

The background of the lower half of the page is a photograph of a wind farm and power lines, overlaid with a semi-transparent blue filter. On the left, several large white wind turbines are visible, their blades extending outwards. On the right, a tall, lattice-structured power transmission tower stands prominently. The overall scene is set against a clear sky.

Independent Market Operator

**Final Report: Maximum Reserve
Capacity Price for the 2014/15
Capacity Year**

February 2012

DISCLAIMER

The Independent Market Operator (IMO) has prepared this report under section 4.16 of the Wholesale Electricity Market Rules (Market Rules) to describe the process it followed in arriving at a proposed revised value for the Maximum Reserve Capacity Price.

Although all due care has been taken in preparing this report, the IMO makes no guarantee that it is completely accurate and accepts no liability for any errors.

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EXECUTIVE SUMMARY

Each year, the Independent Market Operator (IMO) is required to determine the Maximum Reserve Capacity Price in accordance with the *Market Procedure: Maximum Reserve Capacity Price*¹ (“Market Procedure”).

The Maximum Reserve Capacity Price (MRCP) sets the maximum bid price that can be made in a Reserve Capacity Auction and is also used as the basis to determine an administered Reserve Capacity Price if no auction is required.

The MRCP aims to establish the marginal cost entry of providing additional Reserve Capacity in each Capacity Year. The MRCP is established by undertaking a technical bottom-up cost evaluation of the entry of a 160 MW Open Cycle Gas Turbine (OCGT) generation facility entering the Wholesale Electricity Market (WEM) in the relevant Capacity Year.

This Final Report details the outcome of the determination of the MRCP for the 2012 Reserve Capacity Cycle. The value used for the 2012 Reserve Capacity Cycle will be effective from 1 October 2014 through to 1 October 2015.

The methodology for determining the MRCP is specified in the Market Procedure and includes a technical costing of the following components:

- the capital cost of a 160 MW OCGT power station with inlet cooling, located within the South West interconnected system (SWIS);
- the land cost associated with developing and constructing the power station;
- the cost associated with connection of the power station to the transmission system;
- the cost associated with building liquid fuel storage and handling facilities for the power station to accommodate 24 hours of operation;
- the fixed Operational and Maintenance (O&M) costs associated with the power station and the transmission facilities listed above;
- a margin for legal, approval, financing and insurance costs and contingencies; and
- the Weighted Average Cost of Capital (WACC).

While the underlying philosophy (valuing the cost of entry of a 160 MW OCGT power station) employed this year for determining the MRCP is broadly the same as last year, the Market Procedure has been modified since the 2013/14 MRCP as a result of the outcomes of an MRCP Review that was concluded in October 2011.

¹ The Market Procedure is available at <http://www.imowa.com.au/market-procedures>

The IMO was required under clause 4.16.9 of the Market Rules, to conduct a periodic (at least every 5 years) review of the methodology and process for determining the MRCP. This MRCP Review was undertaken in conjunction with the Maximum Reserve Capacity Price Working Group² (MRCPWG).

The MRCP Review culminated in Procedure Change PC_2011_06³ for the Market Procedure, which has now commenced.

The 2014/15 MRCP is the first year in which the MRCP has been determined using the revised methodology.

The MRCP identified a number of refinements to the methodology that have been implemented following agreement by the MRCPWG and approval of the Procedure Change Proposal. These refinements could be classified into changes that had a significant impact on the MRCP and those that had less impact. The changes included in the MRCP methodology this year are listed below.

Changes expected to have a significant impact on MRCP:

- The methodology includes an allowance for the costs and output efficiency gains of installing inlet cooling.
- The transmission cost estimate is determined from real costs faced by project developers, represented in historical connection costs and actual access offers determined by Western Power.

Changes expected to have less impact on MRCP:

- The land cost estimate is based on the average cost of the selected land parcels (rather than the cheapest location), with the land size set at three hectares (or the minimum land size for the location where this is greater than three hectares).
- The allowance to initially fill the fuel tank is sufficient for 14 hours of operation of the facility, increased from 12 hours.
- The effective compensation period is set to six months, shortened from two years, with capital costs escalated forward to April of Year 3 of the Reserve Capacity Cycle.
- An allowance for annual insurance costs is included within the Fixed O&M costs.
- An allowance for debt issuance costs is included within the Weighted Average Cost of Capital (WACC), with the corresponding debt financing costs removed from the margin M.

² Proceedings of the MRCPWG are available at <http://www.imowa.com.au/mrcpwg>

³ Details of Procedure Change PC_2011_06 are available at http://www.imowa.com.au/PC_2011_06

- The IMO has the discretion to nominate a method for determining the debt risk premium that, in its opinion, is consistent with current accepted Australian regulatory practice.

In addition to the changes that were incorporated into the methodology as a result of the MRCP Review, this year's MRCP has also been materially impacted by significant movements in the Weighted Average Cost of Capital (WACC). Turbulence in global financial markets during 2011, largely driven by concerns over sovereign debt levels in Europe and slow economic growth in the US, has strengthened demand for bonds and as a consequence a fall in bond yields. This shift in bond yields has had a material impact on this year's proposed MRCP.

The 2012 Maximum Reserve Capacity Price proposed by the IMO in its Final Report is \$163,900 per MW per year.

This MRCP determined for the 2012 Reserve Capacity Cycle is approximately 32% lower than the MRCP of \$240,600 determined for the 2011 Reserve Capacity Cycle.

This reduction is caused by a combination of year-on-year variation in input parameters and the methodology changes as a result of the MRCP Review.

The impact of year-on-year variation in the input parameters (excluding the impact of methodology changes) is shown in Table A below. This variation has led to an 11% reduction from the 2011 MRCP. This reduction is predominately caused by a significant shift lower in the WACC, for which key parameters are determined from observed bond yields.

The impact of the methodology changes as a result of the MRCP Review is shown in Table B below. These changes have contributed a 23% reduction (after the year-on-year variation in the input parameters), which is consistent with the indicative impact assessment provided in the Procedure Change Proposal PC_2011_06.

As noted above, this reduction is dominated by the adoption of inlet cooling within the power station design and the amended methodology for the transmission connection cost estimate.

Figure A combines the data from Tables A and B.

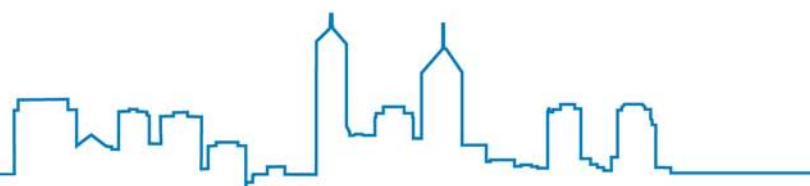


Table A: Impact of year-on-year changes in input parameters

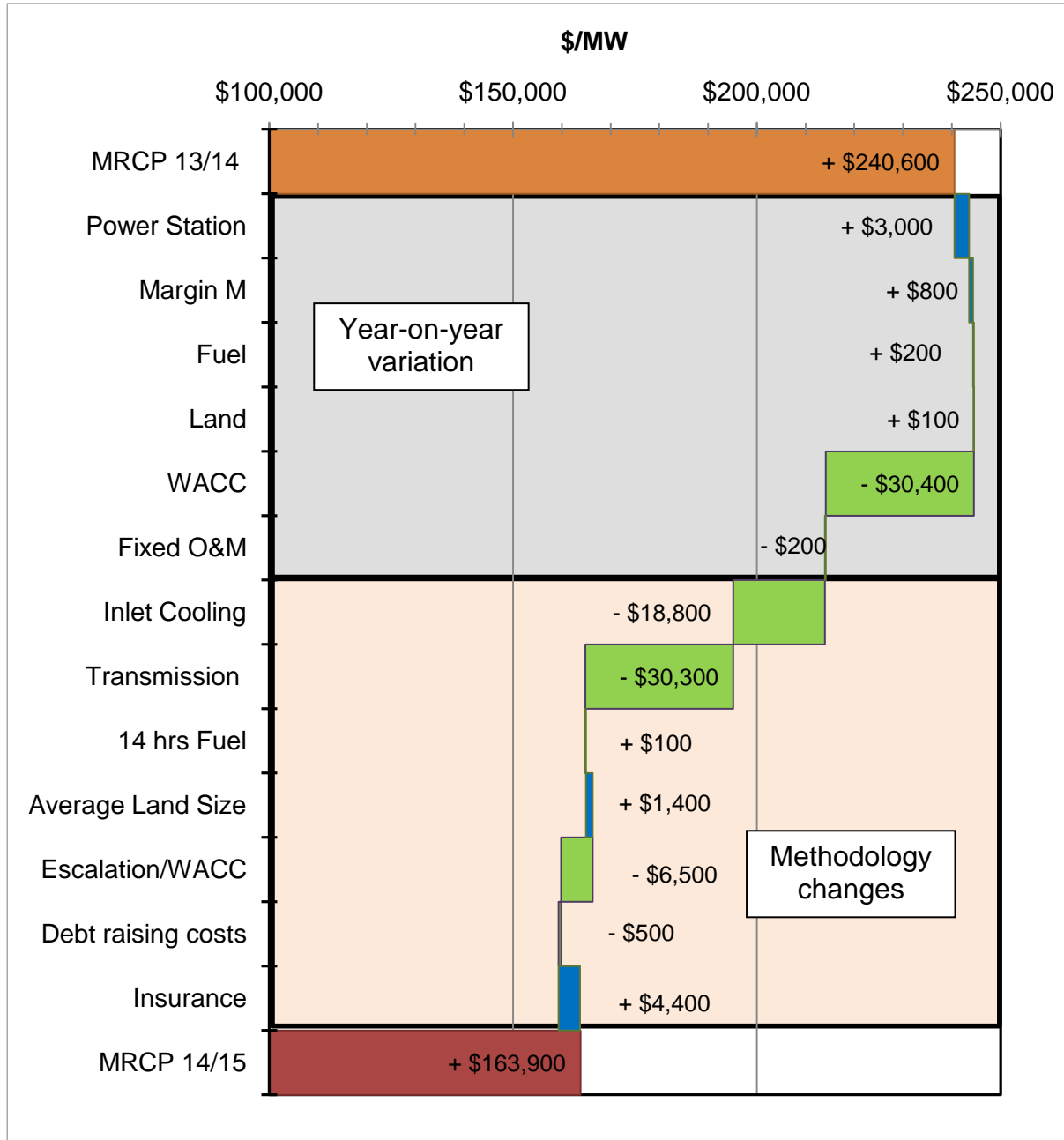
	Impact (\$)	Impact (%)	MRCP (\$)
2013/14 MRCP			240,600
Power Station costs	+ 3,000	+ 1.2%	243,600
Margin M	+ 800	+ 0.3%	244,400
Fixed Fuel Cost	+ 200	+ 0.1%	244,600
Land Cost	+ 100	+ 0.0%	244,700
WACC	- 30,400	- 12.6%	214,300
Fixed O&M	- 200	- 0.1%	214,100
Combined impact	- 26,500	- 11.0%	214,100

Table B: Impact of methodology changes in input parameters

	Impact (\$)	Impact (%)	MRCP (\$)
MRCP after year-on-year changes			214,100
Inclusion of inlet cooling	- 18,800	- 8.8%	195,300
Revised Transmission Cost methodology	- 30,300	- 14.2%	165,000
Increased fuel allowance (increase from 12 to 14 hours)	+ 100	+ 0.0%	165,100
Use of average land cost	+ 1,400	+ 0.7%	166,500
Revised cost escalation/WACC methodology	- 6,500	- 3.0%	160,000
Debt issuance cost included in WACC, corresponding costs removed from Margin M	- 500	- 0.2%	159,500
Annual insurance costs included in Fixed O&M	+ 4,400	+ 2.1%	163,900
Net change	- 50,100	- 23.4%	163,900



Figure A: Comparison of 2011 and 2012 MRCPs



Since the publication of the *Draft Report: Maximum Reserve Capacity Price for the 2014/15 Capacity Year* (“Draft Report”), the IMO has altered five components of the Maximum Reserve Capacity Price in response to financial market movements and as a result of feedback provided by stakeholders in their submissions on the Draft Report. These are:

- updates to the volatile minor components of the Weighted Average Cost of Capital as committed to by the IMO in the Draft Report;
- amendments to the escalation factors for the 2013/14 financial year to incorporate the



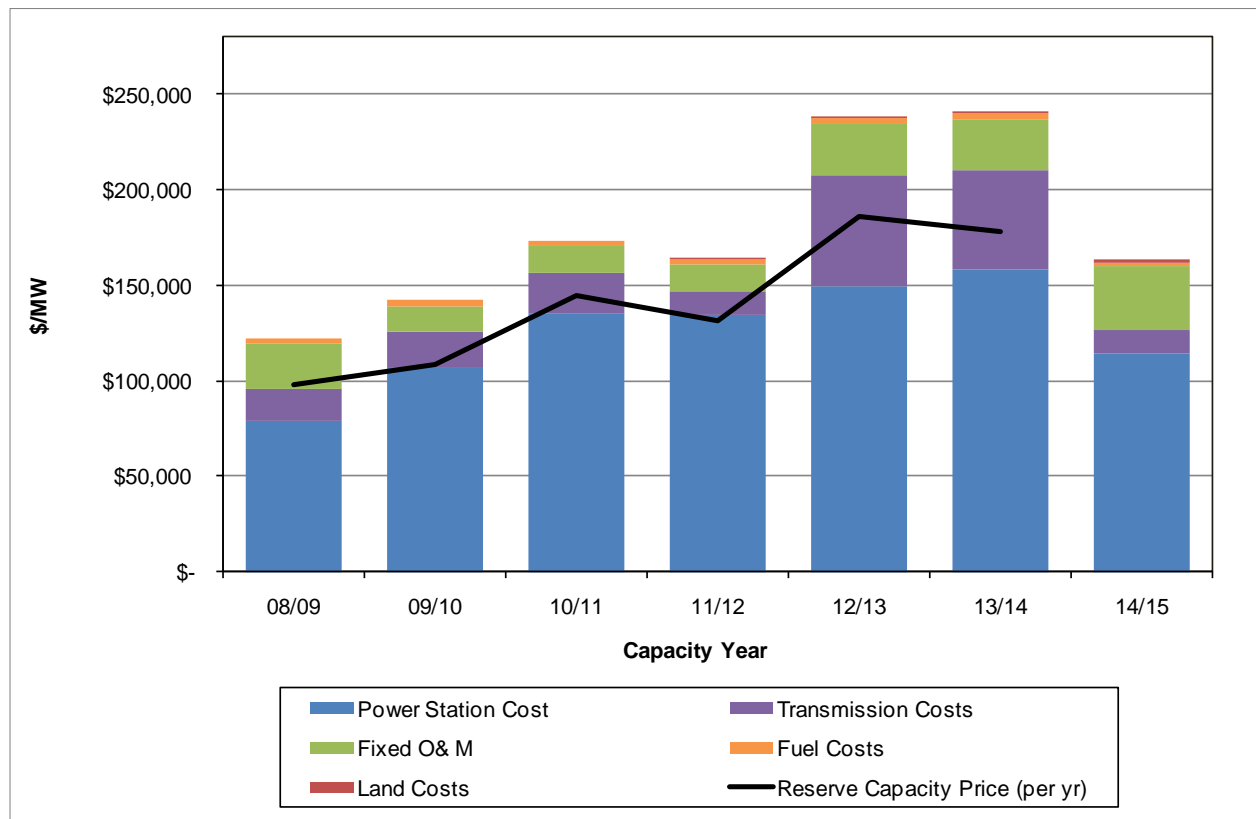
latest CPI forecasts of the Reserve Bank of Australia (RBA);

- the inclusion of stamp duty in the land cost;
- a change to the escalation factor used for network access charges; and
- updated costs for asset replacement and business interruption insurance.

The overall effect of these changes is a Maximum Reserve Capacity Price which is 1.3% lower in comparison to that proposed in the draft report.

The IMO notes that the MRCP has varied considerably since the first determination for the 2008/09 Capacity Year, particularly for the two previous MRCP determinations (2012/13 & 2013/14). This volatility has been largely driven by the escalation in Power Station Costs and Transmission costs. The graph below (also in Appendix D) provides further information on the variation of the MRCP and the component costs. Please note the individual cost components include the impact of the WACC.

Figure B: MRCPs for 2008/09 to 2014/15 Capacity Years



As can be seen in the graph, the most variable components have been the Power Station Cost and the Transmission Cost estimate.

- Significant increases in commodity prices and labour costs caused the Power Station



Cost to increase by 101% from the 2008/09 MRCP to the 2013/14 MRCP. The Power Station Cost shown above for the proposed 2014/15 MRCP is 28% lower than for the previous year as it includes the impacts of:

- the output efficiency gains of installing inlet cooling;
 - the lower margin M; and
 - the lower WACC.
- The Transmission Cost estimate rose sharply for the 2012/13 and 2013/14 MRCPs, largely due to the methodology change adopted by Western Power. The IMO notes that the method used by Western Power changed for the 2012/13 MRCP following discussions between the IMO and Western Power. The IMO considered that estimates provided by Western Power for previous MRCP determinations lacked detail and transparency.

It should be noted that the 2012/13 estimate provided by Western Power for the shared connection cost was more than 350% higher than the estimate provided for the 2011/12 MRCP⁴. In its analysis for the MRCPWG, Sinclair Knight Merz (SKM) highlighted that the method adopted by Western Power required a range of assumptions that could lead to significant inaccuracies.

The amended methodology employed for the 2014/15 MRCP is calculated based on a weighted average of actual contribution costs charged by Western Power to generation project developers. This value for the first time is subject to audit to verify that the number is calculated in accordance with the Market Procedure.

These actual contribution costs, combined with the lower WACC (as in Figure B), yield a value that is 76% lower than for the 2013/14 MRCP.

This suggests that the higher cost estimates provided by Western Power for 2012/13 and 2013/14 are not reflective of the capital contributions actually being charged to project developers that have either secured connection or been provided with an Access Offer to connect to the SWIS.

The graph also suggests that the 2012/13 and 2013/14 MRCPs are outliers and that the proposed 2014/15 MRCP is more consistent with previous determinations of the MRCP from 2008/09 to 2011/12.

⁴ From Final Reports for the 2011/12 MRCP (shared connection cost of \$10.158m) and 2012/13 MRCP (shared connection cost of \$46.801m), available from http://www.imowa.com.au/mrcp_archive



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1. INTRODUCTION

The Maximum Reserve Capacity Price (MRCP) sets the maximum bid that can be made in a Reserve Capacity Auction and is used as the basis to determine an administered Reserve Capacity Price if no auction is required. Each year the Independent Market Operator (IMO) is required to determine the MRCP in accordance with the *Market Procedure: Maximum Reserve Capacity Price*⁵ (Market Procedure). The proposed revised value for the MRCP is published in the form of a Draft Report, which is published on the IMO website (www.imowa.com.au/mrcp) for public consultation.

Following the public consultation process, the IMO must consider submissions and propose a final revised MRCP value and submit that value, along with a final report (produced in accordance with clause 4.16.7 of the Market Rules) to the Economic Regulation Authority (ERA) for approval.

This Final Report presents the updated component costs as determined for the 2012 Reserve Capacity Cycle. The IMO uses publicly available information, together with advice from independent engineering and economics consultants and Western Power, to update the various input parameters that are used in calculating the MRCP. Public submissions are then taken into account in final MRCP submitted to the ERA.

This Final Report is produced in accordance with clause 4.16.7 of the Wholesale Electricity Market Rules (Market Rules).

1.1 Reserve Capacity Cycle Timing

This Final Report has been prepared for the 2012 Reserve Capacity Cycle and the MRCP will be effective from 1 October 2014 through to 1 October 2015.

1.2 General Costing Methodology and Structure of this Draft Report

The yearly determination of the MRCP requires the IMO to develop estimates of the following constituent costs:

- the capital cost of a 160 MW Open Cycle Gas Turbine (OCGT) power station with inlet cooling, located within the South West interconnected system (SWIS);
- the land cost associated with developing and constructing the power station;
- the cost associated with connection of the power station to the transmission system;
- the cost associated with building liquid fuel storage and handling facilities for the power station to accommodate 24 hours of operation;

⁵ The Market Procedure is available at <http://www.imowa.com.au/market-procedures>

- the fixed Operational and Maintenance (O&M) costs associated with the power station and the transmission facilities listed above;
- a margin for legal, approval, financing and insurance costs and contingencies; and
- the Weighted Average Cost of Capital (WACC).

In determining the proposed MRCP, the IMO has sought advice from various consultants and agencies. Table 1 lists these organisations and the input parameters for which they have provided advice.

Table 1: Consultants and agencies

Organisation	Cost estimate(s) provided
Sinclair Knight Merz (SKM)	Power station capital cost Margin for indirect costs and contingencies O&M costs
Landgate	Land cost
Western Power	Transmission connection cost
GHD	Fixed fuel cost
Pricewaterhouse Coopers (PwC)	WACC

The IMO notes that all but one of the organisations listed in Table 1 are the same as were consulted last year. The Annual WACC parameters were calculated last year by the Allen Consulting Group.

1.3 MRCP Review

The IMO is required, under Clause 4.16.9 of the Market Rules, to conduct a review of the methodology and process for determining the MRCP at least once in every five year period. The Market Advisory Committee (MAC) constituted the Maximum Reserve Capacity Price Working Group⁶ (MRCPWG) in 2010 to consider, assess and develop any recommendations for changes to the Market Procedure.

The MRCPWG met ten times between May 2010 and June 2011. The review culminated in the development of a Procedure Change PC_2011_06⁷ for the Market Procedure, which has now commenced.

⁶ Proceedings of the MRCPWG are available at <http://www.imowa.com.au/mrcpwg>

⁷ Details of Procedure Change PC_2011_06 are available at http://www.imowa.com.au/PC_2011_06

This is the first year the amended Market Procedure (and modified methodology) has been used to determine the MRCP.

As was agreed by the MRCPWG, the methodology employed this year for determining the MRCP is based on the same underlying concept of costing the entry of a 160 MW OCGT power station into the Wholesale Electricity Market (WEM) in the relevant Capacity Year (in this case 2014/15).

The constituent costs listed in section 1.2 above are the same as for previous years. However, a number of refinements to the methodology have been implemented following agreement by the MRCPWG and approval of the Procedure Change Proposal. These refinements could be classified into changes that had a significant impact on the MRCP and those that had less impact. The changes included in the MRCP methodology this year are listed below.

Changes expected to have a significant impact on MRCP:

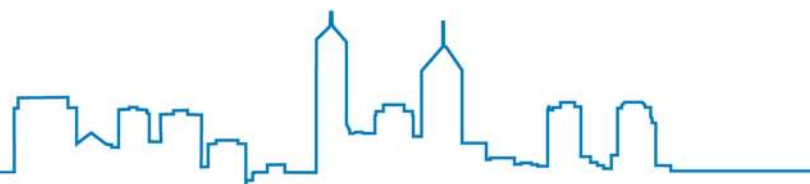
- The methodology now includes an allowance for the costs and output efficiency gains of installing inlet cooling.
- The transmission cost calculation has been amended and is now determined from real costs faced by project developers, represented in historical connection costs and actual access offers determined by Western Power.

