

Supplementary Submission on the rate of return to apply to the charges revision applications for Advanced Metering Infrastructure: Updated for the actual averaging period

**Prepared jointly by the
Victorian Electricity Distribution Businesses**

21 October 2013



1 Summary

This supplementary submission is made on behalf of Jemena Electricity Networks (Vic) Ltd (**JEN**), CitiPower Pty (**CitiPower**), Powercor Australia Limited (**Powercor**), SPI Electricity Pty Ltd (**SPAusnet**), and United Energy Distribution Pty Ltd (**UED**) (collectively **the Businesses**).

On 30 August 2013 each of the Businesses submitted a charges revision application for Advanced Metering Infrastructure (**AMI**) under the Advanced Metering Infrastructure Cost Recovery Order in Council (**CROIC**) in order to set charges for “Regulated Services” (as defined in the CROIC) for year commencing 1 January 2014.

1.1 Purpose of this submission

The purpose of this supplementary submission is to update—for the actual averaging period (16 September to 11 October 2013)—relevant supporting materials for the rate of return proposed by each of the Businesses as part of their charges revision applications.

The Businesses indicated in their joint submission on the rate of return that they would update relevant materials provided to the Australian Energy Regulator (**AER**) for the actual averaging period once that period had passed.

1.2 Rate of return guideline consultation

The AER informed the Businesses via email on 17 October 2013 that it will not be relying on any of the new evidence or analysis published, or yet to be published, as part of the draft rate of return guideline when making its decision on the AMI cost of capital for the subsequent AMI WACC period. Because the Businesses were unsure of the AER’s position prior to receipt of the AER email, the Businesses provided some materials to the AER on 16 October 2013 that formed part of the Energy Networks Association’s (**ENA**’s) response to the AER’s draft rate of return guideline.

In light of the AER’s email, the Businesses have not sought to otherwise respond to the draft rate of return guideline materials in this charges revision application process.

1.3 Proposed AMI WACC

Based on the actual averaging period, and analysis undertaken by the Businesses’ independent experts (SFG and CEG) for this period, the Businesses propose a nominal WACC of 7.92 per cent. This WACC is calculated using parameters set out in Table 1.

Table 1: Businesses’ position on proposed AMI WACC

Parameter	Value
<i>Market observables</i>	
Nominal risk-free rate (R_f)	4.02%
Debt risk premium (DRP)	2.62%
<i>Non-market observables</i>	
Equity beta (β_e)	0.8

Parameter	Value
Expected return on the market (R_m)	11.30%
Market risk premium ($MRP = R_m - R_f$)	7.28%
Value of debt as a proportion of the value of equity and debt (D/V)	0.60
Value of imputation credits (gamma)	0.25
Forecast inflation	2.47%
Nominal vanilla WACC	7.92%

1.4 Summary of positions

The position of the Businesses on each of the relevant parameters is set out in summary below:

- **Nominal risk-free rate.** In accordance with the AER's Statement of Regulatory Intent (**SoRI**), the nominal risk-free rate is to be calculated on a moving average basis from the annualised yield on Commonwealth Government Securities (**CGS**) with a maturity of 10 years. Table 1 sets out the updated value for the risk-free rate for the actual averaging period.
- **Equity beta.** The equity beta is 0.8, as set out in the SoRI. The Businesses maintain their position that there is no persuasive evidence to depart from the SoRI in respect of the equity beta at this time.
- **Market risk premium (MRP).** The MRP is 7.28 per cent. The Businesses consider that there is persuasive evidence to depart from the MRP value set out in the SoRI. The most recent evidence indicates that the current MRP is well above 6.5 per cent.
- **Debt risk premium (DRP).** In accordance with the SoRI, the DRP is calculated as the margin between the annualised nominal risk-free rate and the observed annualised Australian 10-year BBB+ corporate bond rate. Table 1 sets out the value for the DRP for the actual averaging period calculated by extrapolating the Bloomberg BBB fair value curve from seven to 10 years. The Businesses rely on this extrapolated Bloomberg fair value curve for estimating 10-year BBB+ corporate bond yields.
- **Leverage.** The value of debt as a proportion of the value of equity and debt is 0.6. The Businesses maintain their position that there is no persuasive evidence to depart from the SoRI in respect of the debt value proportion at this time.
- **Forecast inflation.** The Businesses continue to propose an inflation rate of 2.47 per cent, based on the most recent annual forecast of inflation by the Reserve Bank of Australia (**RBA**).
- **Gamma.** The Businesses continue to propose a value for gamma (the value of imputation credits) of 0.25.

