around the P_C level, and then moved to P_M , in which case their average costs necessarily rise.

98 CIAL's fixed costs are assumed by the Commission to be \$315,578 higher at Q_C than at Q_M (Table 48). Noting that the difference between Q_C and Q_M in Year 1 is only 53,541 tonnes out of a total annual tonnes landed figure of 2.3m (Appendix 10, page 274), CIAL does not consider that this small difference would lead to a fixed cost differential of the order assumed by the Commission. In any event, as addressed elsewhere, the Commission's schedule (Appendix 10, page 275) is in error.

99 The Commission assumes that as a result of price control "*The wealth transfer would revert back to acquirers, and allocative efficiency would improve by BFHG*" (paragraph 10.28) (emphasis added). Such certainty of outcome depends *inter alia* on whether or not the (controlled) price reduction from P_M to P_C is reflected in the relevant airticket price; on price elasticities of demand in a particular time period; and on assumptions as to fixed costs. These are not necessarily stable assumptions

and they raise serious doubts about the Commission's assessment of allocative inefficiency as a result of CIAL's pricing.

- 100 Further evidence on this question will be addressed in the report of Kerrin M Vautier.

Question 33: Is the Commission's assessment of the extent of, or potential for, productive efficiency or inefficiency correct?

- 129 This question appears to address paragraphs 10.49 to 10.53 of the Draft Report. CIAL does not believe the Commission's assessment to be correct. It says there should be no assessment of productive inefficiency beyond the 1% annual efficiency gain already built into CIAL's prices.
- 130 The Commission simply assumes the potential for productive inefficiencies by comparison with the assumed cost minimisation level associated with P_C' in Chart 5. It makes no reference here to the likelihood that AC is already lower than it would otherwise be, because of economies of scope. It simply assumes that $P_C' < P_C$. (And yet it says (paragraph 5.18): "*It may be that the industry is organised as it is because a single supplier has lower transaction costs from organising its operations and coordinating activities internally, than would two or more independent suppliers attempting to organise and coordinate through the market.*")
- 131 The Commission refers (paragraph 10.8) to the possible absorption of excess profits by higher costs/productive inefficiency, which is more likely to occur under conditions of non-price competition (e.g. by airlines) than under the "limited competition" conditions found by the Commission.
- 132 The Commission adopts (illustratively) a figure of 1% of attributed airfield expenses (excluding depreciation) as a measure of productive inefficiency. It does not provide "evidence" of same and concedes that on present information productive inefficiencies are *impossible to quantify*. And yet one might have thought that inter-airport, as well as other industry comparators, would be available in relation to the operating expenses identified in paragraph 10.50, *viz* repairs and maintenance; employee numbers and remuneration; and rescue fire services.
- 133 In the absence of any empirical insight, it is not possible to judge whether the Commission is "correct" in its approach. However, CIAL believes that it is being unduly penalised as it has already built an assumption of a 1% annual efficiency gain into its prices.

Question 34: Is the Commission's assessment of the extent of, or potential for, dynamic efficiency or inefficiency correct?

- 134 This question addresses paragraphs 10.54 to 10.63 of the Commission's Draft Report. The Commission's assessment is incorrect. The assessment of returns for CIAL (paragraph 10.59) is based on an extrapolation of income earned on land at AIAL. The income earned on the land at CIAL will significantly vary from that at AIAL.
- 135 The Commission has capitalised its estimated income stream at the risk free rate so as to determine the value of the land. This is also incorrect. The appropriate capitalisation rate should include an adjustment for expected capital gains. Therefore the appropriate capitalisation rate may well be less used than that used by the Commission.
- 136 The net result of these adjustments would be that the Commission's estimate of dynamic inefficiency will be over-stated. Given the arbitrary assumptions made by the Commission in estimating dynamic efficiency, CIAL cannot agree with the Commission's estimate.
- 137 The "competitive market model" that is the basis for the Commission's performance analysis requires "*the optimal amount of assets ... to provide the service*" (paragraph 10.54, emphasis added). "*Ideally investment planning should aim to make sure there is an appropriate level of investment to support production, i.e., no excess, or under, capacity*" (paragraph 7.61). This is an exacting standard and, as acknowledged, represents an ideal position rather than one that necessarily accords with "workable or effective competition".
- 138 This question is directly concerned with optimisation. In its earlier discussion on optimisation (page 100), the Commission adopted "used and useful" as the criterion for determining replacement cost adjustments. As set out above, the Commission uses a short run methodology and does not subject the whole issue of new investment and pre-financing to its explicit dynamic efficiency analysis which requires analysis matching an airport's planning horizon which is no less than ten years.
- 139 While the Commission elsewhere supports CIAL's exclusion of surplus land from its asset base for charging purposes, unaccountably it then brings it into its analysis of (short term) dynamic inefficiency. Thus CIAL takes two negative hits, while not recovering any of the estimated opportunity cost. This cannot be right.
- 140 In any event, in light of the following, the Commission's approach seems flawed:
- its overall efficiency analysis assumes $P_M > P_C$;
 - the gross benefits for acquirers from price control are assumed to accompany the reduction of prices to P_C ;
 - CIAL did not include surplus land in its calculation of charges; and it is understood that the Commission's opportunity cost calculation is not included in CIAL's relevant cost base;

- hence a reduction from P_M to P_C would not yield an annual dynamic efficiency benefit to acquirers as the Commission suggests in paragraph 13.24 (assuming the surplus land is still not “used or useful” at output level Q_C) because it was never reflected in the price in the first place.

Question 35: To what extent are there other sources of detriment (eg spillover effects, service quality)?

- 141 While, in theory, spillover effects should be taken into account in the counterfactual. So, too, should they be taken into account under any additional regulation
- 142 CIAL, however, believes that paragraph 10.43 of the Draft Report is overstated. It does not believe that such spillover effects are necessarily likely.

Question 36: Is the Commission’s approach to determining whether Section 52(b) is met correct?

- 143 As with Question 1, CIAL assumes this question is directed at the legal framework. CIAL broadly agrees with the Commission’s analysis which appears to follow that approach recommended by CIAL in its previous submissions.

Question 37: Is the Commission’s assessment of the extent to which excess returns, allocative, productive, and/or dynamic efficiency could be improved as a result of airfield activities being controlled correct?

- 144 This question overlaps with questions 31 to 34 above but appears to focus, primarily, on Chapter 13 of the Draft Report. CIAL does not believe the Commission’s assessment is correct, for the reasons already set out above and those that follow.
- 145 In terms of the issue of New Zealand and overseas acquirers the Commission states that:

“It is noteworthy that section 52 provides no grounds for distinguishing between New Zealand and overseas acquirers, unlike the public benefit test in section 67, where “public” has been interpreted as meaning the public of New Zealand. This is an important consideration, given that the airfield activities at the three subject airports provide services to both domestic and overseas airlines, and to both domestic and foreign passengers. The Commission considers that it should treat all parties equally, so that

the interests of overseas residents should be weighted equally with those of New Zealanders. (paragraph 13.9)

- 146 This interpretation of section 52 is consistent with the Commission's statement (Executive Summary, paragraph 122) that transfers of wealth between suppliers and acquirers (inclusive of non-New Zealand acquirers) "*are of no concern from an efficiency perspective*". While CIAL accepts this general proposition, it notes that a critical distributive assumption is required by the Commission's own analysis: in order for there to be a derived economic benefit from price control, final consumers will need to be exposed to the "benefits" so that they can respond in the way the analysis assumes. In other words, the benefits will have to flow from direct to indirect acquirers, via airticket prices, in order to trigger the passenger demand reaction on which the derived demand depends. Otherwise, the output effect will be at or close to zero (although it is hardly material anyway) and the only outcome will be an inter-company "transfer" from airports to airlines. (The position of consumers will also depend on the extent to which the estimated costs of control are passed on.)
- 147 Further evidence on this question will be addressed in the report of Kerrin M Vautier.

Question 38: Is the Commission's formulation of the likely counterfactual should airfield activities not be controlled, and the various features of that counterfactual, appropriate?

- 148 The Commission's formulation of the likely counterfactual is flawed because it has underestimated the countervailing power of the airlines and for the other reasons identified by CIAL above.

Question 39: Is the Commission's assessment of the benefits to acquirers from airfield activities being controlled, relative to the likely counterfactual, correct?

- 149 See answers to Question 38 above and Question 40 below. Further, one cannot say that the assessment is correct in any quantitative sense in view of the range of assumptions made and to the extent that the assumptions are flawed as identified above.

Question 40: Is the Commission's assessment of the additional costs of control under the Commerce Act, compared to the status quo, correct?

- 150 This question appears to address paragraph 13.53 (where a discount of 50% is made) and 13.56 (where costs of \$1.2 million are allocated). Conceptually, the

discount of 50% on benefits cannot be regarded as a cost. Rather, it is an indirect acknowledgment of the very significant margins of error inherent in the Commission's methodology (putting aside, for the moment, CIAL's objection to the methodology set out above). Nevertheless, there will be significant indirect costs which will need to be set off against the assumed efficiency gains. As with the assessed efficiency gains, there will be a substantial margin of error in the assessment of the indirect costs.

151 So far as the direct costs of \$1.2 million are concerned, CIAL accepts that this figure probably falls within the range of such costs.

Question 41: Is the Commission's assessment of the costs of control that acquirers are likely to bear correct?

152 CIAL has assumed that this question is subsumed in Question 40.

Question 42: Is the Commission's preliminary view that the airfield activities supplied by AIAL and CIAL satisfy Section 52(b) – that it is necessary or desirable in the interests of acquirers to control the airfield activities supplied by AIAL and CIAL - correct?

153 No, for the reasons set out above.

Question 43: Is the Commission's analysis of net efficiency benefits appropriate?

154 No, for the reasons set out above and in the evidence of Kerrin M Vautier.

Question 44: Is the Commission's assessment of the public benefits to be gained from airfield activities being controlled, relative to the likely counterfactual, correct?

155 No, for the reasons set out above.

Question 45: Is the Commission’s assessment of the lesson that can be learned from the experiences of airport regulation internationally correct?

156 This question addresses Chapter 11 of the Draft Report. The Commerce Commission has a greater knowledge of international regulation than does CIAL. CIAL repeats the answers it gave in its earlier submissions in relation to Questions 82 and 84. It emphasises the overseas trend towards a lessening of regulation.

Question 46: Is the Commission’s preliminary view that the airfield activities supplied by AIAL should be controlled correct?

157 To be addressed by AIAL.

Question 47: Is the Commission’s preliminary view that the airfield activities supplied by WIAL and CIAL should not be controlled correct?

158 The preliminary view is correct (in relation to CIAL) but for the wrong reasons as addressed above.

Question 48: The Commission invites comments on any of the matters raised in the draft report, and any other relevant points.

159 See separate evidence of experts and Mr Bellew.

Question 49: The Commission invites comments on any omissions, or material or factual inaccuracies in the draft report

160 CIAL has identified the following errors in the Draft Report:

- (a) Paragraph 3.48: delete additional apostrophe in first line.
- (b) Footnotes 79 and 80: dates in citation are in the wrong place.
- (c) Paragraph 6.16: insert “of” in first line.
- (d) Paragraph 7.48: “relay” should be “rely”.

- (e) Paragraph 7.67: delete additional “on” in sixth line.
- (f) Paragraph 10.66: insert additional “on” in second line.
- (g) Table 58: net benefits shown in relation to CIAL are incorrect. The correct figure should be \$801,880.

PART C
REPORTS AND EVIDENCE

- (1) Mr Peter Seed
- (2) Ms Kerrin M Vautier
- (3) Professor Terry Boyd
- (4) Dr Michael Lawriwsky
- (5) Mr George Bellew

REPORT ON ISSUES RAISED IN THE COMMERCE
COMMISSION'S DRAFT REPORT PRICE CONTROL
STUDY OF AIRFIELD ACTIVITIES AT AUCKLAND,
WELLINGTON AND CHRISTCHURCH INTERNATIONAL
AIRPORTS

PETER SEED

A. INTRODUCTION

1 I have been asked by Christchurch International Airport Limited (CIAL) to comment on a number of issues raised in the Commerce Commission's Draft Report. My report forms part of a broader response by CIAL to the Draft Report. In particular, my report will address:

- the Commission's approach to optimisation;
- the appropriateness of using the ODRC valuation approach;
- the use of the DCF approach for estimating airfield landing charges; and
- the errors in the Commission's calculation of allocative inefficiencies.

Optimisation

2 The optimisation process is central to determining the proxy for the market value of specialised assets. Although the majority of my comments relate to airfield activities, many of the issues also have relevance for optimisation and valuation of assets employed by other airport activities, such as the passenger terminals

3 The Commission's application of optimisation is inconsistent with its own pricing principles. The Commission relies on the "used and useful" slogan to underpin its optimisation process but does not define the time period over which optimisation would apply. This is critical. It is unclear and uncertain if the Commission means that:

- If there are excess assets then the asset base will be determined as the lesser of the asset required in the current period or the asset as built. As shown in my report this would result in dynamic inefficiency and would not "*.. send appropriate signals for determining whether new investment (or divestment) would be efficient.*", or
- If excess assets in the current period are included in the asset base for current charges then the Commission is using a price smoothing or pre-financing approach. This contradicts its pricing principles that "*[t]oday's consumers should only bear today's costs*".

- 4 In either case the Commission's recommendations would contradict its pricing principles. Therefore in my opinion the Commission's "used and useful" approach would probably never "...send appropriate signals for determining whether new investment (or divestment) would be efficient."
- 5 The Commission is also out of step with the approaches taken to optimisation by other airport and utility regulators in, for example, Australia. The ACCC has taken account of a number of factors that I consider the Commission should also consider. These are dealt with in more detail in Part B of my report.

