

Submission to the Commerce Commission on Price Control Study of Airfield Activities

At Auckland, Wellington and Christchurch International Airports - Draft report

Prepared by Simon Terry Associates Ltd

1. Introduction

Simon Terry Associates Ltd (STA) are specialists in network utility economics and energy sector analysis. During the past decade, we have consulted widely on issues arising from deregulation of New Zealand's utility markets. We have acted as retained advisers to a range of corporate clients, assisted overseas regulatory authorities, and prepared research documents in support of arbitrations and litigation on these matters.

STA are submitting in our own right as we have taken a strong interest in the processes by which many utility assets have been revalued by their owners and the resulting impacts on profit levels achieved for these investments. The Commerce Commission's draft report on airfield activities is by far the most extensive official review of these issues and its conclusions provide important signals to other utility sectors and firms which have adopted valuations based on replacement costs, or are considering doing so.

Our submission therefore focuses simply on the asset valuation and excess returns aspects of the report.

2. General Comments re Asset Valuation and Excess Returns

The Commission is to be congratulated on the high analytical quality and clarity of the conclusions in its draft airfields report. We strongly endorse the economic analysis underlying the Commission's analysis of profitability to date, and also its preference in principle for historic cost asset valuation of specialised assets in place of replacement cost. In particular we strongly agree with the following specific points made against ODRC asset valuation for ratebase purposes (cf in particular pages 98-100 of the draft report):

- Pricing on the basis of an ODRC asset valuation, potentially inflated by the scope for "considerable discretion" in assessment of optimisation, valuation and asset lives, tends to push prices up to bypass levels, and above bypass where there are barriers to entry;
- ODRC is not required to secure financial sustainability going forward and hence is not required to incentivise new investment;

- ODRC pricing can lead to financial unsustainability going forward in the presence of technological progress which lowers the cost of modern equivalent assets;
- Returns on sunk-cost assets are rents, not costs, and belong in the “plus”, not the “cost”, part of a cost-plus pricing formula;
- Under New Zealand conditions application of ODRC frequently implies steep upward revaluation of assets and associated windfall wealth transfers from customers to asset owners;
- Accordingly, far from deferring rate shocks, a shift to ODRC pricing tends to precipitate an early and unnecessary rates shock;
- Replacement-cost-based pricing unjustifiably loads potential future costs onto today’s users of the service.

All of these points are well grounded in the relevant economics literature.

The methodology used by the Commission to evaluate the profitability of the three airports to date, with its focus on long-run performance over a series of years (effectively an internal rate of return or net-present-value approach) is in accord with best current practice internationally, and correctly includes asset revaluations as a component of the returns secured by the asset owners on the vesting price at which those assets came into their hands at corporatisation.

We agree with the Commission’s conclusion that price regulation is warranted for AIAL. We believe that the same conclusion would have applied to CIAL had not the Commission utilised (paragraphs 13.54-13.5, pp.203-204) extremely pessimistic assumptions about the per-airfield costs of regulation, including an estimate of regulatory ineffectiveness which the Commission itself admits was “conservatively high” (paragraph 13.55) and which deducts, as an assumed cost, 50% of the potential benefits from regulation. In general we regard the cost-benefit assessment in Chapter 13 as having been strongly biased against regulatory intervention by the inclusion of unnecessarily high costs of regulation. We suggest that in its final report the Commission should consider reducing both its 50% estimate of unachievable gains and its estimated cost of regulation. We submit that there are economies of scale in the cost of regulation and that the marginal cost of regulating an additional airport once a price control framework has been implemented would be much lower than the cost for the first airport regulated. Similarly, we believe the unachievable gains could be substantially lower if regulatory intervention is carefully designed and targeted.

3. Aggregating Land and Other Asset Valuations in the Ratebase

There is one area of economic principle which we believe deserves further investigation. This is the Commission’s ratebase-fixing procedure (see Scenario 8 of Appendix 8) which raises land values from the book value at vesting date to a present-day “opportunity cost”, and then adds to the resulting land value an historic-cost valuation of other fixed assets. In the case of AIAL this leads to a proposed ratebase of \$186.816 million.