- The Businesses continue to propose a debt raising costs allowance of 23 basis points per annum, based on recent expert analysis.

The following sections of this supplementary submission provide a short summary of the materials that the Businesses have updated following the conclusion of the actual averaging period.

2 Businesses' position on market observables

Each Business nominated an averaging period of 16 September to 11 October 2013 (inclusive) and the AER agreed to this measurement period for each. The Businesses propose to calculate the market observables using data observed over this period.

2.1 Nominal risk-free rate

The proposed nominal risk-free rate is calculated from the annualised yield on CGS with a maturity of ten years using the indicative mid rates published by the RBA for the placeholder measurement period. The ten-year rate has been calculated by interpolating on a straight line basis between the relevant CGS yields.

The nominal risk-free rate of 4.02 per cent is calculated by applying the above method over the actual averaging period.

2.2 Debt risk premium

The Businesses continue to propose that the DRP be calculated over the actual averaging period by taking the arithmetic average of the daily longest-dated Bloomberg BBB fair value yields over the measurement period and extrapolating that to a ten-year yield using a paired bond analysis.

2.2.1 CEG report (attachment 1)

The Businesses commissioned CEG to analyse the Bloomberg BBB fair value curve during the actual averaging period. CEG concluded that based on its analysis the extrapolated Bloomberg BBB fair value curve is a reasonable, albeit conservative, basis upon which to estimate a 10 year cost of debt for BBB+ rated bond during the actual averaging period.

CEG found that the Bloomberg BBB fair value curve provides a reasonable fit to the data up to a maturity of seven years—this being the period for which Bloomberg currently publishes the curve. Going beyond seven years it is necessary to extrapolate the curve from seven to 10 years maturity. In its report, CEG finds that there is sufficient market data available to reasonably extrapolate from seven to 10 years. Based on a bond pairing analysis, CEG calculates that the extrapolated 10 year Bloomberg BBB fair value DRP is 2.62 per cent.

CEG also implements Nelson-Siegel curve-fitting techniques to estimate a benchmark DRP for BBB+ rated bonds at 10 years maturity. CEG finds that the application of these techniques generates 10 year BBB+ yield estimates that are consistent with, or higher than, the extrapolated Bloomberg BBB fair value curve. CEG finds that the BBB+ curve generated by the curve fitting approach has a similar shape to the Bloomberg BBB fair value curve, although the level of the BBB+ curve is 40 basis points above the Bloomberg BBB fair value yield at seven years. Nelson-Siegel curve-fitting uses a term structure model to capture the relationship between yield and term to maturity by finding the best fit to a given sample of bonds.

CEG's report supports the use of the Bloomberg BBB fair value curve to measure the DRP during the actual averaging period.

2.2.2 Paired bond analysis

As noted above, CEG uses paired bond analysis to extrapolate the Bloomberg fair value curve from seven to 10 years. To do this, CEG identifies bond pairs (from the total bond population) with the following characteristics:

- are between five and 12 years from maturity;
- were issued by the same issuer;
- have the same credit rating;
- were issued in Australian dollars;
- do not have any optionality features, other than make whole callable bonds;
- are either both fixed bonds or both floating rate notes; and
- have yields from the same source (that is, yields from the same Bloomberg price source or from UBS).