Appropriateness of ODRC

- 6 As will be discussed in Part C of my report, the Commission's ultimate choice of "optimised depreciated historic cost is highly unorthodox, given that the use and acceptance of ODRC is widespread. For example, ODRC is:
 - Recommended by the New Zealand Institute of Valuers (NZIV).
 - Recommended by the International Valuers Standards Committee (IVSC).
 - Recommended for the valuation of fixed assets, other than land, by the Institute of Chartered Accountants of New Zealand.
 - Recommended in the NZ Infrastructure Assets Management Manual (also referred to as the NAMs manual).
 - Mandated as the cost approach in the electricity lines business ODV Manual issued by the Ministry of Economic Development.
 - Used by Transpower in the valuation of its transmission assets.
 - Applied by professional valuers to the valuation of New Zealand port company assets.
 - Used by the ACCC for valuing lines businesses in Australia.
 - Used by the ACCC for valuing airport assets in Australia.
- 7 It is not appropriate to use an opportunity cost approach to estimate the value of specialised assets and then to conclude that the assets are sunk costs and therefore worthless. Specialised assets have utility in their existing use. In other words the assets have economic value to their owners or the business that they are part of.
- 8 Therefore the value of the specialised assets should reflect the value of the utility they provide. The valuation approach recommended by the valuation and accounting professions reflects or mimics the cost to a new entrant of replicating the utility provided by the specialised assets being valued, after adjusting for any difference in remaining economic life or service potential. This is, in effect, ODRC. I cannot see how the Commission's use of, what is in effect, book value could be a reasonable proxy for the value of the utility provided by a specialised asset used by a business. These points are elaborated on in my report.

The use of the DCF approach for estimating airfield landing charges

- 9 Part D my paper addresses the relationship between the DCF methodology, the building block approach, the valuation of the asset base, capital expenditure and price smoothing. At paragraph 7.5 of its Draft Report the Commission states that there is a “... *circular problem if discounted cash flows are used to set prices*”.
- 10 The Commission is wrong. Furthermore, the Commission’s conclusion is at odds with the views of the Australian Competition and Consumer Commission (ACCC) and also the World Bank. My report demonstrates that circularity only arises when:
- the initial capital value used is estimated using an economic approach; and
 - the estimated capital value is also used as the rate base upon which prices are struck.
- 11 CIAL’s pricing model does not do this. The initial capital value is estimated using ODRC, just as the capital base used in the Commission’s building block approach uses depreciated historic cost, albeit that it should be using ODRC.
- 12 The DCF model employs individual assumptions about the determinants of current costs and the costs that are to apply over the pricing period. These result in a more transparent approach. Not surprisingly the DCF approach is endorsed by other regulators such as the ACCC and is also recommended by the World Bank.
- 13 One conclusion that cannot be ignored is that the DCF approach includes expected capital expenditure. Capital expenditure is an explicit input. The Commission’s “*preliminary view*” is that “*pre-financing of new investment is generally inappropriate*”. The Commission’s view is that this “... *should encourage airports to only undertake investments that are “used and useful”*”.
- 14 Based on my research the Commission’s approach is significantly out of step with approaches taken by overseas regulators in a number of areas. The Commission may try to dismiss these comparisons on the basis of there being a different regulatory environment. However, this is not the point. More fundamentally, the Commission’s interpretations are out of step with overseas jurisdictions in terms of basic economic principles.
- 15 The DCF approach is used by the ACCC in the regulation of airports and is recommended by the World Bank. The Commission appears not to have reviewed this material (although it was referred to by CIAL in its earlier submissions).
- 16 If we accept that the DCF approach is appropriate, then it logically follows that prices should reflect an element of price smoothing and pre-financing. Both the ACCC and the World Bank recommend this approach.

Errors in the Commission’s calculation of allocative inefficiencies

- 17 The Commission has made a major error in estimating the excess returns component for CIAL for the year ended 30 June 2001. The table on page 275 of the Draft Report shows that CIAL will earn approximately \$3.6 million from landings of the TU 154. This is a medium sized Russian airliner (seating around 160 to 170 passengers) that is comparable to the Boeing 727. However, on average

CIAL has only one to two movements of this aircraft per year and TU 154s are not flown on scheduled services at CIAL.

- 18 The Commission's error results in CIAL's estimated airfield revenue being overstated by around \$3.4 million, net of the revenue that should have been included for the Metroliner aircraft type. As well, the Commission's forecast of landed tonnages is overstated by almost 432,000 tonnes!
- 19 The results of my analysis demonstrate that the Commission has overstated its estimate of CIAL's excess returns by between \$3.8 million and \$2.5 million (depending on the particular argument advanced).

Experience

- 20 I am an independent financial economist specialising in the utilities sector. Recently I have undertaken engagements in the electricity retailing, gas network, electricity distribution and airports industries. I have been retained by CIAL since 1997 to assist in various aspects of the development of airport charges, and consultation with major customers. I have continued to advise CIAL during the Commerce Commission price control study.

B. OPTIMISATION ISSUES IN PRICING AIRFIELD SERVICES

21 The Commerce Commission addresses optimisation at paragraphs 7.47 to 7.49.

7.47. A condition for efficient pricing is that the costs that should be recovered through pricing are those that reflect the least cost production or “efficient production”.

7.48. In certain instances there will be assets that are not needed. These assets should be optimised and removed from the calculation of price. To prevent moral hazards (lack of responsibility) emerging for poor investment decisions, such costs should generally not be recoverable through pricing. So as to not discourage innovation, decisions to optimise assets should consider whether the decision to invest was poor at the time it was made, and not relay [sic] on the benefit of hindsight. “Optimisation” involves the adjustment of replacement cost to reflect changes in the required deployment or scale of the assets to achieve the same level of services. (emphasis added)

7.49. The Commission’s preliminary view is that only “used and useful” assets should be included in the asset base on which a rate of return is calculated. All other assets should be optimised out. The varying degrees of optimisation are depicted in the table 24:

[Which table is then set out but is not reproduced here]

22 The optimisation process is central to determining the proxy for the market value of specialised assets. This paper critiques the Commission’s view and identifies further work that the Commission will need to undertake so that it can develop a more workable definition of optimisation. Although the majority of my comments relate to airfield activities, many of the issues also have relevance for optimisation and valuation of assets employed by other airport activities, such as the passenger terminals. Therefore, I address:

- What does the Commission mean by optimisation and “used and useful”?
- Is the Commission’s approach workable and does it result in desirable outcomes?
- How is optimisation related to valuation issues?
- How to operationalise optimisation.
- Approaches used by other regulators.

The Commission's definition of "optimisation"

23 The Commission's definition of optimisation set out in paragraph 7.48 is incomplete and misleading. The Commission's definition implies that optimisation is only related to the quantity of assets used to provide the service. Optimisation involves more than making adjustments to the quantity of assets to reflect, "*changes in the required deployment or scale of the assets*". Optimisation is effected at two levels:

- The replacement cost per unit is optimised by using the modern equivalent asset, and
- The quantity of asset required by adjusting for surplus or obsolete assets.

24 Moreover, I disagree with the Commission's proposed application of the optimisation principle. In paragraph 7.48 the Commission misinterprets what optimisation involves. The Commission states that:

"So as to not discourage innovation, decisions to optimise assets should consider whether the decision to invest was poor at the time it was made, and not relay [sic] on the benefit of hindsight."
(emphasis added)

25 This statement is incorrect and contradicts the underlying principle of optimisation, as it relates to asset valuation. By its very nature optimisation *does* rely on the benefit of hindsight.

26 The purpose of optimisation is to replicate, at the lowest cost, the utility provided by the existing assets. Assets should not be over-optimised, but likewise the optimised asset should not provide more utility than the existing asset. This raises the question of why optimisation should arise in the first place. Optimisation might arise because of what I have characterised as:

- A type one reason; a market event subsequent to the investment that a reasonable person would not have anticipated when the asset was built, and/or
- A type two reason; an unanticipated change in technology that results in a change in the cost of providing the required utility, and/or
- A type three reason; a decision that was wrong when the asset was built and that a rational manager would not have made with the benefit of the available information.

27 An example of the type one reason might be an unanticipated reduction in aircraft landing volumes and therefore required capacity resulting from airlines voluntarily or involuntarily changing their schedules. An example of the latter is the recent receivership of Qantas New Zealand. The receivership has had the effect of reducing the demand for airfield and terminal services.

28 Type two reasons, changes in technology, affect the cost of building airport assets. In general, real building costs have tended to fall over time as building technology has evolved. For example, the real cost per square metre of construction of the new

CIAL international terminal (built in 1997) is considerably less than the real cost per square metre of *reproduction* or *replication* of the existing CIAL domestic terminal (built between the 1950s and 1970s). That is, reproducing the domestic terminal, brick-by-brick, would be higher than the cost of building the international terminal using pre-cast technology.

- 29 Type three reasons involve the airport management and board of directors making the wrong decision, for whatever reason, and furthermore, knowing that they were making the wrong decision. This could include investments that were made and justified on other than economic grounds. Of course there are also situations where bad decisions turn out to be good - once again with the benefit of hindsight. An example of a bad decision, that would appear to be a good one now, is the Clyde Dam. Yet the Commission's approach to optimisation would see the dam optimised without any regard to the benefit of hindsight.
- 30 The accepted interpretation of optimisation is to treat all three reasons for optimisation as being equal despite the fact that they imply different levels of managerial responsibility. Without the benefit of hindsight, type one and two events could not be brought to account and therefore "optimised". Type three reasons involved bad decisions at the time they were made that are still bad decisions now.
- 31 In contrast to the usual interpretation of the optimisation principle, the Commission is saying that it should not rely on "*the benefit of hindsight*" to determine if an investment was "*poor at the time it was made*". Therefore, under the Commission's reasoning, type one and two events should result in no optimisation.
- 32 In applying the third reason for optimisation, the Commission must have been able to judge that there were assets that should be excluded from the various airports' asset bases. To make this decision the Commission would need to have been able to determine that the investment decisions were bad ones at the time the investments were made and, furthermore, that the management and the boards of directors of the airport, or airports, *knew* the decisions were bad ones.
- 33 I do not believe that the Commission has any evidential basis to assume that an airport management and board of directors have *knowingly* made a bad investment decision. Therefore, if there is no basis on which to assume a bad decision was made, the Commission has no basis for optimisation unless it can prove otherwise. Obviously, if the management and board of directors were unaware that a decision was a bad one, then the only way the Commission could say it was so was *with* the benefit of hindsight.
- 34 Therefore, in summary, if the Commission is trying to apply this form of optimisation principle, it will need to prove in each case that not only was the decision to invest in the asset a bad one, but that the management and board of directors knew it to be so. Surely this is an impossible test?

Optimisation and depreciated historic cost

- 35 An issue that is closely related to the preceding one is the Commission's decision to use, what is in effect, "optimised depreciated historic cost" or "optimised" book value to value specialised runway, taxiway and apron (RTA) assets. At table 23,

point A2, the Commission makes the extraordinary statement, with regard to optimisation, that

“The correct comparison for a past investment is not the modern equivalent asset now, but rather the modern equivalent asset at the time when the investment was made (investors cannot be held responsible for errors only evident with the benefit of hindsight).”

- 36 The statement is extraordinary for a number of reasons including:
- the assumption that it is feasible to determine the MEA at the time that the asset was built, (possibly several decades ago);
 - if, as the Commission states, investors (as opposed to managers) *“cannot be held responsible for errors only evident with the benefit of hindsight”* then there is no reason to optimise anything anyway;
 - it is unlikely that the MEA at the time that the asset was built would differ significantly from the actual asset put in place;
 - the thrust of the Commission’s argument to use “optimised depreciated historic cost” is inconsistent with its assertion at paragraph 7.48 that optimisation involves adjusting the *“replacement cost”* of the assets;
 - even the Commission acknowledges that such historic assessment would be difficult to assess.
- 37 Based on the Commission’s logic, there is no rationale for optimisation by either use of the modern equivalent asset (MEA) or adjustments to the asset base for allegedly surplus assets. CIAL does not believe the Commission could be so inconsistent as to dismiss the use of the current MEA because investors *“cannot be held responsible for errors only evident with the benefit of hindsight”*, while at the same time optimising out surplus assets that could be the result of the same “error” that was only revealed with hindsight. Therefore, the Commission must be consistent. That is, if the Commission wishes to use any form of optimisation, it must apply ODRC across all assets.

What does the Commission mean by “used and useful”?