It is worth asking how a UK regulator would have approached the issue of whether and how any change to the value of AIAL at the time of vesting ought to be adjusted

to reflect subsequent increases in land values. UK regulators have given substantial weight to the values that the market placed upon privatised utilities at the time of privatisation, and have on occasion forced down ratebase valuations, and the associated charges to customers, to remain consistent with those initial market values.¹ Such an approach could potentially lead to the historic-cost AIAL ratebase of \$133.9 million set out in Appendix 8 Scenario 5 of the airfields report.

If there is no legal, contractual or regulatory barrier to the reallocation of New Zealand airfield land to alternative uses such as agriculture or urban subdivision, such a low ratebase valuation would potentially incentivise AIAL to sell the airfield land to developers. The Commission correctly argues that the returns to AIAL from maintaining the site as an airfield must at least match the next best alternative of sale of the land. This does not obviously, however, lead to the particular solution adopted by the Commission, of adding historic-cost valuations of specialised assets to the opportunity cost of land, and we believe that this issue deserves further consideration.

The Commission's arguments are set out in paragraphs 7.11-7.46, pp.92-100. We set out below the various steps in the argument as we understand them:

- 1) From a strictly economic point of view, the airfield assets are recognised to comprise two categories: potentially-reallocable land, which must secure a commercial return on its opportunity cost to warrant its continued use as an airfield (paragraphs 7.22 and 7.33); and runways, taxiways and aprons, which represent sunk costs in specialised assets with opportunity costs of zero (paragraph 7.38). The total economic valuation of the airfield assets is the opportunity cost of land plus the (zero) opportunity cost of specialised assets, plus presumably the opportunity cost (imperfectly captured by historic cost) of footloose assets such as vehicles and buildings. Valuing all assets at opportunity cost and allowing a competitive return on the resulting ratebase would meet the basic sustainability criterion that continuing to operate the airfield is the most profitable use of the bundle of airfield assets currently controlled by AIAL. This would probably yield a ratebase about \$20 million less than that derived by the Commission (see Scenario 8 Appendix 8).
- 2) The Commission then argues (paragraph 7.38) that “valuing the [specialised] assets at zero may affect the long-term viability of [the] owner of the assets. Airports need to be able to recover the costs of, and earn a return on, specialised airfield assets in order to preserve the incentives to continue to invest in them”. This argument is compelling for newly-installed assets when looking forward into an era of price control, but needs to be approached with care when the assets referred to are long-established specialised assets whose costs are sunk and whose opportunity costs are consequently zero. The issue of incentives for future investment needs to be confronted in terms of the reasonable expectations which investors form today about the future regulatory environment.
- 3) The Commission has argued (paragraph 7.71) that sunk-cost existing specialised assets should be valued at historic cost and then added to the

¹ See, for example, the 1997 decision of the Monopolies and Mergers Commission on British Gas plc.

opportunity cost of land to determine the ratebase. Adding together the HC valuation of specialised assets and the opportunity cost of land, the Commission reaches its proposed ratebase of \$186.816 million, shown in Table 25 and Appendix 8 scenario 8 (p.245). This procedure involves constructing a ratebase by mixing two different methodologies: the economist's principle of opportunity cost and the accountants' principle of depreciated historic cost². Use of either methodology on its own would yield a lower total ratebase figure. A pure opportunity-cost calculation would give a ratebase below that derived by the Commission but (so far as we can judge from the figures assembled in Appendix 8 of the airfields report) above the level that would result from application of a consistent historic-cost methodology across all assets. A pure historic-cost approach building forward from the vesting value at corporatisation yields, as already noted, a ratebase of just \$133.9 million (Appendix 8 scenario 5).

It is clearly necessary that, on a going-forward basis, investors under a price-control regime must be able to anticipate earning a competitive return on funds which they commit to new investment. For this purpose an historic-cost ratebase for all future additions to the airfields' inventory is the appropriate procedure, in line with overseas regulatory precedents³.

