

MEMORANDUM

To: Steve Boulton
Chief Executive Officer
Powerco Ltd

From: Jeff Balchin
Director

Date: 18 April 2005

Re: Review of the Information Disclosure Requirements Cross-Submission

A. Purpose

This memorandum elaborates on four matters that were raised in the Commerce Commission conference on the review of the information disclosure requirements in Wellington on 7 April 2005, namely:

- my views on the merits of revaluing assets for regulatory purposes at optimised deprival value at periodic intervals (the **ODV** approach) relative to updating asset values exclusively with reference to capital expenditure, depreciation, disposals and inflation (the indexed historical cost, or **IHC**, approach), with reference to advice I have provided earlier to the Australian Competition and Consumer Commission;
- the incentives for beneficial mergers;
- the merits of alternative cost allocation methodologies; and
- the economic principles underpinning the treatment of asset revaluations.

These matters are addressed in turn. This memorandum has been prepared for inclusion in Powerco's cross-submission to the Commission on the review of the information disclosure requirements.

B. ODV vs IHC as a Valuation Methodology

Relative Merits of ODV and IHC

In my response to a question by Mr Paul Sell for the Commerce Commission, I noted that I had recently provided advice to the Australian Competition and Consumer Commission on the issue of the relative merits of using the equivalents of the ODV or IHC approaches for revaluing electricity transmission assets.¹

¹ The Allen Consulting Group 2003, Methodology for updating the regulatory value of electricity transmission assets, report to the Australian Competition and Consumer Commission, August (available at: www.accc.gov.au/content/item.phtml?itemId=360000&nodeId=file3f4e995e3b95f&fn=Attachments%20A.pdf).

My advice to the ACCC on this matter was unequivocal – which was that the IHC methodology (referred to in the report as the ‘rolling forward’ methodology) should be used. The key theme in the advice to the ACCC was that the combination of the ‘rolling forward’ asset valuation methodology and well-designed price cap regulation can provide the incentives for efficient investment that were intended from revaluing assets at ODV, but with far less risk to the asset owner. It was also noted that there is a well-known economic problem with revaluing assets at ODV if that valuation is undertaken according to its theoretical objectives, which necessitates *ad hoc* adjustments and, inevitably, additional risk to the asset owner and administrative cost.² In addition, it was noted that there is no economic efficiency rationale for attempting to *maintain* average prices at a level that reflects a network’s ODV.³

The passages from the Executive Summary to the above-mentioned report that dealt with the most important of the issues – the relative risk created by the different approaches – are reproduced below.

The first of these methodologies – the ODRC revaluation methodology – would have the effect of setting prices for the use of transmission assets at the commencement of each regulatory period at a level that is (approximately) consistent with the cost structure of a hypothetical (efficient) new entrant. That is, regulated charges would be independent the costs actually incurred (that is, capital costs and operating costs) in providing transmission services.

In contrast, the second of these methodologies – the rolling forward methodology – would imply updating the regulatory asset base for a regulated transmission entity to reflect the actual outcomes for the regulated entity over the previous regulatory period. That is, the updated regulatory asset base would reflect the level of capital expenditure undertaken and return of funds (regulatory depreciation and disposals) received over the period. The practice of fixing prices independent of cost for a regulatory period – and coupling this with a carry-over of some of the benefits arising from efficiency gains into the next period – would provide a commercial incentive to reduce cost, notwithstanding the updating of the regulatory asset base to reflect actual cost.

The ODRC revaluation methodology represents the polar case along a spectrum of trade-offs relating to the strength of incentives to reduce cost, and the degree of certainty over the recovery of costs. The rolling-forward methodology, in contrast, provides a degree of certainty over the recovery of costs incurred – with the degree of certainty (and strength of the incentive to minimise cost) determined by the length of the regulatory period selected.

We do not consider that the setting of prices completely independent of cost is feasible for regulated electricity transmission businesses in the short term. The application of the ODRC revaluation approach would require significant refinement to the methodology for estimating ODRC values to the methodology used to set regulated charges – which would require a substantial investment by the Commission.