- 38 The statement that *“today’s consumers should only bear today’s costs”* along with *“used and useful”*, are used as slogans by the Commission without explanation or exploration of what they actually mean. Some possible interpretations of these slogans are that:
- current consumers should not bear the costs (or enjoy the benefits) of poor or good investments made in the past;
 - current consumers should pay today’s operating costs without any consideration of expected (future) efficiency improvements;
 - assets are optimised so that no future capacity is included in the asset base used to estimate current charges;

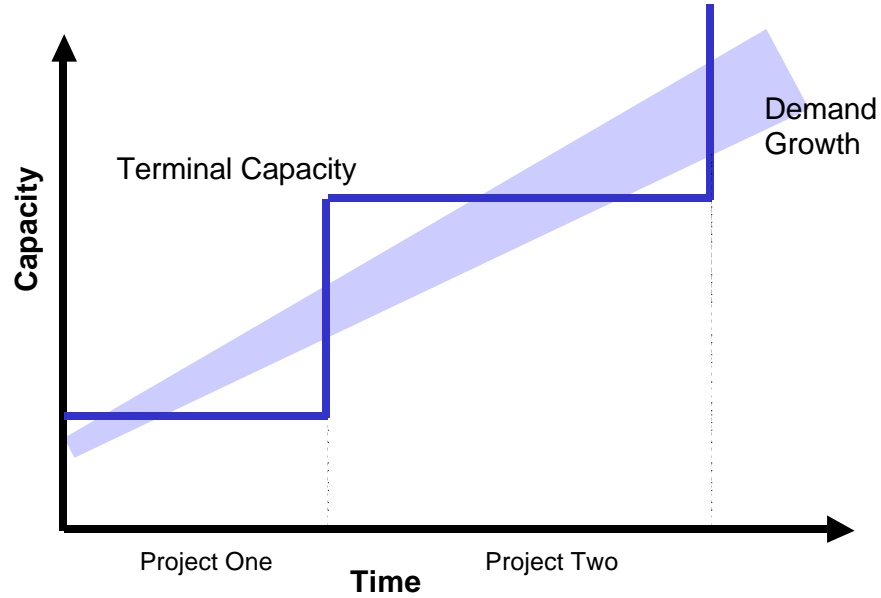
- no attempt should be made to smooth prices between this period and the next;
 - prices will vary depending on the age of the assets currently employed.
- 39 The Commission’s slogans have some superficial attraction. However, they are not ultimately defensible. Moreover, the slogans, without any further examination, are extrapolated by the Commission to underpin a number of incorrect conclusions, such as the Commission’s views on pre-financing and price smoothing.
- 40 In its Draft Report the Commission does not define what is meant by “used and useful”. The phrase is repeated as a justification of the Commission’s conclusions with no further examination. The slogan is obviously related to optimisation. Does the Commission mean, useful in this period, the current period of price setting, or the current planning horizon of the airport? The Commission attempts to address these questions at paragraphs 7.64 to 7.70 of the Draft Report.
- 41 A naive or crude interpretation of the “used and useful” slogan implies that only those assets that are currently “used” in providing services should be charged for. Optimisation is a complex issue but the Commission appears to believe it is black and white. Optimisation should relate the existing service level and capacity to the expected level required over an asset planning horizon. However, the Commission’s discussion does not appear to do this.
- 42 A more realistic approach would take account of the principles of minimising the life-cycle costs of providing the assets and also the possible impacts on dynamic efficiency that any crude interpretation of the used and useful principle will have.
- 43 Based on the discussion at paragraphs 7.46 and those following, the Commission is hedging itself in a way that is quite inconsistent with its pricing principles. In fact, the Commission fudges the point of what time-frame is used and useful.
- 44 This highlights quite simply the contradictory nature of the Commission’s principles. On one hand, if the Commission says that investments that are to be made within a five year time frame are considered used and useful, then it is accepting and advocating a form of pre-financing and price smoothing. On the other hand if the investments that have been made are not included in the prices that are to be charged, then dynamic inefficiency will result. The possible extent of inefficiency is demonstrated using a simple arithmetic example later in this paper.
- 45 Airport assets are long-lived. If anything, the planning horizons for assets are closer to ten to twenty years rather than five years. Therefore, some of the issues that the Commission must consider when defining what it means by “used and useful” are that, in general, airport infrastructural asset projects:
- have a considerable lead time which involves planning and design;
 - are usually very capital intensive; and
 - are planned to provide sufficient capacity – *on average* – over a given planning horizon such as five to ten years.

- 46 If “*today’s consumers should only bear today’s costs*”, an obvious question to ask is “what are today’s costs?” Presumably these could include operating expenses, some allocation of the asset’s depreciation (or appreciation) through time and also the opportunity cost of capital.
- 47 This highlights a further contradiction in the Commission’s pricing principles. If holding costs on land can be recovered in due course – once the assets become used and useful – that is inconsistent with the slogan that “*today’s consumers should only bear today’s costs*”. In that case the consumers would actually be bearing yesterday’s costs and, moreover, those costs would lead to a substantial spike. The Commission states at paragraph 7.66 that the inclusion of holding costs for land would be capped at opportunity cost. It appears the Commission deliberately excludes holding costs that would relate to investments in specialised assets (see Executive Summary, paragraphs 54 and 55 and Draft Report at paragraph 7.66).
- 48 Airports do not operate in a textbook, one-period world where capacity can instantaneously adjust to meet demand. There are a number of practical issues that affect investment decision making, and therefore dynamic efficiency, that the Commission has not addressed. For example, the increments in capacity are large and occur infrequently. It is also costly and infeasible to have small regular increments in capacity that would more closely match the growth in demand. As will be demonstrated later, the Commission’s adopted approach will have significant negative impacts on dynamic efficiency as it does not take account of these issues.
- 49 Airfield services are provided by long-lived assets where current customers are beneficiaries of past expenditure and asset management, while at the same time current users also cause future expenditure. Despite the Commission’s slogan that “*today’s consumers should only bear today’s costs*”, today’s consumers do, and will continue to, benefit from decisions made in prior periods, and also cause expenditures that will be incurred in future.
- 50 The Commission cannot have dynamic efficiency *and* the crude interpretation of the “used and useful” principle. Neither can the Commission have dynamic efficiency and a more realistic optimisation approach as this would directly conflict with its views on pre-financing and price smoothing. Therefore, the Commission will have to give way on one or more of its preliminary conclusions.

Is the Commission’s approach workable and does it result in desirable outcomes?

- 51 Airports determine prices by looking forward while bearing in mind that most costs are fixed and that over the pricing period the airport has little or no control of the demand that will be placed on its facility by airlines. That is, the airports are not in a position to price discriminate and to constrain supply to reap monopoly profits as suggested by the Commission (see paragraphs 6.6 and 10.27). Rather, in practical terms, the *airlines* dictate volumes. The airlines can and do unilaterally set and reset timetables. This has a significant impact on the demand for airfield and terminal services, and ultimately the airport’s revenue. In simple terms, CIAL has set prices constant in nominal terms for three years. If volumes fall, or fleet mixes change adversely, then CIAL revenues will fall.

- 52 This power of the airlines can significantly affect “peak hour” passenger and movement demands placed on airports. The airport is expected to plan in this uncertain environment, just as do other business in “competitive” markets. Therefore, the costs of carrying sufficient capacity to meet both short-term fluctuations in demand and medium term growth is effectively a current cost.
- 53 Overall, an asset manager’s goal is to minimise life cycle costs that include the costs of construction, operating costs *and* holding costs. The Commission’s assertion that “*today’s consumers should only bear today’s costs*” implies that it is feasible and possible for assets that are to be required in the future to be “warehoused” and brought on-stream at no cost at a future time as and when required.
- 54 Therefore, a simplistic approach that ignores the multi-period nature of the airport’s investment projects will probably provide the wrong investment incentives. By definition, the optimal project scale is the one that minimises the total costs over the life of the asset. This will involve making decisions over the length of time between redevelopment, the scale of each stage, and the amount of disruption that this will cause the travelling public. Therefore, in determining how the Commission will make the “used and useful” slogan work, it must note that:
- Construction costs for airport developments are inversely related to the scale of each development step. Per unit costs are generally higher for smaller projects;
 - The incremental operating costs imposed on acquirers are (i) directly related to the number of development steps and (ii) inversely related to the scale of each development step; and
 - The level of disruption and inconvenience to acquirers is directly related to the number of development steps.
- 55 The Commission’s implicit assumption that capacity can be “warehoused” and held in reserve at no cost until needed is totally unrealistic. If, for example, an optimisation process was undertaken in two years time, and it showed that the required area had increased, then the extra areas that were needed at that time would be costlessly “reclaimed” from the areas previously called surplus. However, for this type of optimisation process to have any validity, it would have to be feasible and practical for an airport to be able to undertake small increments of terminal development on an as-and-when required basis. It is not.
- 56 Overall, the Commission’s approach appears to assume that incremental terminal capacity is infinitely divisible. That is, the Commission assumes that the marginal cost curve for the provision of terminal services is smooth. It is not. Airport investment projects occur in a lumpy and irregular way through time.
- 57 In fact airport investments tend to occur as shown in figure below. The figure shows a stylised terminal peak capacity growth curve. The shaded line is the forecast increase in demand, measured in peak hour passenger throughput. The stepped line is the increments of terminal capacity measured as before in peak hour passenger throughput.

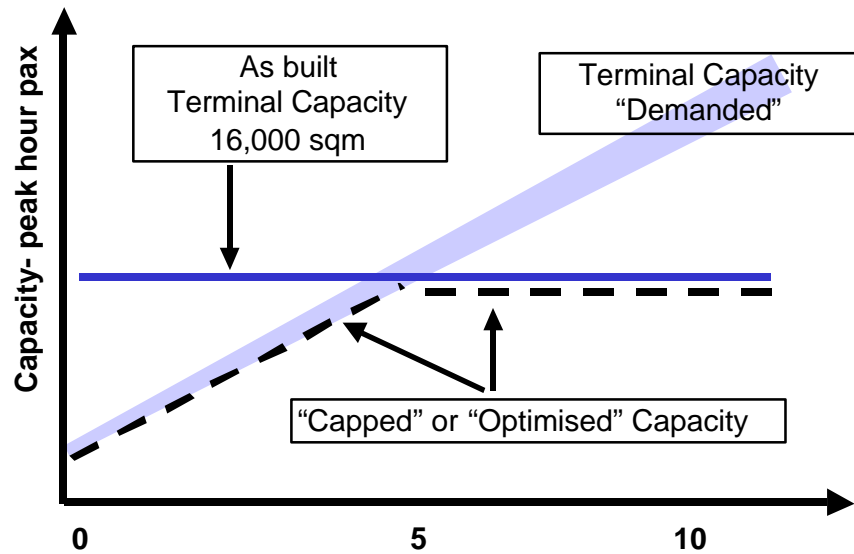


58 At times there will be excess capacity and at times there will be insufficient capacity – reflected in reduced service levels such as increased waiting times. This is the reality of managing this form of asset. However, the problem with the Commission’s optimisation approach is that it assumes that it is feasible for the capacity demanded to equal the available area in each and every year. Clearly, it is not. Capacity for any airport facility cannot be added piecemeal. Rather any addition to capacity is part of an asset management plan that may involve a planning horizon of up to twenty years. If the Commission does not accept this view then the likely outcome will be that investors will never recover their cost of capital. Furthermore, this will provide negative investment incentives and therefore negative impacts on dynamic efficiency.

59 The impacts on dynamic efficiency of the crude interpretation of the “used and useful” concept could be substantial. This is demonstrated in the following simple example of a terminal building. This example demonstrates the principle more simply than using an example based on RTA assets. To operationalise the example I make the following assumptions:

- the building is built to a ten year planning horizon;
- the terminal will have excess capacity for the first five years; and
- the terminal will have declining service levels in the second five years as passenger numbers exceed the design level by increasing amounts.

The concepts are summarised in the following chart



- 60 The actual area of the hypothetical terminal, as built, is 16,000 sqm. Based on estimated passenger growth the demand will match capacity at the end of year 5. This is a common approach when designing passenger terminals. (Note that the same principles will apply with other specialised airport assets.) If the Commission's used and useful approach were followed, this would mean that the charges are based on the capped area under the dotted line.
- 61 Under the Commission's "used and useful" approach, charges would be based on the *lesser* of the actual area built or the area demanded in any one year. Therefore
- prior to year five, charges would be based on an area less than 16,000 sqm;
 - in year five charges would be based on 16,000 sqm. Note that there would be no recovery of holding costs;
 - following year five, charges would be based on 16,000 sqm, even though a greater area was required in order to meet normal service levels. (During this period of time, the next increment of capacity is being planned and implemented.)
- 62 In this example, crude "used and useful" optimisation results in the achieved rate of return for the project being 8.8% compared with a required return of 10.1%. In dollar terms the net present value of the project is negative \$2.6 million. That is, the airport "destroys" \$2.6 million by undertaking the investment if it is constrained to the Commission's used and useful approach. Based on a twenty-year project life, this equates to an annual cost of around \$305,000. This is summarised in the following table

Assumptions	
WACC	10.1%
Capital cost	\$40m
Outcomes	
IRR – based on "un-optimised" reference revenue	10.1%
IRR based on "optimised" reference revenue	8.8%
Present value of difference	(\$2.6 million)
Annualised dynamic inefficiency	(\$305,922)

63 The example demonstrates that the “used and useful” approach, combined with the Commission’s approach to optimisation, would ensure that projects adopted by an airport, that have these characteristics, would have a negative NPV. That is, the Commission’s approach would mean that airports would destroy shareholder wealth when they undertake investments. This is hardly encouragement to undertake new investment given that firms operating in competitive markets strive to maximise shareholder value.

Conclusions on dynamic efficiency effects

64 Given realistic assumptions about passenger and demand growth, projects would never earn their required rates of return under the crude interpretation of “used and useful” optimisation. Shareholder wealth would not even be maintained, as it would be under a zero NPV basis. Rather, it would be destroyed. Therefore how could the used and useful principle possibly “... encourage airports to only undertake new investments that will be “used and useful”? Faced with an investment project any airport would know from the outset that it could never recover its cost of capital – in effect it was destroying value the minute it undertook the project.

65 The preceding example has been based on a “crude” interpretation of the “used and useful” principle. However, from the Commission’s statements it unclear and uncertain if the Commission means that:

- If there are excess assets then the asset base will be determined as the lesser of the asset required in the current period or the asset as built. As shown above, this would result in dynamic inefficiency and would not “.. send appropriate signals for determining whether new investment (or divestment) would be efficient”, or
- If excess assets in the current period are included in the asset base for current charges then the Commission is using a price smoothing or pre-financing approach. This contradicts its pricing principles that “today’s consumers should only bear today’s costs”.

66 Therefore, in either case the Commission’s recommendations contradict its principles. Therefore in my opinion the Commission’s “used and useful” approach

would probably never “... *send appropriate signals for determining whether new investment (or divestment) would be efficient.*”

How is optimisation related to valuation?

67 A fundamental problem with the Commission’s approach to optimisation is the total irrelevance of the optimisation concept when assets are valued using depreciated historic cost (DHC). The Commission has made a fundamental mistake in advocating DHC over ODRC. Optimising DHC is meaningless.

68 As the Commission notes in its definitions, the rationale for optimisation is to determine the least cost replication of the utility to the business or entity provided by the existing asset. This is done by:

- Estimating the appropriate remaining economic life;
- Estimating the least cost replication of the service provided by the current asset. This is not the reproduction of the current asset;
- Estimating the assets that are not currently required and “*for which there is no reasonable prospect [they] will ever be required in utilising an asset in its current form*” (Institute of Chartered Accountants of New Zealand, FRS 3, Accounting for Property, Plant and Equipment, paragraph 4.15)

69 The Commission notes that there are several thresholds for optimisation. Therefore, the extent of optimisation depends on which stage of optimisation is adopted. In practical terms, most optimisation is “brown fields” rather than “green fields” in the sense that the process usually takes account of:

- surplus assets, through a reduction in area or number of assets required to service the existing and expected scale of operation; and
- technological obsolescence, through the use of cost estimates based on the MEA.