Changes expected to have less impact on MRCP:

- The land cost estimate is based on the average cost of the selected land parcels (rather than the cheapest location), with the land size set at three hectares (or the minimum land size for the location where this is greater than three hectares).
- The allowance to initially fill the fuel tank is sufficient for 14 hours of operation of the facility, increased from 12 hours.
- The effective compensation period is set to six months, shortened from two years, with capital costs escalated forward to April of Year 3 of the Reserve Capacity Cycle.
- An allowance for annual insurance costs is included within the Fixed O&M costs.
- An allowance for debt issuance costs is included within the Weighted Average Cost of Capital (WACC), with the corresponding debt financing costs removed from the margin M.
- The IMO has the discretion to nominate a method for determining the debt risk premium that, in its opinion, is consistent with current accepted Australian regulatory practice.

1.4 Public Consultation

Following publication of the Draft Report on 13 December 2011, the IMO invited public submissions until the submission deadline of 17 January 2012. The IMO received nine



submissions from the following parties:

- Landfill Gas and Power;
- Alinta;
- Infratil Energy Australia;
- Tesla Corporation;
- Griffin Power;
- Merredin Energy;
- Perth Energy;
- EnerNOC; and
- ERM Power.

A summary of the submissions received and the IMO's response to each of the issues raised is included in Section 5 of this report. The full details of the submissions are available on the IMO website.

In addition, the IMO conducted a stakeholder workshop on 4 January 2012 to provide background information on the calculation of the WACC and its input parameters and to explain the underlying reasons behind the fall in the WACC since the previous MRCP. The workshop was attended by 28 stakeholders and included a short presentation by the IMO and PwC, followed by discussion. The minutes and related documents for the workshop are available on the IMO website.

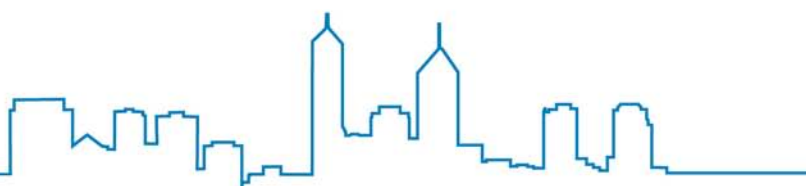
1.5 MRCP Outcome for the 2012 Reserve Capacity Cycle

In accordance with clause 4.16.7 of the Market Rules and having considered the submissions received, the IMO proposes a final revised value of the MRCP of \$163,900 per MW per year for the 2012 Reserve Capacity Cycle.

This is a reduction of 32% from the 2011 MRCP of \$240,600 per MW per year. This reduction is caused by a combination of year-on-year variation in input parameters (reduction of \$26,500 per MW per year, 11.0%) and the methodology changes as a result of the MRCP Review (further reduction of \$50,100 per MW per year, 23.4%).

This also represents a reduction of 1.3% from the proposed MRCP of \$166,100 per MW per year in the Draft Report.

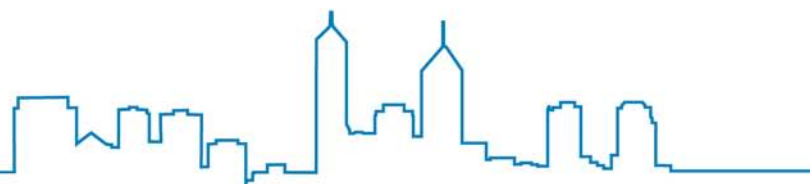
A detailed analysis of the changes since the 2011 MRCP is included in Section 4.4 of this report.



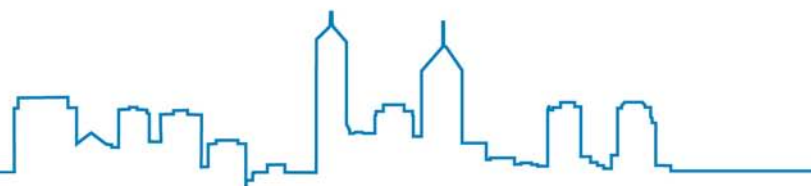
1.6 Supporting Documents

The following related documents are available on the IMO website (<http://www.imowa.com.au/mrcp>):

- *Draft Report: Maximum Reserve Capacity Price Review for the 2014/15 Reserve Capacity Year*;
- MRCP Calculation Spreadsheet (Final Report version);
- PwC letter, dated 17 January 2012, *WACC Components of the MRCP*;
- PwC calculation spreadsheet (Final Report version);
- SKM report, dated 2 February 2012, *Review of the Maximum Reserve Capacity Price 2012* (Final Report version);
- Letter from SKM, dated 30 January 2012, *MRCP – Response to Comments Raised Through Stakeholder Feedback*;
- MRCP Calculation Spreadsheet (Draft Report version);
- Letter from Landgate, dated 29 September 2011, *Land Values for Reserve Capacity Price*;
- PwC letter, dated 4 October 2011, *WACC Components of the MRCP*;
- PwC calculation spreadsheet (Draft Report version);
- SKM report, dated 24 November 2011, *Review of the Maximum Reserve Capacity Price 2012* (Draft Report version);
- GHD report, dated 24 November 2011, *Review of Fixed Fuel Cost for Maximum Reserve Capacity Price in the Wholesale Electricity Market, Diesel Fuel Storage and Handling Facility*;
- Western Power report, dated 28 November 2011, *Total Transmission Cost Estimate for the Maximum Reserve Capacity Price for 2014/15*; and
- Documents related to the stakeholder workshop held on 4 January 2012:
 - Presentation;
 - Spreadsheet containing supporting data for slide 9 in the presentation;
 - Questions tabled prior to the workshop by Merredin Energy; and
 - Minutes; and
- Submissions from:
 - Landfill Gas and Power;
 - Alinta;



- Infratil Energy Australia;
- Tesla Corporation;
- Griffin Power;
- Merredin Energy;
- Perth Energy;
- EnerNOC; and
- ERM Power.



2. ESCALATION OF COSTS

2.1 Escalation Factors

The Market Procedure describes a number of escalation factors that are applied to various costs within the MRCP. These escalation factors are used to estimate the changes in costs from the time at which price estimates are derived to the time at which, for the purpose of the MRCP, the capital is assumed to be outlaid.

The calculation for the 2012 MRCP is based on a theoretical power station that would commence operation on 1 October 2014. In line with the Market Procedure, capital costs are escalated to 1 April 2014 and O&M costs have been escalated to 1 October 2014. The various input costs have been provided to the IMO at different dates, which are provided in Chapter 3 of this report.

The IMO proposes to use the escalation factors summarised in Table 2.

Table 2: Escalation Factors

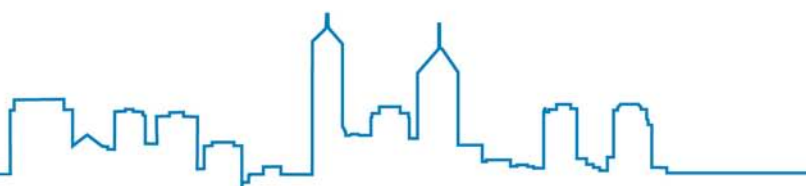
Escalation Factor	Financial Year				
	2011/12	2012/13	2013/14	2014/15	2015/16
CPI	2.0%	3.25%	2.625%	2.50%	
Power Station Capital Cost	4.29%	2.20%	2.31%	1.22%	1.16%
Connection Asset O&M Cost	4.38%				
Power Station O&M Cost	3.33%	3.82%	3.57%	3.52%	
Transmission Connection Cost	4.90%				

In previous years, the escalation factors have been determined on the basis of historical price movements.

During the MRCP Review, the MRCPWG recommended that cost escalation be based on forecast price movements where feasible.

In addition, the application of these escalation factors has changed from previous MRCP determinations. For example, many of the capital costs for the 2011 MRCP were estimated in mid-2010 prices and escalated forward by one year using the applicable escalation factor. These were then escalated a further two years using the WACC.

The MRCPWG recommended that a revised approach be adopted for the 2012 MRCP whereby the WACC is applied to capital costs for an effective compensation period of six months. Consequently, capital cost estimates have been escalated forward to the corresponding date, six months prior to the commencement of the relevant Capacity Year (for the 2012 MRCP, 1 April 2014).



The following escalation factors have been determined for use in the MRCP:

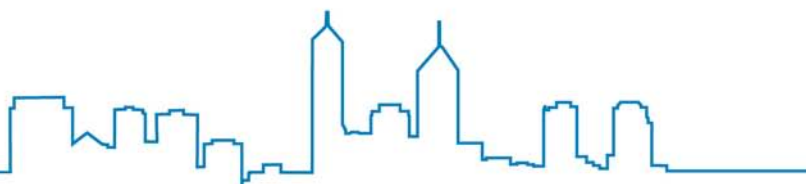
- The CPI (Consumer Price Index) escalation rates are determined from the forecasts of the Reserve Bank of Australia (RBA) as described in the Market Procedure. The mid-point of the RBA's target range of inflation is used beyond the period of the forecasts, resulting in a constant escalation rate from the 2014/15 financial year onwards. These values are also provided in the SKM report.
- The power station capital cost escalation factors have been determined by SKM and are published in its report. SKM has calculated these escalation factors by weighting historical and forecast movements of specific input cost drivers such as steel, copper and labour costs. The weighting of each input cost driver relates to its contribution to the total capital cost of the power station.
- Escalation factors for connection asset O&M costs have also been calculated by SKM. SKM has noted in previous years that fixed O&M costs for these assets are dominated by labour costs, so the labour cost escalation rates are used to escalate these O&M costs. The labour cost escalation factors are determined from the 10-year average movement in Labour Price Indices, so a single escalation rate has been applied in the MRCP calculation.
- Escalation factors for power station O&M costs have also been determined by SKM. These escalation factors are derived by weighting labour escalation rates and CPI. Consequently, a single rate applies from the 2014/15 financial year onwards.
- The transmission connection cost escalation factor is determined from the average annual change in Western Power cost estimates for a fixed transmission connection scope, as described in Section 2.4 of the Market Procedure. This has been provided in Western Power's report.

One change has been made to the escalation factors since the Draft Report. The CPI escalation factor for the 2013/14 financial year has been increased from 2.5% as proposed in the Draft Report (being the mid-point of the RBA's target range of inflation) to 2.625%. This has been recalculated to incorporate the RBA's CPI forecast of 2.5% to 3% for the year ending 2013, included within its *Statement of Monetary Policy – November 2011*. The IMO now proposes a CPI escalation factor of 2.625% for the 2013/14 financial year, calculated as the average of:

- 2.75%, being the mid-point of the RBA's forecast range of CPI inflation for calendar year 2013; and
- 2.5%, being the mid-point of the RBA's target range of inflation.

The CPI escalation factor contributes to the calculation of the power station capital cost and power station O&M cost escalation factors. These factors have been amended accordingly for the 2013/14 financial year:

- The power station capital cost escalation factor has increased from 2.29% to 2.31%; and



- The power station O&M cost escalation factor has increased from 3.52% to 3.57%.

Further detail on the development of these escalation factors can be found in the applicable supporting documents on the IMO website at <http://www.imowa.com.au/mrcp>.

3. INPUT PARAMETERS TO THE MAXIMUM RESERVE CAPACITY PRICE CALCULATION

3.1 Power Station Capital Costs (PC)

As with the 2011 MRCP determination, the IMO commissioned SKM to provide generation plant capital costs for a 160 MW OCGT power station located within the SWIS. This is the fifth year in which SKM has provided this estimate to the IMO. The scope provided to SKM was broadly the same as for last year, except for the inclusion of an allowance for the costs and output efficiency gains of installing inlet cooling.

SKM developed the capital cost estimate for a generic 160 MW OCGT power station (including procurement, installation and commissioning) using Thermoflow GT Pro[®]/PEACE[®] and benchmarked the costs of equipment and labour against actual projects.

In its report, SKM noted that it had requested budgetary pricing quotations from main equipment suppliers but had not received responses. However, as described by SKM in its letter dated 30 January 2012, gas turbine suppliers provide cost data into the PEACE[®] system that SKM has used in developing its cost estimate.

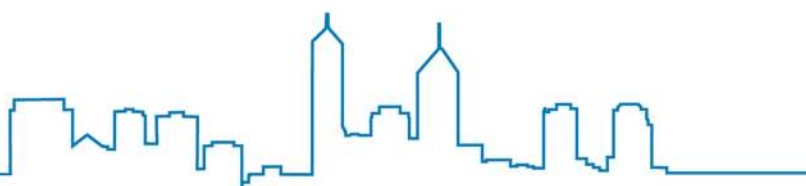
For the purposes of the 2012 MRCP:

PC = A\$858,987.37 per MW

This price represents an increase of 8.6% from the corresponding value for the 2011 MRCP. Three key factors have contributed to this increase:

- The cost of main plant equipment has reduced by 12% since last year, providing an 8% reduction in PC. SKM has increased its reliance on current international market data as local project-related data has aged. SKM also notes in its report that “*increased competition globally for the supply of E Class OCGT’s [yields] a materially lower plant and equipment estimate*”.
- By contrast, increasing construction labour costs in Western Australia has increased the local costs by 33%, providing an increase of 12% in PC.
- The changed approach to cost escalation has contributed an increase of 4%. Costs have been escalated forward to 1 April 2014 and the WACC applied for six months (previously the costs were escalated one year and WACC applied for two years).

This price is unchanged since the Draft Report.



3.2 Legal, financing, insurance, approvals, other costs and contingencies (M)

The parameter M is defined as a margin to cover legal, financing, insurance, approvals, other costs and contingencies. SKM was commissioned to provide an estimate of these costs for 2012. This is the fifth year in which SKM has provided this parameter for the IMO.

The margin M is estimated from the costs associated with recent comparable developments, excluding any abnormal costs that may be particular to individual projects. Costs are scaled for a 160 MW power station where relevant. M is added as a fixed percentage of the capital cost of developing the power station.

For the purposes of the 2012 MRCP:

M = 18.2%

This value is marginally lower than the corresponding value of 18.6% for the 2011 MRCP. The significant changes relate to:

- a reduction of 1% in the cost of raising capital, for which the cost of debt raising has been removed (debt issuance costs have been added to the WACC) as agreed by the MRCPWG;
- a reduction of 1.1% in the allowance for project insurance, acknowledging that “*The cost of project contract works insurance is included within the Capital Cost estimate*”⁸; and
- the inclusion (for the first time) of an allowance of 2% for start-up costs such as personnel-related expenses and costs associated with testing and commissioning.

The margin M is unchanged since the Draft Report.

The margin M is added as a fixed percentage of the capital cost of developing the power station.

3.3 Transmission Connection Costs (TC)

For the 2012 MRCP, Western Power has calculated the transmission connection cost estimate as part of its obligations under the Market Procedure.

The transmission connection cost estimate provided for this MRCP determination is based on actual connection costs and Access Offers that have been determined by Western Power. As the connection costs for individual projects are confidential to Western Power and the project developer, Western Power has provided an audit report verifying the connection cost data used in the calculation.

⁸ See Section 6.3.4 of the SKM Report



For the purposes of the 2012 MRCP:

TC = A\$109,821 per MW

This value is approximately 64% lower than the corresponding value in 2011⁹.

The IMO also notes that this is 14% lower than the indicative estimate provided in the Procedure Change Proposal PC_2011_06¹⁰. This indicative estimate was determined as if it was being prepared for last year's MRCP.

The revised methodology adopted as a result of the MRCP Review uses actual connection costs for projects within a 5-year window, and weights each connection cost according to the year that the facility commenced, or is expected to commence, operation. In determining TC for the 2012 MRCP, the calculation considers a different 5-year window than for the indicative estimate in Procedure Change Proposal PC_2011_06. This change in 5-year window results in changes to the set of projects considered in the calculation, as well as the application of different weightings on the projects' capital contributions.

This price is unchanged since the Draft Report.

For further information regarding the costing provided by Western Power, please refer to the Western Power report¹¹ published on the IMO website (<http://www.imowa.com.au/mrcp>).

3.3.1 Easement Costs

To assist Western Power in its determination of the transmission connection cost estimate, the IMO provides an estimate of easement costs for the direct connection scope described in step 2.4.2 of the Market Procedure.

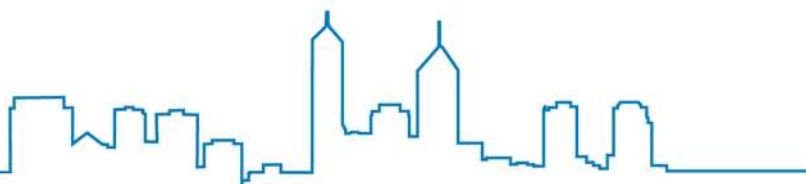
The IMO has estimated the easement cost on a similar basis to last year.

- The easement is assumed to be 2km long and 60m wide (an area of 12 hectares).
- The IMO has assumed that a project developer may not be required to purchase the full portion of land and could instead secure easement rights for some or all of the easement. As such, the IMO has estimated the easement costs to be 50% of the purchase value of the land, consistent with the 2011 MRCP.

⁹ The transmission connection cost estimate this year is presented in dollars per MW, whereas it had previously been presented in dollars. For comparison purposes, this year's TC is multiplied by the expected Capacity Credit allocation (see Section 4.3).

¹⁰ A reduction of 58% was estimated in the Procedure Change Proposal, which is available from http://www.imowa.com.au/PC_2011_06. This was taken from SKM's report to the MRCPWG, available from <http://www.imowa.com.au/mrcpwg>

¹¹ See Western Power report *Total Transmission Cost Estimate for the Maximum Reserve Capacity Price for 2014/15*.



- The purchase price per hectare has been estimated by dividing the average cost of the land parcels (as valued by Landgate) by three hectares. Note that this cost estimate is as at 30 June 2011.

To meet the requirements for the transmission connection cost estimate (Section 2.4 of the Market Procedure), the IMO has escalated the resulting value forward to 30 June 2012 using the CPI escalation factor for the 2011/12 financial year of 2.0%. Further escalation of this cost to 1 April 2014 occurs within the transmission connection cost estimate methodology where required.

The IMO has estimated that the easement cost as at 30 June 2012 is A\$5.339M, and provided this value to Western Power for incorporation into its calculation.

In addition, the IMO recalculated the easement cost that would have applied for the 2011 MRCP to ensure that the costs were estimated on a consistent basis. This value is required under the Market Procedure in the determination of the transmission connection cost escalation factor. The IMO has performed the same calculation as described above, using the average cost of the land parcels that were valued by Landgate last year. This value has been escalated forward to 30 June 2011 using the 2010/11 CPI of 3.6% as reported in the RBA's *Statement of Monetary Policy – November 2011*. The resulting easement cost estimate for last year is A\$5.195M. This year's easement cost represents a \$144k increase (2.8%) over the 2011 estimate.

The easement costs are unchanged since the Draft Report.

3.4 Fixed Fuel Costs (FFC)

Fixed fuel costs for the determination of the 2012 MRCP were calculated by GHD. The IMO commissioned GHD to update the costing provided in its October 2010 report, entitled *Review of Fixed Fuel Cost for Maximum Reserve Capacity Price in the Wholesale Electricity Market*, with prices that reflect those in 2011. This is the fifth year in which GHD has provided this estimate to the IMO.

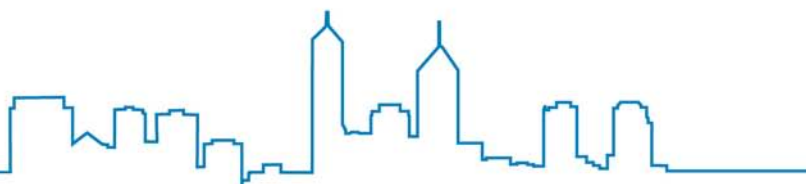
GHD has provided its cost estimate as at 30 June 2011, which has been escalated to 1 April 2014, using the CPI escalation rates from Table 1.

For the purposes of the 2012 MRCP:

FFC = A\$3.183 M

This price represents an increase of 19.2% from the corresponding value for the 2011 MRCP. Three factors have contributed to this change:

- GHD estimates that the cost of engineering, procurement and construction of the facility has increased by 7%, providing a 6% increase in FFC.



- The unit price for distillate fuel, taken from the *Final Report, 2011 Review of the Energy Price Limits for the Wholesale Electricity Market in the SWIS*¹², has increased by 21% from last year. In addition, the initial fuel supply has been increased by 17% as agreed by the MRCPWG. The initial supply, sufficient to allow operation for 14 hours at maximum capacity, aligns with the requirements for certification of Reserve Capacity. In combination, these changes have provided a 9% increase in FFC.
- The approach to cost escalation has changed since last year, providing an increase of 5% in FFC. Costs have been escalated forward to 1 April 2014 and the WACC applied for six months (previously the costs were escalated one year and WACC applied for two years).

This cost has increased by 0.1% since the Draft Report due to the amendment to the CPI escalation factor for the 2013/14 financial year, as described in Section 2 of this report.

3.5 Land Costs (LC)

The IMO commissioned Landgate to update the land cost estimates to be used in the MRCP determination. This is the fourth year in which Landgate has provided these estimates to the IMO.

These estimated land valuations are based on guidelines outlined in the Market Procedure. Valuations were conducted for seven locations in regions where development of a power station within the SWIS would be reasonably likely. The regions included were:

- Collie Region;
- Kemerton Industrial Park Region;
- Pinjar Region;
- Kwinana Region;
- North Country Region (both Geraldton and Eneabba); and
- Kalgoorlie Region.

Land sizes and costs were determined in accordance with the Market Procedure. Three hectare sites were used for all locations except Kemerton, for which the smallest available lot is five hectares. This approach differs from that used in the 2011 MRCP, where land sizes were fixed at three hectares for locations where no buffer zone is required and 30 hectares for locations where a substantive buffer zone is required. In its letter, Landgate notes that the change in land size from 30 hectares to three hectares for some locations has enabled suitable sites to be considered in industrial estates that are more centrally located within relevant towns. This has resulted in higher land prices per hectare for some locations.

¹² Available at http://www.imowa.com.au/2011_EPL_REVIEW



Landgate has provided its estimate of the cost of each land parcel as at 30 June 2011, excluding stamp duty. The IMO has added the applicable stamp duty to each land parcel cost, determined by the online calculation provided by the Office of State Revenue¹³. In accordance with the Market Procedure, the IMO has calculated the mean of the seven valuations. This average land cost has been escalated to 1 April 2014, using the CPI escalation rates from Table 1.

For the purposes of the 2012 MRCP:

LC = A\$2.804 M

This price represents an increase of 263% from the corresponding value for the 2011 MRCP. This significant increase in a relatively small component of the MRCP is predominantly due to the shift from using the cheapest location in the 2011 MRCP to the use of the average land cost.

This price also represents an increase of 5% from the corresponding value in the Draft Report. This increase is caused by the inclusion of stamp duty in the land cost, which has been included in response to the submission from Merredin Energy.

3.6 Weighted Average Cost of Capital (WACC)

The methodology for calculating the WACC was reviewed by PwC for the MRCPWG in 2011. The IMO has subsequently commissioned PwC to update the Annual WACC parameters in line with 2011 prices for the 2012 MRCP.