² This economic problem can be stated as follows. If an electricity lines business experiences growth in customer numbers, it will incur the incremental cost of expanding its network to serve those customers, whereas its regulatory asset value will rise by amount by which the ODV of the asset increases with the customer growth (i.e. the $ODV_{\text{final customers}} - ODV_{\text{initial customers}}$). However, the incremental cost of expanding a network will always exceed the increase in the ODV associated with the customer growth – this follows automatically from the presence of economies of scale and scope. Therefore, if a firm only receives a normal return on the ODV of the network, it will not be compensated fully for the cost of expanding a network. This matter is discussed at some length in The Allen Consulting Group, 2003, Methodology for updating the regulatory value of electricity transmission assets, report to the Australian Competition and Consumer Commission, August, section 3.1 (website address provided in footnote 1).

³ In contrast, ODV (or rather, ODRC) does have an economic rationale for being used to set *starting regulatory value* for an electricity lines business. ODV provides an estimate of the value that would produce a price consistent with the price that a hypothetical new entrant would charge, which is one of the accepted definitions of a price that is free of monopoly rents.

Moreover, we do not consider that the application of such a methodology is desirable in the longer term. Whether a transmission business would expect to recover the cost of continuing to provide the service – or expected to earn returns much larger than that required to justify its continued financing of the business – would depend upon the accuracy of the estimated ODRC value, for which substantial statistical uncertainty will be inevitable. Given the risks associated with estimation errors, it is difficult to see how the Commission could commit credibly to adhere to such a regulatory regime over the long term. As a consequence, we do not consider the ODRC revaluation methodology to be appropriate.

The ACCC has since accepted this advice, and expressed a preference for the IHC approach when updating the regulatory values of transmission assets at future reviews.⁴ I note that the IHC approach had already been adopted for the electricity distribution businesses some time earlier,⁵ and that the ACCC's decision reflected a catching-up with regulatory best-practice.

I have also provided a similarly unequivocal view regarding to merits of the IHC advice in a submission to the recent Productivity Commission Review of the Gas Access Regime prepared for a major acquirer of gas transportation services (BHPBilliton). The IHC methodology is mandated by the Gas Code for gas transmission and distribution entities, upon which it was commented as follows.⁶

We consider that the [Productivity] Commission's scepticism about the merits of continually resetting regulatory asset values at an estimate of their depreciated optimised replacement cost values is well placed. We consider the approach to regulatory asset valuation in the Code to be one of the most important of the Code's pricing principles for reasons as follows.

It should be noted that the advice described above on regulatory asset valuation was provided in the context of the application of formal control, rather than the New Zealand regulatory regime, the latter of which comprises:

- a threshold that businesses are able to price within without having control imposed;
- the potential for control if the thresholds are breached; and
- information disclosure (and the associated moral suasion against excessive returns).

To the extent that the Commerce Commission would have regard to the observed or forecast rate of return on the regulatory asset value when implementing each of the elements set out above, then the arguments from the Australian context are likely to have relevance to the New Zealand context. I note, however, that a definitive statement on the appropriate valuation method in the New Zealand context requires

⁴ Australian Competition and Consumer Commission, 2004, Statement of Principles for the Regulation of Electricity Revenues, December, p.10.

⁵ The Victorian ESC, the South Australian ESC, IPARC and IPART have all expressed a preference for using the IHC approach for electricity distribution assets, while the QCA still prefers revaluing assets at ODRC. As noted earlier, the Gas Code requires the IHC approach to be used to update the regulatory value of gas transmission and distribution assets.

⁶ The Allen Consulting Group 2003, Review of the Gas Code: Commentary on Economic Issues, report to BHPBilliton, August, p.10 (available at: www.allenconsult.com.au/resources/BHPB_Gas%20Code.pdf).

consideration of the full context of the use of that valuation, which has not as yet been fully determined.⁷

During the Commerce Commission conference, I received a number of questions concerning whether the use of the IHC approach requires other regulatory measures (e.g. a prudence test) to ensure that capital expenditure is efficient. There were also a number of questions regarding the efforts of Australian regulators when assessing forecasts of capital expenditure. These matters are discussed in turn.