CEG identified five bond pairs with these characteristics that could be used for extrapolation of the Bloomberg fair value curve.

The CEG report also recognises an alternative approach to using bond pair analysis is to extrapolate the Bloomberg BBB fair value curve to 10 years using curve fitting. This can be done by either:

- superimposing the shape of the Nelson-Siegel curve between seven and 10 years on the Bloomberg BBB fair value curve; or
- extrapolating the Bloomberg BBB fair value curve so that it transitioned to the Nelson-Siegel curve over a certain period.

The CEG report provides results from applying the first of these curve fitting approaches and summarises the outcomes of its extrapolation methods as set out in Table 2.

Table 2: Summary of different extrapolation methods [Table 6 of CEG report]

Extrapolation methodology	Average increase in DRP (bppa)	Implied 10 year DRP
Bond pair analysis		
Citigroup	19.5	2.90%
Commonwealth	5.3	2.48%
Stockland	0.0	2.32%
Sydney Airport	13.2	2.71%
Wesfarmers	13.0	2.71%
CEG curve fitting analysis		
BBB to A- bonds issued in AUD by any issuer and bonds in any currency by Australian issuers including UBS data and bonds with options (1)	10.8	2.64%
(1) excluding foreign bonds issued in AUD (2)	10.2	2.62%
(1) excluding all foreign currency bonds (3)	14.4	2.75%

Note: "average" refers to a simple arithmetic average of values.

Source: Bloomberg, UBS, RBA, CEG analysis.

2.2.3 Proposed DRP

For the purposes of this charges revision application, the Businesses propose a DRP of 2.62 per cent, calculated by extrapolating the Bloomberg BBB fair value curve to 10 years using the averaging bond pair estimate of 10.2 bppa.

3 Businesses' position on non-market observables

3.1 Value of debt as a proportion of the value of equity and debt

In accordance with the SoRI, the Businesses continue to propose to adopt a 0.6 value of debt as a proportion of the value of equity and debt.

3.2 Equity beta

The Businesses do not propose to depart from an equity beta value of 0.8.

3.3 Market risk premium

As set out in their joint submission, the Businesses consider that there is persuasive evidence that demonstrates that a value of 6.5 per cent for the MRP is no longer appropriate and that in the current circumstances, a departure from the 6.5 per cent MRP value specified in the SoRI is justified.

One of the key pieces of evidence relied upon by the Businesses to show why a departure from the SoRI in respect of the MRP is warranted in the current circumstances included evidence based on updated and refined dividend discount model (**DDM**) analysis.

3.3.1 SFG report (attachment 2)

In support of the joint submission the Businesses provided two reports by SFG which indicated:

- an MRP of over eight per cent for the 12-month period ending June 2013 (once dividend imputation is factored in);
- a market return of 12 per cent over the first six months of 2013, which implied an MRP of 8.6 per cent.

The Businesses commissioned SFG to provide estimates of the expected return on the market and market risk premium over the following two time periods:

- 1 January 2013 to 30 June 2013; and
- 1 July 2002 to 30 June 2013.

SFG's estimates are formed from a sample of 4,835 observations over the 11 year period from 1 July 2002 to 30 June 2013, from 42,366 analyst inputs. SFG averaged all cost of equity estimates for each firm in each six month period, resulting in 4,835 average cost of equity estimates. This represents the entire time period for which data was available. For each Australian-listed firm, SFG compiled dividend forecasts, using earnings forecasts and price targets for all analysts covering that firm, every six months, and used all firms for which data was available.

SFG found that the average market cost of equity excluding imputation benefits over the 22-half year periods from 1 July 2002 to 30 June 2013 is 10.6 per cent. The average yield on 10 year government bonds was 5.2 per cent over the same period; therefore the estimated MRP excluding imputation benefits is 5.4 per cent. Incorporating the benefits of imputation, as implemented by the AER, implied an average cost of equity for regulation over the period of 11.7 per cent (assuming gamma equal to 0.25). This implies an MRP including imputation benefits of 6.5 per cent.