70 A green fields optimisation would consider a reorganisation of the existing site and even a move to a new site. The NZ Infrastructure Assets Management Manual (also referred to as the NAMs manual) discusses various steps in the optimisation process. Optimisation addresses a number of issues including:

- technological obsolescence;
- over design; and
- surplus assets.

71 The first two issues are addressed by using the MEA to determine the replacement cost of the assets. In contrast, the Commerce Commission advocates, incorrectly, the use of historic cost.

72 The question of surplus assets is related to the Commission’s view of what is “used and useful.” The NZ Infrastructure Assets Management Manual (NAMs manual) points out that surplus assets:

“...reflect the extent to which some assets are now redundant. An example could be a road bypass where a bridge, which is still in place, does not serve any purpose.”

73 Further, the NAMs manual emphasises that for valuation purposes

“...the existing system configuration should be used and only optimised in part where it is clear that those parts of the system would be reconfigured differently if replaced.” (emphasis added)

74 This approach emphasises that optimisation is not an *ad hoc* process but one closely related to the asset management plan for the facility. This overall approach to optimisation has been taken to prevent:

- systematic over-capitalisation through over-building and over-valuation of the assets by insufficient optimisation; or
- systematic under-valuation of the assets through excessive optimisation of assets that still have an economic value to the firm.

75 Therefore, there are scales of terminal development that are economic and scales that are not. The goal of airport operators is to determine the optimal terminal development by minimising the life-cycle costs associated with the construction and operation of the asset subject to a set of constraints. The life cycle costs are a function of:

- the chosen level of service;
- the capital cost of the asset;
- the operating costs associated with the level of service;
- the number of stages or phases in the development;
- the time period between one increase in capacity and the next; and
- the number of increases in capacity that occur over a given time period.

76 By definition, the optimal scale of investment is the one that minimises the present value of the airport asset’s life cycle costs. Therefore, it is obvious and inevitable that at some point the terminal or airfield will be operating at over its design capacity while at other times it will be operating below its design capacity. In fact this is exactly what is currently happening with the CIAL domestic terminal and the international terminal at the moment. The domestic terminal is operating well above its actual design capacity while the international terminal is operating at less than its design capacity.

77 However, the goal of the airport operator is to minimise the total mix of costs over the life of the terminal. This will involve making decisions over the length of time between redevelopment, the scale of each stage and the amount of disruption that this will cause the travelling public. To assist infrastructural asset managers with determining the least cost method of supplying a predetermined level of service, asset managers can use an approach referred to as optimised renewal decision-making (ORDM).

- 78 The Commission must adopt a similar approach, which takes account of the multi-period nature of infrastructure investments. The Commission's current approach lacks credibility due to its simplistic interpretation of the practical problems facing asset managers.

How other regulators deal with optimisation questions

- 79 The approach that has been taken by the Commission is out of step with the approach taken to optimisation by other airport and utility regulators. While the Commission is unclear on how it will interpret the "used and useful" principle, it would seem it is more inclined to optimise what is immediately "surplus" capacity, ignoring why the capacity is being held in reserve. In its draft Statement of Principles for the Regulation of Transmission Revenues, the ACCC noted that:

"... in relation to optimisation there is an issue of timing. This occurs because capital expenditures are based on demand projections for certain periods of time. Overbuilding of the system may well be a reflection of anticipated growth in demand. The question for the valuer is then what level of overbuilding should the optimisation consider, based on the projected demand growth?"

(ACCC, Draft Statement of Principles for the Regulation of Transmission Revenues, 27 May 1999, page 43.)

- 80 By overbuilding, I interpret the ACCC to mean building an asset with a capacity which exceeds the immediate demands but which may not meet requirements in the future as demand grows. Therefore, I suggest that the Commission must consider this view when redefining its optimisation principles.

- 81 With airports, as with transmission assets, the next technically appropriate increment in capacity is going to be large relative to the existing capacity. That is, capacity cannot be smoothly and incrementally added as required. The upshot is that at times the investment in new capacity to meet growing demand may result in apparently excess capacity. However, the ACCC highlights that:

"The extent and the period of the excess capacity will depend on, among other things, the pace and volatility of load growth."

- 82 Therefore, faster and more volatile demand growth means the extent of overbuilding at any time would need to be quite high. Likewise in situations with low volatility in load growth and a low level of demand growth, the appropriate level of over-building would be much lower. The Commission must consider these issues when redefining its optimisation principles.

- 83 The Australian National Third Party Access Code for Natural Gas Pipeline Systems also offers some assistance in determining the appropriate level of overbuilding when undertaking capital investment. The relevant sections of the Access Code state:

"8.16 The amount by which the Capital Base may be increased is the amount of the actual capital cost incurred (New Facilities Investment) provided that:

- (a) *that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of delivering Services; and*
- (b) *one of the following conditions is satisfied:*
 - (i) *the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or*
 - (ii) *the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or*
 - (iii) *the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.*

8.17 *For the purposes of administering section 8.16(a), the Relevant Regulator must consider:*

- (a) *whether the New Facility exhibits economies of scale or scope and the increments in which Capacity can be added; and*
- (b) *whether the lowest sustainable cost of delivering Services over a reasonable time frame may require the installation of a New Facility with Capacity sufficient to meet forecast sales of Services over that time frame.”*

(National Third Party Access Code for Natural Gas Pipeline Systems, Extract from Gas Pipelines Access (NSW) Act 1998 as at September 1998.)

84 The ACCC also goes on to state that:

“In most cases the bulk of the expenditures will be included because economies of scale would mean that a smaller capacity addition to infrastructure would be at a higher unit cost.”

85 Therefore, from the pricing principles laid down by the ACCC and the Gas Access code, some conclusions can be drawn about how the growth in demand for infrastructural assets should be taken into account when optimisation is undertaken.

- Over-building, to the extent that it anticipates growth in the demand for the asset, is a factor that must be taken into account explicitly.

- The appropriate level of overbuilding, and therefore the level of optimisation, will depend upon the nature of the demand for the services provided by the asset.
- Where demand is volatile and fast growing the appropriate level of overbuilding will be higher than otherwise.

86 I believe that the Commission must take these issues into account. If it does not, the result will be a set of pricing principles that send entirely inappropriate investment signals. Therefore, in order to promote the efficient outcomes that it desires the Commission must give the views of other regulators more serious consideration than it seems to have so far.

C. OPTIMISED DEPRECIATED REPLACEMENT COST (ODRC) IN VALUING AIRFIELD ASSETS

87 This section of my paper addresses why the airport asset base should be valued at ODRC. The section addresses the shortcomings of the Commission's opportunity cost approach and then demonstrates how ODRC should be applied. Principally the section deals with the valuation of specialised assets. This section should be read in conjunction with the evidence of Professor Terry Boyd.

The Commission's approach

88 The Commission's justification for using the opportunity cost approach is based on the concept that the

"... cost of an input or asset (henceforth collectively called a "resource") in one use is what is forgone ("the return") by not then being able to employ it in an alternative use." (paragraph 7.13)

89 However, the Commission then determines at paragraphs 7.15 and 7.38 that as the specialised airfield assets are sunk costs, their opportunity cost is zero. The Commission comes to this conclusion by reference to the definition of specialised assets contained in the relevant valuation standard. However, the Commission then determines at paragraph 7.38 that airports will need to earn a return on the *"...assets in order to preserve the incentives to continue to invest in them"* and then proceeds to evaluate ODRC and historic cost.

90 As will be discussed below, the Commission's ultimate choice of *"optimised depreciated historic cost"* (or what amounts to "optimised" book value) is highly unorthodox. The Commission uses a "pros" and "cons" approach (paragraph 7.39) to determine how specialised assets should be valued. The Commission does not place any weights on what are the most important reasons for not using ODRC or for using historic cost. The approach to reaching the conclusion appears to be very subjective. The Commission concludes that *"...ODRC does not have any clear advantages over historic cost."* and therefore recommends the use of depreciated historic cost. However, that is by no means clear from reading table 22 and table 23.

91 Furthermore, what is also puzzling is that despite recommending what amounts to the use of book value as the asset valuation for specialised assets, the Commission, at paragraph 7.48, defines optimisation as involving *"the adjustment of replacement cost to reflect changes in the required deployment or scale of the assets"* (emphasis added). If the Commission's own definition of optimisation involves the use of replacement cost, which is an integral part of determining ODRC, it seems illogical that the Commission should query the use of ODRC at all.

Why opportunity cost is wrong

92 Valuations based on opportunity cost are more appropriate in assets markets where there are observable market prices (effectively a perfect market). Applying the

opportunity cost concept, in a market where the prices of assets are not freely observable and information is costless and available to all, is a futile exercise. Put simply, this is the reason that the New Zealand Institute of Valuers entitled its valuation standard for specialised assets “Valuation Bases other than Market Value”, where market value is derived from sales data of comparable assets.

93 However, simply because “market prices” cannot be observed, the NZIV does not suggest, as the Commission does, that specialised assets have no value. In fact, as discussed below, the NZIV, along with other professional bodies that are members of the International Valuers Standards Committee (IVSC), recommend the use of ODRC.

94 The Commission’s observation that specialised assets have limited marketability is based on the observation, as NZIV Valuation Standard Two also points out, that specialised assets are “rarely, if ever, sold on the open market, except as part of a sale of the business in occupation.”

95 In effect the Commission’s opportunity cost principle is based on the notion that specialised assets will be “worthless” the day after the assets are commissioned. This is simply unrealistic as if this was true, then businesses would not invest in specialised assets. Furthermore, businesses would be disinclined to invest in any assets where there was an element of irreversibility.

96 However, the Commission seems to have ignored the fact that businesses make investments in specialised assets day after day because the assets provide an on-going utility to the business. This is sometimes referred to as service potential.

97 Therefore, the fallacy in the Commission’s approach is that it ignores the fact that specialised assets have utility in their existing use. In other words the assets have economic value to their owners or the business that they are part of while they still have service potential.

98 Therefore the value of the specialised assets should reflect the value of the utility they provide. One way of estimating the value is to use a benchmark. The benchmark recommended by valuation and accounting professional institutes mimics the cost to a new entrant of replicating the utility provided by the specialised assets being valued, after adjusting for any difference in remaining economic life or service potential. A simple way of doing this is:

- to estimate the replacement cost of the assets or the lowest cost way of replicating the service provided by the existing assets, and
- to adjust the estimated replacement cost so that the estimated value reflects the remaining service potential of the assets being valued. In other words the assets are depreciated.

99 This is, in effect, the way in which ODRC is estimated. In my view ODRC is the best way of estimating the cost of replicating the utility of specialised assets. I cannot see how the Commission’s use of, what is in effect, book value could be a reasonable proxy for the value of the utility provided by a specialised asset used by a business.

- 100 To demonstrate the fallacy in the Commission’s use of opportunity cost consider the following question. Assume the Christchurch airport business was to be sold and that the buyer was an investor that wanted to continue to operate the airport business. Would that investor pay more, less, or the same amount if it were offered the airport business with or without the runways, taxiways, aprons and other specialised assets?
- 101 Following the Commission’s logic, the airport investor would pay the *same* for the airport in full operation, with all specialised assets in working order, as it would for the airport with the specialised assets ripped up and disposed of. This is hardly credible. Of course, this issue was considered by the Commission in considering whether ODRC or depreciated historic cost is a substituted for opportunity cost. However, that question alone, should have told the Commission that its starting point of opportunity cost was in error.
- 102 Obviously, the specialised assets used by an airport business would not have any value if the airport business were to be discontinued. However, how likely is this and is the airport the most likely use for airport assets? Sales of airport businesses are common and we do not have to look very far to see examples of sales of airports as on-going businesses. In fact, airport privatisation around the world continues to move apace. Furthermore, when the Australian airports, other than Sydney, were privatised there was active bidding for the long-term leases. Therefore it is more likely that airports that are sold would continue in operation into the foreseeable future and that airport use would be the highest and best use of the land and specialised assets.
- 103 There is no basis whatsoever to use opportunity cost in conjunction with the valuation of airport specialised assets. Furthermore, putting the Commission’s logical inconsistencies to one side, the Commission’s approach is totally inconsistent with any concept of determining the “least cost replication of the utility offered by the asset”. From the arguments set out in table 22 and table 23 I do not think it is credible for the Commission to conclude “*ODRC does not have any clear advantages over historic cost*”.

Components of ODRC

- 104 The Commission defines ODRC as
- “An estimate of the most-efficient, lowest-cost combination of assets (from an engineering perspective) which could replace the existing assets and offer the same utility.”*
- 105 This is a fairly standard definition of the valuation approach for specialised assets and captures the key point that ODRC is the *least cost replication* of the *current level of utility* provided by the asset. Therefore, regarding the valuation of specialised assets, the three points that need to be noted are:
- Given a universe of possible costs, the lowest replacement cost is chosen that provides the current utility. This is known as the modern equivalent asset (MEA).

- The MEA is the cost of *replacement* not the cost of *reproduction* of the specialised asset. Replacement implies providing the current capacity using the most appropriate technology. Reproduction is copying what exists. Therefore, if technology has advanced to the extent that the MEA is lower than the cost of reproducing the original asset then the MEA is the cost estimate that should be used.
- Utility reflects not only the usefulness of the asset but also the remaining usefulness. The use of the MEA adjusts for any technological obsolescence. The use of an appropriate estimate of the remaining or expected economic life takes account of the remaining utility offered by the asset. The economic life may not necessarily equal the accounting or tax life of the asset.