Role of Prudence Tests under an IHC approach

In the advice we provided to the ACCC about asset valuation as discussed above it was concluded that the incentives for efficient investment that may arise under the ODV methodology could be replicated under the IHC methodology through the use of well-designed price cap regulation, under which the regulated entity is provided with a financial incentive to minimise its expenditure. If this incentive is sufficiently strong, then there should be no need to undertake an assessment of the prudence of capital expenditure – rather, it can be inferred that a profit maximising entity automatically will minimise expenditure to the extent possible.

The submission to the Productivity Commission’s recent review of the Gas Access Regime that was prepared for a major acquirer discussed the purpose and benefits of price cap regulation as follows (footnotes omitted).⁸

With respect to achieving cost efficiency, the most common method for ‘aligning interests’ is through the use of a price cap. Under a price cap, prices are set independently of cost for a period, which implies that the regulated entity can increase its returns by reducing its expenditure (including by meeting its service obligations using a different technology). A more recent innovation in the use of price cap regulation is the introduction of a carry-over of some of the benefit from efficiency gains made in one regulatory period to the next. If properly designed, the carry-over of efficiency benefits can eliminate any reduction in the incentive to pursue efficiencies that may otherwise exist towards the end of a regulatory period.

Over time, it would be expected that such incentives would lead to the firms’ expenditure levels reflecting efficient levels, and reflecting new technologies and techniques as they become available. The use of such incentive arrangements have a number of benefits for all parties involved in the regulatory process.

- The presence of the incentive arrangements would permit the *regulator* to infer that a firm’s actual expenditure level at the end of a regulatory period is efficient, and to use that expenditure level as a starting point when setting price caps for the next regulatory period. Accordingly, the regulator could satisfy its statutory obligations without the need to second-guess a firm’s operational decisions — over which the regulated entity has substantial informational advantages relative to the regulator.
- The use of incentive arrangements should encourage efficiency gains that otherwise would not have been achieved. *Customers* would benefit as these gains are passed through into lower prices over the medium term.
- *Regulated entities* have the opportunity to make additional returns from above-expected performance. The regulator’s use of incentive arrangements to generate outcomes like cost-efficiency would also avoid the potential need for the regulated entity to justify specific operational decisions to the regulator.

⁷ By way of example, it is noted below that there is a degree of uncertainty with respect to how the Commerce Commission would reset the thresholds when the current thresholds expire.

⁸ The Allen Consulting Group 2003, Review of the Gas Code: Commentary on Economic Issues, report to BHPBilliton, August, pp.25-26 (website address provided in footnote 6).

Thus, in short, my view is that if the regulatory regime provides strong incentives for cost minimisation, there should be no need for a prudence assessment of the capital expenditure undertaken over a previous period when updating the regulatory asset base using the IHC approach.

The Victorian Essential Services Commission has embraced price cap regulation as enabling it to form an inference that capital expenditure actually incurred should be treated as efficient, which I consider reflects regulatory best-practice in Australia. Its practice of relying upon the incentive properties of the regime has now become standard in its reviews, as stated succinctly in a recent consultation paper in its current review of the price controls for the Victorian electricity distributors.⁹

The Commission will use the roll forward method to determine the opening value of the regulatory asset base. To implement this approach the Commission will:

- update the regulatory asset base by taking the regulatory asset base at the commencement of the 2001-05 regulatory period (adjusted for 2000) adding in capital expenditure incurred at cost, deducting depreciation and disposals, and adjusting for inflation
- not review the prudence of actual capital expenditure, but rather will rely on the incentive properties of the price capping regime
- not seek to identify and then remove stranded or partly stranded assets from the asset base.

The question for the Commission then becomes whether the incentives for lines businesses to minimise cost are sufficiently strong under the targeted control regime to permit the Commission to draw an inference that actual expenditure is efficient and appropriately included in the regulatory asset base.