The WACC is determined according to the Capital Asset Pricing Model (CAPM), with bond yields considered in both the costs of equity and debt. The nominal risk free rate is determined from observed yields of Commonwealth Government bonds, while the debt risk premium (DRP) is determined from observed yields of corporate bonds.

The IMO notes that the WACC used for the determination of the 2012 MRCP has been significantly affected by turbulence in global financial markets during the second half of 2011. The turbulence in global markets has largely been driven by concerns over sovereign debt levels in Europe and slow economic growth in the US.

The market volatility has led many investors to prefer lower risk investments, such as government and high quality corporate bonds. Higher demand for bonds causes their prices to increase and yields to decrease. This is reflected in Figure 1, which shows the daily closing value of the All Ordinaries as well as indicative daily yields of Commonwealth Government securities with a maturity date approximately ten years from now.

¹³ See <http://rol.osr.wa.gov.au/taxcal/>

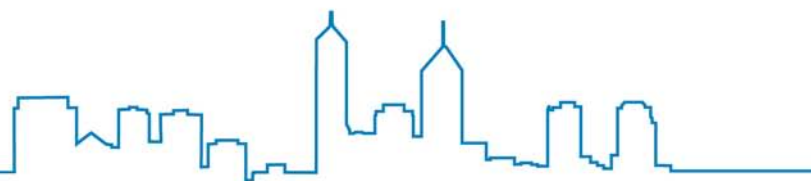
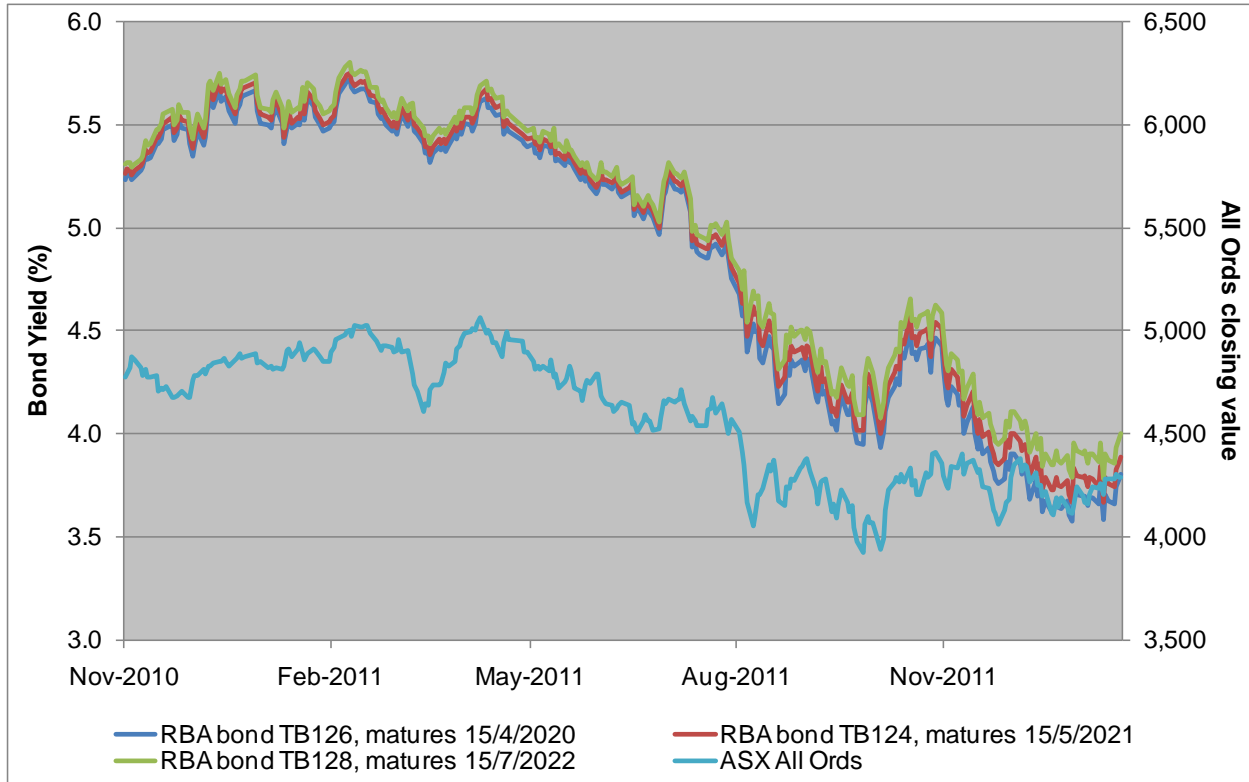


Figure 1: Stock market results and bond yields, Nov 2010 to Jan 2012¹⁴



A detailed calculation of the WACC is provided in Appendix A.

For the purposes of the 2012 MRCP:

WACC = 6.83%

This value is significantly lower than the WACC of 8.65% determined for the 2011 MRCP. This reduction is driven by lower values for two input parameters.

- The nominal risk free rate has reduced from 5.59% to 3.92%. This parameter has been calculated from Commonwealth Government security yields using the same method as last year.
- The debt risk premium has reduced from 5.25% to 4.13%. As explained in Section 3.6.1, this parameter has been calculated from Bloomberg fair value data.

The Annual parameters used to determine the WACC were calculated at 30 December 2011. The IMO notes that the WACC has reduced further from the value of 7.11% proposed in the Draft Report, for which the values were calculated at 30 September 2011. The following

¹⁴ Bond yield data sourced from RBA Statistical Table F16, available from <http://www.rba.gov.au/statistics/tables/>

changes have occurred.

- The nominal risk free rate has reduced from 4.25% to 3.92; and
- The debt risk premium has reduced from 4.26% to 4.13%.

3.6.1 Debt Risk Premium

The Market Procedure requires that “*The IMO must determine the methodology to estimate the DRP, which in the opinion of the IMO is consistent with current Australian accepted regulatory practice.*”

In the Draft Report, the IMO proposed to determine the debt risk premium (DRP) from the 7-year Bloomberg BBB fair value curve, extrapolated to 10 years using the difference between the AAA 7-year and 10-year fair value curves. In forming its opinion, the IMO placed particular emphasis on the acceptance of various methodologies, considering that a method is accepted if it has been challenged (for example, to the Australian Competition Tribunal) and the application of this methodology has been upheld. The basis of the IMO’s opinion, as outlined in the Draft Report, is contained in Appendix B.

Since the publication of the Draft Report, the Australian Competition Tribunal (ACT) has published its decisions in relation to four applications to review the DRP determined by the Australian Energy Regulator (AER). The applications were made by the following parties:

- Victorian distribution network service providers¹⁵;
- Envestra Limited (South Australia gas network)¹⁶;
- Envestra Limited (Queensland gas distribution network)¹⁷; and
- APT Allgas Energy Limited¹⁸.

In each of these cases, the AER had originally determined the DRP using a weighted average of the extrapolated Bloomberg curve and the observed yield of the Australian Pipeline Trust (APT) BBB-rated 10-year bond. In each case, the ACT ordered that the AER replace its original figure with a debt risk premium determined from the 7-year Bloomberg BBB fair value curve, extrapolated to 10 years using the difference between the AAA 7-year and 10-year fair value curves.

The IMO considers that the recent ACT decisions further support its opinion as published in the Draft Report. The IMO has maintained the use of the extrapolated Bloomberg data to determine

¹⁵ <http://www.austlii.edu.au/au/cases/cth/ACompT/2012/1.html>

¹⁶ <http://www.austlii.edu.au/au/cases/cth/ACompT/2012/3.html>

¹⁷ <http://www.austlii.edu.au/au/cases/cth/ACompT/2012/4.html>

¹⁸ <http://www.austlii.edu.au/au/cases/cth/ACompT/2012/5.html>

the DRP, and has updated the value to reflect the most recent data available at the time of preparation of this Final Report.

3.6.2 Alignment of the WACC methodology with regulatory practice

In regulated markets in Australia, the WACC is frequently determined by regulatory authorities, such as the Economic Regulation Authority (ERA) and the Australian Energy Regulator (AER), to determine an appropriate economic return for regulated monopoly businesses. These bodies publish several WACC determinations per year, with many of these decisions tested at the Australian Competition Tribunal (ACT).

The calculation of the WACC while formulaic in nature requires a degree of judgement and is frequently controversial. WACC determinations by regulatory authorities are often challenged at the ACT, with experts representing opposing views.

As part of the MRCP Review undertaken by the IMO in 2011, PwC was commissioned to review the WACC used in the MRCP. In its report, PwC notes that¹⁹:

The role of the IMO in determining the WACC for the maximum reserve capacity price is similar to the role of an economic regulator estimating a cost of capital to apply in determining regulated prices.

PwC reviewed current regulatory practice and made recommendations in relation to the WACC calculation and input parameter values. These recommendations were reviewed and supported by the MRCPWG.

Various stakeholders have suggested in submissions that the IMO should deviate from regulatory practice in the determination of several of the WACC input parameters.

However, given the complexity of the WACC, the expertise of Australian regulatory authorities and the frequency of WACC determinations by these regulators (and review by the ACT), the IMO considers that it is appropriate to determine the WACC in a way that is consistent with current accepted Australian regulatory practice.

3.6.3 Exercising discretion with regard to the 5 Yearly parameters

A number of submissions received highlighted that the Market Procedure does provide the IMO with limited discretion to propose alternative values for the 5 Yearly WACC parameters. Step 2.9.4(b) of the Market Procedure states that the IMO may exercise this discretion:

¹⁹ [http://www.imowa.com.au/f2179,1271081/PwC_MRCP_WACC - Final_Report_28_February_2011.pdf](http://www.imowa.com.au/f2179,1271081/PwC_MRCP_WACC_-_Final_Report_28_February_2011.pdf)

“... if, in the IMO’s opinion, a significant economic event has occurred since undertaking the last 5 yearly review of the Maximum Reserve Capacity Price in accordance with clause 4.16.9 of the Market Rules.”

While the advice and recommendations received from PwC in relation to the WACC calculation and input parameter values was received early in the MRCP Review, the review itself was not concluded until Procedure Change PC_2011_06 was approved in October 2011.

Consequently, the IMO considers that the Market Procedure permits discretion only if, in the IMO’s opinion, a significant economic event has occurred since October 2011.

Various stakeholders have suggested in submissions that the IMO should exercise the discretion within step 2.9.4(b) of the Market Procedure and make adjustments to the 5 Yearly parameters. These stakeholders have suggested that various significant economic events have occurred that allow the IMO to exercise its discretion.

The events suggested by stakeholders and the IMO’s consideration of these are listed in Table 3 below.

Table 3: Consideration of a “significant economic event”

Submitter(s)	Economic event described	IMO’s consideration
Alinta, Griffin Power, Infratil Energy Australia, Perth Energy, Tesla	10-year government bond rate at record low levels in December 2011	Commonwealth Government bonds are actively traded and are subject to constant re-pricing. While Australian bond yields are at record lows this in itself would not constitute a significant economic event. Some submissions point to turbulence in global financial markets due to concerns over sovereign debt levels in Europe and slow economic growth in the US. The problems within these markets were well documented and reported on or before by October 2011 and any change since this date is simply a further deterioration.
Alinta, ERM Power, Perth Energy	Turbulence in global financial markets during the second half of 2011	The IMO agrees that significant market turbulence has occurred in 2011. However, notwithstanding a heightened level of day-to-day volatility, global stock market indices have generally increased or maintained their levels in the period since October 2011, as shown in Figure 2. The IMO does not consider that the volatility experienced in financial markets since October 2011 can be considered a significant economic event.
EnerNOC	Financial rescue packages, credit rating adjustments and adjustment to US debt ceiling prior to October 2011	As noted above, the IMO considers that it is only permitted discretion in the event of a significant economic event since October 2011.



Submitter(s)	Economic event described	IMO's consideration
EnerNOC	Standard & Poors (S&P) lowered credit ratings for many of the various financial institutions, several EU countries	<p>The IMO considers that credit ratings for financial institutions and countries are constantly under review and the downgrades highlighted by EnerNOC are simply a reflection of the financial strength or otherwise of the institution or country.</p> <p>The IMO notes that Australia has retained a credit rating of AAA during the period since October 2011.</p>
Griffin Power	3% drop in global share markets following announcement of referendum on Greek bailout package on 2 November 2011	The IMO considers that a 3% daily movement in a share market index on 2 November 2011, while not common, does not constitute a significant economic event. The IMO also notes that no such drop was observed in the Australian All Ordinaries Index, which fell 1.1% on 2 November 2011 and 0.3% on 3 November, then rose 2.5% on 4 November 2011.
Griffin Power	10% fall in All Ordinaries Index during November 2011	The IMO notes that by 5 December 2011, the All Ordinaries Index had recovered the losses experienced during November 2011. The closing price on 5 December was higher than for all but one day in November 2011.
Griffin Power	RBA cut interest rates in November and December 2011	The IMO considers that the modest interest rate cuts, each of 25 basis points, are a standard monetary policy response.
Tesla	Substantial decline in equity values over the last few months	Notwithstanding a heightened level of day-to-day volatility, global stock market indices have generally increased or maintained their levels in the period since October 2011, as shown in Figure 2.

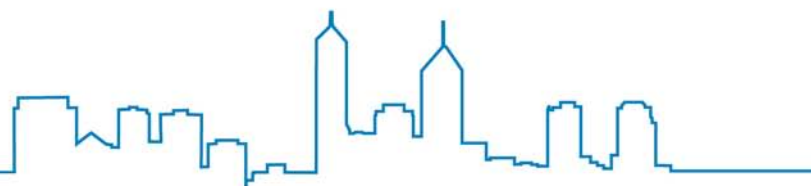
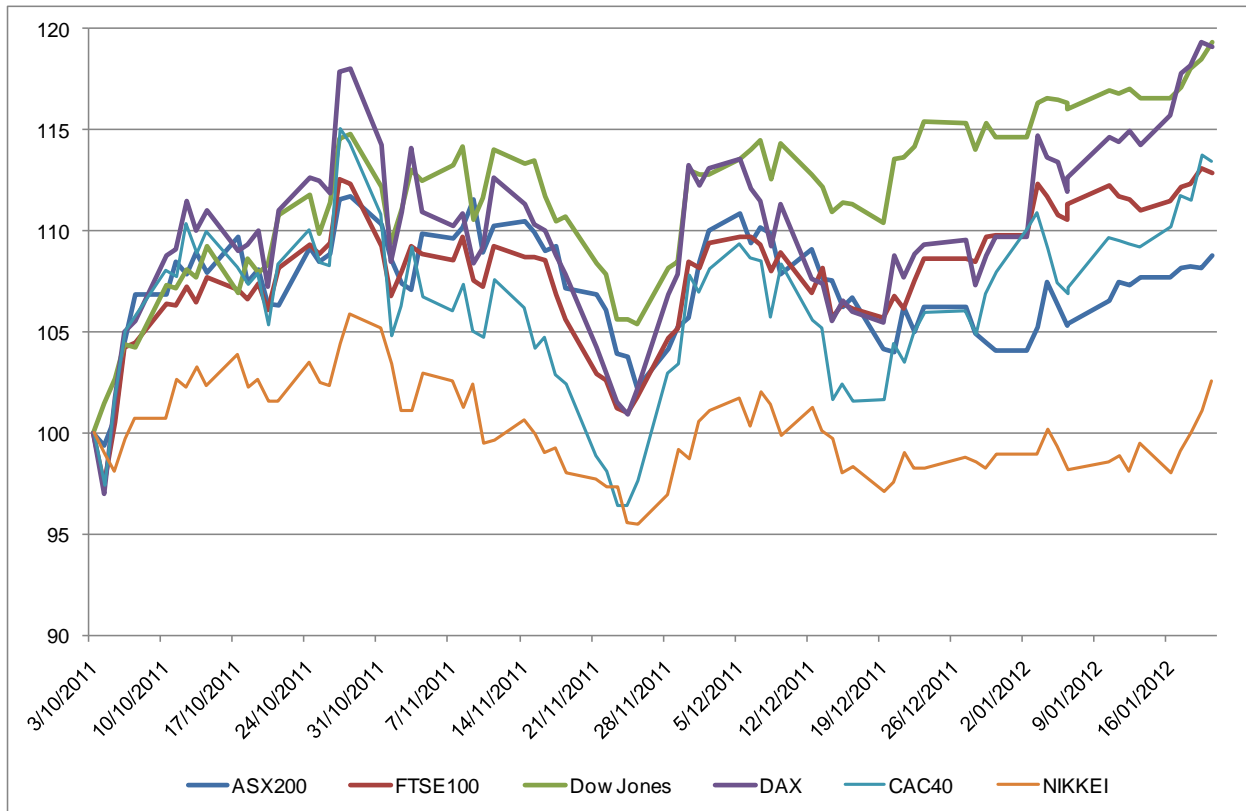


Figure 2: Stock market index closing prices, Oct 2010 to Jan 2012²⁰



The IMO notes the concerns over sovereign debt levels in Europe, slow economic growth in the US and increased volatility in global financial markets. The IMO also notes that there appears to be increased demand, and consequently reduced yields, for Commonwealth Government securities. This drop in bond yields has had a material effect on the WACC calculated in accordance with the Market Procedure for the 2014/15 MRCP.

However, the IMO also notes that economic performance in Australia in late 2011 has been sound.

- GDP growth for 2011 is forecast to be 2¾ percent²¹;
- CPI growth for 2011 is forecast to be 3¼ percent²², just above the RBA's target band due to weather events in early 2011²³;

²⁰ Bond yield data sourced from RBA Statistical Table F16, available from <http://www.rba.gov.au/statistics/tables/>

²¹ Reserve Bank of Australia, *Statement on Monetary Policy – November 2011*, Table 6.1, available at <http://www.rba.gov.au/publications/smp/2011/nov/html/tables.html#table-6.1>

²² Reserve Bank of Australia, *Statement on Monetary Policy – November 2011*, Table 6.1, available at <http://www.rba.gov.au/publications/smp/2011/nov/html/tables.html#table-6.1>

²³ Reserve Bank of Australia media release, 6 December 2011, available at <http://www.rba.gov.au/media-releases/2011/mr-11-28.html>

- The AUD-USD exchange rate has remained steady, near parity;
- The unemployment rate has remained steady at just above 5 percent; and
- As noted in Figure xxx, the performance of equities on the Australian Stock Exchange has, despite some day-to-day volatility, been relatively flat since October 2011.

On the balance of the available information, the IMO is of the opinion that no significant economic event has occurred since the completion of the last 5 yearly review of the Market Procedure in October 2011.

Consequently, the IMO considers that the Market Procedure does not provide it with discretion to determine alternative values for the 5 Yearly WACC parameters.

3.6.4 Financing assumptions within the WACC

The calculation of the WACC relies on a set of assumptions about the capital structure of a business. The Allen Consulting Group explained this in its November 2007 report for the IMO²⁴:

“The capital structure assumed for the purposes of estimating the WACC affects the value of the WACC through the relative weightings given to the costs of debt and equity, the value of the equity beta (which is levered to reflect the assumed capital structure) and the value of the debt margin over the risk free rate (which is affected by assumptions of the credit rating of the business, of which gearing is an important determinant).”

It is common regulatory practice to make a benchmark assumption for the financial structure of a regulated business or activity, rather than base estimation of the cost of capital on the actual financial structure of the individual business. This approach is taken to avoid regulatory decisions distorting the incentives of regulated businesses to adopt efficient financing structures.”

The WACC described in the Market Procedure is based on the assumed capital structure recommended by PwC in its report for the MRCPWG²⁵. Specifically, the business of the power station project is assumed to be able to:

- maintain a credit rating of BBB with a gearing level of 40 percent debt-to-assets; and
- issue bonds in the corporate bond market to raise the debt finance for the project.

In the 2011 MRCP Review the IMO, in consultation with the MRCPWG modified the Market Procedure to more accurately reflect the actual costs (e.g. transmission costs) and output (e.g.

²⁴ http://www.imowa.com.au/f345,53574/ACG_Final_Report_IMO01_FINAL_221107.pdf

²⁵ http://www.imowa.com.au/f2179,1271081/PwC_MRCP_WACC_-_Final_Report_28_February_2011.pdf

increased capacity as a result of installing inlet cooling) for a 160 MW OCCGT generation facility entering the WEM. The specific changes are listed in Section 1.3 of this report.

The majority of submissions on the 2014/15 MRCP have suggested that the WACC assumptions with regard to the capital structure of a generation business may not be appropriate for the current composition of the WEM.

The IMO notes the concerns of stakeholders that a project is likely to face a higher debt risk premium if debt finance is sourced from a major Australian bank rather than through the corporate bond market.

In particular, Alinta has suggested that the capital structure assumptions should be re-examined:

“Alinta is aware that some Market Participants have suggested that the basis on which the debt portion of the hypothetical generation project is assumed to be financed under the Market Procedure (i.e. via the Australian corporate bond market) may not be consistent with either industry practise or market evidence. Market evidence also indicates that the market for non-financial institution corporate bonds remains limited.

To best enable this issue to be examined, Alinta requests that the IMO initiate another review under clause 4.16.3 of the Market Rules of the Market Procedure. The primary focus of the review should be on the debt financing assumptions for the hypothetical generation project underpinning the Market Procedure.”

The IMO considers that the WACC determined in this Final Report is consistent with the method in the Market Procedure, including the capital structure assumptions for the project.

However, the IMO agrees with Alinta’s suggestion to review the capital structure assumptions that underpin the WACC determination.

The IMO will consult with the MAC on this review with the aim of seeking to undertake this review in 2012.

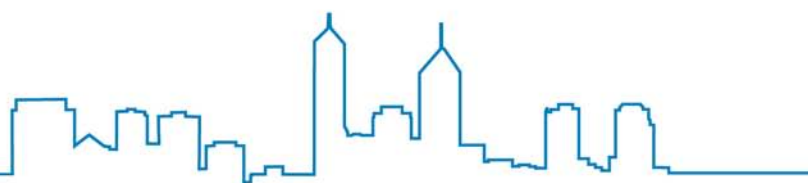
3.7 Capital Costs (CAPCOST)

The term CAPCOST refers to the total capital cost expressed in millions of Australian Dollars for the 160 MW OCGT power station. This is calculated by using the following formula:

$$\text{CAPCOST} = ((\text{PC} \times (1+\text{M}) + \text{TC}) \times \text{CC} + \text{FFC} + \text{LC}) \times (1+\text{WACC})^{1/2}$$

For the purposes of the 2012 MRCP:

CAPCOST = A\$191.791 M



3.8 Fixed Operation & Maintenance Costs (ANNUALISED_FIXED_O&M)

3.8.1 Generation

For the 2012 determination, SKM has determined the fixed O&M costs for the generator assets using the same methodology as last year. This is the sixth MRCP for which SKM has provided the estimate of these costs.

An annuity is calculated taking the first 15 years of O&M costs provided by SKM. The SKM report²⁶ details the total fixed O&M costs of the OCGT to year 15 as A\$30.448 M in June 2011 terms. This cost is annualised and then escalated forward by 3-1/4 years, to 1 October 2014 (the point at which these costs are assumed to commence), using the power station O&M escalation factors.