106 Given the critical importance of the determination of the value of the asset base there has been much written about it. Surprisingly, the Commission did not raise or discuss the widespread use and acceptance of ODRC in its Draft Report. For example, ODRC is:

- Recommended by the New Zealand Institute of Valuers (NZIV) Valuation Standards for the valuation of specialised assets. Although the Commission quoted the NZIV definition of specialised assets it did not mention the NZIV's recommendation of ODRC.
- Recommended by the International Valuers Standards Committee (IVSC) Valuation Standards for the valuation of specialised assets.
- Recommended for the valuation of fixed assets, other than land, by the Institute of Chartered Accountants of New Zealand, in FRS 3, Accounting for Property, Plant and Equipment.
- Recommended in the NZ Infrastructure Assets Management Manual (also referred to as the NAMs manual), which covers the valuation of virtually all local authority infrastructure assets such as water, waste water and roading.
- Mandated as the cost approach in the electricity lines business ODV Manual issued by the Ministry of Economic Development.
- Used by Transpower in the valuation of its transmission assets.
- Applied by professional valuers to the valuation of New Zealand port company assets.
- Used by the ACCC for valuing lines businesses in Australia.
- Used by the ACCC for valuing airport assets in Australia.

107 Given that the Commission's conclusions are so at odds with the recommendations of the organisations listed above, one would not have expected that ODRC would be dismissed by the Commission in one or two lines of text. The use of ODRC in New Zealand and Australia is predominant. No professional organisation in New Zealand or Australia recommends the use of historic cost over ODRC.

108 In any policy context conclusions need to be tested for reasonableness. I do not think that the Commission’s conclusion relating to ODRC was given the consideration that it should have been given. The Commission is out of step with New Zealand and Australian authorities. A recent publication by the World Bank also recommends the use of the replacement cost approach. In their “manual for regulators” Green and Pardina point out that the asset base should be:

“...measured at replacement cost (rather than historic cost)... This has the advantage of reflecting the economic cost of assets involved in the business. Prices that are based on this asset value and the company’s cost of capital are likely to be close to their efficient level” (emphasis added)

(R Green and M R Pardina, (1999) Resetting Price Controls for Privatised Utilities: a manual for regulators, Economic Development Institute of the World Bank, Washington. page 71)

109 As a last point, the Commission appears to assume that the ODRC value will always be excessive and open to manipulation. At the same time the Commission contradicts itself by stating that ODRC values are “unsustainable” because they might be lower than book value, see A6 table 23. However, the ODRC methodology can reflect a range of factors that will reduce the value of an asset in a variety of ways. These are summarised in the following table.

Issue	ODRC	Impact
Shortened Economic life	Reflected in depreciation calculation	Will reduce value
Surplus assets	Explicitly optimised	Will reduce value
Poor condition of assets	Reflected in remaining economic life	Will reduce value
Obsolescence	Reflected in MEA	Will reduce value

110 As a final point, the Commission should note that ODRC would never increase the value of an asset over and above what Green and Pardina call “ *the economic cost of assets involved in the business*”. That is, the values are never “optimised up”. Obviously, if the book value of assets is 30 years old, there is every probability that the book value will be less than the ODRC in nominal terms. However, if the Commission believes that “*today’s consumers should only bear today’s costs*” then I cannot see how using a nominal value from several decades ago will help to achieve that objective.

D. THE USE OF DISCOUNTED CASH FLOW (DCF) TECHNIQUES IN PRICING AIRFIELD SERVICES

111 At paragraph 7.5 of its Draft Report the Commission states that:

“There is a circular problem if discounted cash flows are used to set prices, since prices will influence the level of expected cash flow, which in turn determines asset value.”

This appears to be the only reference to DCF in the Draft Report.

112 The Commission’s statement is not correct. Furthermore, the Commission’s conclusion is at odds with the views of the Australian Competition and Consumer Commission (ACCC) and also the World Bank. Therefore this paper addresses:

- Why there is a circularity problem if the DCF approach is used to determine asset values *and* prices.
- Why there is *no* circularity problem if DCF is used to set prices *and* the asset base is determined using a cost based approach.
- The Commission’s “building block” approach as compared to the DCF approach.
- The underlying logic behind the application of DCF.
- Where DCF has been applied by CIAL to setting prices and price paths.
- The implications of using DCF. In particular, the implications for price smoothing and the treatment of capital expenditure.

113 Therefore, my paper addresses the relationship between the DCF methodology, the building block approach, the valuation of the asset base, capital expenditure and price smoothing.

Circularity

114 For the purposes of this paper I assume that circularity arises when:

- the initial capital value used is estimated using an economic approach; and
- the estimated capital value is also used as the rate base upon which prices are struck.

115 The concept of circularity was dealt with in the *Hope Natural Gas* case of 1944 (*Federal Power Commission v Hope Natural Gas Co*, 320 US 591, 601 (1944)). As pointed out by the Federal Power Commission:

“The heart of the matter is that rates cannot be made to depend upon ‘fair value’ when the value of the going enterprise depends on earning under whatever rates may be anticipated.”

(Referenced in Kahn, A.E., The Economics of Regulation: Principles and Institutions, 1988, MIT, page 38)

- 116 The Federal Power Commission was simply saying that prices couldn't depend on the value of the asset when the value of the asset base also depends on the prices or rates charged. Therefore, the problem of circularity has been with us for some time and is accepted.
- 117 As a practical point, I note it would be impossible to construct a financial model (suitable for establishing airfield landing charges) using a proprietary spreadsheet package in such a way that the value of asset base depended on prices and prices depended on the value of the asset base. The software's internal error checking tools would determine that the model was circular and that the model would never work.
- 118 The Commission was provided with an electronic copy of the CIAL financial model used to derive CIAL's airfield prices. The Commission will note that the model functions and is not circular in any way.

Circularity does not arise when assets are valued at ODRC

- 119 In what circumstances can the DCF approach be used to determine prices?
- 120 In short, the DCF approach can be used to determine prices if the value of the asset base is determined using a cost based approach such as optimised depreciated replacement cost (ODRC) or even depreciated historic cost. However, as discussed in other papers, the use of depreciated historic cost is wrong and will result in poor investment incentives with resulting inefficient prices.
- 121 Circularity does not arise if the link between prices and the value of the asset base is broken. Therefore circularity does not occur when:
- the value of the asset base is determined using a cost based approach such as ODRC; and
 - the prices are determined using a DCF based approach.
- 122 This is exactly what CIAL, the ACCC, and experts employed by the World Bank, have done. CIAL is not using a DCF derived value as the capital base. CIAL has used an ODRC value as the asset base. Therefore there is no "circular link" between the asset base and the prices derived.
- 123 In fact, as Kahn reinforces, circularity does not arise when we use
- "...the customary interpretation that measured fair value (at least in part) with reference to the cost of reproducing the company's assets"*
- (See Kahn, page 38)
- 124 CIAL has in fact taken the approach of determining what Kahn refers to as the "fair value" of the assets by using ODRC. CIAL has not determined the prices as a function of the fair value and the fair value as a function of the prices. Therefore there is no circularity in the CIAL approach.

The building block and DCF approaches compared

125 In principle, the DCF approach is a more wide-ranging and accurate form of the building block model. The building block model is predicated on a set of relatively strict assumptions and models a perpetual cash flow.

126 The building block approach used by the Commission employs the model for valuing a growing perpetuity, or a cash flow that increases at a constant rate into infinity. In equilibrium, the value of cash flows produced by an asset is equal to the cash flows capitalised. This is:

$$\text{Value} = (\text{Free Cash Flow})/(\text{WACC} - g).$$

127 In this form, WACC is the weighted average cost of capital, g, is the expected growth rate in free cash flow, and free cash flow is the cash flow available to all providers of capital. For example, free cash flow is usually calculated as:

	Gross revenue
Less	Operating expenses
Less	Depreciation
Less	Tax
Equals	<hr style="border-top: 1px solid black;"/> (NOPAT) Net operating profit after tax
Plus	Depreciation
Less	Capital expenditure
Equals	<hr style="border-top: 1px solid black;"/> Free Cash Flow

128 For example, given free cash flow into infinity of \$100,000, a WACC of 10% and expected growth of 2%, results in a value for the assets of \$1.25 million.

$$\begin{aligned} \text{Value} &= (\$100,000)/(0.10 - 0.02) \\ &= \$1,250,000. \end{aligned}$$

129 By a simple manipulation, the required free cash flow can be seen to be equal to:

$$\text{Free Cash Flow} = \text{Value} \times (\text{WACC} - g).$$

130 Therefore, by working backwards, we can determine the required revenue, and ultimately prices. This is exactly the exercise that the Commission has undertaken. For example, if the asset value is \$1,250,000 and the WACC and growth rate, g, are taken as before, then:

$$\begin{aligned} \text{Free cash flow} &= (\$1,250,000)/(0.10 - 0.02) \\ &= \$100,000. \end{aligned}$$

131 Given that we know what the other cost elements are, it is possible to infer the revenue, and the prices that should be charged, using the building block approach.

132 Therefore:

Revenue = Free cash flow
plus capital expenditure
minus depreciation
plus taxes
plus depreciation
plus operating expenses.

133 The same underlying principles apply with the DCF approach. However, the DCF approach is more explicit, and makes more realistic assumptions regarding:

- growth rates in passenger numbers;
- growth rates in aircraft movements;
- operating cost efficiencies; and
- forecast capital expenditure (in particular).

134 The building block model assumes that all of the information about the business, from now into perpetuity, can be summarised in either, the growth rate, g , or the point estimate of free cash flow. The more realistic DCF model employs individual assumptions about the determinants of current costs and the costs that are to apply over the pricing period. These result in a more transparent approach, not surprisingly endorsed by other regulators.

Using the DCF approach for pricing

135 The DCF approach is relatively straightforward to apply. In fact, the generic DCF model used by CIAL is the same basic model used to estimate annual lease payments for aircraft, cars, trucks and all manner of commercial equipment. These forms of periodic charges are conceptually identical to the annual landing charges for an airport.

136 I have chosen a straightforward example to illustrate the DCF approach to estimating airfield charges. Assume the following:

- an airfield has an asset base with a value of \$3,000,000 determined using an ODRC approach;
- the airfield assets have an economic life of 25 years;
- there are two, three yearly price resets over the time horizon of the landing charge price forecast;
- There is a 5% annual growth in tonnage of maximum certified take off weight (MCTOW) volumes. Landing charges in years four to six are assumed to be 10% lower than prices in years one to three. Therefore the model has taken account of economies of scale;

- Costs are assumed to fall by 2% per year in nominal terms. Therefore the model has taken account of productive efficiency;
- A 10.1% cost of capital applies;
- Capital expenditure is assumed to be equal to depreciation. (However, it does not have to be).

137 The underlying concept is that the prices are set for the forecast period so that the net present value (NPV) of the free cash flow is zero. In other words, a price is selected so that the present value of the cash in-flows equals the present value for the cash outflows, when discounted at the cost of capital. When the NPV of the future cash flows is zero the investor earns the cost of capital over the planning horizon and nothing more. Note that this only means that shareholder wealth is preserved. There are no excess profits, *nor any increase* in shareholder wealth.

138 The following table illustrates how the DCF model for pricing works. I have assumed expected MCTOW volumes are 100,000 tonnes per year and that they grow at 5% per annum. Revenue is simply price multiplied by volume. Therefore, revenue in year two is simply (105,000 x \$6.04 = \$634,124).

139 In contrast to any idea of circularity, the price per tonne MCTOW is determined exogenously from the model. The price that results in a zero NPV is “found” by trial and error. In this case the price of \$6.04 per tonne MCTOW (see the highlighted cell) satisfies the zero NPV rule. Given the assumptions we have made, a price lower than \$6.04 per MCTOW will mean that the company does not recover its cost of capital. A price higher than \$6.04 per tonne will result in an NPV greater than zero.

Time Period	0	1	2	3	4	5	6
Per tonne Price "A"		6.04	6.04	6.04	5.44	5.44	5.44
Volume "B"							
MCTOW tonnes		100,000	105,000	110,250	115,763	121,551	127,628
Growth %			5%	5%	5%	5%	5%
Revenue "C"		603,928	634,124	665,830	629,210	660,670	693,704
(A x B)							
Operating Costs "D"		75,000	73,500	72,030	70,589	69,178	67,794
Cost Efficiencies			2%	2%	2%	2%	2%
Depreciation "E"		120,000	120,000	120,000	120,000	120,000	120,000
EBIT "F"		408,928	440,624	473,800	438,620	471,493	505,910
(C - (D + E))							
Tax "G"		134,946	145,406	156,354	144,745	155,593	166,950
NOPAT "H"		273,982	295,218	317,446	293,876	315,900	338,959
(F - G)							
Plus Depreciation		120,000	120,000	120,000	120,000	120,000	120,000
Less CAPEX "I"		(120,000)	(120,000)	(120,000)	(120,000)	(120,000)	(120,000)
Subtotal "J"		273,982	295,218	317,446	293,876	315,900	338,959
(H + E + I)							
Capital Value "K"	(3,000,000)						3,000,000
Free cash flow	(3,000,000)	273,982	295,218	317,446	293,876	315,900	3,338,959
(J + K)							

140 The sensitivity of the NPV, given changes in price is shown in the following table:

Price per tonne MCTOW	NPV	Internal rate of Return
\$5.50	(\$167,311)	8.8%
\$6.04		10.1%
\$6.50	\$142,939	11.2%

141 A price of \$6.04 results in an NPV of zero and an internal rate of return for the airport equal to its cost of capital. If the price is above \$6.04, then the NPV is positive. On the other hand, if the price is less than \$6.04, then the NPV is negative and the company, on average, does not earn its cost of capital.

142 The important points to note in the DCF model are:

- The asset value used in the DCF approach would be the same asset value as that used in the building block model. Therefore, if the DCF approach is circular, then so is the building block approach used by the Commission.
- The price determined in the DCF model is exogenous to the model. A trial and error method is used to estimate the price.
- The DCF model is more explicit in terms of forecasting operating costs and capital expenditure than the building block approach. For simplicity, in the example above, capital expenditure equals depreciation. However, it does not have to.
- In this model, all of the benefits of the forecast productive efficiencies and economies of scale explicitly accrue to the acquirers.

