30 March 2007

Mr Mike Buckley
General Manager
Network Regulation North Branch
Australian Energy Regulator
PO Box 1199
DICKSON ACT 2602

Dear Mike,

COST OF CAPITAL – BIAS IN THE RISK-FREE RATE

In its response to the AER's Draft Decision, Powerlink flagged its intention to provide expert information to the AER on the issue of the inflation forecast, once this information became available. In this regard, a report prepared by Dr Tom Hird (NERA) and Prof. Bruce Grundy (Melbourne University) on the *Bias in Indexed CGS Yields as a Proxy for the CAPM Risk Free Rate* is attached.

NERA's report examines the extent to which the yield on indexed Commonwealth Government Securities (CGS) is a biased proxy of the 'true' risk-free rate applied in the capital asset pricing model (CAPM). NERA's analysis looks at this issue on two fronts:

- the observed bias in indexed CGS yields relative to nominal CGS yields; and
- the absolute bias in nominal CGS bond yields.

Relative Bias in Indexed CGS Yields

Since late 2004, Reserve Bank of Australia (RBA) data on bond yields has exhibited a clear decline in indexed CGS yields, of which the decline has been particularly evident for longer dated bonds. NERA's analysis suggests that this downward movement may be attributed to a fall in the supply of indexed CGS and an increase in the demand for indexed CGS, particularly from institutional investors.

This downward trend has not gone unnoticed by the RBA, having specifically raised this as an issue in its *Statement on Monetary Policy* on several occasions throughout 2006 and, as recently as February 2007. For example:

33 Harold Street ,Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100
Website: www.powerlink.com.au

Powerlink Queensland is the registered business name of the
Queensland Electricity Transmission Corporation Limited
ABN 82 078 849 233

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> "The implied medium-term inflation expectations of financial market participants, as measured by the difference between nominal and indexed bond yields, was a little over 3 per cent in early February. Given the institutional factors noted in previous Statements, this figure may overstate actual inflation expectations"[1];

and

> "One development of particular note over the past year or so has been the fall in yields on inflation-indexed bonds. Yields on 10-year indexed bonds fell by 85 basis points from the beginning of 2005 to mid January 2006. This took them below 2 per cent, by far the lowest level since their introduction in the mid 80s and, as a result, the spread between 10-year nominal and real yields widened to 3.2 per cent, compared with around 2.7 per cent in the first half of 2005. While this spread is usually seen as a measure of expected inflation, its recent increase is at odds with other measures of inflation expectations and reflected special factors, unrelated to inflationary pressures. As noted in the earlier chapter on international markets, regulatory changes abroad have encouraged life insurers and superannuation funds to acquire long-dated bonds as an asset class that better matches their liabilities. Other investors, such as hedge funds, are said to have recognised that this process is likely to continue for some time and have added to demand. These developments, against a background of a small, tightly-held domestic supply of indexed bonds, have seen their prices rise (yields fall) significantly. As a consequence, and despite having fallen a little in February, the current spread between yields on nominal and indexed government bonds overstates the market's expectations of inflation."[2]

The inflation forecast derived on the basis of the AER's methodology is also inconsistent with those of a number of economic forecasters, who predict a much lower rate of inflation out to 2011/12.

In addition to the evidence provided by the RBA data, this phenomenon is supported by:

- an analysis of the spreads on indexed and nominal bonds issued by ElectraNet and Envestra – specifically, the fact that spreads on indexed corporate bonds have been approximately 15-20 basis points higher than spreads on nominal corporate bonds since late 2004;

- regulatory experience in the United Kingdom – falling indexed bond yields have also occurred in the UK. Consequently, all UK regulators have adopted higher risk free rates than those corresponding to prevailing yields on ILGs. Adjustments to the risk free rate in UK regulatory decisions have ranged between 30 to 100 basis points;

- regulatory experience in the United States – where regulators have deliberately responded to upward movements in US government bond yields by reversing the trend in equity premiums;

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[1] RBA (2007), Statement on Monetary Policy, February, p54.
[2] RBA (2006), Statement on Monetary Policy, February, pp48-49.