For the purposes of the 2012 MRCP:

Generation Fixed O&M Costs = A\$14,256.19 per MW per year

This cost represents an increase of 12.3% from the corresponding value for the 2011 MRCP. The un-escalated cost has increased by 3.8%, with the remainder of the increase caused by the amended cost escalation methodology. For the 2011 MRCP, costs were escalated forward by 12 months.

3.8.2 Transmission

For the 2012 determination, SKM provided the fixed O&M costs of the switchyard and transmission line assets using the same methodology as last year. This is the sixth MRCP for which SKM has provided the estimate of these costs. The IMO has added an estimate of Western Power's fixed network and tariff charges.

An annuity is calculated taking the first 15 years of O&M costs provided by SKM. The SKM report²⁷ details the total fixed O&M costs for the switchyard and transmission line assets. This cost is annualised and then escalated forward by 3-1/4 years, to 1 October 2014 (the point at which these costs are assumed to commence), using the connection asset O&M escalation factor.

For the purposes of the 2012 MRCP:

Transmission Fixed O&M Costs = A\$418.54 per MW per year

This cost represents an increase of 14.4% from the corresponding value for the 2011 MRCP.

²⁶ See Table 3-2 of the SKM report *Review of the Maximum Reserve Capacity Price 2012*.

²⁷ See Tables 4-1 and 4-2 of the SKM report *Review of the Maximum Reserve Capacity Price 2012*.

The un-escalated cost has increased by 3.7%, with the remainder of the increase caused by the amended cost escalation methodology. For the 2011 MRCP, costs were escalated forward by 12 months.

3.8.3 Network access charges

Western Power's published 2011/12 Price List²⁸ provides the various charges for network access and related services that apply for generation facilities. As it is assumed that the power station is connected to the transmission system, reference Tariff TRT2 is used for the purpose of the MRCP. As the use of system charge varies by location, the IMO has considered the list of locations nominated in step 2.7.1 of the Market Procedure, and has used the unit price for the most expensive of these locations. In 2011/12, Collie was the most expensive of the locations.

For the purpose of the MRCP, the costs are assumed as at 1 July 2011 and have been escalated forward to 1 October 2014. The CPI escalation factor has been used as required by step 2.5.6(c) of the Market Procedure.

For the purposes of the 2012 MRCP:

Fixed Network Access Costs = A\$14,349.38 per MW per year

This cost represents an increase of 2.8% from the corresponding value for the 2011 MRCP. The un-escalated cost has decreased by 0.2% as the Western Power unit prices are lower than in the 2010/11 price list. However, the increase in this value is caused by the amended cost escalation methodology. For the 2011 MRCP, costs were escalated forward by 12 months.

This cost has decreased by 6.9% since the Draft Report. The IMO notes that it made an error in applying the transmission connection cost escalation factor to network access charges in the Draft Report.

3.8.4 Insurance costs

Following the recent amendments to the Market Procedure, the Fixed O&M component of the MRCP is required to include annual insurance costs in respect of power station asset replacement, business interruption and public and products liability insurance as required under network access arrangements with Western Power. This is the first year for which these costs are included in the MRCP.

The IMO consulted with two well-known insurance brokers to estimate the relevant insurance premiums. The insurance brokers have requested that they not be named. Since the publication

²⁸ Available at http://www.westernpower.com.au/documents/aboutus/accessarrangement/2011/2011_12_Price_List.pdf

of the Draft Report, the IMO was provided with insurance renewal documentation by two Market Participants and has met with a third insurance broker. The IMO also sought updated advice from the two insurance brokers who had provided advice previously but had not received a response at the time of development of this report. None of the insurance brokers contacted have been able to provide the IMO with advice that can be published.

Based on the indicative quotations provided to the IMO and the documentation provided by Market Participants, the insurance premiums have been estimated as follows:

- Asset replacement and business interruption insurance is estimated as A\$559,363 per year as at 1 April 2014, calculated as 0.23% of the limit of liability at that date. The limit of liability has been determined as the sum of the capital construction cost and the potential refund liability during the period of re-construction.

For the purpose of asset replacement insurance, the capital construction cost has been calculated as

$$PC \times (1 + M) \times CAP + FFC_{non-fuel}$$

where

PC is the Power Station Capital Cost (see Section 3.1 of this report);

M is margin M (see Section 3.2 of this report);

CAP is the expected Capacity Credit allocation (see Section 4.3 of this report); and

$FFC_{non-fuel}$ is the non-fuel component of the Fixed Fuel Cost (see Section 3.4 of this report).

For business interruption insurance, the IMO has included the potential refund liability for the facility for two years. While a construction period of one year is assumed in the application of the WACC in the MRCP calculation, a period of time would be required prior to the commencement of any reconstruction works following a loss event (for example, for procurement of services, building approvals and any demolition or clearing works). The weighting of capacity refunds to peak demand periods means that a Market Participant may be required to refund two years worth of capacity payments in a period of less than 15 months.

- Public and products liability insurance is estimated as A\$120,000 per year as at 30 June 2011, based on a limit of \$50M for any one occurrence.

Based on the information considered by the IMO, the premium rates are consistent with the following assumptions:

- A newly constructed generation facility with on-site diesel storage;
- Location in a rural region of the SWIS, outside of any cyclone risk;
- Inclusion of coverage for machinery breakdown; and



- Deductibles of \$500,000 for property damage, \$100,000 for liability and 45 days for business interruption insurance.

The premiums above have been estimated to include the 2% terrorism levy and 10% stamp duty.

The insurance costs have been escalated forward to 1 October 2014 (the point at which these costs are assumed to commence), using the CPI escalation factor.

For the purposes of the 2012 MRCP:

Insurance Costs = A\$4,367.66 per MW per year

This value is 41% higher than the corresponding value of \$3,101.53 in the Draft Report. This increase is caused by a higher limit of liability for the asset replacement and business interruption insurance. In the Draft Report, the IMO had not included the costs covered by margin M or the potential refund liability.

It should be highlighted that insurance costs related to the development phase of the power station are included within margin M.

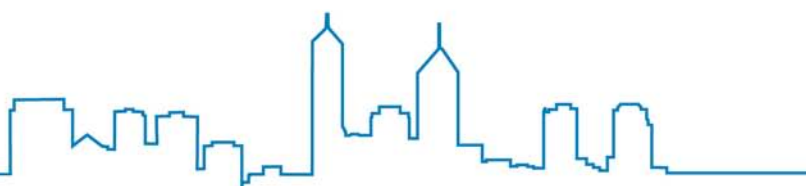
3.8.5 Total Fixed Operation & Maintenance Costs

For the purposes of the 2012 MRCP:

ANNUALISED_FIXED_O&M = A\$33,392 per MW per year

Total fixed operation and maintenance costs have increased by 25.3% compared to last year, predominantly due to the inclusion of insurance charges and the amended cost escalation methodology.

This value has also increased 0.6% since the Draft Report, with the increase in the insurance cost estimate marginally exceeding the reduction in the network access charges.



4. MAXIMUM RESERVE CAPACITY PRICE CALCULATION

4.1 Annualised Capital Costs (ANNUALISED_CAPCOST)

The annualised capital cost is determined using:

- the capital cost of A\$191.766 M, as determined in Section 3.7;
- the WACC of 6.83%, as determined in Section 3.6; and
- a term of 15 years, as required by the Market Procedure.

For the purposes of the 2012 MRCP:

ANNUALISED_CAPCOST = A\$20.830 M per year

4.2 Annualised Fixed Operation & Maintenance Costs (ANNUALISED_FIXED_O&M)

The total annualised fixed O&M costs are outlined in Section 3.8.4. For the purposes of the 2012 MRCP:

ANNUALISED_FIXED_O&M = A\$33,392 per MW per year

4.3 Expected Capacity Credit Allocation (CC)

SKM has provided its estimate of the output of the reference facility at 41°C, which represents the expected Capacity Credit allocation for the facility. For the purposes of the 2012 MRCP:

CAP = 159.6 MW

4.4 Calculation

The Maximum Reserve Capacity Price is calculated using the following equation as required by the Market Procedure:

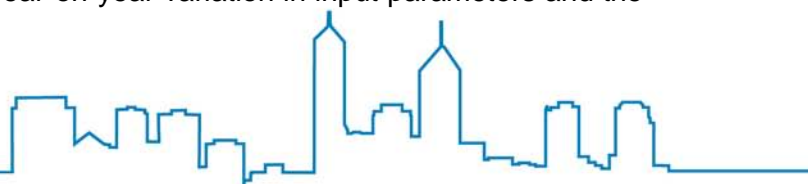
$$\text{MRCP} = (\text{ANNUALISED_FIXED_O\&M} + \text{ANNUALISED_CAP_COST} / \text{CC})$$

Using the values determined by the IMO and presented in previous sections, the MRCP for the 2012 Reserve Capacity Cycle is determined to be A\$163,903.85 which is rounded to:

MRCP = A\$163,900 per MW per year

A MRCP of A\$163,900 per MW per year is proposed by the IMO. This represents a 32% decrease from the 2011 MRCP of \$240,600, and a 1.3% decrease from the value of \$166,100 that was proposed in the Draft Report.

This reduction is caused by a combination of year-on-year variation in input parameters and the



methodology changes as a result of the MRCP Review, as explained in Section 1.3 of this report.

The impact of year-on-year variation in the input parameters (excluding the impact of methodology changes) is shown in Table 3 below. This variation has led to an 11% reduction from the 2011 MRCP. This reduction is predominately caused by a significant shift lower in the WACC, which is explained in Section 3.6.

Table 3: Impact of year-on-year changes in input parameters

	Impact (\$)	Impact (%)	MRCP (\$)
2013/14 MRCP			240,600
Power Station costs	+ 3,000	+ 1.2%	243,600
Margin M	+ 800	+ 0.3%	244,400
Fixed Fuel Cost	+ 200	+ 0.1%	244,600
Land Cost	+ 100	+ 0.0%	244,700
WACC	- 30,400	- 12.6%	214,300
Fixed O&M	- 200	- 0.1%	214,100
Combined impact	- 26,500	- 11.0%	214,100

The impact of the methodology changes as a result of the MRCP Review is shown in Table 4 on the following page. These changes have contributed a 23% reduction (after the year-on-year variation in the input parameters), which is consistent with the indicative impact assessment provided in the Procedure Change Proposal PC_2011_06.

This reduction is dominated by the adoption of inlet cooling within the power station design and the amended methodology for the transmission connection cost estimate.



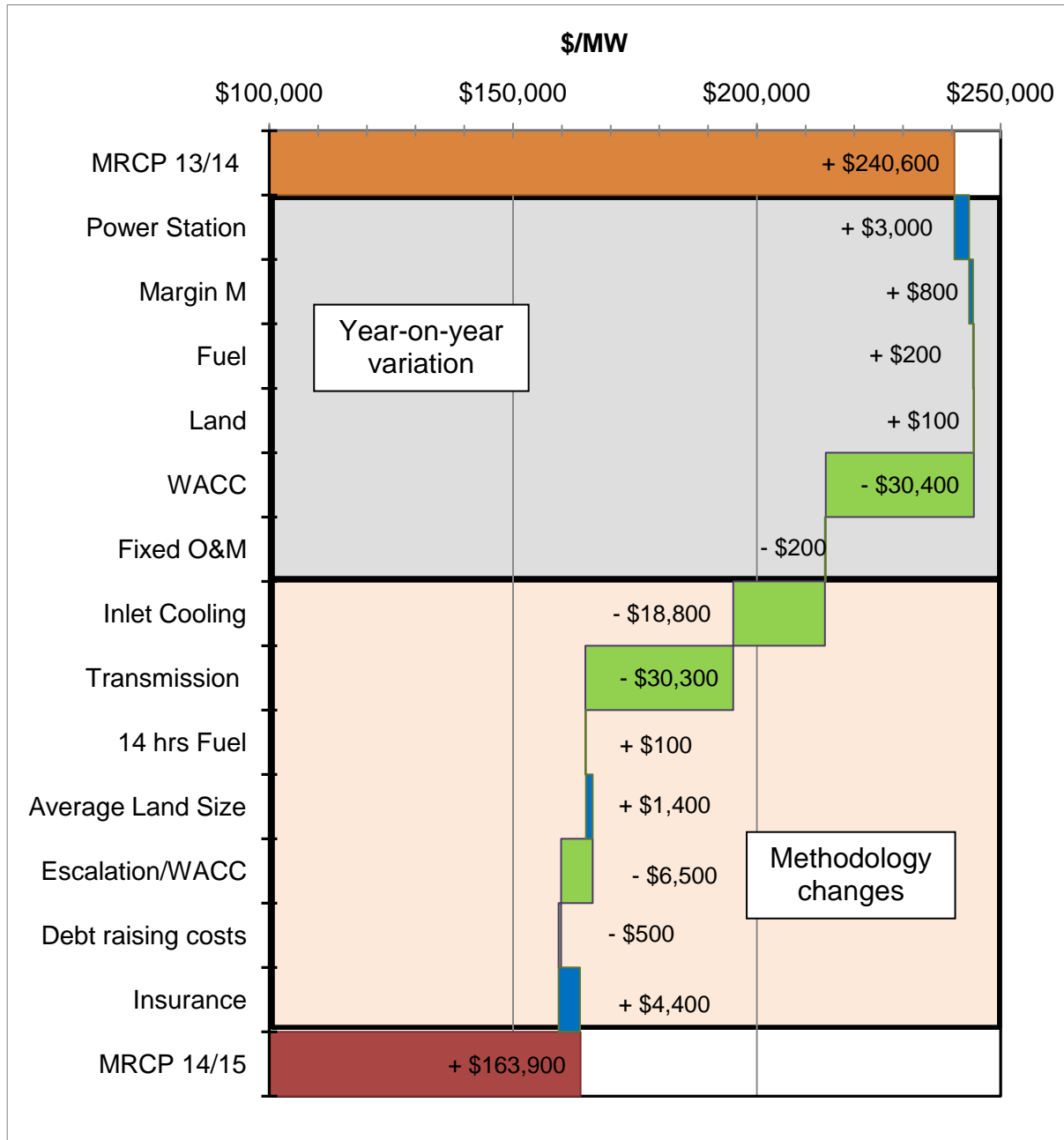
Table 4: Impact of methodology changes in input parameters

	Impact (\$)	Impact (%)	MRCP (\$)
MRCP after year-on-year changes			214,100
Inclusion of inlet cooling	- 18,800	- 8.8%	195,300
Revised Transmission Cost methodology	- 30,300	- 14.2%	165,000
Increased fuel allowance (increase from 12 to 14 hours)	+ 100	+ 0.0%	165,100
Use of average land cost	+ 1,400	+ 0.7%	166,500
Revised cost escalation/WACC methodology	- 6,500	- 3.0%	160,000
Debt issuance cost included in WACC, corresponding costs removed from Margin M	- 500	- 0.2%	159,500
Annual insurance costs included in Fixed O&M	+ 4,400	+ 2.1%	163,900
Net change	- 50,100	- 23.4%	163,900



Figure 3 combines the data from Tables A and B.

Figure 3: Comparison of 2011 and 2012 MRCPs



Appendix B provides a detailed breakdown of the calculation and Appendix C provides a detailed comparison of the 2012 MRCP parameters and the 2011 MRCP parameters.



5. STAKEHOLDER INPUT

5.1 Public Submissions

The IMO published the draft report and supporting documents for the 2011 MRCP on its website and initiated a consultation process on 13 December 2011. The IMO directly advised Rule Participants and other industry stakeholders on this date and published announcements in the West Australian and the Australian Financial Review on 16 December 2011. The submission deadline was initially 13 January 2012, but the IMO extended this deadline to 17 January 2012 following requests from Market Participants at the stakeholder workshop held on 4 January 2012.

During the public consultation period the IMO received responses from:

- Landfill Gas and Power;
- Alinta;
- Infratil Energy Australia;
- Tesla Corporation;
- Griffin Power;
- Merredin Energy;
- Perth Energy;
- EnerNOC; and
- ERM Power.

A copy of each submission can be found on the IMO website (<http://www.imowa.com.au/mrcp>). A summary of the submissions and IMO responses is given in the following pages, listed in the order in which submissions were received.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
1	Alinta	Role of MRCP	The primary purpose of the Maximum Reserve Capacity Price (MRCP) is to cap the price that may be paid by the IMO for capacity should a capacity shortfall arise. The MRCP reflects the estimated (marginal) cost of providing new generation capacity in a future Capacity Year, and is calculated through a bottom-up evaluation of the forecast cost of constructing a new 160 megawatt Open Cycle Gas Turbine generation facility to enter the WEM in the relevant Capacity Year.	The IMO notes Alinta's submission.
2	Merredin Energy	Role of MRCP	The primary functions of the MRCP are to determine the reserve capacity price in non auction years and to provide adequate remuneration to owners of reserve capacity generation plants. Its role in remunerating generators should not be seen as a secondary issue to the price cap for a reserve capacity auction. We consider that financiers will be alarmed by the volatility of price changes and this will, in turn, increase the cost of funding. This volatility must feed into the asset beta and the WACC.	<p>The IMO disagrees with Merredin Energy's submission.</p> <p>The IMO notes the design of the Reserve Capacity Mechanism is such that a project developer may address price risk through a bilateral contract with a Market Customer. The administered Reserve Capacity Price was intended as a fallback price for Market Participants who intended, but were ultimately unable, to contract bilaterally. Consequently, Long Term Special Price Arrangements are only offered to capacity that is cleared in a Reserve Capacity Auction.</p> <p>The IMO also notes that all recipients of Capacity Credits have declared their intent to bilaterally trade their capacity in the annual Bilateral Trade Declaration process that precedes the allocation of Capacity Credits.</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
3	Perth Energy	Role of MRCP	<p>The function of the MRCP within the Market Rules is to set the maximum price that can be bid into a Reserve Capacity Auction. As explained above, in the time that the Reserve Capacity Mechanism has been operating there has not been an Auction. The real function of the MRCP has been to establish the actual Reserve Capacity Price (RCP) paid to generators. In theory the WACC should be developed to cover the maximum cost of a power station which is supported by a 10-year guaranteed price. In reality, the MRCP is a first step towards the setting of the RCP, which acts as the market capacity price. A balance between the level of the RCP and the risks carried by generators in terms of price volatility and loss of revenue through severe non-availability penalties must be correctly determined. As the RCP is automatically discounted by 15% from the MRCP, the MRCP must therefore be a truly maximum price. The recently adopted methodologies used for component inputs into the MRCP determination shows this is not the case, with the MRCP appearing to be treated by IMO as a minimum price it could get away with.</p>	<p>The IMO disagrees with Perth Energy's submission. See response 2 above.</p> <p>The MRCP is designed to set a cap on the price the WEM will pay for capacity if an auction is required. The MRCP represents a technical determination of the cost of capacity entry of a 160 MW OCGT Generator into the WEM representing the cost of the marginal generation technology. It has not been designed to represent neither the maximum or minimum cost simply an accurate cost estimate of WEM entry.</p> <p>The IMO notes that the Reserve Capacity Mechanism Working Group (RCMWG) will be considering the calculation of the RCP. Please see the RCMWG Draft Terms of Reference for further information (contained within the Call for Nominations, available at http://www.imowa.com.au/rcmwg).</p>
4	Perth Energy	Reserve Capacity Auction	<p>While the Market Rules allow for a Reserve Capacity Auction to be called by IMO should a shortage be projected during a Capacity Cycle, reality of project financing points to this prospect unlikely to be ever materialised. For a facility to be entered into an Auction it must have already been certified - it cannot just be developed in response to a capacity shortfall in a few short months (from August when IMO confirms</p>	<p>The IMO confirms that a facility must be certified in order to enter the Reserve Capacity Auction and must provide Reserve Capacity Security in order to be assigned Capacity Credits.</p> <p>However, contrary to Perth Energy's submission, a facility does not need to be</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>Capacity Credits allocation to November when an Auction has to be called).</p> <p>For a facility to be certified it would have to be well advanced in development, after years of effort considering the project approvals required, to the point where equity and debt commitment has been made. Without such commitment, a participant would not apply for certification since confirmation from IMO would entail an immediate delivery of a sizeable security deposit to IMO. There is no chance that a participant, with funding commitment and security deposit delivered, would withhold from accepting IMO's offer of Capacity Credits allocation in August in order to wait for an Auction that may or may not happen in November, to bid into that Auction that it may or may not win.</p>	committed in order to be certified and be assigned Capacity Credits through a Reserve Capacity Auction.
5	Tesla Corporation	WEM structure	As outlined Tesla is not a retailer and our ability to manage pricing through bilateral arrangements is limited due to our relatively small capacity level and the fact that Synergy essentially controls the majority of the retail market. This makes it difficult for small generators like us to negotiate an effective bilateral arrangement with Synergy due to its market power.	The IMO notes Tesla's view.
6	Landfill Gas & Power (LGP)	MRCP methodology and outcome	LGP supports the draft value for the Maximum Reserve Capacity Price. We consider that the revised Maximum Reserve Capacity Price Procedure has been properly implemented and is delivering improved results in line with the long term trend.	The IMO notes LGP's support.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
7	Landfill Gas & Power (LGP)	MRCP methodology and outcome	While the network connection and inlet cooling adjustments have caused the MRCP to reduce considerably, these were forecast in advance, are in line with expectations, and restore the MRCP to its long term trend.	The IMO notes LGP's submission.
8	Infratil Energy Australia	MRCP outcome	At the high level the MRCP outcome seems intuitively wrong. The returns on investments of such a long term nature should not vary greatly year on year so to fall by 9% does not appear rational. Further, with all the stresses of the last few years, to have an MRCP lower than that determined 4 years ago (with similar transmissions costs) is highly questionable.	<p>The Market Rules require a review of the methodology to be undertaken every 5 years, implying that the MRCP methodology should evolve over time. The IMO notes that the impact of the methodology changes implemented following the MRCP Review is consistent with the indicative impact assessment provided in the Procedure Change Proposal PC_2011_06 (available at http://www.imowa.com.au/PC_2011_06).</p> <p>While the IMO appreciates Infratil's questioning of the logic of the MRCP being lower than that determined 4 years ago, Infratil's assessment fails to consider technological enhancements (e.g. installation of inlet cooling) that deliver significant output efficiencies at a relatively modest cost.</p> <p>The IMO also notes that, despite the significant reduction in the WACC, the WACC formula has not changed significantly since the 2013/14 MRCP. The reduction in the WACC is an outworking of the methodology. See Section 3.6 for further discussion of the WACC</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				methodology.
9	Tesla Corporation	MRCP outcome	Tesla is disappointed with the proposed pricing outcome as we believe it has significant ramifications for the long term development of the generation market in Western Australia. One of the strategic goals of the State's energy strategy is "To ensure a transparent, stable market based regulatory environment to deliver competitive energy prices for consumers and an attractive environment for energy investors". This scale of the proposed reduction puts this goal at risk.	The IMO notes Tesla's view.
10	Tesla Corporation	MRCP outcome	If this pricing decision is approved Tesla will be forced to review its business model and strategy and based on this pricing level will not be applying for additional capacity credits in 2012 for the 2014/15 capacity credit year.	The IMO notes Tesla's submission.
11	Merredin Energy	MRCP outcome	Merredin Energy considered the MRCP for 2013-14 to be representative of the actual costs of building a new open cycle gas turbine power station. The substantial MRCP reduction for 2014-15 is unrealistic and results in an MRCP that does not reflect the actual costs currently faced by developers of new OCGT power stations.	The IMO notes Merredin Energy's view.
12	ERM Power	MRCP outcome	The IMO has argued that the revised Market Procedure will better achieve Market Objective (a) by promoting economic efficiency through greater alignment of the MRCP with real-world costs. The MRCP objective is to reflect the marginal cost of providing additional Reserve Capacity, in each Capacity Year. ERM believes that the proposed 2014/15 MRCP does not reflect real-world	The IMO notes ERM's view.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			costs, and as such will have a detrimental effect on attracting new capital investment. Such an impact goes against Market Objective (b), by restricting the efficient entry of new participants.	
13	Alinta	Possible impact of MRCP	<p>It is important to recognise that the risks that arise in setting the MRCP are asymmetrical. If a capacity shortfall were to arise in respect of a future Capacity Year, and the MRCP for that year were set:</p> <ul style="list-style-type: none"> • too low, then it is likely that the Reserve Capacity Auction would fail to attract a new generation project to cover the capacity shortfall. Such an outcome risks undermining the security and reliability of the electricity system in the medium term. • too high, the market increases in attractiveness to new entrants, although ultimately an appropriate market design should lead to any 'abnormal' profits being competed away. 	The IMO notes Alinta's submission.
14	Infratil Energy Australia	MRCP formula	<p>Although outside the scope of this report, we feel compelled to comment again on the allowance for funds used during construction (compensation period). We refer you to, and strongly reiterate, the points raised in our submission dated 13 September 2011 (relevant extract attached); the 6 months used is just not credible. We encourage the IMO to investigate recent generation investments in the SWIS (and elsewhere) to observe their experiences.</p>	<p>The IMO notes that this issue is outside the scope of this report, as noted by Infratil.</p> <p>See response 18 on page 32 of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i>, which is available at http://www.imowa.com.au/PC_2011_06.</p> <p>The IMO notes that the compensation period</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p>in the Market Procedure is based on the recommendation of PwC in its report for the MRCPWG. PwC considered various public reports and studies of generation costs. In three of the four reports, the construction time was considered to be 12 months or less.</p> <p>For the purpose of the MRCP, PwC assumed that the construction costs are evenly incurred throughout the construction period. The finance costs are then applied to the full capital cost for six months.</p> <p>The recommendation of PwC was accepted by the MRCPWG.</p> <p>Further, the IMO notes that capital costs in the MRCP are escalated to the midpoint of the assumed 12-month construction period, prior to the application of the WACC.</p>
15	Merredin Energy	MRCP formula	<p>Under the new market rules, the gross-up WACC period has been reduced from 24 months to 6 months. The graph provided for the Merredin Energy 82MW Power Plant (currently in month 18 of its construction phase) clearly shows that over 50% of the total project costs were spent in the first nine months of the project.</p> <p>Merredin Energy previously suggested a 14 month gross up period be used rather than the proposed six months for the timeframe of the WACC. The graph above shows that it is completely unrealistic to assume no money spent in the first 12 months of a project. In</p>	<p>The IMO notes that an adjustment to the MRCP formula is outside of the scope of this review. See also response 14 above.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>