143 The only difference between the DCF and building block approaches is that the building block approach makes simplifying assumptions about the discounting process. In my view, this is embodied in the unrealistic assumption that all future information is embodied in the growth rate, g , or an explicit adjustment to the point estimate of operating costs.

144 In my opinion, the building block approach, if it is being used to estimate prices for multi-year periods operates as something of a “black box”. That is, the expected growth rate and the cash flows can be arbitrarily adjusted. However, the building block approach cannot be sufficiently explicit as to why the adjustments were made or what the relationships are between the complex factors that influence prices.

145 On the other hand, the DCF approach is much more explicit and provides a much richer structural explanation of the determination of the prices. The following table provides a summary of the two approaches.

	Issue	DCF	Building block
1.	Uses cost based approach for value of asset base?	Yes	Yes
2.	Prices are a function of the asset base?	Yes	Yes
3.	Prices are a function of the cost of capital?	Yes	Yes
4.	Takes account of forecast productive efficiencies?	Yes, explicitly	Implied in “g” or the single estimate of free cash flow
5.	Takes account of forecast economies of scale?	Yes, explicitly	As above
6.	Takes account of expected volume growth?	Yes, explicitly	As above
7.	Takes account of expected capital expenditure?	Yes, explicitly	As above

146 The Commission should note the relative shortcomings of the building block approach that are highlighted in this table. Prices at CIAL will remain constant in nominal terms for three years in this review period and, possibly, for up to five years in future review periods. A large number of factors, such as expected volume growth, expected productive efficiencies, expected economies of scale and scope and also expected capital expenditure will all impact on prices. The only way that the building block approach can address these factors is by rolling all of the factors into one-off, non-transparent adjustments to either the estimate of operating costs, the expected growth rate, g, or the estimate of the asset base. This does not seem to be a very robust approach to taking account of these factors.

147 There is no substance to the Commission’s assertion that the use of DCF in determining airfield charges, in itself, results in circularity. If anything, this discussion highlights the shortcomings of the building block approach and in particular, the clumsiness of the methodology that underpins the Commission’s approach.

Use of the DCF approach

148 The concepts behind the DCF model are not new. The degree of criticism of the approach from airline customers during the consultation process was quite surprising, given the widespread use of the DCF approach for valuing businesses, evaluating projects and also determining prices in a wide range of utilities. As mentioned previously, the same concepts that underpin the use of the DCF approach to estimate airfield and terminal charges underpin the estimation of lease

payments for new and used aircraft, motor vehicles and commercial machinery. However, the same principles also apply to a much broader family of analysis including hire purchase contracts for new and used assets or the calculation of repayments on a table mortgage.

149 The DCF approach is suitable for pricing the services for long-lived assets where current customers are beneficiaries of past expenditure and asset management, while at the same time current users also cause future expenditure. Despite the Commission's slogan that "*today's consumers should only bear today's costs*", today's consumers at New Zealand airports benefit from decisions made in prior periods and also cause expenditures that will occur in the future.

150 The generic DCF approach taken by CIAL is practically identical to the approach to determining reference revenue recommended in Green and Pardina's "Manual for Regulators" (R Green and M R Pardina, (1999) Resetting Price Controls for Privatised Utilities: a manual for regulators, Economic Development Institute of the World Bank, Washington).

151 Green and Pardina discuss at length the application of the DCF framework in determining the required revenue and the appropriate price path of the associated prices for efficient pricing. The DCF analysis includes forecasts and assumptions of:

- future levels of activity;
- future levels of operating costs;
- future capital expenditure costs;
- future capital expenditure timing; and
- the current value and residual value of the wasting assets at the end of the time horizon.

152 Green and Pardina also note that if:

"the company is spending heavily on new investment, it may need a higher level of revenue than present value calculations would suggest to avoid excessive borrowing. The regulator should check the company's predicted gearing and interest cover to ensure that these remain acceptable through the review period and its immediate aftermath." (emphasis added)

153 This demonstrates that the reference revenue estimated using the DCF approach might not necessarily always be an absolute cap on the level of total reference revenue.

154 The DCF approach to pricing set out in Green and Pardina's manual is directly comparable to the situation facing CIAL. Green and Pardina's manual is a widely distributed publication. Given that the World Bank endorses the approach, and that the Bank is one of the largest lenders to infrastructural projects in the world, I would have expected the Commission to have reviewed the document and considered the recommended approach.

155 The DCF approach has also been used in a number of other situations in Australian airports, including:

- The determination of the charges for the Adelaide airport multi-user integrated terminal (MUIT).
- The determination of pass through charges for necessary new investment at Perth Airport,
- The determination of pass through charges for necessary new investment at Brisbane Airport.

156 In the case of the Adelaide airport MUIT the Commission stated that:

“The PFC [passenger facilities charge] for domestic passengers was then determined by that price which allows the net present value of the project’s cash flows to equal zero”

(ACCC, Adelaide Airport Proposal to pass through the price cap the costs of a Multi-User Integrated Terminal Decision, October 1999, page 7)

157 The ACCC’s view on the use of the DCF approach is summarised by the following statement regarding Brisbane Airport Corporation Limited (BACL).

“The net present value model used in BACL’s application is considered appropriate. The Commission notes that costs are recovered over the useful lives of the assets.”

(ACCC, Brisbane Airport Proposal to increase aeronautical charges to recover the costs of necessary new investment, Decision, June 2001, page 14)

158 With regard to the application by Perth International Airport (PIA) the ACCC stated that:

“The net present value model used in PIA’s application is considered appropriate.”

(ACCC, Perth Airport Proposal to increase aeronautical charges to recover the costs of necessary new investment, Final Decision, April 2000, page 28)

159 During CIAL’s consultation round with airline customers, the airlines suggested that comparisons of the CIAL pricing model with the application of DCF at Australian airports was not appropriate. The reasoning appeared to be that determining the extra price that should be charged at an Australian airport for a facility was somehow different from determining a charge at Christchurch for the use of the airfield or for a terminal. I cannot see how that is so. What is at question is the pricing methodology, not the asset to which it is applied.

160 The only possible difference could be that the assets that are being priced in Australia have been very recently built or are about to be built. Therefore, construction costs are readily available to establish the value of the asset base.

However, all that that establishes is the value of using a depreciated replacement cost approach in determining the value of the asset base. If assets are valued using a replacement cost approach then, as Green and Pardina state, the prices will reflect *“the economic cost of assets involved in the business”*. Furthermore the prices *“that are based on this asset value and the company’s cost of capital are likely to be close to their efficient level.”*

- 161 This is in direct contradiction of the Commission’s conclusion to use, in effect, optimised book value.
- 162 These examples from Australian airports are directly comparable to the situation at CIAL. Whether the initial opening asset base is valued using ODRC or at the expected capital cost of the project, the underlying principle remains unchanged. The prices are estimated so that the present value of the cash outflows equals the present value of the cash inflows.
- 163 In my opinion, DCF is a widely used and appropriate methodology. It does not inherently involve circularity any more than the Commission’s building block approach does. The Commission’s building block approach involves the same assumptions as required in the DCF model. However, the DCF model deals with them explicitly while the building block model rolls them into one factor.

Capital expenditure price smoothing and optimisation

- 164 The Commission’s *“preliminary view”* is that future capital expenditure should not be taken into account when calculating current prices. The Commission states that *“pre-financing of new investment is generally inappropriate”*. The Commission’s view is that this *“... should encourage airports to only undertake investments that are “used and useful”*”. Further to this conclusion, at point A3, table 23, the Commission states:

“Competitive markets with lumpy assets would cycle between low prices when there is excess capacity, and high prices when additional capacity is needed.”

- 165 This statement assumes that there is only one supplying firm in the "competitive market"; that this firm has the ability to control prices depending on its investment cycle - without regard to the presence of other supply firms and their level of capacity utilisation; and that demand is inelastic, so that "high prices" can be charged by the firm without resulting in any impact on its demand and capacity utilisation. Therefore, the Commission assumes that firms such as airports in competitive markets will not have incentives to smooth prices in response to the possibly different investment profiles of competing airports. But, in a competitive market, where there are many suppliers, those assumptions do not hold. A degree of price smoothing is a likely feature of such a market."
- 166 One conclusion that cannot be ignored is that the DCF approach includes expected capital expenditure. Capital expenditure is an explicit input noted by Green and Pardina. The Commission’s *“preliminary view”* is that future capital expenditure should not be taken into account. The Commission states that *“pre-financing of new investment is generally inappropriate”*. The Commission’s view is that this

“... should encourage airports to only undertake investments that are “used and useful””.

- 167 The Commission implies that the prices faced by acquirers should be based on the capital currently employed. However, in contrast to other regulated industries in New Zealand and Australia the Commission advocates optimised book value. Optimised book value could be based on costs established up to 30 or 40 years before the start of the pricing period. I cannot see how this is consistent with the Commission's pricing principle that *“today's consumers should only bear today's costs”*.
- 168 My view of the Commission's approach, of not permitting airports to take expected capital expenditure into account when forecasting prices, is that it would not encourage *“used and useful”* investment – whatever the Commission believes that to be. The *“used and useful”* principle would actually result in CIAL never being able to recover its full cost of capital, given some realistic assumptions on volume growth.
- 169 CIAL is charged with behaving in a commercial manner. It will invest in projects up to the point where the NPV of the project is zero. The *“used and useful”* approach, when combined with the Commission's apparently crude interpretation of the optimisation, would ensure that all projects adopted by an airport have a negative NPV. That is, the Commission's approach would mean that airports would destroy shareholder wealth when they undertake investments. This is hardly encouragement to undertake new investment given that firms operating in competitive markets strive to maximise shareholder value.

Other regulators views on price smoothing

- 170 Based on recent research the Commission's approach is significantly out of step with approaches taken by overseas regulators in a number of areas. The Commission may try to dismiss these comparisons on the basis of there being a different regulatory environment. However, this is not the point. More fundamentally, the Commission's interpretations are out of step with overseas jurisdiction in terms of basic economic principles.
- 171 For example, the use of the building block approach means that prices will rise and fall dependent upon the age or vintage of the assets. This is significant as the Commission is putting forward a policy prescription that completely contradicts the Draft Statement of Regulatory Principles put forward by the ACCC. The ACCC makes an observation that the Commission appears to have overlooked. The ACCC points out that:

“In product pricing to the extent that depreciation is recognised as a cost of production along with the cost of capital and other input costs (in parallel with the cost of service approach), linear real depreciation would imply costs, and therefore prices, depend on the age of the productive assets being used (assuming no technological change). In a competitive market a much flatter time profile of pricing is observed relative to the age of the assets used to supply the goods or services. For example, the pricing of airline tickets

bears little relation to the age of the aircraft used by the airline.”(emphasis added)

(ACCC, (1999) Statement of Principles for the Regulation of Transmission Revenues. Page 47)

- 172 Further, the ACCC goes on to emphasise a point that implies that the approach recommended by the Commission would not encourage economic efficiency. The ACCC states that:

“Traditional regulatory approaches to depreciation are deficient when considered in the context of attempting to encourage economic efficiency. A nominal rate of return in conjunction with a linear depreciation schedule based on historical costs generates inefficient pricing outcomes.”

(ACCC, Page 58-59.)

- 173 The Commission and its staff also appear to be out of step with the approaches recommended by institutions such as the World Bank. These institutions have quite clear views on, for example, price smoothing.. For example, Green and Pardina clearly state that:

“First, ... aim to avoid fluctuations in prices ...

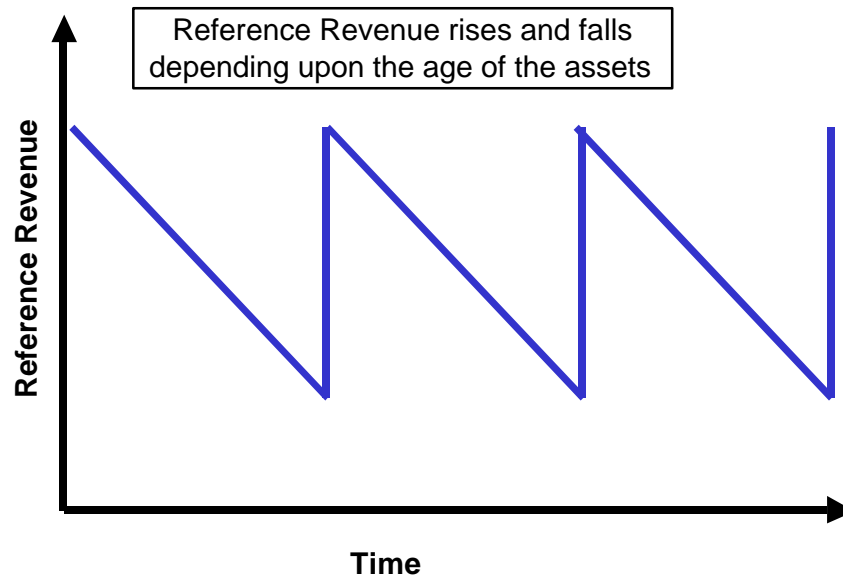
Second, incentives will be stronger if the price control moves smoothly between the present level of prices and the level desired in the final year ... This ensures that the firm will retain some of the gains from out-performance in the previous review period ...

Third, if this style of price control is likely to produce seriously excessive (or inadequate) revenues, the control could start with a one-off change in prices, designed to ensure that the firm receives its revenue requirement over the control period as a whole.”

(Green R and Pardina M R (1999) Resetting Price Controls for Privatised Utilities: A Manual for Regulators. Economic Development Institute of the World Bank, Washington. Page 57.)