However, when looking back over the post-corporatisation period, it is important not to lose sight of the initial vesting valuation at which the assets came into the hands of private owners. The Commission notes (paragraph 7.12 p.92) that "on corporatisation, airfield assets were vested (sold) to the airport companies at values determined by Government (based on independent valuations). ... It is far from clear whether the airports had expectations of basing prices on alternative values." The reasonable expectation of investors at the time of corporatisation could have been no more than that they would secure a competitive return on the vesting valuation as a whole.⁴ If the Crown (as the previous investor and self-regulator) had a different notion of the value of the land assets in particular, would it not have undertaken the revaluation prior to sale in order to have reaped higher proceeds from the privatisation?

The requirements for full incentive compatibility of present pricing arrangements are (i) that the reasonable profit expectations of the asset owners at the time they acquired the assets have been met to date, and (ii) that future funds invested in the business from now on will be allowed to earn a competitive return. This points to the possibility of basing the present ratebase on a depreciated-historic-cost path beginning with the vesting values at 1988, but recognising that such an exercise is subject to the constraint that the result must not fall below the opportunity-cost threshold at which assets would now be reallocated to alternative uses, if there are no restraints on such a transfer. Under this construction, it could be argued that the ratebase for the

² The criticisms offered here would apply with greater force to the combination of a replacement-cost methodology for specialised assets with an opportunity cost for land.

³ The usual overseas qualifications apply: new assets must be used and useful, and prudently acquired.

⁴ This argument has been tested and accepted repeatedly in UK regulatory hearings where privatisation values of utility assets have been accepted as guides to reasonable market expectations at the time. We note however that trade sales among private parties are not equivalent to privatisations.

beginning of a new regulatory regime should be whichever is the higher of historic cost or opportunity cost – not constructed as the sum of historic cost for assets whose historic cost exceeds their opportunity cost, plus the opportunity cost of assets whose opportunity cost exceeds their historic cost.

This and other possible constructions depend heavily on the nature of the regulatory compact in place at the time of vesting, and any subsequent regulatory policy which could be deemed to affect that compact. This would include the terms of privatisation of AIAL shares, government policy statements and regulations made by relevant local bodies. We suggest that the nature of the compact be made explicit as a starting point for further investigation in this area.

4. Future Investment Incentives

An argument that has sometimes advanced by monopoly service providers in response to suggestions that asset valuations should be based on a form of historic cost valuation for regulatory purposes is that this would not provide adequate incentives for future investment. This appeared to be at least a part of the reasoning behind the following comment made by Auckland Airport managing director, John Goulter, following release of the Commission's draft airfields report: "This is the second-largest port in New Zealand by value. If you are starting to interfere with the long-term economic development of New Zealand, I think that is somewhat of a surprise." ⁵

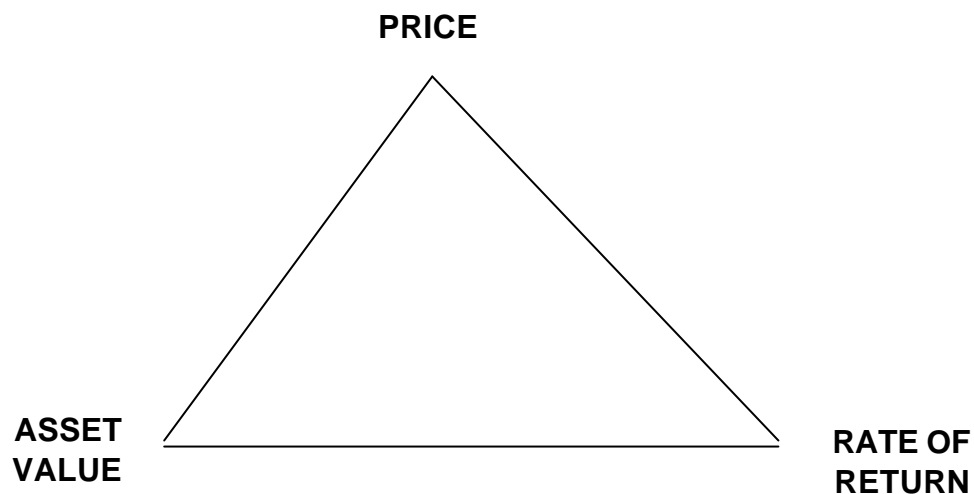
The long term economic development of New Zealand is best advanced by pursuing two objectives in relation to pricing of essential facilities: first, that facilities such as international airports are maintained to a high standard of service, for which purposes there must be adequate incentives for new capital expenditure where warranted; and second that the charges imposed on users of those facilities must not exceed the minimum level consistent with providing such incentives. Allowing airport companies to raise their charges on the basis of unilateral revaluations of sunk-cost fixed assets, with no compensation for those revaluation gains in the prices charged to airfield users, would seriously prejudice New Zealand's long-term development by squeezing the profitability of a wide range of economic activities which depend upon airfield services for their operation.