No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>deriving a six month period, PwC assumed a 12 month construction spend period, with construction completed the same day that capacity revenues commence. Prudent planning and construction timetables include buffers for testing periods and appropriate delay contingencies. Our view is that the six month period should be increased. The current WACC gross-up calculation also fails to recognise that equity is fully exposed to risks during the 24 month construction and commissioning period. Because equity is exposed during that full two year period, it should earn a risk premium for that entire period. Based on a 14 month average spend period, the true cost of capital during the two year development phase is:</p> $(1 + WACC)^{14/12} \times (1 + WACC - \text{risk free})^{10/12}$ <p>An adjustment to the capital raising costs within Margin (M) should be made to correct for this anomaly.</p>	
16	Alinta	Calculation of Reserve Capacity Price	<p>A further feature of the WEM is that the Reserve Capacity Price (RCP), an administered price that may be paid for any capacity that is voluntarily made available to the IMO, is currently derived from the MRCP.</p> <p>The limited ability under the current market design for the RCP to adjust more dynamically to discourage continued market entry when capacity is oversupplied may be inefficient. This market feature is expected to be reviewed as part of the Reserve Capacity Mechanism Review, which the IMO is initiating during the first half of</p>	<p>As noted by Alinta, the Reserve Capacity Mechanism Working Group (RCMWG) will be examining the Reserve Capacity Price calculation during the first half of 2012. For more information, see the Draft Terms of Reference for the RCMWG, which is contained within the Call for Nominations and can be found at http://www.imowa.com.au/RCMWG.</p> <p>The IMO notes that the calculation of the Reserve Capacity Price is outside the scope of this review.</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			2012.	
17	Alinta	MRCP volatility	<p>Alinta commented that it might be prudent to provide for a transition period where a change in method, as opposed to a change in the observed value of input parameters, results in material changes in financial flows between Market Participants. Providing for a transition period would appear especially appropriate in instances, such as in respect of the amendments that resulted from PC_2011_06, where the changed method immediately changes financial flows between market participants but where, due to the existence of fixed term contracts, benefits might only be expected to flow through to customers over time.</p> <p>For example, it was suggested that it may be appropriate to provide for a transitional mechanism to smooth the financial impact of any changed methodology where the outcome would otherwise result in changes that exceed a certain threshold level - say $\pm 10\%$.</p> <p>Alinta continues to be of the view that a transition period for the changes to the MRCP stemming from PC_2011_06 would be appropriate given it was a change in method, as opposed to a change in the observed value of input parameters, that lead to material changes in financial flows between Market Participants. Additionally, advice provided by Sapere to the IMO Board on guidelines for transitional arrangements provides support for the provision of a</p>	<p>The issues of volatility in the MRCP and a transition period were addressed in Section 3.3.1 and response 8 (page 27) of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i>, which is available at http://www.imowa.com.au/PC_2011_06.</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>transitional period in the circumstances created by PC_2011_06.</p> <p>The Procedure Change Report, the IMO indicated that it considered that the MRCP needs to be sufficiently responsive to development costs in the year in which a new facility would be assigned Capacity Credits. On this basis, the IMO indicated it considered it inappropriate to apply smoothing to the MRCP.</p> <p>The new methodology for the MRCP includes establishing a time-weighted estimate of average transmission connection costs, which has the effect of smoothing an aspect of the MRCP on an ongoing basis. Alinta would suggest that this provides a precedent for the overall MRCP calculation not necessarily being fully responsive to movements in development costs in any single year.</p>	
18	Infratil Energy Australia	MRCP volatility	<p>We feel compelled to stress again the detrimental impact that such volatility in the annual MRCP is having on investment decisions. It is ironic that a process designed to assist investment certainty is having quite the contrary effect through highlighting the very real regulatory risk present in the SWIS.</p> <p>While we understand the original function of the MRCP (and RCP), it clearly now, as the only observable price for capacity, plays a critical role for investors in developing strategy around such things as market entry, growth and competitiveness, and for debt providers in determining debt levels, costs and,</p>	<p>The issue of volatility in the MRCP was addressed in Section 3.3.1 of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price</i> (PC_2011_06), which is available at http://www.imowa.com.au/PC_2011_06.</p> <p>See also response 2.</p> <p>The IMO notes that the RCMWG will be considering the calculation of the Reserve Capacity Price. The IMO welcomes Infratil's</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			critically, tenor. Though we understand that this is outside the scope of the report, this is too critical a point to withhold comment. We also understand that there is to be a review of the Reserve Capacity Process this year and look forward to actively participating.	involvement in the process.
19	Tesla Corporation	MRCP volatility	Tesla operates peaking power plants and relies on the capacity price mechanism to fund its business and provide a return to shareholders. Tesla understands that it operates in a regulated environment that manages price setting, however this process should ensure that pricing changes are transparent and provide stable and predictable price fluctuations (both positive and negative). Business investment decisions need to be made based on a reasonable level of pricing certainty to enable capacity providers to make informed decisions given the long term nature of the generation assets. Significant pricing fluctuation create increased regulatory uncertainty and will negatively impact on our (and other capacity providers) ability to access both debt and equity markets.	The IMO notes Tesla's submission. The issue of volatility in the MRCP was addressed in Section 3.3.1 of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i> , which is available at http://www.imowa.com.au/PC_2011_06 . See also response 2 above.
20	Tesla Corporation	MRCP volatility	The key issue is the size of the movements in the MRCP for the 2014/2015 capacity year. In a capital environment that is complicated and affected by international events a stable pricing regime is critical to provide confidence for debt and equity capital providers to continue to support future growth in the Western Australian energy sector.	See response 19 above.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
21	Perth Energy	MRCP volatility	To be successful and attract a good balance of generation capacity resources, the Reserve Capacity Mechanism needs to be stable and robust. The very significant reduction in the MRCP proposed for 2014/15, through changes in methodology rather than in market costs, is seriously disturbing potential investors and lenders at a time when world financial markets are experiencing dislocation.	See response 19 above.
22	Perth Energy	MRCP volatility	To ensure that sufficient generation is provided, there needs to be a steady flow of proposed projects going through the development process, with the view of them being submitted into the certification process. Perth Energy is very concerned that against the background of financial market turmoil, investors will now be moving away from the WEM given the volatility in Reserve Capacity Price setting with limited supporting market evidence. The downside risk is becoming too great compared to other markets.	See response 19 above.
23	ERM Power	MRCP volatility	The consultation carried out in relation to October 2011 MRCP Procedure Change Report highlighted issues where IMO driven outcomes provide for volatility of MRCP. Consequences of this volatility include the probable reduction in preparedness of customers to bilaterally contract for capacity credits and risk premiums required by investors and financiers to address WEM regulatory risk and project returns volatility.	See response 19 above. The IMO also notes that all of the changes to the Market Procedure implemented in Procedure Change PC_2011_06 were agreed by the majority of MRCPWG members.
24	Merredin	MRCP process	The IMO's timetable for issuing a final determination by	While the MRCP report was issued on 13

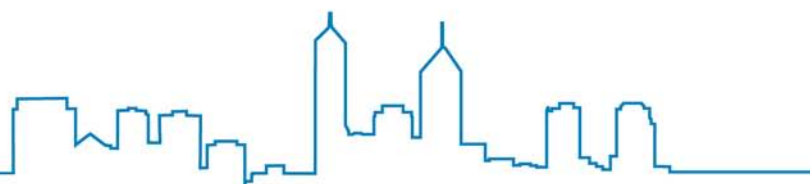
No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
	Energy		<p>end January is overly aggressive. Issuing the draft MRCP report on 13 December 2011 and providing a one month public consultation period closing in mid January is unfair. It has been difficult for Merredin Energy (and presumably for other market participants as well) to muster appropriate resources and give due consideration to the MRCP issues over the Christmas/January period. We also question whether the current timetable provides the IMO sufficient time to consider comprehensively the points raised in this consultation process prior to publishing its final determination. This has the potential for market participants to lose confidence in the entire consultation process.</p> <p>In our view it would be far better for the IMO to take additional time to set an appropriate MRCP rather than rush the process and obtain an artificially low result. We would support the IMO extending the timetable and re-engaging with market participants where appropriate.</p>	<p>December 2011, the majority of price movements were signalled in the MRCP Review. This review was conducted over a 12 month period and included significant consultation with stakeholders including the formation of an industry working group.</p> <p>The IMO was conscious that the only MRCP price component to change significantly in this MRCP determination (not previously signalled in the MRCP Review) has been the market driven movements in the WACC calculation. The IMO arranged a workshop on 4 January 2012 to provide the stakeholders with the opportunity to better understand the WACC calculation.</p> <p>The IMO considers that it has sufficient time to consider the issues raised in submissions.</p>
25	Merredin Energy	MRCP process	The IMO's request that submissions be limited to five pages does not appear justified. We suggest the IMO accepts all non-complying submissions. We also recommend that no such constraints be placed on future submissions.	<p>The IMO has accepted all submissions received, including those greater than five pages in length.</p> <p>The IMO notes Merredin Energy's submission and will remove this stipulation from future MRCP reports.</p>
26	Perth Energy	MRCP consultation	We see the holding of a workshop to discuss the Weighted Average Cost of Capital (WACC) as positive and think it is regretful that IMO had not held similar	The IMO notes that the MRCPWG considered all components of the MRCP during its review, which included ten meetings between May

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			<p>public workshops for other key inputs to the MRCP, namely:</p> <ul style="list-style-type: none"> the network connection cost, with Western Power not supporting the new estimation methodology the spread of time based on which a return on construction capex is set, cutting this from 24 months to 6 months (for a 12-month construction period) without any market evidence, and the power station cost, which is based on a median cost base compiled by SKM rather than a maximum cost base for the purpose of MRCP determination. <p>We would stress that our concerns remain unabated over the limited public consultation on such critical factors that has led to an unjustifiably large reduction in the MRCP.</p>	<p>2010 and June 2011.</p> <p>The IMO also held a public workshop in relation to the proposed changes to the Market Procedure following the MRCP Review, in addition to the usual public consultation period.</p> <p>The changes in cost components highlighted by Perth Energy were signalled previously in the MRCP Review and were the subject of significant stakeholder consultation, including industry workshops.</p> <p>The IMO elected to hold an additional public workshop in relation to the WACC due to the significant impact (not previously signalled in the MRCP Review) of this component in the proposed 2014/15 MRCP.</p>
27	Alinta	MRCP Review	<p>Although the changes to the Market Procedure following from PC_2011_06 are not the subject of the IMO's Draft Report nor the current consultation process, Alinta notes that in its submission during the consultation process on the proposed amendments to the Market Procedure, it indicated it was generally comfortable with the rationale for the changes proposed by PC_2011_06 to the method outlined in the Market Procedure for determining the MRCP.</p> <p>Analysis provided by the IMO in PC_2011_06 showed that had the new method been used to establish the MRCP for the 2013/14 Capacity Year, the resultant</p>	The IMO notes Alinta's submission.

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			price cap would have been around 24 per cent lower than using the existing method set out in the Market Procedure. This reduction is consistent with that highlighted in the IMO's Draft Report.	
28	Tesla Corporation	MRCP Review	It was recognized in the original reform process and market rules that WA electricity needs would be best served by having a range of fuel types and sized players in the WEM. The recommendations from the MRCP Review appear to serve to work directly against this intent.	The IMO notes Tesla's view.
29	Tesla Corporation	MRCP Review	<p>The outcome of the MRCP Price Review suggests to Tesla that the IMO has formed a view that the WEM is not yet operating efficiently. Tesla also has that view however, we believe that instead of manipulating inputs to the supply side to counter a potential generation oversupply the market should be allowed to achieve equilibrium in the following manner:</p> <ul style="list-style-type: none"> • Provide incentives for more players to enter the retail sector as this is the key to WEM efficiency. If necessary undertake further reform to reduce Synergy's market share and/or its ability to use its market power to exclude participation by other market participants; • Allow the generation sector to find its own benchmarks where the MRCP provides sufficient/insufficient incentive to generators of all types/fuel etc. This is key when Synergy is able to discriminate in its decisions about which generators 	<p>The MRCP Review conducted by the MRCPWG focused on establishing an accurate costing for the development of a 160 MW OCGT power station in the WEM.</p> <p>The MRCP Review was undertaken without regard to the current capacity surplus in the WEM.</p> <p>The RCM Review will be considering the factors affecting the current capacity surplus. Please see the RCMWG Draft Terms of Reference for further information (contained within the Call for Nominations, available at http://www.imowa.com.au/rcmwg).</p> <p>The IMO notes that the role of Synergy and its market dominance in the bilateral contracts and retail markets is a broader policy issue and is beyond the IMO's remit.</p>

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			to offer bilateral agreements and their duration, terms and conditions. A "surplus" of generation is essential to attract new retail entrants. Without surplus the status quo of Synergy exercising market power will remain.	
30	Tesla Corporation	MRCP Review	In our submission to the proposed MRCP procedure change we commented that over the long term the change will increase the cost of electricity supplied to customers through reducing the attractiveness of the market to new generators and therefore the level of new generation capacity on the network. It will also reduce the security of the network as a whole, as generation will become more centralised, relying on transmission for energy transfer instead of distributed embedded generation which is a trend we see in other networks. In the short term electricity costs will be reduced (provided Synergy passes the saving on), however, in the long term the overall system cost will increase.	The IMO notes Tesla's view. See response 68 on page 60 of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i> , which is available at http://www.imowa.com.au/PC_2011_06 . See also response 2 above.
31	Merredin Energy	MRCP Review	Merredin Energy is concerned that the proposed MRCP revisions may be a knee-jerk response to a preconceived view that the previous reserve capacity price was too high. The MRCP is not a blunt tool for limiting new capacity and we note the IMO does not have a stated policy objective to limit excess capacity.	See response 29 above.
32	Merredin Energy	MRCP Review	The changes to the methodology following the recently completed five yearly review should have commenced in 2015-16 capacity year (rather than in 2014-15) to	As an administrative pricing mechanism, the MRCP requires ongoing review and adjustment to ensure it strives to reflect

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			<p>provide for a more orderly transition. There are several shortcomings with the application of the new MRCP market procedures – some of which were raised in our previous submission and others that were only identified as a result of the application of the new market procedures. We have addressed some but not all those concerns in this submission. Several of our identified shortcomings would be out of scope for the purpose of adjusting the MRCP and we intend to raise those as part of the broader reserve capacity review that is yet to commence.</p>	<p>technological developments and market conditions.</p> <p>The Market Rules require a review of the methodology to be undertaken every 5 years, which by implication allows the methodology to evolve and keep pace with industry changes over time.</p> <p>The IMO considers that the need to review of the MRCP methodology and the timing of the review were clearly signalled and communicated:</p> <ul style="list-style-type: none"> • The IMO highlighted in the 2012/13 MRCP determination (in late 2009) that it would initiate the methodology review in early 2010. The ERA supported this in its decision on the 2012/13 MRCP. • The ERA's 2009 Annual WEM Report to the Minister for Energy recommended that the IMO initiate the review. • The review was highlighted in two MRCP determinations and the last two Statements of Opportunities (2010 and 2011). <p>The IMO welcomes Merredin Energy's involvement in the upcoming RCMWG process.</p>



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33	Merredin Energy	MRCP Review	<p>We consider that several points raised by Merredin Energy in our submission dated 3 October 2011 on the draft new market procedures PC_2011_06 were inadequately addressed in the IMO's Procedure Change Report dated 21 October 2011. Responses that dismiss issues or that simply refer to decisions previously made by the MRCPWG are unhelpful (particularly as Merredin Energy did not have representation on the MRCPWG and we had understood that the MRCPWG was a consultative committee rather than a decision making group). Responses of this nature have the potential to engender a lack of confidence in the consultation process. We recommend against such responses being prepared in relation to the current round of submissions.</p>	<p>The IMO notes Merredin Energy's view.</p> <p>The IMO notes that the MRCPWG was a group of industry representatives from various classes (such as Market Generator, Market Customer and New Investor). As is noted in the MRCPWG Terms of Reference (available at http://www.imowa.com.au/mrcpwg), members were appointed to consider the interests of all stakeholders in the WEM.</p> <p>The MRCPWG was an advisory group appointed by the Market Advisory Committee that met ten times between May 2010 and June 2011. The MRCPWG discussions and recommendations were established with the support of the recommendations of a number of expert consultants. All MRCPWG minutes, papers and expert reports were published on the IMO website to inform all stakeholders.</p> <p>The IMO also notes that all of the changes to the Market Procedure implemented in Procedure Change PC_2011_06 were agreed by the majority of MRCPWG members.</p>
34	Perth Energy	MRCP Review	<p>There has been concern over excess of generation capacity in the WEM but the evidence does not bear this out. The most recent Statement of Opportunities Report shows that the forecast excess in 2014/15 is around 223 MW. The proposed changes to certification of intermittent generation would reduce this by about 50</p>	<p>The IMO notes Perth Energy's views.</p> <p>As noted in response 29 above, the MRCP Review was undertaken without regard to the current capacity surplus in the WEM.</p> <p>The RCM Review will be considering the</p>

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			<p>MW and expected changes to certification of demand side management should reduce it further. The increase in system certified capacity last year was the lowest since the market started and our view is that the current "excess" could turn into a deficit within a short space of time.</p> <p>A shortfall in certified capacity would be a serious market failure and would force the IMO to secure Supplementary Reserve Capacity, an exercise with potentially costly outcomes for end use consumers. As a retailer, Perth Energy wishes to see adequate generation capacity brought to the market in a timely manner. Given the lumpy nature of generation capacity investment, it is only normal that the system experiences "bulging" supply from time to time, usually immediately after capacity investments are delivered, while system demand consumes these investments. Excess capacity is a sign of market success, not an item for concern warranting a panicky reaction from IMO.</p> <p>System Management is on public record to have expressed concern last year over the potential shortage of capacity should the system face a one-in-ten-year summer peak event.</p>	<p>factors affecting the current capacity surplus. Please see the RCMWG Draft Terms of Reference for further information (contained within the Call for Nominations, available at http://www.imowa.com.au/rcmwg).</p>
35	ERM Power	MRCP Review	<p>ERM acknowledges that some of the issues raised in its submission were raised and responded to during the PC_2011_06 procedure change process. However, ERM believes that these issues could not be adequately responded too without a proper analysis of</p>	<p>The IMO disagrees with ERM's submission. The IMO notes that Procedure Change PC_2011_06, which was endorsed by the MRCPWG, sought to implement a <u>method</u> that</p>

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			<p>the impact of the proposed changes on the final MRCP. This was deemed to be out of the scope of the procedure change consultations, as was any discussion of impact on the default Reserve Capacity Price. Instead, IMO responses indicated the opportunity to comment on the MRCP following the publication of the Draft Report. While this does provide for stakeholder feedback on the determined MRCP following the procedure change, there appears little scope to amend and adjust components set as part of the procedure change, now that the full impact can be appreciated.</p>	<p>would enable the determination of a MRCP that would reasonably reflect the cost of developing new capacity in the WEM.</p> <p>The IMO notes that consultation in relation to the MRCP Draft Report should consider whether the IMO has reasonably reflected that method (as prescribed in the Market Procedure) and determined a <u>value</u> that reasonably reflects the cost of developing new capacity.</p> <p>While the IMO is bound to apply the current Market Procedure in determining the MRCP for 2014/15, it may consider future Procedure Changes in relation to submissions, which would take effect for future MRCP determinations.</p>
36	Landfill Gas & Power (LGP)	Power station cost	LGP welcomes the inclusion of inlet cooling in the new procedure, and we perceive that this is supported by the several incremental increases to the certified capacities of established plant in the most recent certification round.	The IMO notes LGP's submission.
37	Infratil Energy Australia	Power Station Cost	Infratil draws the IMO's attention to the caveat in the SKM report in relation to water availability, where it states "...assumptions are based on sufficient potable or similar quality water supplies being available local to the facility either through pipe or tanker delivery. The requirements for extensive or complex water abstraction or treatment facilities have not been	<p>The IMO considers that water transport costs are variable costs that would form part of the Short Run Marginal Cost for the generation facility. As such, these costs would be recouped through energy sales.</p> <p>Consequently, no allowance has been made</p>