- regulatory experience in Australia – the Essential Services Commission in Victoria recognised a necessity to address the downward bias in the indexed CGS yield created by the reduced supply; and

- academic research.

On the basis of its analysis and current market evidence, NERA estimated with a high degree of certainty that the downward bias in the indexed CGS bond rate yield is currently of the order of 20 basis points. This value represents a minimum estimate of the absolute bias in the yields as a proxy for the risk free rate in the CAPM.

Absolute Bias in Nominal CGS Yields

NERA has also undertaken preliminary work to estimate the absolute bias in nominal CGS bond yields. In June 2003, the implied CGS downward bias was approximately 15 basis points. However, using the most recently available RBA data (January 2007), the results of NERA's analysis suggest that a bias of around 42 to 44 basis points is now evident. This means that a total adjustment to the indexed CGS of between 47 to 64 basis points may be appropriate (that is, 20 basis points for the relative bias in indexed yields plus 42 to 44 basis points to reflect the bias in nominal yields).

Further empirical work is being undertaken in relation to this issue.

Implications for Powerlink's Final Revenue Cap Decision

In light of this new, relevant and compelling evidence on the downward bias in indexed CGS bond yields relative to nominal CGS yields, Powerlink believes that the AER must apply an upwards adjustment of at least 20 basis points to its estimate of the real risk free for the purposes of the CAPM. Powerlink considers this is a very low estimate given NERA's preliminary indications that the true absolute bias in CGS yields could be closer to treble this amount. NERA is making every effort to complete its analysis on the absolute bias in the risk free rate as soon as possible, but this additional work may not be completed within a timeframe to enable full consideration by the AER in reaching its Final Decision on Powerlink's 2007-12 revenue cap.

Applying the parameters in the AER's Draft Decision, the minimum adjustment Powerlink is seeking is shown here.

Parameter/Definition	AER Draft Decision	Adjustment
Risk free rate (nominal)	5.68%	5.68%
Risk free rate (real)	2.45%	**2.65%**
Expected inflation	3.15%	**2.95%**
Debt margin	1.14%	1.14%
Market risk premium	6.0%	6.0%
Debt/value ratio	60%	60%
Value of imputation credits	0.5	0.5
Equity beta	1.00	1.00
Corporate tax rate	30%	30%
WACC Vanilla (nominal)	**8.76%**	**8.76%**

Note that, in response to the AER's Draft Decision, Powerlink provided a response to the debt margin (i.e. in relation to debt-refinancing costs) and several other issues relating to the cost of capital. Powerlink still requires these matters to be addressed by the AER in its Final Decision.

The nominal vanilla WACC does not change. However, the proposed adjustment to the real risk free rate has a direct impact on both the X-factor and real revenues determined by the PTRM. Notwithstanding Powerlink's disagreement with the conclusions contained in the AER's Draft Decision, on the basis of the expenditure allowances provided therein, using the PTRM Powerlink estimates that failure of the AER to account for the downwards bias in the real risk free rate has a negative impact of approximately $30 million over the next regulatory period.

Powerlink also notes that this adjustment would bring the AER's current inflation forecast of 3.15 per cent down from well above the RBA target rate to a level more in line with that of a number of other economic forecasters. In addition, this would provide an inflation forecast very similar to that put forward by Powerlink in its original Revenue Proposal.

Clearly this represents a very significant issue to Powerlink which must be addressed by the AER in its Final Decision. Consequently, it is necessary and appropriate that the AER adopt a minimum +20 basis points adjustment to the real risk free rate in its Final Decision on Powerlink's 2007-12 revenue cap.

If you would like to discuss this matter further please contact Merryn York on (07) 3860 2143.

Yours sincerely,

Simon Bartlett
A/CHIEF EXECUTIVE