I would observe that, under the current regime, if a business decided to price at the thresholds as permitted, then the threshold would act as a price cap and the business would have an incentive to minimise its expenditure (all else constant). This is because any reduction in expenditure at the margin would increase its achieved return on assets. However, in my presentation to the Commission, I noted that the incentives there were two shortcomings in the incentives that are provided under the current regime.

- First, the incentive to make efficiency gains while the current thresholds remain in effect will be affected by expectations of how those thresholds will be reset for the period commencing from 1 April 2009 – and, in particular, whether the new thresholds will permit the lines businesses to continue to receive the benefit from efficiency gains made during the current period. However, at present, there is uncertainty as to how efficiency gains will be treated when the thresholds are reset.
- Secondly, for firms that may need to breach the thresholds, the incentive to pursue efficiency gains will also be influenced by how efficiency gains are expected to be treated when setting such controls. Again, there is uncertainty about how

9 Victorian Essential Services Commission, 2004, 2004, Electricity Distribution Price Review 2006 – Final Framework and Approach (Volume 1 – Guidance Paper), June, p.80. The Victorian Essential Services Commission has typically reserved the right to undertake a review of the prudence of investment; however, it has never undertaken such a prudence review in a periodic price review.

efficiency gains are expected to be treated if formal control is imposed in such a situation.

The appropriate response to these shortcomings in the present incentive arrangements would be to commence consultation now on how efficiency gains would be treated when resetting the thresholds, as well as how efficiency gains would be treated when imposing formal control if called upon. I note that an integral part of the price review decisions of the Victorian Essential Services Commission has been to set out how efficiency gains would be treated in the subsequent price review.¹⁰ It would be inappropriate for the Commission instead to devote its scarce resources to developing administrative procedures for undertaking regulatory assessments of the efficiency of capital expenditure.¹¹

Lastly, I was also asked during the conference whether the conclusions I may have reached in the Australian context are equally applicable to the structure of the New Zealand electricity lines businesses, which comprises a few large entities (including Powerco) and a large number of very small entities. It would be expected that, with such an industry structure, an approach that minimised the administrative costs associated with dealing with the large number of entities, but was also appropriate for the large entities, would be preferred.

I consider that the use of an IHC valuation approach combined with strong incentives for entities to minimise cost would ensure that administrative costs are not excessive in the context of the New Zealand industry structure, while still being appropriate for large entities. As discussed above, the IHC approach requires very little information to implement, and the use of financial incentives to promote efficient behaviour (rather than relying on regulatory measures) requires very little regulatory effort, and the approach is applied effectively to large entities in Australia.

Regulators assessments' of forecasts under an IHC approach

During the conference, I was asked a number of questions about the regulatory assessment of capital expenditure forecasts. I responded that Australian regulators do undertake assessments of forecasts, and also that such assessments are not straightforward, amongst other things, because regulated entities have an incentive to overstate their expenditure requirements.

It may be that my answers to these questions left the unintended (and incorrect) impression that the purpose of such an assessment of expenditure forecasts is to provide pressure for regulated entities only to undertake efficient expenditure.

¹⁰ Victorian Office of the Regulator-General, 2000, Electricity Distribution Price Determination 2001-2005, Volume 1 – Statement of Purpose and Reasons, September, pp.83-98; Victorian Essential Services Commission, 2002, Review of Access Arrangements – Final Decision, October, pp.158-173.

¹¹ During the conference, I was asked for my views on the available models for providing incentives to firms to minimise cost. These are discussed at some length in: The Allen Consulting Group 2003, Review of the Gas Code: Commentary on Economic Issues, report to BHPBilliton, August, pp.20-35 (website address provided in footnote 6). However, again, this discussion has as a context formal control, and hence its relevance to the New Zealand targeted control regime would need to be assessed.

For the avoidance of doubt, the reason that Australian regulators undertake an assessment of expenditure forecasts when setting price controls is because they apply the building block approach, in which firm-specific forecasts of expenditure are an input into the price controls. Accordingly, if a regulated entity can convince a regulator that it will need to increase its expenditure in the future, then it will be permitted to have higher prices over the regulatory period (and hence, make higher profits). While some regulators express this activity as assessing the efficiency of an entity's forecasts, in reality it merely amounts to an assessment of whether an entity's forecast of expenditure is (statistically) unbiased.