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			considered.” It is our experience that the cost of delivery of suitable quality water to the site is material and should be included in the Power Station Capital Costs.	for water transport costs within the MRCP.
38	Infratil Energy Australia	Power Station Cost	The availability of sufficient, suitable water is a key consideration in any power station site location but does not appear to be incorporated into the Land Costs assessment. This may be achieved through ensuring the differential costs of water supply are consistent with the land costs, i.e. lower priced land in regional/rural areas will almost certainly have higher costs for water supply and vice versa.	The power station capital cost estimate provided by SKM includes the cost of water receiving facilities. As noted in response 37, the IMO considers that water transport costs are variable costs that would be recouped through energy sales, and have not been included in the MRCP.
39	Merredin Energy	Power Station Cost	By way of background, Merredin Energy commissioned a detailed independent report on the MRCP from SKM in March 2011 prior to committing to build its peaking generator. In that report, SKM forecast the 2014-15 MRCP to be \$251,400. We were shocked to see that several of the MRCP input parameters determined by SKM had changed substantially over the eight months to 24 November 2011 when SKM issued its final report to the IMO.	The IMO notes that the MRCP Review was well signalled to stakeholders – see response 32 above. The proceedings of the MRCPWG and MAC were available on the IMO website throughout the review process. Information was available in the public domain prior to March 2011 in respect of the two methodology changes that were expected to have a significant impact on future MRCP determinations. These were: <ul style="list-style-type: none"> • The MRCPWG agreed at its meeting on 23 August 2010 that the MRCP should include the cost and benefit of inlet cooling in the power station design. • The SKM review of the transmission

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				<p>connection cost methodology was first presented to the MRCPWG at the 20 January 2011 meeting. The expected impact of this methodology on the transmission connection cost estimate was provided to the MRCPWG at the 17 February 2011 meeting.</p> <p>The IMO is in no position to comment on the voracity or otherwise of the MRCP forecast commissioned by Merredin Energy and prepared by SKM.</p>
40	Merredin Energy	Power Station Cost	<p>SKM informed Merredin Energy that it considered the existing MRCP approach to estimating the capital cost of a power station to be inherently conservative on the basis that a <u>median</u> estimate of a power station was inappropriate to set a <u>maximum</u> reserve capacity price. SKM advised that a more typical approach would see the MRCP price cap determined by reference to an 80 percentile plant cost. We were surprised that this was not highlighted in the various SKM reports recently provided to the IMO on the procedure change proposal and the 2014-15 PC costs. Prior to setting the final MRCP for 2014-15 the IMO should seek advice from SKM on this point.</p> <p>The IMO should also commission details on the cost difference between a median and 80 percentile plant cost from SKM. It should take a pragmatic view to setting the final PC-factor that incorporates appropriate cost allowances. On our reading of the market</p>	<p>The IMO notes that the MRCP aims to reflect the marginal cost for providing additional Reserve Capacity by an efficient business.</p> <p>The IMO considers that the use of an 80th percentile cost estimate is inconsistent with the principle of the efficient new entrant, and that the “most likely” outcome provided by SKM is the more appropriate estimate.</p> <p>The IMO notes that the approach used by SKM to determine the power station cost estimate for the IMO is the same as in previous MRCPs.</p> <p>The IMO also notes that the annualisation of capital costs within the MRCP provides a degree of conservatism, similar to that sought by Merredin in its submission. Capital costs in the MRCP are annualised over a 15-year</p>

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			procedures, the IMO has sufficient flexibility to account for an 80 percentile cost in setting the PC cost component of the MRCP.	period. This is significantly shorter than the expected economic life of a gas turbine generator, which is widely considered to be approximately 30 years.
41	Merredin Energy	Power Station Cost	The escalation factors (detailed in Section 2.1 of the IMO's report) are also based on a central estimate rather than a more appropriate high case. Merredin Energy questions why nominal averages are being used when the factor that is being calculated is for the Maximum Reserve Capacity Price and a reduction for this is already applied within the 15% automatic discount. Clearly the upper end of the scale should be used or the automatic discount be fully removed. To include both of these seems nonsensical and unfairly benefits unhedged retailers by discounting the MRCP.	See response 40 above. The IMO notes that the calculation of the Reserve Capacity Price will be considered by the RCMWG. The level of discount that is applied to the MRCP to establish the RCP is outside of the scope of the MRCP determination.
42	Merredin Energy	Power Station Cost	We also note that section 2.4.1(f) of the market procedures specify that the average unit cost for transmission connection must be scaled up by 15%. A similar factor could be incorporated for PC costs.	The IMO disagrees with Merredin Energy's submission. As noted by Merredin Energy, the transmission connection cost methodology includes a forecasting margin of 15%. This margin acknowledges that the scope of transmission connection works for new generators differs substantially from project to project and may increase in the future as available capacity on the network reduces. However, the IMO notes that, for the purpose of the MRCP, the scope of the power station capital cost is fixed from year to year on the

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				basis of expert advice. Consequently, the IMO considers that a forecasting margin is unnecessary for the power station capital cost.
43	Merredin Energy	Power Station Cost	<p>In calculating the power station capital cost, Section 2.1 of SKM's report to the IMO states:</p> <p>“SKM issued enquiries to main equipment OEM's requesting the submission of current budgetary pricing quotations, for OCGT equipment in the 160 MW capacity range. No responses were received from these suppliers at the time of completing the report. The project costs are therefore substantially based on historical project information and the output of the Thermoflow cost modelling.”</p> <p>We initially had serious concerns regarding construction costs being understated. To find out that updated cost estimates had not been compiled by SKM makes us further question the degree of underestimation in that cost parameter.</p>	<p>The IMO notes that SKM has updated the cost estimates for the 2014/15 MRCP.</p> <p>In its letter dated 30 January 2012, SKM provides further explanation of its method for developing the power station capital cost estimate. As in previous years, SKM has used a combination of actual project data and information from GTPro®/PEACE®.</p> <p>GTPro® and PEACE® are engineering software packages developed by Thermoflow (http://www.thermoflow.com). The PEACE® module provides preliminary engineering and cost estimation.</p> <p>Despite SKM not receiving responses to its direct enquiries with main equipment suppliers, the IMO considers that current equipment costs are reflected in its cost estimates. SKM notes in its letter that the PEACE® cost estimation module includes equipment costs that are provided by main equipment suppliers at regular intervals. SKM cross-checked these estimates with actual project data. The enquiries to equipment suppliers were intended as a further cross-check of the estimates.</p>

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44	EnerNOC	Power Station Cost	<p>In their report, Review of the Maximum Reserve Capacity Price 2012, Sinclair Knight Merz (SKM) outline their methodology and calculation for the capital and operating costs of a generic 160MW Open Cycle Gas Turbine (OCGT). The report identifies that, at the time of completing the report, no responses were received from main equipment OEMs to SKM's enquiries for current quotations on OCGT equipment in the 160 MW capacity range. This situation raises a query in relation to Plant and Equipment costs.</p> <p>SKM outline that the decrease in the main plant and equipment costs from the 2011 estimate "is a result of SKM reducing the weighting of historic project data (as it ages) and increasing weighting on recent market data for E class OCGTs". The decrease calculated is of the order of approximately 12%. The weightings used by SKM to develop their cost estimate, however, are not provided and therefore unavailable for review.</p> <p>Given the magnitude of difference between the 2011 costs and those proposed for 2012, and with reference to Clause 2.3.2 of the MRCP Procedure which requires that Power Station costs be determined with specific reference to the use of actual project-related data, taking into account the specific conditions under which the Power Station will be developed, it would appear reasonable to publish the weightings used in these calculations and be required to justify the change in weightings between historical projects and market data for E class OCGTs.</p>	<p>As noted in response 43 above, the PEACE® cost estimation module includes equipment costs that are provided by main equipment suppliers at regular intervals.</p> <p>SKM has explained the change in its approach since last year in its letter dated 30 January 2012:</p> <p><i>"In the 2012 report SKM identified that the WA project data had aged beyond that which was considered acceptable to use as the basis for the MRCP Power Station Elements estimate. This particularly applied to the cost of equipment and the unit rates for labour and materials. The relevant hours/units are still considered appropriate references."</i></p> <p>The IMO notes that SKM does not apply numerical weightings to the data. Instead, SKM has selected the primary data source and uses the other source for cross-checking.</p> <p>The IMO notes that step 2.3.2(b) of the Market Procedure allows for consideration of the gas turbine market in developing the power station capital cost estimate.</p>

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			EnerNOC queries whether, in the interests of transparency and to provide necessary clarity, the IMO should consider the publication of SKM's previous (2011) and current weightings used to calculate main plant and equipment costs relating to the generic OCGT.	
45	Tesla Corporation	Power Station Cost – Inlet Cooling	Some of the decision making (e.g. the inclusion of air inlet cooling) is artificial because the efficiency effect of this is not uniform across the SWIS (and neither are the humidity levels which is a key input to the cost/performance of air inlet cooling). It is a retrospective adjustment to a market establishment fundamental, is discriminatory to those players who made investment decisions on the original plant specifications and was only supported in the review process by the retail sector - further evidence of retail market power being increased rather than decreased.	<p>The IMO notes that the inclusion of inlet cooling is outside of the scope of this review.</p> <p>The IMO notes that over the last 5 years, six generation facilities in the WEM have either incorporated into their construction or retrofitted inlet cooling into existing generation facilities. Given this level of inlet cooling penetration the IMO disagrees that the inclusion of the costs and efficiency benefits of this technology in the MRCP is artificial.</p> <p>The basis of the MRCPWG's agreement to include inlet cooling is described in response 33 on page 38 of the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i>, which is available at http://www.imowa.com.au/PC_2011_06.</p> <p>The IMO notes that the output of the generator with inlet cooling has been determined by SKM based on an assumption of 30% humidity at 41°C. Historical weather data from the</p>

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				Bureau of Meteorology suggests that humidity conditions at 41°C are unlikely to exceed this level within the SWIS.
46	Merredin Energy	Power Station Cost – Inlet Cooling	<p>At the time SKM finalised its March 2011 report to Merredin Energy, SKM did not consider water cooling feasible at all new connection sites. SKM's logic was that imposing water cooling, water connection and water storage facilities for the generic power station could increase the capital cost per MW, particularly as inlet cooling would be uneconomical at many connection points. We had understood this was a key reason the previous market procedures had not specified that water cooling be included in the generic power station specifications.</p> <p>The fact that water cooling led to an automatic 8% reduction in the MRCP for 2014-15 suggests the power station capital costs have been underestimated. Where water cooling is uneconomic, those costs must still be incorporated in the MRCP under a strict interpretation of the new market procedures. This has not occurred.</p>	<p>The IMO notes that the Market Procedure requires that inlet cooling be considered only where it is cost effective. SKM has considered this requirement and advised the IMO in its report that inlet cooling is economic at all locations. The installation of inlet cooling would significantly increase plant output at 41°C, thus delivering a higher Capacity Credit allocation for a relatively small increase in costs.</p> <p>See also responses 39 and 45 above.</p> <p>The IMO is in no position to comment on the voracity or otherwise of the MRCP forecast commissioned by Merredin Energy and prepared by SKM.</p>
47	Merredin Energy	Power Station Cost – inlet cooling	<p>Merredin Energy is constructing an 82MW OGCT with inlet cooling. We have incurred costs around \$1m in order to connect to the Water Corp network to source water. We have also incurred significant civil costs for evaporative ponds. No details have been provided for water connection costs for the generic power connection plant. Because the market procedures have moved to average land and average transmission connection costs, it follows that average water connection costs should also be adopted across all the</p>	<p>The power station cost estimate derived by SKM includes the cost of water storage tanks, unloading facilities, demineralised water treatment facilities and effluent treatment and disposal facilities. The size of these facilities is consistent with the need to provide 14 hours of continuous operation. Please refer to Section 2.3 of the SKM report.</p> <p>The IMO has not included the cost of water</p>

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			<p>various generic site locations. Water costs must include:</p> <ul style="list-style-type: none"> • Capital costs for water connection costs and annual operating costs that include water rates (excluding water usage); or • Water storage costs including tanks, water transport costs for initially filling tanks to provide 14 hours continuous operation, civil works for evaporative ponds, etc. 	<p>connection in the Power Station Cost, instead including the cost of unloading facilities connected to the storage tanks. Delivery costs for water are variable costs that would form a part of the short run marginal cost and would be recouped through energy sales.</p>
48	Merredin Energy	Power Station Cost and margin M – Construction Insurance	<p>Under the new market procedures, construction insurances have been removed from the Margin (M) and included in the EPC estimate, with no reduction intended in the overall level of construction insurance.</p> <p>The reality is that the overall cost of insurance premiums have reduced the MRCP. No explicit allowance has been made in the EPC for insurance costs. To illustrate how far removed the insurance estimates are from reality we are prepared to disclose the specific insurance arrangements for Merredin Energy.</p> <p>Merredin Energy has contracted with CTEC to undertake all construction works under a turnkey EPC contract. Under the EPC contract, CTEC maintains its own insurances for the following items:</p> <ul style="list-style-type: none"> • Professional Indemnity Insurance • Workers' Compensation Insurance 	<p>Procedure Change PC_2011_06 did not change the treatment of construction insurance costs.</p> <p>The IMO has been advised by SKM that its estimates provided for the 2013/14 MRCP included the construction insurance costs in both the Power Station Cost and margin M. SKM has addressed this double-counting in the estimates provided for the 2014/15 MRCP by removing this cost from the margin M.</p> <p>SKM notes in Section 6.3.4 of its report that "The cost of project contract works insurance is included within the Capital Cost estimate." SKM has advised the IMO that construction insurances are included in the "Contractor's Costs" line item in Table 2-1 of SKM's report, which is available at http://www.imowa.com.au/mrcp.</p>

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			<ul style="list-style-type: none"> • Motor Vehicle Insurance • Property Insurance for the full replacement value of and covering contractor's plant and equipment • Any other insurance or cover required by law <p>In addition to indirectly covering a portion of the CTEC's overhead insurance costs via the EPC price, Merredin Energy has had to take out the following insurance cover during construction:</p> <ul style="list-style-type: none"> • Construction Material Damage • Construction Advanced Business Interruption • Construction Liability (General and Products Liability) • Construction Marine Cargo & Marine Advanced Business Interruption • Directors and Officers Insurance <p>Merredin Energy's insurance premiums for the above policies totalled \$600,000 in our first year of construction. By the time construction finishes, a second full year of premiums will have been incurred, bringing our direct construction insurance costs to around \$1m (or \$12,000 per MW). This significantly exceeds the provision made by SKM in its M factor of only \$3,200 per MW. SKM's estimate would barely cover the marine insurance for shipping turbines from Europe.</p>	

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			We would question whether SKM are appropriately qualified to opine on insurance. We recommend that the IMO undertakes further work to ensure the insurance component of the Margin (M) is set at a more reasonable level prior to finalising the 2014-15 MRCP.	
49	Merredin Energy	Margin M	We were surprised to see project management, legal costs and owners engineering costs reduce slightly in percentage terms particularly as the scope of works now extend to include water cooling and related infrastructure. The upfront legal costs associated with registration and compliance with the Clean Energy Act should have added to legal costs, not reduced them. We recommend that those costs be reassessed.	<p>SKM has provided a response to these issues in its letter dated 30 January 2012.</p> <p>In relation to the project management and owners engineering costs, SKM advises:</p> <p><i>“The Project Management Cost included in the Margin M are the “Owners” project management costs, as distinct from the construction based project management costs included in the core cost estimate. SKM are of the position that, given the water infrastructure required to drive the inlet cooling was included in previous years (for the purpose of NOx abatement), the impact of including inlet cooling on the Owners Project Management costs would be minor if at all. Any impact would be well within the level of accuracy of the estimate.”</i></p> <p>In addition, SKM advises in its letter that the requirement to register under the National Greenhouse and Energy Reporting System existed prior to the passage of the Clean Energy Act. SKM also states that it <i>“has not</i></p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p><i>established a view on the cost impact of any obligations beyond the existing reporting requirement or if the impact of any obligations should be included in the margin M'.</i></p> <p>On the basis of the advice from SKM, the IMO has not adjusted margin M.</p>
50	Merredin Energy	Margin M	<p>The proposed 3.0% allowance for financing costs was based on SKM's opinion that:</p> <p>“3% is considered consistent with the 4% allowance applied in 2010, deducting an approximate amount for the debt issuance costs that have been removed.” See section 6.4 of SKM's report to the IMO dated 24 Nov 2011.</p> <p>Under the proposed WACC, debt issuance costs total 0.125% pa on the 40% enterprise value that is debt funded. This results in an annual debt financing cost of only 0.05% pa of the enterprise value.</p> <p>Assuming that cost applies for 15 years, the net present value of that cost is 0.45%, well below the 1% reduction (from 4% to 3%) suggested by SKM. SKM's calculations were erroneous and, using their own logic, the correct calculation should result in a 3.55% capital raising cost (before adjusting for the WACC gross-up detailed in section 8 of this submission).</p> <p>Moving debt issuance costs from Margin to the WACC should not reduce the MRCP. This is the same problem experienced with moving the insurance premiums from</p>	<p>The IMO notes that the use of a debt issuance cost of 12.5 basis points is consistent with the assumed capital structure of a business that can maintain a credit rating of BBB and can raise debt finance through the issuance of corporate bonds. This is described in the PwC report for the MRCPWG, which is available at http://www.imowa.com.au/mrcpwg).</p> <p>The IMO also notes that an estimated debt issuance cost of 12.5 basis points is consistent with current regulatory practice. See Section 3.6.2 in relation to the alignment of the WACC with regulatory practice.</p> <p>The allowance for these costs in margin M in previous MRCPs was based on a project-financed facility, which is inconsistent with the capital structure assumptions upon which the WACC is based.</p> <p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			the Margin to the EPC contract. There is no magic pudding. The MRCP should not drop simply because costs are reshuffled.	
51	Landfill Gas & Power (LGP)	Transmission costs	We support the IMO's interpretation that the 2012/13 and 2013/14 year prices were outliers driven by Western Power's Network Connection Costs being unrepresentative of actual charges. We note the false investment signal that this has delivered to generation developers and the considerable cost imposed on electricity prices. We welcome the improved transparency and fitness for purpose of the present approach.	The IMO notes LGP's submission.
52	Griffin Power	Transmission Connection Cost	<p>In relation to the Transmission Cost Component, the methodology used by the IMO has resulted in a significant decrease of \$31,000/MW in the MRCP. Griffin believes that the Transmission Cost Component is too low and should be increased due to the following reasons:</p> <ol style="list-style-type: none"> 1. In its calculation of the Transmission Cost Component, Western Power has used audited costs for some of the most recent power station projects. Most of these recent projects have taken opportunistic advantage of spare transmission capacity. It is Griffin's view that the costs used in the study are not representative of future projects as most of these will require some transmission line enhancements. 2. In Western Power's report to the IMO, the following statements were made which reinforce Griffin's view 	<p>The IMO notes the review performed by Ernst & Young (Appendix A of Western Power's report), confirming that Western Power has determined the transmission connection cost estimate in accordance with the Market Procedure.</p> <p>The IMO notes that the costs used in the study represent the actual costs paid, or expected to be paid, by generation developers.</p> <p>These actual (and expected) transmission costs have been weighted to ensure that any new project that is not fortunate to secure the opportunistic advantage of spare capacity and incurs an increase in transmission costs will be heavily represented in future MRCP determinations.</p>

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			<p>that the Transmission Cost Component is lower than usual and perhaps not representative of usual connection costs :</p> <p>a. "Western Power believes that the recent connections have been somewhat opportunistic and the capital contributions have been consequently low"; and'</p> <p>b. "It should be noted that future capital contributions which may be required from users in no way relate to the transmission component of the MRCP".</p>	<p>Further explanation of the merits of the current transmission connection cost estimate methodology can be found in the <i>Procedure Change Report: 5 Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (PC_2011_06)</i>, which is available at http://www.imowa.com.au/PC_2011_06.</p>
53	Merredin Energy	Transmission Connection Cost	<p>In addition to the Western Power (WP) transmission costs, Merredin Energy spent considerable funds engaging SKM to complete the necessary dynamic studies to obtain DSOC. There has been no allowance for the costs of dynamic studies or other non-WP transmission costs.</p>	<p>The IMO notes that system access studies form part of an application for network access. Western Power has indicated to the IMO that it performs system access studies in almost all cases, and that the cost of these studies is included in the contribution value that is included in the transmission connection cost estimate for the MRCP.</p> <p>The IMO notes that step 2.4.1(a) of the Market Procedure requires Western Power to include its estimate of the cost of any connection assets were not included as part of the capital contribution. However, the Market Procedure does not allow for the cost of system studies that have been funded by the applicant. Consequently, no adjustment has been made to the MRCP.</p> <p>However, the IMO considers that it is</p>

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				<p>reasonable for the capital contribution for a project to be adjusted to include Western Power's estimate of the cost of any system studies that have been funded by the applicant for network access.</p> <p>The IMO will develop a Procedure Change Proposal to reflect Merredin's submission in 2012.</p>
54	Merredin Energy	Fixed Fuel Cost	<p>In SKM's March 2011 report to Merredin Energy, SKM estimated that the fuel storage costs should total \$4m. This is in line with the actual fuel costs incurred by Merredin Energy. We are therefore concerned that GHD has underestimated the fixed fuel costs.</p> <p>SKM noted that a material cost component of bulk diesel fuel storage is whether the owner includes fire protection on that infrastructure and the overall specifications and quality of the fuel storage infrastructure. Any prudent owner of a peaking generator would opt for appropriate fire tanks and fire protection.</p> <p>We have sought a reconciliation from SKM on the GHD fixed fuel cost report. SKM remains of the view that the overall installed fuel costs would be at least \$3m and more likely up to \$4m. We recommend the IMO revise the estimate to \$4m and, if necessary, seek clarification the cost differences between the GHD and SKM estimates. We would be happy to provide the IMO with copies of SKM's work to facilitate that process.</p>	<p>The IMO is in no position to comment on the voracity or otherwise of the MRCP forecast commissioned by Merredin Energy and prepared by SKM.</p>