Regulated utilities receive appropriate and sufficient incentives to invest in the future so long as they secure a fair return on and of financial capital actually invested in the enterprise. Windfall gains from revaluations of sunk-cost assets are not necessary to incentivise new investment provided that any price control arrangements are appropriately designed to yield a commercial return on and of capital.

Consider the relationship amongst asset value, rate of return and price under competitive conditions. A competitive industry will be in equilibrium (that is, in a steady state) when there is a perfect fit among three economic magnitudes: the product price, the market cost of capital, and the stock of assets utilised by each firm.

⁵ *Airport strikes back on controls*, New Zealand Herald, 7 July 2001.

This can be drawn as a triangular relationship:⁶



All three of these magnitudes will be recorded in company accounts prepared for the individual firms in the industry. The relationship can be written as a set of simple equations:

$$\text{Revenue} = \text{Price} \times \text{quantity}$$

$$\text{Revenue minus operating costs (labour, raw materials)} = \text{gross operating surplus}$$

$$\text{Gross operating surplus divided by asset value} = \text{rate of return}$$

$$\text{Or alternatively, asset value} \times \text{rate of return} = \text{gross operating surplus}$$

Under competitive conditions, the asset stock and asset value of each firm are determined by best-practice production technology (recalling again that firms can match the best-practice standard either by acquiring/holding an optimal stock of physical assets, or by writing-down existing assets to maintain their competitive position in the industry) together with competitive market prices of capital equipment; and hence the price is capped by competition at the level that just yields the market rate of return on the optimal stock of productive assets.

The competitive process means that all three key magnitudes are determined “objectively”, in the sense that none are determined or influenced by any exercise of individual or collective judgement. Individual firms have no control over their cost of capital (required rate of return) and are forced to meet the competitive market price for their output (that is, firms are price-takers), while their asset requirements are dictated by technology. On the other side of the market, consumers are equally price takers.

⁶ Oxford Economic Research Associates, *Asset Valuation, Rates of Return, and Electricity Pricing: The Privatisation of the Electricity Supply Industry*, Confederation of British Industry, February 1988, p.9.

Under natural monopoly with large sunk-cost assets, the capital market (in the form of potential bidders to take over the monopoly) still sets an external required rate of return, but asset value is the discounted present value of whatever level of profits the firm is able to secure, using as discount rate the competitive market rate of return. Because the asset value is endogenously determined, the firm can always appear to be earning no more and no less than the competitive rate of return.

Use of the expression “cost of capital” in this setting is unwarranted: much of the revenues secured under this heading are rents, not costs. (In applying any cost-plus pricing formula, capital charges on sunk-cost assets belong in the “plus”, not the “cost”, part of the calculation.)

These issues are not new. As King has noted⁷,

Fair value calculations involve circular reasoning. Fair value includes reference to the market value of the firm. But the fair value is used to set the prices which will determine the market value of the firm... By 1944 the US Supreme Court had formally recognised this problem noting “that ‘fair value’ is the end product of the process of rate-making, not the starting point... 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 earnings under whatever rates may be anticipated” (*Federal Power Commission v Hope Natural Gas Company*, 320 U.S. 344 (1944)).