- Assessing forecasts for the regulatory period ahead is not a useful tool for providing pressure for efficient investment. Even comparing actual expenditure with the original forecasts is not informative as the conditions facing the lines businesses inevitably would have changed since the time the forecasts were made, which should have led an efficient business to alter its expenditure.

In the context of New Zealand, as firm-specific forecasts were not used to set the current thresholds, an examination of firm-specific forecasts was not required. If the Commission had regard to firm-specific expenditure forecasts when resetting the thresholds or when applying formal control (if the need arose), then an examination of firm-specific expenditure forecasts would be required. Importantly, the Commission would need to undertake such an assessment *irrespective of whether the ODV or IHC asset valuation methodology is used*.

Accordingly, the adoption of the IHC methodology, of itself, does not require the Commission to undertake an examination of firm-specific capital expenditure forecasts.

C. Incentives for Efficient Mergers and Acquisitions

One of the implications of the unique structure of the New Zealand electricity lines businesses is that mergers or acquisitions in the sector are likely to provide substantial benefits. My experience with a similar industry structure (albeit a different industry) in Australia would lead me to question whether the small lines businesses could attract and retain a sufficient critical mass of expertise to adopt best practice engineering practices, let alone being able to participate effectively in regulatory proceedings. Thus, while much of the discussion about mergers to date has focussed on the allocation of costs between activities, the benefits from mergers and acquisitions involving the small electricity lines businesses would be expected to bring a number of other important benefits, including:

- an improvement in reliability flowing from better asset management practices;
- a reduction in the total cost of providing the service over the longer term flowing from more efficient maintenance practices and a more robust examination of the maintain-replace decision; and
- potentially an ability to provide customers with more options over reliability and other dimensions of service (i.e. more choices on the price-quality trade-off).

The Commission has foreshadowed excluding the costs incurred with effecting mergers between businesses, but has provided little certainty with respect to the share of the benefits flowing from a merger that the lines business will be able to retain (as discussed in section B). As a general proposition, if an entity bears the costs of generating efficiency gains but receives little or no benefit, then its incentives to pursue those gains will be blunted and possibly removed altogether.

While there inevitably would be a number of barriers to such mergers or acquisitions that are outside of the Commission's control, it is important for the Commission not to provide disincentives to such beneficial mergers taking place. Accordingly, the Commission should examine further the incentives that it has created for beneficial mergers, together with examining the incentives it provides for efficiency gains in general.

D. Cost Allocation Methodologies

During the conference, the statements about the allocation of costs between activities that I made included that:

- it would be understandable (and consistent with advice I have provided previously) for a regulator to ensure that only 100 per cent of the costs incurred in undertaking regulated activities were recorded for those activities (i.e. across multiple electricity lines businesses); but
- for allocations between regulated and unregulated activities, the matter is more complex, although I noted precedent in Australia for using accounting-type allocations, which are inherently an average-cost allocation (albeit with a myriad of different averaging parameters available).

The following paragraphs clarify these statements.

Turning first to the allocations between regulated activities, it is important to understand that my reference to the outcome whereby all of the costs associated with an entity's regulated activities are allocated once, but only once, was a reference to the outcome expected in the *long term*.¹²

In section C, I noted that it is important that firms receive a benefit from undertaking synergistic mergers and acquisitions to provide an incentive for those synergistic mergers and acquisitions to take place. In this context, one of the benefits from those synergistic mergers and acquisitions is the reduction in the cost of operating the combined businesses. The act of providing an entity with a benefit for undertaking a synergistic merger will imply that the entity would be permitted to recover more than 100 per cent of the cost of operating the combined businesses for a period.

