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Dear Alan,

## **Comments from Ian Dobbs on the use of the Dobbs [2011] model**

### **Purpose**

The purpose of this note is to provide our commentary on the comments from Professor Dobbs<sup>1</sup> about the application of the model that was published in a journal article under his name to determine the appropriate regulatory WACC percentile for the New Zealand regulated businesses.

### **Comment**

The majority of Professor Dobbs' comments about the application by Frontier Economics of his model are of a highly technical nature, which Frontier Economics is best placed to address and presumably will.

However, a number of Professor Dobbs' observations are of more general relevance that warrant comment.

First and foremost, Professor Dobbs' comments make it clear that he is uncomfortable with an objective function that applies less weight on profit than to consumer surplus. He comments that weighting profit less than consumer surplus "is not something that personally [he] would advocate"<sup>2</sup> and that he was "not entirely sanguine with the idea of putting greater weight on CS [consumer surplus] as a 'mechanism' for generating a lower predicted" regulatory return. In this context, he also makes it clear that how much weight is applied to profit relative to consumer surplus will have a material effect on the results obtained.

The rationale that Professor Dobbs offers as to why one may apply less weight to profit relative to consumer surplus is simply that this is something that many regulators seem to do.<sup>3</sup> However, his discussion of this justification reads more like a criticism of this practice, consistent with his own views discussed above. This is a criticism that we would support in this circumstance. Moreover, we would note that the practice of other regulators under their own unique statutory guidances is not

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<sup>1</sup> Dobbs, I. (2014), Comments on the Application of the Dobbs [2011] model.

<sup>2</sup> Dobbs (2014), Op. Cit, para.3.

<sup>3</sup> Ibid.

determinative of the appropriate practice under the unique statutory guidance applying to this matter in New Zealand.

Secondly, one of the reasons that Professor Dobbs addresses the question of the relative weight between consumer surplus and profit is to point out a perverse outcome generated in the model, namely that if no weight is assigned to profit, then the optimal outcome according to the model is a complete expropriation of sunk investment (zero return and zero depreciation). His discussion makes it clear that this prediction arises from the fact that his model ignores a very real cost, namely that expropriating today's sunk investment will create a substantial disincentive for any future investment out of a fear that it that too may be expropriated:<sup>4</sup>

*This is simply the age old conundrum – that all new investment once made becomes sunk and hence potentially exploitable by the regulator. The regulatory ‘compact’ is about building trust that the regulator will not (after investment) exploit the sudden shift in bargaining power as new assets revert to being sunk assets. Continuing to offer an adequate return on investment on sunk assets is crucial to the ‘compact’ – without it, firms would not trust the regulator not to subsequently exploit the ‘now sunk’ new investment and hence would not invest at all. In terms of the model, moving from putting equal weight on consumer surplus and profits to a position in which there is increased weight on consumer surplus is effectively putting some weight on being able to exploit sunk assets.*

As we observed in our earlier paper, an expropriation – and the resulting disincentive for new investment – will also arise if service obligations (or equivalent incentive schemes) are used to attempt to compel new investment in a regulated activity in circumstances where the incremental revenue does not properly compensate for the incremental cost (including a commercial return). For this reason, our view – and one that is consistent with Professor Dobbs' comments – is that service obligations (or equivalent incentive schemes) cannot be assumed to correct for a shortfall in the regulatory WACC without also creating a less observable – but possible much larger – cost.

The one issue of a technical nature that was raised in Professor Dobbs' comments where we take exception relates to the magnitude of the “maximum willingness to pay” that was assumed in Frontier Economics' analysis. Frontier used a value of \$NZ20,000/MWh, which Dobbs considers to overstate the true value.

We observe that Frontier Economics' central assumption of \$NZ20,000 has some history and support in New Zealand (as Frontier discussed). In addition, this assumption is conservative when compared to the most recent estimates in Australia. The Australian Energy Market Operator has recently concluded a major review of the appropriate (marginal) “value of customer reliability” for use in electricity transmission planning, and estimated the average value across customer types (and locations) to be \$33,460/MWh.<sup>5</sup> The estimated values across different customer types were: residential – \$A25,950/MWh; agricultural – \$A47,670/MWh; commercial – \$A44,720/MWh; and industrial – \$A44,060/MWh. An indicative value of \$A6,050/MWh was also provided for direct

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<sup>4</sup> Dobbs (2014), Op. Cit, para.20.

<sup>5</sup> Australian Energy Market Operator (2014), Value of Customer Reliability Review – Final Report, September, p.2.

connect customers. If anything, this recent and comprehensive analysis would suggest a higher value for a central case than employed by Frontier.

Moreover, the intuition is relatively straightforward as to why such large valuations (compared to average cost) are plausible for the marginal supply (reliability) of electricity. Taking the industrial sector as an example, once a firm has chosen to invest in equipment that uses electricity, a loss of supply of electricity would result in a loss of production and thereby generate a loss of revenue. If the cost of electricity is only a relatively modest share of the firm's cost structure, the loss suffered from the firm could easily be orders of magnitude higher than the price payable for the electricity. This in turn would imply a value for the marginal unit of electricity (reliability) that is orders of magnitudes higher than its average cost.

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Yours sincerely,



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**Managing Director**