The ratebase concept has been central to light-handed regulation in New Zealand, though this was not generally acknowledged at the time of its introduction in the late 1980s and early 1990s.⁸ It does not appear that either officials or consultants had properly identified the requirements for making an orderly transition from one ratebase methodology to another. In particular it is ironic that New Zealand in the 1990s so readily allowed utility firms to move towards the replacement-cost approach which had been the bane of US regulatory proceedings from the 1898 *Smyth v Ames* decision of the Supreme Court through to the 1944 *Hope Natural Gas* decision.

US experience during that half-century showed that the entire concept of “fair value” in which replacement (or reproduction) cost played a pivotal role was fraught with problems, including in particular the windfall gains to companies which were able to revalue their ratebases upwards in real terms and thus gain windfalls on top of their (virtually risk-free) regulated earnings on the previous ratebase.⁹ Foster’s discussion of the *Hope* case is worth quoting:¹⁰

⁷ King, S.P. *Asset Valuation and Access*, Discussion Paper No 365, Australian National University Centre for Economic Policy Research, Canberra ACT, April 1997, p.3.

⁸ See Gale, S. and McWha, V., *The Origins of ODV: Report to Air New Zealand*, NZIER, Wellington, August 2000.

⁹ For historical descriptions of the fair-value fiasco see Kahn, A.E., *The Economics of Regulation*, John Wiley, New York, 1970; second edition MIT Press 1988, pp.35-41; Wilcox, C., *Public Policies Towards Business*, Irwin, 1966, Chapter 13 especially pp.312-325; Foster, C.D., *Privatisation, Public Ownership and the Regulation of Natural Monopoly*, Blackwell, Oxford, 1992 Chapter 6 pp.187-197; Bonbright, J.C., Danielson, A.L. and Kamerschen, D.R.,

That case showed up the shortcomings of *Smyth v Ames* ... Among the many interesting details of this 1944 case, two are worth mentioning here. First, a substantial proportion of the original investment had been expensed inasmuch as customers had paid for it through charges as it was incurred. Thus, to reflect this in the value of the gas field, as had been done, was blatant double accounting to the disadvantage of the customer. Secondly, a huge part of the net present value of the monopoly was the present value of its gas, and since this natural gas could not be reproduced, and had no original cost, its value depended on current market values for gas. The monopoly's net present value could then vary annually depending on market demand and the discovery of new gas reserves elsewhere. The Supreme Court was forced into a recognition that the shareholders had done extremely well out of the company even on its old basis and that anything approaching the increase in net present value that the company was asking the regulator to recognise would lead to returns that might be judged extortionate.

To crystallise the central flaw in use of replacement-cost, we can represent diagrammatically the revenue streams that would accrue to a network monopoly under rate-of-return regulation with two alternative ratebase valuation procedures. We start from the situation outlined earlier, with required revenue R_1 calculated on a ratebase consisting of the inherited book value of assets whose costs are sunk. If this ratebase were to be revalued immediately to a depreciated-replacement-cost figure, the same required-revenue formula would yield a higher 'required revenue' of R_2 .

At time T_1 the possibility arises of a switch in regulatory regime from an historic-cost to a replacement-cost basis. The dotted line shows the resulting sharp one-off jump in revenue to the new level, R_2 , at time T_1 , following which this new revenue is collected for each period.

The lower time-path shows the revenue that would be allowed, period by period, by an 'original-cost/used-and-useful-capital/prudent-investment' regulator on the US model. Allowed revenues trend up over the period required for complete turnover of the capital stock, eventually converging to the revenue stream R_2 once all assets are on the books at their actually-incurred replacement cost, appropriately depreciated, at time T_2 .