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55	Merredin Energy	Land Cost	<p>No allowance has been made for stamp duty on the land acquisition.</p> <p>Section 2.2.1 of the market procedure states "The Maximum Reserve Capacity Price must include all reasonable costs expected to be incurred in the development of the Power Station". On that basis, Margin M should specifically include stamp duty.</p>	<p>The IMO confirms that the land cost estimates provided by Landgate do not include stamp duty.</p> <p>The IMO has calculated stamp duty for each land parcel and included this within the Land Cost estimate. See Section 3.5 of this report for further details.</p>
56	Landfill Gas & Power (LGP)	WACC	<p>The adjustment due to the WACC is unexpected, particularly as the traditional method for determining this parameter was largely endorsed by the process review, and its evolution was expected to be only incremental. We note the concerns of generation developers that the WACC is not representative of their real-world experiences, and we note the IMO's remarks that in respect of the Debt Risk Premium, current Australian regulatory practice is in a state of transition and is awaiting a number of regulatory decisions that will clarify the optimal process for its determination.</p> <p>We further note that the IMO is required to nominate a WACC utilising a method that is accepted Australian regulatory practice. While we support the IMO's decision to adhere to the traditional approach as encoded in the revised MRCP Procedure, we take the generation developers' concerns as a notice that perhaps the broader paradigm needs to be changed. We consider that the IMO has properly discharged its obligations in this respect, and we would encourage the Economic Regulation Authority to take a leading role in implementing a sustainable and representative WACC</p>	<p>The IMO notes LGP's response.</p> <p>The IMO agrees that consideration of the financing assumptions in the WACC is outside of the scope of this review. However, see Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			in determining the actual figure to be used.	
57	Alinta	WACC	<p>As discussed in detail below, capital market evidence indicates that a 'significant economic event' has occurred since PricewaterhouseCoopers (PwC) finalised its advice to the IMO in February 2011 on the Weighted Average Cost of Capital (WACC) methodology. PwC's advice was a critical input into the most recent 5-yearly review Maximum Reserve Capacity Price Market Procedure (the Market Procedure).</p> <p>Consequently, Alinta considers that the IMO should exercise its discretion under the Market Procedure to determine alternative values for the Market Risk Premium (MRP) used to calculate the WACC. This issue is discussed in more detail later in this submission.</p>	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.
58	Alinta	WACC	<p>In addition, Alinta is aware that some Market Participants have suggested that the basis on which the debt portion of the hypothetical generation project is assumed to be financed under the Market Procedure (i.e. via the Australian corporate bond market) may not be consistent with either industry practise or market evidence. Market evidence also indicates that the market for non-financial institution corporate bonds remains limited.</p> <p>To best enable this issue to be examined, Alinta requests that the IMO initiate another review under clause 4.16.3 of the Market Rules of the Market</p>	<p>The IMO notes Alinta's response.</p> <p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			<p>Procedure. The primary focus of the review should be on the debt financing assumptions for the hypothetical generation project underpinning the Market Procedure.</p>	
59	Alinta	WACC	<p>Based on the values included in PwC's Final Report [for the MRCPWG], together with the MRCP Working Group's decision to retain pre-existing values for the equity beta and gearing, it was anticipated that the WACC would remain largely constant.</p> <p>However, the WACC now proposed to be used to calculate the MRCP for the 2014/15 Capacity Year is almost 18 per cent lower than the WACC used to calculate the MRCP for the 2013/14 Capacity Year. The primary drivers for this change are:</p> <ol style="list-style-type: none"> 1. a fall in the nominal risk free rate, which flows through to a close to 42 per cent reduction in the real risk free rate (a reduction that would have been closer to 50 per cent had the inflation rate not also fallen); and 2. a 16.5 per cent reduction in the debt risk premium (including debt issuance costs). <p>It is Alinta's view that given the magnitude of these changes, particularly in the risk free rate, indicates that a 'significant economic event' has occurred since PwC finalised its advice to the IMO in February 2011 on the WACC methodology.</p>	<p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p>

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60	Alinta	WACC	<p>In its November 2007 (corrected September 2008) report to the IMO, the Allen Consulting Group noted that fixing the values of the 'Major' (since renamed '5-Yearly') components of the CAPM and WACC reflects that these parameters <i>"are likely to remain stable over longer periods of time, and fixing the values of these parameters would minimise the administrative complexity, burden and cost..."</i>, and that <i>"[t]his approach is also consistent with that taken in establishing the WACC for electricity transmission networks covered by the National Electricity Rules."</i></p> <p>It was also noted that fixing the values of these components for a period of time creates a risk that at any point in time, the values of a single 5-Yearly component may not be consistent with prevailing capital market evidence. It was for this reason that, as noted in the IMO's Draft Report, the Market Procedure was amended to allow the IMO to review and determine alternative values for the 5-Yearly WACC parameters if, in its opinion, a significant economic event has occurred since undertaking the last 5-yearly review of the MRCP.</p> <p>Given the evidence that has emerged since the finalisation of the advice provided by PwC in February 2011 to the IMO and the MRCP Working Group, Alinta considers that it is clear that a significant economic event has occurred, and that this provides the basis for the IMO to exercise its discretion under the Market Procedure to determine an alternative value for the MRP.</p>	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.

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			<p>Whereas the National Electricity Law and the National Gas Law include a mechanism through which regulated service providers can apply for an independent review of any aspect of a regulators' decision, no such avenue is available to providers of capacity in the WEM.</p> <p>Given the already significant decrease in the MRCP for the 2014/15 Capacity Year, and in order to avoid the asymmetric risks associated with setting the MRCP too low, it would appear prudent to adopt a conservative approach to any further reductions in the MRCP to the extent such an outcome is within the IMO's discretion.</p>	
61	Alinta	WACC	<p>The capital market evidence provided in this submission provides evidence to support a conclusion that a 'significant economic event' has occurred since PwC finalised its advice to the IMO on the WACC methodology in February 2011.</p> <p>Under such circumstances, it is open to the IMO to exercise its discretion under the Market Procedure to determine alternative values for the MRP used to calculate the WACC. Given the primary purpose of the MRCP is to establish a cap on the price that may be paid for capacity should a shortfall arise, Alinta considers it would be prudent to ensure the reduction in the MRCP does not risk the availability of generation capacity in the 2014/15 Capacity Year.</p>	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.
62	Tesla Corporation	WACC	We believe there has been a significant market dislocation since the 5 yearly parameters were set which will allow the IMO to exercise its discretion in	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters and Section

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>regards to the calculation of the market risk premium.</p> <p>While the mathematical equations suggest that the required return on equity (Ke) has significantly decreased with the reduction in the risk-free rate (rf – proxied by the 10 year Australian Government Bond), there is a strong argument that this is not the case. Equity values have been substantially declining over the last few months, and with no wholesale reduction in forecast earnings, the reduction in value could be attributable to an increased risk aversion or a higher demanded return on equity.</p> <p>There is also an argument that the yields on government bonds may currently be artificially suppressed due to illiquidity issues and a “flight to quality” as a result of current global economic instability, such that the price of bonds has increased resulting in a fall in nominal returns on “risk-free” securities for reasons other than inflationary expectations which has in turn resulted in a prima facie increase in the valuation of assets (not withstanding their cash flow profiles and operational risks may have been unchanged from prior periods) which from a commercial perspective is difficult to reconcile having regard to current market conditions (Source: KPMG Murchison Metals Ltd Independent Expert Report).</p> <p>The use of the theoretical WACC to establish the return on capital investment may be misleading at the moment as current input conditions are showing anomalous</p>	<p>3.6.4 of this report in relation to the financing assumptions in the WACC.</p> <p>The IMO notes that it is bound to apply the method in the Market Procedure in determining the MRCP. The ERA must confirm that the IMO has done so when deciding whether or not to approve the revised value for the MRCP under clause 2.26.1 of the Market Rules.</p>

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			<p>readings:</p> <ul style="list-style-type: none"> • In the current post GFC and Euro-bank environment, borrowing costs are much higher than what is evident in the debt component of the WACC calculation. Although official interest rates are falling, debt funding, particularly to small private sector companies is becoming scarcer and much more expensive. • Outcomes such as the MRCP pricing, if implemented, will reduce the attractiveness of the WA electricity sector to investors, both from a return and sovereign risk perspective, effectively eliminating the participation by small and medium sized generators. Additionally, larger generators will likely seek more certainty of process before risking capital which may see the only willing investor being government linked entities, again working contrary to the intent and spirit of the WEM establishment. <p>From a “big picture” point of view, having a 0.6% difference in the pre-tax cost of debt and the post-tax cost of equity does not make sense to an equity investor and will likely prevent any new investment in generation until equity returns normalise. Equity investors require significantly higher than a risk adjusted 9.2% on their equity to make an investment.</p> <p>Given the artificially reduced WACC inputs, we request the IMO review the inputs and apply a normalisation to the inputs to allow the calculated price to follow the</p>	

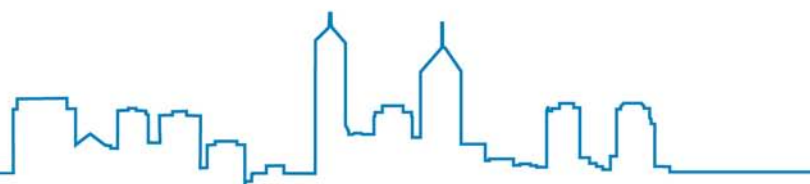
No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			spirit and intent of the formulae.	
63	Griffin Energy	WACC	<p>In relation to the WACC calculations, it is Griffin's view that the WACC used is too low as it has been recently distorted by global economic events. This lower WACC has also resulted in the MRCP being reduced by a further \$26,000/MW.</p> <p>Since the Global Financial Crisis has been ongoing since 2008, we have recently seen Government bond yields fall to historical lows in October 2011. However, if you consider some of the recent events surrounding the European Debt Crisis, it can be seen that a decision taken on 2 November, 2011 by the former Greek Prime Minister, Mr George Papandreou, had a significant impact on financial markets. Mr Papandreou made a decision to hold a referendum on the details of the Greek bailout package, instead of implementing a plan that had been previously negotiated by the Eurozone leaders. This decision sent share markets around the world down nearly 3% within one day. From that day to the end of November 2011, the All Ordinaries Index dropped by approximately 10%, which is technically a crash.</p> <p>Furthermore, the RBA has since cut interest rates in November 2011 and again in December 2011, citing global financial market instability as a concern for the Australian market. Due to recent events, investors have become more risk averse and this has resulted in a decrease in bond yields and an increase to the market</p>	<p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			risk premium. It is our view that the WACC calculations use a market risk premium that is too low by about 4% and this has resulted in a market rate of return that is too low. Griffin's view is that the low WACC (and resulting market rate of return) will be insufficient for raising capital.	
64	Merredin Energy	WACC	<p>A major shortcoming with the current process is that the IMO did not (or did not have time to) assess whether the equity market risk premium and other five yearly WACC parameters needed to change. Because the market procedures provide the IMO with flexibility to adjust the five yearly parameters following a significant economic event, the IMO is duty bound to determine whether such an event has occurred. It must take that responsibility seriously.</p> <p>If the IMO was unable to make a determination in relation to a significant market event on its own, it should have commissioned a report and made that publicly available. Market Participants are now left in the difficult situation where we have to argue that a market event has occurred to justify resetting the parameters rather than considering whether the restated parameters are appropriate.</p>	<p>The IMO notes that the values of the 5 Yearly WACC parameters were reviewed by PwC for the MRCPWG in early 2011. The MRCPWG considered the WACC parameters in detail.</p> <p>Stakeholders had the opportunity to provide submissions on these values in September and October 2011 as part of the Procedure Change Process.</p> <p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p>
65	Merredin Energy	WACC	We understand that the WACC will increase based on feedback and statements from the IMO, PwC and stakeholders at the 4 January 2012 workshop. At this point, all we know is that PwC verbally suggested the 6% risk premium was too low. No alternate risk premium or supporting analysis has been put forward.	The IMO notes that much of the discussion at the stakeholder workshop on 4 January 2012 focused on the fall in government bond yields and the impact of this on the WACC. A number of stakeholders expressed the view that the market risk premium was too low and

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			<p>This makes for an inefficient and non-transparent process. Market participants now have to comment on a parameter where we have no visibility of the IMO's position. This is like boxing at shadows.</p> <p>We strongly suggest a revised WACC report be made available for public comment prior to the final WACC and MRCP being adopted.</p>	<p>that the IMO should increase this value.</p> <p>The IMO notes that no presenters (including PwC) at the workshop stated unequivocally that the WACC will increase. The IMO and PwC noted the ability for the IMO to review and propose alternative values for the 5 Yearly parameters (including the market risk premium) if, in the IMO's opinion, a significant economic event had occurred since October 2011.</p> <p>The IMO indicated that it had not yet determined whether such an event had occurred that would allow the IMO to exercise this discretion.</p> <p>The IMO "<i>encouraged interested parties to make detailed submissions in writing and confirmed that the IMO would consider these submissions before deciding whether to review the level of the MRP.</i>" (Minutes from stakeholder workshop, available at http://www.imowa.com.au/mrcp.)</p> <p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p>
66	Merredin Energy	WACC	We understand that because a significant economic event has occurred, all five yearly parameters are up for review.	See response 65 above and Section 3.6.3 of this report.

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67	Perth Energy	WACC	<p>It would be negligent of IMO if it ignored the fact that the eurozone, which represents a key funding source for the main four Australian banks, has been in turmoil for the last year and especially in the last several months. In the WEM, only the Australian banks offer project finance for generation projects of the type aimed at through the MRCP.</p> <p>The current capital flight to safety caused by financial system distress that has reduced Commonwealth Government Bond yields has a substitution effect that is depleting capital availability for other investment forms. It should not be confused with an increase in aggregate capital supply relative to aggregate demand. Private generation project WACC could not have fallen.</p>	<p>The IMO notes the impact of turbulence in global financial markets on Commonwealth Government security yields and bank funding costs.</p> <p>However, the IMO considers that the Market Procedure does not provide it with discretion to determine alternative values for the 5 Yearly WACC parameters. See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>
68	Perth Energy	WACC	<p>At the WACC workshop it was stressed that the WACC calculation has been made in accordance with the Market Procedure. Ray Challen of PwC stated that the result which shows a significant reduction since last year is counter-intuitive. The cost of money is reported to have risen substantially with no indication that this trend will be reversed soon. The financial crisis in the eurozone along with general financial weakness elsewhere in the World is increasing rather than decreasing the returns required by both investors and lenders.</p>	<p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>
69	Perth Energy	WACC	<p>The Market Procedure states that the "<i>cost of capital must be an appropriate WACC for the generic Power Station project considered</i>" (MP 2.9.1). It further allows</p>	<p>The IMO notes that the appropriateness of the WACC is a subjective assessment that must consider the capital structure of the business.</p>

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			<p>the IMO to “review and determine values for the 5 Yearly components that differ from those in step 2.9.8 if, in the IMO’s opinion, a significant economic event has occurred since undertaking the last 5 yearly review” (MP 2.6.4).</p> <p>Perth Energy contends that 7.11% as the pre-tax real WACC for a power station built in the WEM under the current economic conditions is not “appropriate”. The WACC used last year was 8.65% and financing costs have not improved since then to justify this reduction.</p>	<p>This capital structure assumption was reviewed during the MRCP Review and has been incorporated into the MRCP Market Procedure. The 2014/15 MPCP has been calculated in accordance with this Market Procedure.</p> <p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>
70	Perth Energy	WACC	<p>Perth Energy considers that “significant economic events” have occurred which justify a review of the 5 Yearly components. These include:</p> <ul style="list-style-type: none"> • The sudden fall in the 10 year bond rate (chart presented at the WACC Workshop on 4 January 2012) which mirrors the fall at the time of the GFC: The IMO chart shows that the fall associated with the GFC was around 2 percentage points, similar to the fall in recent months. It is not possible to say whether the present fall is a sustained reduction or a transient dip that will soon recover. Perth Energy suggests we are in a situation where the current 10 year bond rate is not necessarily a good indicator of the long term Risk Free Rate. • At the WACC Workshop, PwC advised that it did not have an agreed position on where the various economic factors used to develop the WACC are moving. This uncertainty is of sufficient significance 	<p>See Section 3.6.3 of this report in relation to the IMO’s ability to exercise discretion with regard to the 5 Yearly parameters.</p>



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			<p>to compel the IMO to review these factors and form opinions based on evidence provided by market participants with existing projects such as Perth Energy.</p> <p>Perth Energy strongly recommends that the IMO review and determine the values of the 5 Yearly components identified within the Market Procedure.</p>	
71	ERM Power	WACC	A major contributor to the reduction of the MRCP is a lower WACC. ERM is of the opinion that the WACC as currently applied is below acceptable returns required to attract investment in an OCGT in the WEM.	See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.
72	ERM Power	WACC	<p>Components used in the calculation of the WACC are reviewed on either an annual or five-yearly basis. It is here that there is a clear disconnect between the treatment of the costs of debt and equity, specifically in the determination of the debt risk premium (DRP) and market risk premium (MRP). The fundamental flaw in IMO's WACC determination is the use of short-term debt costs with long-term equity market risk premiums. To be put on an equal footing with the cost of debt, to combine like-with-like, one must consider a spot cost of equity, as opposed to the long-run, historical average value currently in place. Alternatively, long-run average risk free rate and DRP could be applied in place of the current spot values.</p> <p>The DRP is reviewed on an annual basis, determined from observed yields of corporate bonds. In the most recent review the DRP was reduced by 1%, along with</p>	<p>The IMO notes that this is consistent with current accepted Australian regulatory practice. See Section 3.6.2 of this report in relation to the alignment of the WACC with regulatory practice.</p> <p>The IMO also notes that it may propose amendments to the Market Procedure between 5 yearly reviews. This could include changes to the 5 Yearly WACC parameters if this was supported by changes in regulatory practice.</p> <p>See also Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			<p>a 1.35% reduction in the risk-free rate, reflecting the decrease in bond yields, as market volatility has led investors to lower risk investments which are well documented in the Draft Report 3.6 Table 1. IMO also notes that the reduced bond yields are driven by market volatility, or perhaps more simply, an increase in market risk or increased market risk premium. IMO has not considered an appropriate market risk premium and as a consequence the WACC determined by IMO is low and not reflective of real-world costs.</p> <p>The MRP on the other hand is reviewed only every five years, as part of the market procedure review. In the most recent review, completed in October 2011, PwC recommended a <i>“value of the MRP of 6.0 per cent taking into account an emerging regulatory position for a reversion to a long-standing position of adopting an MRP of 6.0 per cent after contemplating a higher value of 6.5 per cent for a period during and after the global financial crisis”</i>. This represents no change from the previous value, and under the current procedure locks this value in for the next five years. The cost of equity is calculated using the CAPM, adding the risk-free rate (annually determined using spot bond rates, currently set to 4.25%) to a factor (0.83) of the MRP. This use of a spot Nominal Risk Free Rate of 4.25% (when on average it sits at around 6%, what you see in most other regulatory determinations) contrasts with an historical average as the input to the market risk premium. While in the past this difference has not had a significant impact, the current economic environment</p>	

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			<p>post-GFC has highlighted the shortcomings in this methodology.</p> <p>To illustrate, the current WACC parameters yield a cost of debt which is greater than the cost of equity. While current market conditions support a reduction in cost of debt, the same conditions would imply the cost of equity and in particular the MRP is substantially up. In submissions to the procedure change this point was raised by several other market participants – in response “The IMO notes that the higher debt funding costs in the current economic environment have resulted in the cost of debt being calculated as being higher than the cost of equity”. This statement appears counterintuitive, as the cost of debt, as calculated for the WACC, has actually decreased. Furthermore, the current cost of equity component of the WACC around 11% seems out of touch with real-world expectations. This outcome is clearly not reflective of real-world costs.</p>	
73	ERM Power	WACC	<p>It is widely understood that using a cost of equity derived from an historical long-term average MRP under current economic conditions will not provide the opportunity cost equity investors will expect and therefore its use runs the risk of underinvestment. These issues are at odds with market objectives, particularly:</p> <p>a. to promote the economically efficient supply of electricity and electricity related services in the South West interconnected system;</p>	See responses 72 and 80.

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			<p>b. to encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;</p> <p>d. to minimise the long-term cost of electricity supplied to customers from the South West interconnected system;</p>	
74	ERM Power	WACC	The timing of the escalation of the European financial situation was emerging, but not yet known, at the time of the consultation in relation October 2011 MRCP Procedure Change Report. This is demonstrated by the credit default swap for the Eurozone shown below. It is not conceivable that the effect on the market was known by the broader market at the time of the procedure change consultation. In addition, this broader market has continued as demonstrated by the reduction in sovereign credit ratings for 9 Eurozone countries on 16 January 2012.	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.
75	Infratil Energy Australia	WACC – 5 Yearly parameters	It may be necessary to review the procedures relating to the 5-yearly components in order to have them reviewed on a more regular basis without having to demonstrate an "event".	<p>The IMO considers the current Market Rule provisions for periodic review of the MRCP and the ability of the IMO to propose changes to the MRCP Market Procedure as required to be appropriate.</p> <p>The IMO notes that stakeholders had the opportunity to make submissions regarding the values for the 5 Yearly parameters during the consultation period for Procedure Change PC_2011_06, during September and October</p>

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				<p>2011.</p> <p>The IMO monitors regulatory decisions in relation to the WACC parameters outside of the required 5-yearly review cycle. The IMO will seek to implement changes to the Market Procedure where this is supported by changes in regulatory practice and where challenges to WACC determinations have been concluded.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>
76	EnerNOC	WACC – 5 Yearly parameters	<p>EnerNOC considers that MR4.16.9 distinguishes between the review period for the Market Procedure, and the public consultation process with respect to the outcome of the review itself. On this basis, we support a view that suggests that the last 5-yearly review was not undertaken as of October 2011, but earlier:</p> <ul style="list-style-type: none"> • The 5-yearly WACC values were last reviewed by the IMO's MRCP Working Group in February 2011, using an analysis that was dated November 2010; • The MRCP Working Group ceased its activity in June 2011; <p>EnerNOC proposes that the IMO revisit its consideration that the last 5-Yearly review was completed in October 2011, but rather adopts an interpretation that coincides with the timing for when the 5-yearly WACC components were last practically considered by the MRCP Working Group, or at a</p>	<p>The IMO notes that submissions received during the public consultation period can impact the outcome of the review and the IMO considers that the public consultation period necessarily forms part of the review.</p>

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			minimum, when the Working Group's formal review of the Procedure ended.	
77	EnerNOC	WACC – 5 Yearly parameters	<p>While the initial trigger for a significant economic event may always be a matter for debate, it is accepted market and financial wisdom that a significant and unprecedented series of events have occurred across the globe during 2011 that continue to have cascading, negative effects across economies and financial markets.</p> <p>EnerNOC has looked to highlight and summarise some of these key events below, which we believe, in aggregate, constitute the occurrence of a significant economic event since the conclusion of the MRCP Working Group's review of the MRCP Procedure</p> <p><i>[The events described by EnerNOC are not displayed here but are described in Section 3.6.3 of this report.]</i></p> <p>Section The increased volatility in global markets, as reflected in the sequence of above events, is evidence we believe that a series of significant economic events have occurred since the 5-yearly review of the MRCP. In light of this we strongly recommend that the IMO reconsider not only the annual variables, but also the 5-year variables included in the CAPM analysis.</p>	See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.
78	Perth Energy	WACC – Equity Return	The implied equity return rate in the IMO's 7.11% WACC is under 10%, which is assumed adequate for BBB equivalent investment assets. This is grossly inadequate for the type of asset being considered. Peaking power development in the WEM is not seen as	<p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p> <p>The IMO notes that the WACC described in the Market Procedure is based on the capital</p>

