Mr Paul Goodeve
Regulatory and Business Manager
Powerco Limited
Private Bag 2061
New Plymouth

Mr Ian Ferguson
Regulatory adviser
Vector Ltd.
101 Carlton Gore Road,
Newmarket, Auckland

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Dear Sirs,

2010-15 Default Price-Quality Path Starting Price Adjustments Draft Decision Paper – Cross Submissions: Joint CEG and PwC report

1. Purpose

This is a joint report by Jeff Balchin of PwC and Tom Hird of CEG. We have read and discussed with each other the reports that were prepared in response to the Commerce Commission's Draft Decision Paper on the 2010-15 Default Price Quality Path Starting Price Adjustments and agree with the key propositions that are made in each of those reports.[1]

The remainder of this report restates those key propositions upon which we agree.

Proposition 1 – discount rate that is applicable to taxation payments

The Hird report noted that the Commission's formula for deriving the new price controls:

- assumes that taxation is paid at the end of the year, whereas other cash flows occur at the midpoint;
- compensates the EDBs the discounted value of the taxation payments; and
- for this purpose, discounts the taxation payments using the weighted average cost of capital.

[1] Balchin, J., 2010-15 Default Price-Quality Path Starting Price Adjustments Draft Decision Paper: Modelling Issues, A Report for Powerco, 22 August 2011; Hird, T., Review of Draft Decisions paper on Starting 2010-15 Default Price-Quality Path for Electricity Distribution, a Report for Vector, August 2011.

PwC, ABN 52 780 433 757
Freshwater Place, 2 Southbank Boulevard, GPO BOX 1331, SOUTHBANK VIC 3001
DX 77 Melbourne, Australia
T +61 3 8603 1000, F +61 3 8603 1999, www.pwc.com.au

The same assumptions were made in the Balchin report when replicating the Commission's formula.[2]

Hird observed that the correct discount rate to apply to an individual revenue or expenditure item is one that is appropriate to that individual item, with the weighted average cost of capital being a complex average of the set of applicable discount rates. Given that the Commission's formula assumes that revenue and expenditure is received or incurred at the midpoint of each year, the end of year taxation liability is known with certainty at the midpoint of the year, and so the appropriate discount rate between these two points in time is the risk free rate of return.[3]

It is observed further in this report that the proposition that a discount rate that is relevant to the specific element of cash flow should be used when that element is considered in isolation is well accepted in finance theory, and has precedent in economic regulation practice. By way of example of the first proposition, part of the debate about the different formulae that exist for adjusting equity betas for leverage turns on the appropriate discount rate for the tax benefit associated with interest deductions and the implications of a firm's policy on capital structure.[4] In addition, when the ACCC applied a net present value method for undertaking the depreciation step in an optimised depreciated replacement cost calculation, it observed that the appropriate discount rate was not the WACC but rather a discount rate that was relevant to a future steam of expenditure.[5]

We note for completeness, however, that this error only exists while the Commission assumes that taxation is paid six months after other cash flow is received or paid, which both authors consider to be inappropriate (see Proposition 3 below).

Proposition 2 – timing of interest payments and taxation

Hird observed that the Commission's calculation of taxation payments assumed implicitly that interest was paid at the end of the year. This assumption followed from the fact that the Commission's taxation calculation used a notional interest deduction calculated as the cost of debt multiplied by the stock of regulatory debt, where the former was expressed as an effective annual interest rate. Hird argued that, if the Commission is to model financing costs on the basis that revenues are received in the middle of the year, then it must use a notional interest payment calculated on the same basis (ie, use an interest rate that assumes interest is paid at the midpoint of the year ('midyear interest rate')). This change would imply a lower

2 Balchin, Op. Cit., pp.19-20 (Equation 5).

3 Hird, Op. Cit., pp.8-13.

4 For a summary, see Fernandez, P., 2003, Levered and Unlevered Beta, IESE Business School (University of Navarra), Working Paper No.488, January.