¹² I was asked during the conference how the common costs should be allocated between different regulated activities (such as electricity lines businesses and gas distribution). The guidance from economic principles on this matter is that the allocation should be inversely related to the price elasticity of demand for the final product, which would probably imply a higher allocation to the electricity lines businesses than to gas distribution. However, I noted simple accounting allocators (such as shares of customers etc) are typically used in Australia for this purpose.

Turning to the second matter, I noted that a difficulty with deriving the optimal allocation of costs between regulated and unregulated activities is that the entity's ability to recover the costs allocated to its unrelated activities is dependent upon the conditions in that market, which is unknown to the regulator. This situation can be contrasted with the allocation of costs between two regulated businesses, in which case the regulator can guarantee an entity's ability to recover the allocated common costs in each activity (i.e. because the regulator can set prices to permit the desired allocation to be recovered).

The fact that a regulator does not know an entity's ability to recover allocated common costs in its unregulated activities implies that requiring an allocation of cost to the unregulated activity that is in excess of avoidable cost poses some risk to efficiency. In particular, the following propositions for the allocation of costs to an unregulated activity can be implied by economic principles:

- the allocation of cost to the unregulated activity should not be less than the avoidable/incremental cost associated with that activity – this is necessary to ensure that the unregulated activity is not being subsidised by regulated activities; and
- subject to the rule above, the allocation of cost to the unregulated activity should not exceed the stand alone cost of the activity – this is necessary to ensure that where it is efficient for the firm to undertake the unregulated activity (i.e. which will follow if the activity is profitable under an avoidable cost allocation) it is also profitable for the firm to undertake that activity.

These principles imply that requiring an allocation of costs in excess of avoidable costs to an unregulated activity brings with it the risk that an unregulated activity that it would be efficient for the regulated entity to undertake is made unprofitable, which would imply a loss of efficiency.¹³ It was this line of argument that underpinned my statement about the complexity of the method adopted for allocating costs between regulated and unregulated activities.

E. Treatment of Revaluations

During the conference I was asked how revaluations should be treated when measuring income for a regulatory purpose.

In response, I noted that the important principle was that the measurement of each of the components of income should satisfy a net present value test. That is, if an entity is making a return equal to a particular rate of return, then the net present value of the cash flow should be zero (that is, using the opening asset value as the initial cost of the investment, the closing asset value as the residual value and the particular rate of return as the discount rate). I noted that there are a number of different means of expressing the components of income that will meet this test, some of which require revaluations to be treated as income, and some that do not. I noted that my preference when reporting on returns under an IHC regime is to convert all values into constant

¹³ The loss of efficiency would be equal to the cost advantage of the regulated entity undertaking the activity relative to the next most efficient firm(s).

price terms – and therefore to observe real returns – in which case no explicit adjustment for revaluations is required. This is the approach used by the Victorian Essential Services Commission (on my advice) in the reports it provides on the comparative performance of the electricity distributors.¹⁴

These are accurate statements of my views with respect to how the components of income should be measured under an IHC regime.

With respect to an ODV regime, however, the issue is more complex. In particular, if the ODV regime as I understand the concept is applied, then the ‘net present value’ rule should be satisfied in expectation terms, but not necessarily in *ex post* terms. The distinguishing feature of an ODV and IHC regimes as I understand them is that the former exposes the business to the risk associated with the future ODV of the network being different to the forecast – which would have the effect of delivering an *ex post* windfall gains or losses. Indeed, it is the potential for windfall gains or losses under the ODV regime as I understand the concept that was at the centre of my advice to the ACCC (as discussed in section B, above). It would be inconsistent with the application of an ODV regime as I understand the concept for the ‘intended windfall gain or loss’ component of revaluations to be factored into the calculation of income.¹⁵

¹⁴ See, for example, Victorian Essential Services Commission, 2004, Electricity Distribution Businesses Comparative Performance Report for the Calendar Year 2003, September, pp.13-14.

¹⁵ Refer to the discussion in: The Allen Consulting Group, 2003, Methodology for updating the regulatory value of electricity transmission assets, report to the Australian Competition and Consumer Commission, August, pp.30, 44-45 (website address provided in footnote 1).