- 174 Intergenerational equity between users and consumers is obviously a significant concern for the Commission given the pricing principle that “[t]oday’s consumers should only bear today’s costs.” This shows up mainly under the discussion of pre-financing where the Commission thinks that it is incorrect for any of the costs associated with replacing the current asset capacity or installing new extra capacity to be borne by today’s customers. We can probably also assume that for practical purposes, the Commission means depreciation and the cost of capital should be based on book values for assets other than land.

- 175 The effect of using historic cost is that prices would follow a saw-tooth pattern through time. See the following chart. Given static demand, as assets got older the required revenue and prices would fall as depreciation and the cost of capital fell. When an asset was replaced, the required revenue and price would spike back up again. In effect the graph of prices would look as follows.



176 The Commission appears to be quite comfortable with fluctuating prices as noted in Table 23 (see comments A3 and A8) and my comments at paragraph 55 above. However, as pointed out by the ACCC:

“Volatility of tariffs is not only undesirable within the life of the asset but also between different generations of assets.”

(ACCC, Page 58-59.)

177 The Commission assumes that its approach will result in the most economically efficient outcome in the sense that current users pay current costs. However, this may not be the case. Under the Commission’s approach the opposite actually happens. Current users benefit from investment decisions made in previous time periods and the Commission’s estimate of the unobservable, opportunity cost is systematically under-estimated wherever there is positive price inflation.

178 The ACCC goes on to point out that an approach, where ODRC is used, will mean that

“...overall expenses are levelised between generations of asset users, providing for a more equitable framework which mimics the behaviour of competitive market pricing.”

(ACCC, Page 61.)

179 This suggests to CIAL that the Commission’s pricing principles are internally inconsistent and that while they say they are promoting economic efficiency they will actually do precisely the opposite.

Conclusions

- 180 Circularity does not arise if the link between prices and the value of the asset base is broken. Therefore circularity does not occur when:
- the value of the asset base is determined using a cost based approach such as ODRC; and
 - the prices are determined using a DCF based approach.
- 181 The only way that circularity can arise is if prices depend on the value of the asset base and the value of the asset base depends on the prices. This does not happen under the DCF or the building block approach if the asset base is determined using an ODRC approach, or any other cost based approach. Circularity can equally arise in the building block approach used by the Commission if the building block asset value is determined as the present value of a perpetual cash flow.
- 182 There is no substance to the Commission's assertion that the use of DCF in determining airfield charges, in itself, results in circularity. If anything, this discussion highlights the shortcomings of the building block approach and in particular, the clumsiness of the methodology that underpins the Commission's approach.
- 183 The DCF approach is used by the ACCC in the regulation of airports and is recommended by the World Bank. The Commission appears not to have reviewed this material.
- 184 If we accept that the DCF approach is appropriate, then it logically follows that prices should reflect an element of price smoothing and pre-financing. Both the ACCC and the World Bank recommend this approach.

E. THE COMMISSION'S CALCULATION OF ALLOCATIVE EFFICIENCIES AND TRANSFERS FOR CIAL FOR 2001

185 This section of my report comments on the appropriateness of the inputs used to calculate the Commission's estimate of allocative efficiency.

The Commission's approach

186 At paragraph 10.66 of its Draft Report the Commission states that:

"The Commission has calculated that the current average price being charged at CIAL is \$7.55, based [sic] assumptions of a continuation of the same aircraft mix landing in 2000 in future years and on the growth in aircraft landings projected by CIAL for 2001."

187 The Commission then goes on to estimate that the estimated future excess annual returns for CIAL is \$3,849,568. This is calculated by multiplying the Commission's expectation of landed tonnage (Q_m) by the difference between P_m (the current price) and P_c (the "competitive" price).

188 The Commission calculated the excess annual returns as:

Landed tonnages (tonnes MCTOW) "A"	Q_m	2,325,579
Competitive price	P_m	\$7.55
Market price	P_c	\$5.89
Price difference "B"	$(P_m - P_c)$	\$1.66
Calculated Future Excess Returns (A X B)		\$3,849,568

(Note that B is not rounded to two decimal places in the calculation worksheet)

189 CIAL disagrees with the inputs used by the Commission. In particular:

- The Commission has made a serious error in its table of CIAL aircraft movements and also uses the wrong movements data for 2001;
- The resulting competitive price is wrong;
- The resulting excess returns are wrong.

The Commission uses the wrong movements data

190 The Commission has made a major error in estimating the 2001 movements. The table on page 275 of the Draft Report shows that CIAL will earn approximately \$3.6 million from landings of the TU 154. This is a medium sized Russian airliner (seating around 160 to 170 passengers) that is comparable to the Boeing 727.

191 However, on average CIAL has only one to two movements of this aircraft per year. TU 154s are not flown on scheduled services at CIAL. The Commission's analysis implies that there would be around 4,600 movements of this aircraft per

annum or around 12 to 13 per day. It would seem that the Commission made a transposition error and swapped its estimate of the movements for Metroliners (SWM) with the movements for the TU 154.

- 192 The Commission's error results in CIAL's estimated airfield revenue being overstated by around \$3.4 million, net of the revenue that should have been included for the Metroliner aircraft type. As well, the Commission's forecast of landed tonnages is overstated by almost 432,000 tonnes! Adjusting just for this single error reduces landed tonnage to a figure of around 1,893,830 tonnes of MCTOW, or about 18.6% less than the Commission's incorrect estimate.
- 193 Putting the Commission's major error to one side, the Commission has calculated CIAL's 2001 aircraft movements wrongly. The Commission should have used the most up-to-date data to calculate the CIAL movements for the financial year ended 30 June 2001. Instead the Commission has arbitrarily scaled the 2000 financial year movements data to estimate the 2001 financial year movements. During the CIAL pricing consultation process the expected aircraft movements data went through a number of iterations. The final numbers that were agreed with the airlines were contained in the airfield financial model that was supplied to the Commission in June 2001. These were the movement numbers that the Commission should have used.
- 194 The Commission's scaling process is inaccurate and incorrect. The Commission scaled the movements for all domestic aircraft types by the same percentage – 6.1%. The Commission also scaled all international aircraft types by 9.2%. This is highly inaccurate as not all domestic aircraft movements have changed at the same rate. Likewise, movements of international aircraft types have not increased at the same rate. The reason for this is that the fleet mix of aircraft using the CIAL facilities has changed significantly between 2000 and 2001. For example, 737-300 movements are expected to increase by about 150% and 737-200 movements were expected to fall to around 30% of what the Commission was expecting.
- 195 The impacts of the two sets of errors are summarised in the following table on an aircraft by aircraft basis. The table highlights the two errors made by the Commission – i.e. the mistaken inclusion of the TU154 and the inaccuracy of scaling domestic and international aircraft movements in the arbitrary way that the Commission chose to. The combined impact of the Commission's mistakes and errors is that for the year ended 30 June 2001 it has over-estimated CIAL airfield revenue by \$3.7 million (or by around 27%). As well it has over estimated landed MCTOWs by 459,346 tonnes (around 25%). These are both very significant errors that, as I will demonstrate below, have a critical bearing on the conclusions that the Commission reached.
- 196 As well, CIAL disagrees with the MCTOW tonnages assigned to each aircraft type by the Commission. CIAL spent a considerable amount of time confirming aircraft configurations with the airlines. The Commission should use the MCTOW weights used in CIAL's airfield pricing model as supplied to the Commission in June 2001.

Aircraft Code	Commission' Movements	CIAL Movement Forecast for 2001	Movements Variance	Commission's Revenue Estimate	CIAL Revenue Estimate	Revenue Variance
343	216	199	(17)	\$436,497	\$429,044	(\$7,453)
	7,257	7,480	223	\$895,605	\$944,163	\$48,558
HS74	1,090	1	(1,089)	\$128,931	\$118	(\$128,813)
B200	29	27	(2)	\$649	\$612	(\$37)
707	11	9	(2)	\$12,953	\$10,690	(\$2,263)
727	107	97	(10)	\$79,706	\$72,322	(\$7,384)
732	7,921	2,289	(5,632)	\$3,042,888	\$885,883	(\$2,157,005)
733	2,742	7,010	4,268	\$1,358,548	\$3,154,608	\$1,796,060
735	40	2	(38)	\$19,169	\$949	(\$18,220)
737	25	4	(21)	\$13,672	\$2,220	(\$11,452)
738	45	86	41	\$27,473	\$53,275	\$25,802
742	10	4	(6)	\$29,117	\$11,848	(\$17,269)
743	11	7	(4)	\$32,345	\$20,734	(\$11,611)
744/74F	425	195	(230)	\$1,321,785	\$606,765	(\$715,020)
74L	4	1	(3)	\$10,804	\$2,383	(\$8,421)
757	3	4	1	\$2,971	\$3,635	\$664
762	856	768	(88)	\$1,095,683	\$963,379	(\$132,304)
763	1,613	1,956	343	\$2,362,854	\$2,865,812	\$502,958
772	38	158	120	\$85,968	\$355,389	\$269,421
	23	2,545	2,522	\$2,488	\$278,410	\$275,922
146	6,232	6,585	353	\$1,954,161	\$2,064,798	\$110,637
BA31	941	1,182	241	\$36,693	\$46,086	\$9,393
BA32	256	1	(255)	\$10,543	\$41	(\$10,502)
C402	117	110	(7)	\$2,001	\$660	(\$1,341)
CN23	2	2	(0)	\$179	\$169	(\$10)
SSC	8	0	(8)	\$11,198	\$0	(\$11,198)
DA90	4	4	(0)	\$494	\$463	(\$31)
D15	8	2	(6)	\$12,371	\$3,236	(\$9,135)
D30	1	0	(1)	\$2,154	\$0	(\$2,154)
DC8	2	2	(0)	\$2,722	\$2,489	(\$233)
DHC-81	3,692	2,567	(1,125)	\$324,151	\$225,374	(\$98,777)
E110	2	0	(2)	\$47	\$0	(\$47)
FK27	1	1,027	1,026	\$133	\$117,592	\$117,459
C5	23	21	(2)	\$68,259	\$62,507	(\$5,752)
CV58	1,136	1,027	(109)	\$167,658	\$151,527	(\$16,131)
C17	3	3	(0)	\$6,815	\$6,241	(\$574)
C130	277	255	(22)	\$152,220	\$140,554	(\$11,666)
IL62	1	0	(1)	\$1,373	\$0	(\$1,373)
L-1011	3	0	(3)	\$5,265	\$0	(\$5,265)
M11	3	0	(3)	\$7,080	\$0	(\$7,080)
SWM	2	3,929	3,927	\$89	\$144,946	\$144,857
CD24	1	0	(1)	\$17	\$0	(\$17)
P68	2	0	(2)	\$13	\$0	(\$13)
PA31	2	222	220	\$20	\$2,819	\$2,799
SB34	1,596	1,471	(125)	\$129,258	\$106,661	(\$22,597)
C141	76	70	(6)	\$93,489	\$85,613	(\$7,876)
TU154	4,603	0	(4,603)	\$3,608,453	\$0	(\$3,608,453)
	41,461	41,322	(139)	\$17,556,962	\$13,824,015	(\$3,732,947)

Other Issues

197 The Commission's estimate of allocative inefficiency relies on a number of other inputs, as well as the competitive price, current price and current quantity. CIAL does not agree with:

- the Commission's estimate of CIAL's airfield operating costs;

- the WACC used by the Commission;
- the asset values used by the Commission.

198 The Commission has used the airfield operating costs reported in the CIAL Disclosure Financial Statements for the year ended 30 June 2000 unadjusted for inflation. At paragraph 10.68 the Commission justified this action on the basis that “*current inflation expectations are modest*”. The Commission has been supplied with CIAL’s forecasts of operating expenses for the year ended 30 June 2001. The CIAL forecast of operating costs includes items explicitly excluded from the disclosure financial statements, such as imputed rental costs.

199 I consider the Commission is being inconsistent by dismissing inflationary expectations of around 2% as being “modest” while finding that it is justified in making a 1% adjustment to operating costs to account for alleged productive inefficiencies. Given the modesty of the 1% productivity adjustment, the Commission appears to me to be very inconsistent. If the Commission feels that it can make a 1% *downward* adjustment to operating costs to account for this, it should also make a 2% *upward* adjustment to operating costs to reflect expected inflation.

200 Comments on the inappropriateness of the Commission’s estimate of WACC are contained in Dr Lawriwsky’s evidence. Professor Boyd has commented on the inappropriateness of using depreciated historic cost.

Re-estimating excess returns and allocative inefficiency

201 The Commission’s estimate of excess returns and allocative efficiency for CIAL for the year ended 30 June 2001 is set out on page 274. The Commission’s findings are also discussed at paragraphs 108 and 109 of the Executive Summary and at paragraphs 10.65 to 10.72 and 13.16 to 13.18 of the Draft Report.

202 As a related point, the Commission’s analysis for the first year of the new prices will over-estimate any impacts due to the increase in airfield landing charges. CIAL’s new charges came into effect on 1 January 2001 which is half way through the financial year. Therefore, the Commission should re-estimate the allocative efficiencies taking into account the transitional nature of the new CIAL charges in the year ended 30 June 2001. However, in the table that follows I have not taken account of the half year effects.

203 I have re-evaluated the Commission’s estimate of allocative efficiency using:

- the actual movements used on the CIAL pricing model;
- CIAL’s forecasts of operating expenses;
- CIAL’s estimates of WACC and asset base;

204 The results are summarised in the following table.

		Notes	Landed MCTOW	Airfield Revenue \$'000	P_m	P_C	Excess Returns reducing to \$'000
A	Commerce Commission	1	2,325,579	\$17,557	\$7.55	\$5.89	\$3,850
B	Corrected movements	2	1,866,233	\$13,825	\$7.41	\$6.69	\$1,349
C	Corrected movements and CIAL operating expenditure	3	1,866,233	\$13,825	\$7.41	\$7.12	\$540
D	Corrected movements, CIAL ODRC and Opex	4	1,866,233	\$13,825	\$7.41	\$7.43	\$0
E	Corrected Movements, CIAL ODRC, Opex and WACC.	5	1,866,233	\$13,825	\$7.41	\$7.81	\$0

1. The Commerce Commission analysis is as set out on page 274 of the Draft Report.
2. In this estimate the Commission's incorrect movement estimates have been revised to those used in the final version CIAL pricing model supplied to the Commission in June 2001. All other variables are as in A.
3. The Commission's operating cost estimate of \$7.46 million is replaced with CIAL's forecast operating expenditure of \$8.66 million. All other variables are as in B.
4. This estimate includes the CIAL assets at the ODRC value rather than historic cost. All other variables are as in C.
5. The Commission's WACC estimate of 8.4% is replaced with CIAL's estimate of 10.1%. All other variables are as in D.