In respect of the period from 1 January 2013 to 30 June 2013, SFG found that the market cost of equity excluding imputation benefits was 10.2 per cent, which is a premium of 6.8 per cent over average government bond yields of 3.4 per cent. Incorporating the benefits of imputation, SFG concludes that the implied cost of equity under regulation is 11.3 per cent (again assuming gamma equal to 0.25). This is an MRP of 7.9 per cent.

3.3.2 Proposed MRP

The Businesses propose a value of 7.28 per cent for the MRP for the actual averaging period, based on the difference between SFG's estimate of the market return for the first half of 2013 (11.3 per cent) and the risk-free rate prevailing over the actual averaging period (4.02 per cent).

The Businesses consider that the most persuasive evidence of the current MRP is provided by SFG's recent DDM analysis. This analysis supports a current MRP value of 7.28 per cent for the averaging period. This is further supported by market evidence from independent expert reports.

4 Businesses' position on proposed AMI WACC

Based on the actual averaging period, and analysis undertaken by the Businesses' independent experts (SFG and CEG) for this period, the Businesses propose a nominal WACC of 7.92 per cent, calculated using the parameters set out in Table 3.

Table 3: Businesses' position on proposed AMI WACC

Parameter	Value
<i>Market observables</i>	
Nominal risk-free rate (R_f)	4.02%
Debt risk premium (DRP)	2.62%
<i>Non-market observables</i>	
Equity beta (β_e)	0.8
Expected return on the market (R_m)	11.30%
Market risk premium ($MRP = R_m - R_f$)	7.28%
Value of debt as a proportion of the value of equity and debt (D/V)	0.60
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Forecast inflation	2.47%
Nominal vanilla WACC	7.92%

5 Business' position on expected inflation rate

The expected inflation rate is not used to calculate the nominal vanilla WACC, although it underpins some of the WACC parameters and is therefore determined in conjunction with the WACC parameters.

The Businesses continue to propose that the method for determining the expected inflation rate be a geometric average of the forecast inflation rate for each year over the ten year period starting from 1 January 2014, where the annual expected inflation rates are taken from:

- the most recent annual forecast of inflation by the RBA; and
- for the remaining years in the ten year period, the mid-point of the RBA's target inflation range, that is 2.5 per cent, per annum.

The most recent RBA inflation forecast from the August 2013 Statement on Monetary Policy was 2.50 per cent for 2014 and 2.25 per cent for 2015.¹ Adopting the mid-point of the RBA

¹ The RBA forecasts inflation to December 2014 of 2–3 per cent and to December 2015 of 1.75–2.75 per cent. From these ranges, the Businesses propose point estimates of 2.50 per cent

inflation target for the remaining eight years results in a geometric average expected inflation rate of 2.47 per cent.

6 Business' position on value of imputation credits

For the reasons set out in their previous submission, the Businesses maintain that the appropriate value for gamma is 0.25, based on a distribution rate of 0.7 and a value for theta of 0.35.

7 Business' position on debt raising costs

The Businesses continue to propose an allowance of 23 bppa for debt raising costs for the purposes of the charges revision applications.

The Businesses reiterate that debt raising costs are dependent upon the term of debt. If the AER determines that the term of debt is other than 10 years, then the calculation of debt raising costs will need to be recalculated accordingly. As set out in the 30 August 2013 submission, the Businesses submit that a 10 year term is appropriate.

and 2.25 per cent, respectively. See Reserve Bank of Australia, *Statement on Monetary Policy*, 9 August 2013, p. 55.

Appendix A: Index of supporting documents

	Author	Title	Date
1.	CEG	<i>Estimating the Debt Risk Premium: Update Report</i>	21 October 2013
2.	SFG	<i>Cost of Equity Estimates Implied by Analyst Forecasts and the Dividend Discount Model</i>	18 October 2013