5 See the ACCC Final Decision Revised access arrangement by APT Petroleum Pipelines Ltd for the Roma to Brisbane Pipeline 20 December 2006. In this document the AER states: "…the appropriate discount rate for costs (as opposed to profits) was determined by ACCC to be the real risk free rate (2.44 per cent) as recommended by NERA." Available at http://www.aer.gov.au/content/item.phtml?itemId=707612&nodeId=130c0f74c945a571ed833d0cfa09d607&fn=Final%20decision%20Roma%20to%20Brisbane%20Pipeline%20%2820%20December%202006%29.pdf

interest deduction and therefore a higher regulatory taxation payment. The same comment applies to the midyear cash flow formula that was derived in the Balchin report.[6]

This internally consistent modelling of financing costs and interest deductions is also consistent with how an efficient firm would expect to arrange its debt financing obligations to match its cash flow to the extent possible, which may imply an even spread of interest payments over the year to approximate a midyear payment.[7]

Giving effect to this proposition is straightforward – the cost of debt that is used when calculating taxation liabilities merely needs to be converted to a midyear interest rate, as demonstrated by Hird. This adjustment should also be applied when applying Equations 3 to 5 from the Balchin report.[8]

Proposition 3 – reasonableness of the assumed timing of cash flow

Both Hird and Balchin agree that the Commission's stated belief that revenues are earned earlier than the middle of the year does not justify an assumption that tax costs are incurred at the end of the year. Hird argued that if the Commission believed revenues were earned earlier than the middle of the year then the Commission should model this directly rather than making another error that it hoped would compensate for this error.

Balchin actually tested the Commission's stated belief and demonstrated that, at least for Powerco, the nature of contracts with retailers is that the Commission's stated belief is factually incorrect. Naturally, both Hird and Balchin agree that if the Commission's stated belief is factually incorrect then its justification for modelling tax at the end of the year is without any grounds.

Proposition 4 – a consistent treatment of inflation

Balchin argued that the Commission's treatment of inflation means that, in combination, the Commission's model and price control formula under-compensates EDBs in the years 2012/13 to 2014/15. Specifically, under the Commission's modelling:

- EDBs would be expected to earn a real rate of return that is lower than the real rate of return implicit in the Commission's WACC estimate in 2012/13 and 2014/15, even if all inputs turn out to be correct; and

- The price control for 2012/13 to 2014/15 commences with a notional revenue for 2012/13 that is fixed in nominal terms, and reflects the *forecast* of inflation over the years prior to 2012/13, even through *actual* inflation to date has been higher.

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6 Balchin, Op. Cit., p.19 (Equation 3).

7 It is also observed that assuming midyear cash flows is a close approximation for the more lifelike assumption of a constant and continuous cash flow over the year.

8 Balchin, Op. Cit., pp.19-20.

The first error arises because the forecast of inflation over 2012/13 to 2014/15 is higher than the average inflation over the full period 2010/11 to 2014/15. The nominal WACC that the Commission uses is based on an average of expected inflation over the period 2010/11 to 2014/15. However, the Commission applies that nominal WACC (which is based on the average level of inflation over the 5 years from September 2009) over the last three of the five years (when the Commission's forecast of inflation is higher than the five year average). The result is that a lower real return than required was factored into prices for the 2012/13 to 2014/15 period. The second error arises because the Commission has not adjusted the starting notional revenue for 2012/13 to account for the difference between the forecast of inflation that was used in the financial modelling and actual inflation to that time. Such an adjustment would have occurred if the new price controls had applied for the full five year period.

Hird agrees with Balchin's logic. Hird agrees with Balchin that the first error can be ameliorated by applying a constant average inflation rate in the Commissions model rather than inflation rate that varies from year to year. Hird notes that if the Commission continued to apply a variable inflation rate it should, consistent with the logic set out by Balchin, apply a higher nominal WACC in the last three years of the model – with the effect that the same real WACC is applied in 2010/11 to 2011/12 and 2012/13 to 2014/15. The second error can be eliminated by correcting the starting notional revenue for 2012/13 to account for the difference between the modelled inflation and the actual level (at least as far as it is available) to that point in time.

Proposition 5 – calculation of depreciation

Balchin and Hird argued that depreciation should be escalated for inflation in order to ensure the real value of depreciation is delivered to investors in the relevant year.

Balchin also argued that depreciation should be applied to the sum of the opening RAB plus half of commissioned assets (which the Commission's model assumes are incurred at the start of the year). The effect of this is consistent with applying one half a year's depreciation to the capital expenditure – which is consistent with capital expenditure being incurred, on average, half way through the year. Hird agrees with Balchin that this would be appropriate.

Should you wish to discuss this note in any way, please do not hesitate to contact us on +61 3 8603 4973 (Jeff) or +61 3 9505 3828 (Tom).

Yours sincerely,

Jeff Balchin
Principal

Tom Hird
Director