The solid, original-cost revenue path is sufficient to sustain the business as a fully-maintained going concern which is at each moment sustainable on a going-forward basis. As each item of the original ratebase is renewed at a cost determined by the prevailing price of new equipment, it is rolled into the ratebase at its acquisition cost. Because each prudently-incurred investment expenditure is underwritten by the regulatory assurance that a full competitive return on and of the investment will be allowed, this revenue path is fully consistent with sustainability of the business going

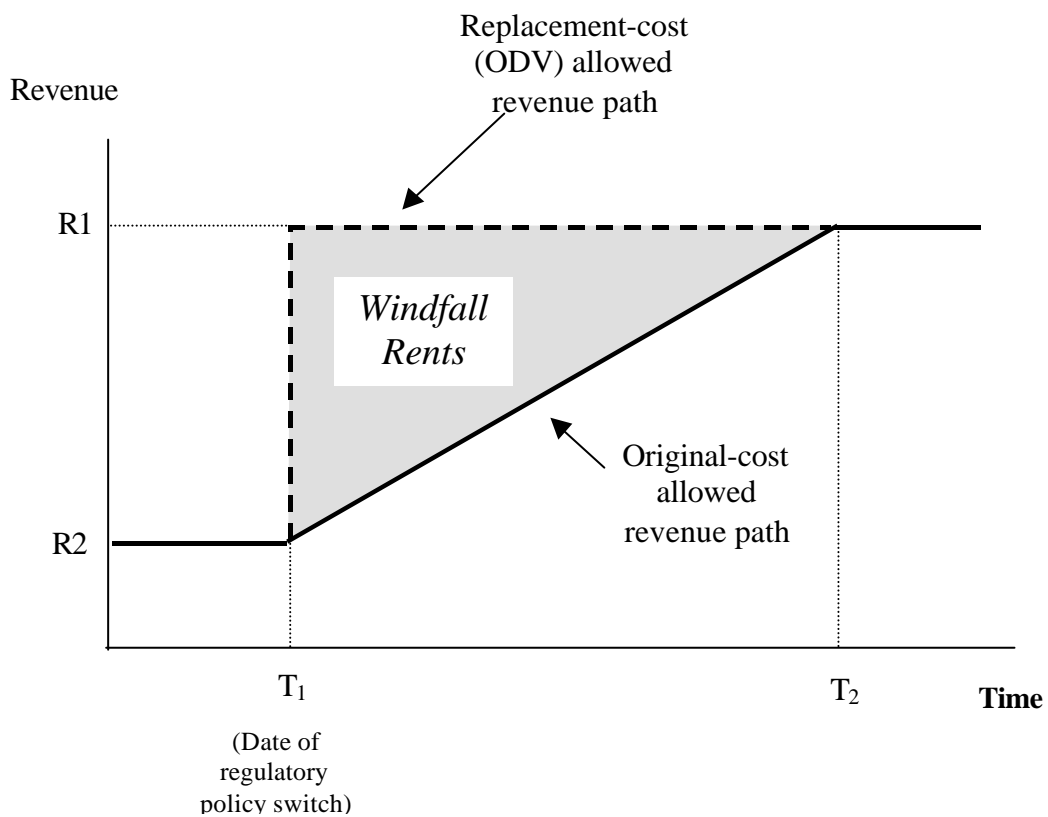
Principles of Public Utility Rates, second edition, Public Utilities Reports Inc., Arlington Va, 1988.

¹⁰ Foster (1994) p.190.

forward, and there is at no time any problem relating to the bankability of new capital expenditures. No incentive problems arise.

The shaded area shows the excess revenue recovered by the network monopolist under replacement-cost regulation, over and above those required to sustain the business. Both depreciation and return on investment yield higher allowed revenues than the original-cost standard, and these excess returns are pure windfall rents in the hands of the business, due entirely to the change in accounting rules by the regulator.

Windfall Rents from Regulatory Regime Switch to Replacement Cost



These windfall profits are economic rents in the pure sense. They perform no economic function whatever in relation to securing the continued supply of the monopoly service. They are not required as an incentive for entry or for ongoing replacement of assets as they wear out. They are not required to provide funds for asset replacement, since all new investment is fully bankable (and rational network monopolies do not hold large sinking funds for future replacement – profits derived from inflated depreciation allowances simply provide excess cash for distribution to shareholders and/or to fund new acquisitions). They are a mechanism for pure transfers of wealth from consumers to the owners of the monopoly.

Thus, utilities do receive both appropriate and sufficient incentives to invest in the future if simply provided with a fair return on and of capital actually invested in the enterprise.