205 The results of this analysis demonstrate that the Commission has overstated its estimate of CIAL's excess returns by between \$3.8 million and \$2.5 million. The Commission must acknowledge its error on the TU154 movements. Correcting this error and using CIAL's movements estimates cuts the Commission's excess returns estimate by \$2.5 million. Adopting the correct estimate of operating expenses reduces the excess returns by another \$1 million to \$540,000. Use of the more conventional ODRC rather than the unorthodox "optimised depreciated replacement cost" valuation approach wipes the excess returns out altogether. Once WACC is corrected that makes the position for CIAL unassailable.

206 These are issues that the Commission cannot ignore. The mistakes in the Commission's analysis have led it to erroneous conclusions. The errors must be corrected.

Kerrin M Vautier CMG¹
Research Economist

**RE: COMMERCE COMMISSION'S DRAFT REPORT
PRICE CONTROL STUDY OF AIRFIELD ACTIVITIES AT
AUCKLAND, WELLINGTON AND CHRISTCHURCH
INTERNATIONAL AIRPORTS**

I have been asked by CIAL to prepare this report in response to the Commerce Commission's Draft Price Control Report. It forms part of a wider response by CIAL and its experts and is not intended as a comprehensive critique of the Commission's Report. Rather, it highlights a few of the economic issues that arise from it and that bear directly on the Commission's preliminary conclusions. It should not therefore be construed that I necessarily endorse the remainder of the Commission's Report.

The issues to be covered briefly below are market definition and the analytical frameworks for competition and allocative inefficiency, with specific reference to the Commission's treatment of fixed costs and to the 'benefits' of price control. I endorse the additional material in relation to these matters contained in CIAL's response to the Draft Report, including the material on price elasticity of demand and Ramsey pricing.

Market definition

The geographically distinct aircraft movement markets and the passenger aircraft access markets are in line with the primary and secondary markets defined in CIAL's initial submission. These are the relevant markets for the price control study.

While the Commission separately identifies acquirers of freight carriage, there is no separate analysis of derived demand elasticities or competition conditions in the defined freight access markets. Thus the distinction appears to be without practical consequence in the Commission's analysis.

¹ I am an independent research economist specialising in competition law and policies; a company director; and a part-time senior lecturer in the Department of Commercial Law at the University of Auckland. I am a former member of the Commerce Commission and have recently been appointed as a Lay Member of the High Court under the Commerce Act.

Competition framework

In posing the question as to whether or not competition is limited, the Commission refers to the Commerce Act's definition of 'workable or effective' competition (which in a footnote is distinguished from 'perfect competition') as well as to various case law. While 'the competitive market model' is later linked to 'good economic performance' (para 10.2), the benchmark used by the Commission tends to be 'optimal' economic performance. This is a tougher standard than required by 'workable or effective' competition.

At para 6.1 (Pricing Principles) the Commission refers to *a competitive market with critical structural characteristics*, being: *many buyers and sellers (with similar cost structures) and zero barriers to entry and exit*. The (implicitly certain) efficiency 'outcomes' are described in terms of

- $P=MC$ = allocative efficiency
- normal returns for each supplier
- minimisation of costs
- strong incentives to innovate in order to gain a competitive advantage.

These assumptions lean towards 'perfect competition' (although one can query whether the condition of 'normal returns' is conducive to 'strong incentives to innovate'). Thus, equating the competitive price for airports with (minimum) average cost is referred to as 'second-best' pricing. This label could justifiably be resisted - given the industry structure in question - since, if an adequate return on fixed costs could not be obtained, there would likely be no supply or future investment at all.

The *optimal amount of assets* required by the 'competitive market model' also requires an exacting standard and, as the Commission acknowledges, represents an ideal position rather than one that necessarily accords with 'workable or effective competition'.

Neither does the Commission's competition framework adequately account for the concentration of acquirers in the relevant markets and the source of countervailing power that such concentration provides *vis a vis* the airports.

Allocative inefficiency and ‘benefits’

The assumed shrinkage in output from Q_C to Q_M , and the diversion of resources ‘no longer required’, relies *inter alia* on:

- the price increase from P_C to P_M flowing into the relevant air ticket prices
- an assumption as to the derived price elasticity of demand in the relevant segment of the demand curve, and
- the translation of passengers’ responses into an appropriate measure of output (which is presumably fewer tonnes landed), in a specified time period and at a particular airport.

The Commission does not clearly establish that ‘output’ has been reduced, or is likely to be reduced (let alone to any significant extent), at one or more airports as a result of airfield charges. Of itself this places a question mark over its assessment of allocative inefficiencies.

It would normally be assumed that the allocative efficiency loss, as a consequence of a price increase from P_C to P_M , is represented by the area of the triangle BEF, i.e. the ‘deadweight’ and irretrievable loss of output to society. Associated with such output loss is the misallocation of resources released. The Commission is not explicit as to what type of (non-fixed) resources might be released/misallocated as a result of the assumed shrinkage in CIAL’s output and, in fact, assumes no additional welfare loss from any assumed diversion of resources into alternative uses.

As far as fixed costs are concerned, it is evident (e.g. paragraph 10.27 and Chart 4) that the Commission assumes these are constant over the Q_M - Q_C output range. The fixed cost area EFGH is then included in the allocative efficiency detriment. But this is highly questionable. The Commission’s inclusion of the area EFGH suggests reliance on a number of critical assumptions:

- that CIAL started pricing at the P_C level
- that CIAL had the ‘optimal’ level of fixed costs at the competitive output level
- that CIAL then moved to P_M

- that, at Q_M , CIAL had to cover an unnecessary level of fixed costs (EFGH), and
- that, as a result, CIAL's average costs necessarily rise.

The Commission's conclusion that the resources underlying the fixed cost area EFGH are also misallocated presumes that they have become surplus to the airport's requirements – now and in the future. This is a somewhat bold assumption, even assuming that the starting point was Q_C and not Q_M (where the area EFGH would not feature). If the Commission is correct that CIAL would have to cover EFGH at Q_M , then the increase in average costs would more appropriately be regarded as a charge against the estimated 'excess returns'.

Also questionable is the Commission's proposition that the distributive and allocative inefficiency effects – as estimated by the Commission - would be reversed by price control (paragraph 10.28). Such certainty of outcome would depend *inter alia* on:

- any price reduction being passed on into the relevant air ticket prices
- assumed price elasticities of demand in a particular time period, and
- assumptions as to fixed costs at different output levels.

That is, in order for there to be the derived economic benefits from price control, final consumers would need to be exposed to the benefits claimed by the Commission so that they could respond in the way the analysis assumes. Otherwise, the output effect would be at or close to zero (although it is hardly material anyway) and the only outcome would be an inter-company 'transfer' from airports to airlines. The position would also depend on the extent to which the estimated costs of the control were passed on from airlines to passengers.

Concluding remarks

As a result of my analysis, and the analysis of other experts sighted at the time of writing, I conclude that the apparent precision of the Commission's quantitative estimates is open to serious challenge. These estimates rely on a range of assumptions, some of which are entirely arbitrary and many of which are surrounded by uncertainty. No sensitivity analyses are shown. However, the fact that the Commission is prepared to discount

benefits by 50 per cent, whatever their estimated level, appears to be an acknowledgment of significant margins of error.

Kerrin M Vautier

12 August 2001

REPORT ON COUNTERVAILING POWER

BY GEORGE BELLEW, CHIEF EXECUTIVE

CHRISTCHURCH INTERNATIONAL AIRPORT LIMITED

August 2001

My full name is George Bellew. I am Chief Executive of Christchurch International Airport Limited at Christchurch. I have held that position since 1988.

Introduction

In paragraph 5.108 the Commission has reached the preliminary conclusion that neither Auckland, Wellington nor Christchurch International Airports is likely to be significantly constrained by the countervailing power of airlines.

CIAL does not comment upon the situation as at Auckland or Wellington. However, I believe the Commission has significantly underestimated the constraining power of the airlines so far as CIAL is concerned. This is already addressed in the answers given by CIAL to the Commission's questions. I refer, in particular, to Question 8 and confirm what is set out in answer to that question.

Countervailing Power

I believe that the airlines exert considerable countervailing power, not only in the pricing process for airport charges, but also in the provision of facilities and services (for example, airline counters). It is possible to convey some of the sense of this countervailing power simply by listing factors as we have done in paragraph 27 of the answers to the Commission's questions. However, such an itemised account does not adequately convey the overall reality of constraints exercised by the airlines.

The general flavour of the Commission's conclusions (that constraints are limited) is a far step removed from the day to day reality of CIAL's experience. The airlines would have it that we can set prices unilaterally, without regard to their views. That is not the practical reality. Throughout the consultation process CIAL listened carefully to what the airlines were saying. Clearly, a good proportion of that was of substance and, as a result of giving consideration to the airlines' submissions, CIAL changed its view. At the same time, though, some of the airlines submissions were purely tactical and were, I believe, without substance. CIAL ignored or rejected those arguments.

But whether or not CIAL rejected individual arguments is largely beside the point. Look at the history. In 1989 CIAL set charges and they remained in place through until 2000 (with a 3% increase in domestic in 1991). In real terms they fell throughout that period. Even on the Commission's assessment of it, the claimed excess returns over this period are largely due to a price spike caused by a revaluation in 1999 (see Chart 3 on page 142). And, of course, the Commission's conclusions rely upon its revaluation of the asset base and its down-grading of WACC which CIAL challenges.

The pricing round that concluded in December 2000 resulted in an average price reduction of approximately 20% on all international services at Christchurch. In domestic it resulted in an increase of approximately the same percentage on all services at Christchurch.

The outcome of the pricing round is set out in CIAL's document dated December 2000. It is self-evident the amount of work that has gone into this document – let alone all the preparatory documents. Self-evidently, the process is inflexible and highly restrictive. It requires substantial transparency on the part of CIAL.

At a personal level the consultation process was exhausting. CIAL has a very small management team and the extra burdens placed upon us by the consultation round were substantial. The airport spent a considerable amount upon outside experts but a large proportion of the work was undertaken in-house by Mr Ian Walker (Company Secretary) and me. This human dynamic is important. There is simply no scope for flexibility in pricing (because that would require more consultation), unlike the airlines who alter prices regularly and without reference to us.

As a result of the latest consultation round CIAL set its charges for a three year period. We have already taken two "hits" with the decision by Korean Air to abandon Christchurch and the collapse of Qantas New Zealand. CIAL has absorbed these losses. It has not tried to alter its charges. If

the Commission's conclusion that constraints are limited was true, CIAL would have acted to increase its charges. The assertion at paragraph 8.61 that CIAL can amend its charges is wrong.

I think the consultation process can be summed up in a series of bullet points. The requirement to consult in terms of Section 4 of the Act should not and cannot be underestimated. The consultation obligation determines the process and indeed drives the outcome of the pricing discussions:

- It requires airports to provide two of their major airline customers pricing proposals but with an open-mind as to the customers response.
- The airlines employ specialist contract/pricing experts to participate in such pricing processes.
- Furthermore, even in relatively small international airports such as Christchurch, IATA pricing experts are involved.
- In approaching such discussions the airlines act as a tightly managed, focused, single buyer led by their trade association, BARNZ, which itself is significantly influenced by Air New Zealand – the national carrier.
- BARNZ appear very well resourced via their member airlines to employ, where necessary, external experts.
- The process results in airport proposals being vigorously contested and the assumptions and supporting data critically examined.
- The resulting disclosure by the Airport Companies is at a very high level.
- Consequently, the airline experts and their advisers are well informed so as to make judgements as to the appropriateness of the airports proposals.
- During the process the airlines vigorously lobby Directors, shareholders and Government officials.
- The process is inevitably lengthy and demanding of attention and stamina by the airports given their limited senior personnel. The process took 18 months.

In my opinion the above actions are a constraint on contemplated pricing by an airport such as Christchurch. One consequence of the consultation process is, and it has not been appropriately recognised by the Commission, is the power of the airline scrutiny making essential that pricing is derived in a logical, justified way. In other words, pricing proposals made in consultation must be underpinned by logical and equitable methodology as viewed through the eyes of the diverse, collective buyer.

Inevitably the demands (which are to justify, justify, justify) cannot be satisfied by a form of benchmarking relative to other airport prices.

The Airline Customers

CIAL has a very limited number of large airline customers. Air New Zealand is by far the most significant. As CIAL said in its initial submissions (General Submissions, paragraph 10), there is a clear industry standard that exposure by an airport to a major customer comprising over 50% of that airport's business is a high risk. Air New Zealand comprises over 60% of CIAL's business. Air New Zealand exerts its countervailing power not only through the consultation process but in its refusal to pay rental. For example, following the international terminal expansion, which was completed and occupied in October 1998, adjusted rental was not paid by Air New Zealand until June 2001. By that time the back rental had accrued to over \$1 million. Furthermore, we are still currently negotiating as to the final form of lease documentation.

Overall, both the airlines and the airport need each other. There is a mutual dependence. But the Commission would have the relationship skewed in favour of the airports. For the reasons set out above, I simply do not accept that. The airlines can increase their schedules unilaterally and they expect the airport to provide any excess capacity that may be required as a consequence. Equally, they can reduce the number of flights to the airport and, it seems, expect CIAL to absorb any excess capacity then freed up.

In reality, CIAL takes what it is given by the airlines. Indeed, legally, it is obliged to accept any aircraft that wishes to land at the airport.

G W Bellew