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			<p>BBB assets by investors and equity return well in excess of that level is required. This is due to:</p> <ul style="list-style-type: none"> • the 15% discount embedded in the RCP; • the significant risk of losses through late project delivery (a frequent occurrence in SWIS for power generation development) and asymmetric risk-reward structure where a generator could lose its entire annual revenue through non-availability penalties in the few summer months; and • financiers' view that there is no guarantee under the Rules that IMO will make capacity payments should bilaterally traded capacity lose its contract, and if any obligation exists theoretically under an Auction scenario it is of limited duration and not Government backed. <p>Note that for a project to fail, ie to go into liquidation, it does not have to lose a full year's revenue, but only to the extent it is declared defaulting on debt covenants. This is a far shallower criterion for project failure and far easier to encounter than implied in the Market Rules. There is no benefit for anyone, least of all end use consumers, for a project to fail. Plants on the ground need to be encouraged to return to operation, not penalized to exit the market. Yet, with the implied equity return IMO is effectively not recognising these risks and making new project entry impossible. Experience in the last five years shows equity return for this type of risks, as they have become more understood by investors,</p>	<p>structure and credit rating of the business that is developing the power station project It does not attach any credit rating to the generation asset.</p>

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			will need to be closer to 15%.	
79	Alinta	WACC – Risk Free Rate	<p>In its Final Report to the MRCP Working Group dated 28 February 2011 (pp.20-21), PwC noted that:</p> <p><i>during the global financial crisis the convenience yield (measured as the difference between the yield on 10 year Commonwealth Government Securities and the 10 year Credit Default Swap) rose to 120 basis points, which was 76 basis points higher than the historical relationship measured over the period from 1991 to 2010. In these circumstances, an adjustment to the risk free rate was potentially justified. However, the current differential between the yield on 10 year Commonwealth Government Securities and the 10 year Swap yield is now close to the historically average differential (Figure 4. 1). As such, it appears that the distortion of the market for Government bonds during the period of the global financial crisis has diminished (emphasis added).</i></p> <p>Alinta requests that the IMO seek advice from PwC to confirm that this situation has remained unchanged, and that an adjustment to the risk free rate is therefore not justified. That is, the current differential between the yield on 10-year Commonwealth Government Securities and the 10-year Swap yield remains close to the historically average differential shown in Figure 4.1 of</p>	<p>The method for calculating the nominal risk free rate is prescribed in the Market Procedure, being a 20-day average of Commonwealth Government bond yields. The only discretion that the Market Procedure would appear to allow would be in the selection of the 20-day averaging period.</p> <p>The IMO notes that it has determined the nominal risk free rate using the last 20 trading days of December 2011, the month immediately prior to the finalisation of this report. This is consistent with regulatory practice, with the method applied in previous MRCP determinations and with the advice provided in the Draft Report.</p> <p>The IMO is aware of only one decision of the ACT that deals with this issue. In the application by EnergyAustralia and Others in 2009²⁹, the ACT considered that the risk free rate determined by the AER was at an unusually low level and directed that the averaging period be as previously specified by the applicants (prior to the onset of the GFC).</p> <p>The IMO is not aware of any subsequent ACT</p>

²⁹ <http://www.austlii.edu.au/au/cases/cth/ACompT/2009/9.html>

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			PwC's February 2011 Report.	<p>decisions in relation to this issue. Regulatory practice appears to have returned to the use of an averaging period based on recent bond yields.</p> <p>The IMO has not adjusted the nominal risk free rate. The IMO monitors regulatory decisions in relation to the WACC parameters outside of the required 5-yearly review cycle. The IMO will seek to implement changes to the Market Procedure where this is supported by changes in regulatory practice and where challenges to WACC determinations have been concluded.</p>
80	Alinta	WACC – Market Risk Premium	<p>In its Final Report to the MRCP Working Group dated 28 February 2011, PwC (p.24) recommended "<i>a value of the MRP of 6.0 per cent taking into account an emerging regulatory position for a reversion to a long-standing position of adopting an MRP of 6.0 per cent after contemplating a higher value of 6.5 per cent for a period during and after the global financial crisis</i>" (emphasis added).</p> <p>In its Final Report, PwC observed that (p.23):</p> <p><i>In a review of WACC parameters during the period of the global financial crisis, the Australian Energy Regulator (AER) raised the value of the MRP from</i></p>	<p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.2 of this report in relation to the alignment of the WACC with regulatory practice. The IMO considers that recent regulatory decisions do not support an increase in the market risk premium for the MRCP at this time:</p> <ul style="list-style-type: none"> • In its <i>Final Decision on Proposed Revisions to the Access Arrangement for</i>

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			<p>6.0 to 6.5 for reason of a consideration that the level of stock-market volatility had increased and resulted in an increase in investors' expected MRP. The AER contemplated two possible future scenarios for the MRP:</p> <ul style="list-style-type: none"> the prevailing medium term MRP is above the long term MRP, but will return to the long term MRP over time, or there has been a structural break in the MRP and the forward looking long term MRP (and consequently also the prevailing) MRP is above the long term MRP that previously prevailed. <p>The AER did not take a view of which of these scenarios is more likely, but in any case concluded that there was persuasive evidence to depart from the previously adopted MRP of 6 per cent, and proposed an MRP of 6.5 per cent to be applied in WACC determinations for the period 2009 to 2015.</p> <p>More recently (in May 2010), the ACCC has reversed this position on the MRP, with the ACCC in its recent final decision on Australia Post arguing that post GFC market conditions have improved and that a MRP of 6.0 per cent is now appropriate.</p> <p>Since the finalisation of PwC's report to the MRCP</p>	<p>the Dampier to Bunbury Natural Gas Pipeline³⁰, released on 31 October 2011 and amended on 22 December 2011, the ERA considered that a market risk premium of 6% was reasonable. The IMO notes that Dampier Bunbury Pipeline has lodged an appeal with the ACT in relation to this Final Decision.³¹</p> <ul style="list-style-type: none"> On 11 January 2012, the ACT affirmed the value of 6% for the market risk premium as determined by the AER in its decisions on the access arrangements for Envestra's South Australia and Queensland gas networks, noting that the AER's determination was not unreasonable. <p>The IMO monitors regulatory decisions in relation to the WACC parameters and will seek to implement changes to the Market Procedure where this is supported by changes in regulatory practice and where challenges to WACC determinations have been concluded.</p>

³⁰ Available at http://www.erawa.com.au/3/1086/48/dampier_to_bunbury_natural_gas_pipeline_revised_a.ppt

³¹ <http://www.duet.net.au/dafiles/Internet/web/au/duet/news/2011/docs/2012-01-18-dbp-appeals-the-eras-access-arrangement.pdf>

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			<p>Working Group in February 2011, the level of stock-market volatility has again increased. Given PwC's comments in that report, it reasonably follows that investors' expected MRP will also have increased.</p>	
81	Infratil Energy Australia	WACC – Market Risk Premium	<p>The WACC outcome, over 150bp lower than 12 month ago, appears counter-intuitive in the current economic climate.</p> <p>The key parameter driving this outcome is fall in the Risk-Free Rate. However, it is Infratil's view that such a sharp fall in interest rates would not be accompanied by no movement in other parameters in the WACC formula, in particular the equity Market Risk Premium.</p> <p>Under 2.9.4(b) of the Market Procedure, the IMO has discretion to “review and determine the 5 Yearly components...if, in the IMO's opinion, a significant economic event has occurred since undertaking the last 5 yearly review...”. Clearly this is subjective but Infratil would strongly contend that a sharp fall in Government bond yields of some 200 bps (30%) since mid 2010 (noting it is unclear what data points were used by the MRCPWG in assessing the parameters) and a level now lower than that reached during the heights of the 2007/08 GFC does constitute such an event. In order to correct what almost all observers and commentators view as a “wrong” WACC outcome, this appears the only course of action available to the IMO and it would be travesty for the IMO not to pursue this.</p> <p>Infratil does not intend to make specific comment on the</p>	<p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			5-Yearly components in this paper, pending the IMO's advice regarding the above procedure, but looks forward to commenting at the appropriate time. In the meantime however, we would point to the substantial evidence and recent publications demonstrating an elevated MRP and would be happy to provide references should you require.	
82	Merredin Energy	WACC – Market Risk Premium	<p>The market risk premium should be well above 6.0%. We suggest it should actually be 10.1% based on the Bloomberg data set out in our memorandum of 2 January 2012.</p> <p>A market risk premium of that level is also supported by the recent academic paper <i>Adjusting the Market Risk Premium to Reflect the Global Financial Crisis</i> by Bishop, Fitzsimmons and Officer published in Finsia's Journal of Applied Finance JASSA Issue 1 2001. That paper clearly articulates that the forward market risk premium should be derived from empirical market volatility. That paper states that the unit price of risk for estimating the CAPM parameters is 0.43 bps. The 0.43 result was based on the following:</p> <ul style="list-style-type: none"> • Historical average market risk premium: 6.0% (observed) • Historical average volatility: 14.0% (observed) • Empirical risk per unit of volatility: 0.43 (calculated as 6.0% / 14.0%). <p>At the date of publication, Bishop et al found the market</p>	See response 80 above.

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			<p>risk premium to be 9.7% based on the prevailing market volatility of 22.5%.</p> <p>The implied volatility of the SPI 200 futures index over the past one month period (14 December 2011 to 13 January 2012) was 24.7%. This measure of volatility is identical to that used by Bishop et al and results in a <u>current</u> market risk premium of 10.6% (calculated as $0.43 \times 24.7\%$).</p> <p>We accept that the market risk premium is currently higher than usual. We also suspect the IMO may seek to take a longer term view that the market risk premium will revert to, say, 6% or 7% over the coming five years, and consider adopting some sort of weighted average market risk premium to give a market risk premium below 10%. We would caution against taking such an approach. However, if such an approach is taken, the WACC over the next five year period must remain higher than the expected long term average – otherwise providers of generation capacity would never receive compensation equal to the true 10.1 - 10.6% equity market risk premium prevailing at the present time. In our view, it would be better to set the WACC based on the higher actual equity market risk premium experienced now and change it in line with market adjustments in future years.</p> <p>As a final point on the equity market risk premium, we note that unhedged generators are fully exposed to movements in the market risk premium and other WACC factors. Participants wearing that downside risk</p>	

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			<p>should also participate in the upside. By design, end customers are exposed to the same risks through the retail electricity price. Because the market rules are designed that way, the increase in the equity market risk premium should be passed on via the MRCP. End customers have benefited from the fall in the risk free rate lowering the WACC. To pass through that benefit in full while protecting end users against the increase in the market risk premium creates an asymmetric payoff. This is not and has never been an intention of the market rules. We therefore recommend the full 10.1 - 10.6% equity market risk premium be incorporated in the 2014-15 MRCP.</p>	
83	Perth Energy	WACC – Market Risk Premium	<p>The MRP represents the additional return that investors expect for holding risk in the form of a well diversified portfolio of risky assets compared to the risk of holding Commonwealth Government Bonds. Studies indicate that this figure is generally close to the value of 6% that is used by the IMO. However, the risk premium required by markets is not constant. At various stages of the market cycle investors perceive that equities are more risky than at other times and will increase their expected return. Equity markets have recently shown high volatility relative to historic averages and it is expected that equity markets will require increased return to compensate for this increased risk.</p> <p>Under current circumstances, it is considered that an adjustment of 1-2% would be required. If we take the Risk Free Rate to be 4.25% and the MRP to be 6%, as</p>	See response 80 above.

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			assumed by the IMO, then a specific additional adjustment of around 1.5% should be included in the calculation.	
84	EnerNOC	WACC – Market Risk Premium	<p>In particular, given the significant economic events, a Market Risk Premium (MRP) of 6% cannot be maintained with any practical validity. As outlined by Steven Bishop in a paper that appeared in the <i>Finsia Journal of Applied Finance</i>, <i>Adjusting the Market Risk Premium to Reflect the Global Financial Crisis</i>, global economic events have resulted in a clear increase in market risks along with a decrease in equity values, resulting in an increase in the MRP. The analysis is particularly instructive as it focuses upon global impacts within an Australian context.</p> <p>EnerNOC has provided the paper as an addendum to this submission, and its relevance is aptly demonstrated by PwC's instructive graph presented at the Stakeholder Forum on January 4 2012. This graph highlighted the recent marked fall in Government 10-year bond rates and implied nominal return on equity to lower levels than those experienced during the depths of the period referred to as Global Financial Crisis (GFC) Mark I (2008/09).</p> <p>As outlined by Bishop in the aforementioned paper:</p> <p>“The increase in risk is very apparent in debt markets. Debt margins on BBB-rated corporate bonds are around 400 basis points (bps) above the 10-year Commonwealth Treasury bond rate</p>	See response 80 above.

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			<p>compared with an average of around 120 bps prior to the GFC. While this is apparent in debt markets, estimating a weighted average cost of capital (WACC) also requires an estimate of the cost of equity capital. <i>If we were to follow the common practice of using a 6 per cent market risk premium (MRP) in the Capital Asset Pricing Model (CAPM), which is used under more 'normal circumstances', then the outcome would be a substantial narrowing of the difference between the risk premium on equity relative to debt ... this could be misleading since the risk premium on equity would be expected to rise, at least commensurately with the risk premium on debt.</i></p> <p>Given the unusual economic circumstances during the GFC Mark I, Bishop proposes and validates a revised methodology by which MRP should be derived. Rather than continue with the generally accepted, more or less flat MRP value of 6%, a more accurate approach can be undertaken by determining the forward looking MRP that best reflects the risk premium that equity investors currently require relative to a risk-free asset. The methodological steps involved in calculating the revised MRP are as follows:</p> <ol style="list-style-type: none"> 1. Assume a constant required premium/unit of risk. This assumption implies that an increase in risk goes hand in hand with an increase in risk premium, and conversely, a decrease in risk goes hand in hand with a 	

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			<p>decrease in risk premium. The paper estimates a 43 basis point premium per unit of risk, as of Dec 2010;</p> <p>2. Determine the forward looking premium per unit of risk by evaluating call options on the S&P/ASX 200 Index using the Black and Scholes option pricing model, whereby one can determine implied volatility or risk by observation of the price of an option. Bloomberg data can be used for this analysis. The paper determines that the implied volatility of the call option was 22.5%;</p> <p>3. The MRP is then calculated by multiplying the implied volatility on the call option by the required premium/unit of risk or $(.225 \times .43 = 9.7\%)$.</p> <p>As explained in detail in the journal paper, accounting for the unusual economic circumstances of the GFC Mark I results in a current MRP in Australia of 9.7%, and that this MRP is likely to prevail for at least 3 years following a major economic event (at which point, it may or may not revert back to 6 or 7%).</p> <p>EnerNOC highlights that we are still very much within the 3 year revised MRP window, and will remain so until December 2013. In the current climate, due to significant global economic events, it would be highly imprudent to continue to use an MRP value of 6% as it clearly does not accurately reflect the current risk conditions in Australian (and global) equity markets.</p>	
85	ERM Power	WACC – Market Risk Premium	Whilst it is acknowledged that AER made regulatory determinations during 2009 using a MRP increased	See response 80 above.

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			<p>from a long-run average of 6% to 6.5%, it should be noted that this 50 basis point adjustment was not based on any calculations or modeling. Rather, the AER selected an estimate of 6.5% "having regard to the desirability of regulatory certainty and stability".</p> <p>It is clear from any recent trend data of implied volatility (eg Bloomberg Australia Volatility Index, Option on ASX200, or other), market conditions are quite removed from mean/average/normal behaviour, and given the current volatile conditions, the MRP applied in the WACC calculation should be adjusted accordingly. ERM believes that use of any of the recognised methodologies for estimating MRP on the basis of current market volatility will outturn an MRP greater than 9.5%.</p> <p>Therefore, ERM recommends that IMO either:</p> <ul style="list-style-type: none"> i. Review and adjust its determination of WACC on the basis of recent market volatility and a recognised MRP estimating methodology; or ii. Revert to the 2013/14 WACC of 8.65%. 	
86	Alinta	WACC – Debt Risk Premium	<p>In deriving the WACC to be used to calculate the MRCP for a Capacity Year, the Market Procedure requires that the cost of debt capital be calculated as the Risk Free Rate plus a Debt Risk Premium (DRP) plus an allowance for debt issuance costs. The implicit assumption is that the developer of the new generation facility would issue bonds in the corporate bond market</p>	<p>The IMO supports Alinta's recommendation to review the assumed capital structure of the business upon which the WACC is based.</p> <p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

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			<p>to finance the debt component of the project.</p> <p>Alinta is aware that some Market Participants have suggested that the basis on which the debt portion of the hypothetical generation project is assumed to be financed under the Market Procedure (i.e. via the Australian corporate bond market) may not be consistent with either industry practise or market evidence.</p> <p>Market evidence also indicates that the market for non-financial institution corporate bonds remains limited.</p> <p>Even if it were appropriate to assume that the hypothetical generation project was financed via the Australian corporate bond market, the manner in which an estimate of the DRP might be derived has been subject to significant debate. The owners of a number of regulated infrastructure assets, including in Western Australia, have successfully applied for leave to the Australian Competition Tribunal for a review of aspects of regulators' decisions on the rate of return on capital determined to be 'commensurate with prevailing conditions in the market for funds' and the risks involved in providing the regulated service.</p> <p>If instead of financing the debt component of the project via issuing bonds in the corporate bond market, the project proponent instead sought project finance through one of Australia's major financial institutions, the DRP is likely to be greater than allowed under the existing Market Procedure.</p>	

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			<p>To enable both this issue, and the assumed basis on which the debt portion of the hypothetical generation project is financed under the Market Procedure, to be fully examined, Alinta requests that the IMO initiate another review under clause 4.16.3 of the Market Rules of the Market Procedure. While the primary focus of the review should be on the debt financing assumptions for the hypothetical generation project underpinning the Market Procedure, it should also draw on relevant reviews of regulatory decisions by the Australian Competition Tribunal.</p>	
87	Infratil Energy Australia	WACC – Debt Risk Premium	<p>As noted by Merredin Energy in its memo of 30 December 2011, it does seem perplexing that the DRP should have reduced by 100bps over the previous 12 months. Given the lengthy comments the report, and those of PWC at the workshop, regarding observable and reliable yield curves we would encourage the IMO to consider incorporating Credit Default Swaps in the methodology for determining the DRP as suggested by Merredin Energy.</p>	<p>See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
88	Merredin Energy	WACC – Debt Risk Premium	The debt risk premium should not decrease one percentage point from the value adopted in the 2013-14 capacity year. Credit default swap rates, which represent the wholesale funding costs for Australian banks, have recently increased. Furthermore, the decrease in competition for loans has increased bank loan margins. The Basel III banking reforms are likely to see loan tenors decrease and loan costs increase, putting further pressure on the ten-year debt risk premium.	The Market Procedure requires the IMO to determine the debt risk premium that, in the opinion of the IMO, is consistent with current accepted Australian regulatory practice. The IMO considers that the methodology nominated in the Draft Report, using the extrapolated Bloomberg fair value curve, best aligns with this requirement. The IMO notes that credit default swap rates are not used by Australian regulators in WACC determinations and therefore could not be considered consistent with current accepted Australian regulatory practice. See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.
89	Merredin Energy	WACC – Debt Risk Premium	The proposed methodology for determining the debt risk premium is flawed. It depends on historical AAA corporate bond yields which are non-existent in today's market and in any case the historical data is not relevant to the current cost of debt. The proposed debt risk premium methodology is also based on a flawed assumption that the yield differential between seven and ten year AAA corporate bonds should be identical to the yield differential applying to BBB bonds in today's market. A simple analysis of historical Commonwealth Government, AA and BBB yield curves shows that those curves are not parallel. Calculating the debt risk premium using AAA corporate	The IMO notes the shortcomings of the extrapolated Bloomberg fair value curve for estimating the debt risk premium. However, the IMO considers that this method best aligns with the requirements of the Market Procedure as described in Section 3.6.1 of this report.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			bonds cannot be used for future calculations as Bloomberg is unable to provide relevant yield data. Shouldn't the IMO look at a better solution this year rather than waiting until next year when the methodology will have to be revised anyway?	
90	Merredin Energy	WACC – Debt Risk Premium	<p>According to the market procedures, the debt risk premium is to be consistent with accepted Australian regulatory practice and take into account decisions of the Australian Competition Tribunal. In January 2012, the Australian Competition Tribunal made a decision in favour of gas distributor Envestra, who successfully appealed against the Australian Energy Regulator's determination. The Tribunal found that the regulator's sole reliance on the extrapolated Bloomberg value to calculate the debt risk premium to be erroneous, with the Tribunal adopting a debt risk premium of 4.67% based on analysis to mid 2011. This should be the absolute floor for the MRCP debt risk premium. In our view and accounting for recent development in capital markets, a debt risk margin of 5.25% (equal to that adopted by the IMO last year) would be acceptable.</p>	<p>Contrary to Merredin Energy's submission, the IMO notes that the ACT found that the AER should have relied solely on the extrapolated Bloomberg fair value curve. The AER had determined the debt risk premium using the average of the extrapolated Bloomberg value and the observed yield of the APA bond.³²</p> <p>The IMO also notes that the ACT finalised its decision on the APT Allgas on the same day as the Envestra decision. In the APT Allgas case, the ACT again ordered the AER to re-determine the debt risk premium using only the extrapolated Bloomberg value. However, in this case, the Tribunal adopted a debt risk premium of 4.37%.</p> <p>The different values in the Envestra and APT Allgas cases reflect accepted regulatory practice, in which the debt risk premium determined from the most recent market data at that point in time. The IMO has adhered to</p>

³² <http://www.austlii.edu.au/au/cases/cth/ACompT/2012/3.html>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				this practice in determining the debt risk premium for the MRCP.
91	EnerNOC	WACC – Debt Risk Premium	EnerNOC notes that the current debt risk premium methodology incorporates 7-year bond rates extrapolated to 10-years in calculating the Debt Risk Premium (DRP) for a project that has an assumed 15-year life span. A basic tenet of finance is that one should match project financing with project duration. The result of using a 10-year term as opposed to 15-years is that the DRP value is likely too low - a 15-year bond rate will almost always be higher than that of one with a 7 or 10 year duration. This should be taken into account in the current calculation of the DRP, as well as within any revised DRP methodology adopted by the IMO for future MRCP determinations.	<p>The Market Procedure requires the IMO to determine the debt risk premium using the methodology that “<i>in the opinion of the IMO is consistent with current accepted Australian regulatory practice.</i>”</p> <p>The IMO notes that it has nominated the method that, in the opinion of the IMO, best meets this requirement. This method, when applied by the AER or considered by the ACT, has utilised a 10-year term that has been incorporated.</p> <p>Further, the 10-year term is consistent with the length of a Long Term Special Price Arrangement in the Market Rules.</p>
92	Infratil Energy Australia	WACC - Inflation	We note that the RBA forecast is used rather than an observable and/or implied market rate. Historically, we understand that lack of liquidity / data on inflation-linked bonds drove the IMO and other regulators to resort to the RBA forecast as the source; however, we understand that liquidity and reliable data has now returned so encourage the IMO to revert to these market sources.	<p>The IMO considers that it has determined an inflation estimate that is consistent with both the Market Procedure and accepted Australian regulatory practice.</p> <p>See Section 3.6.2 of this report in relation to the alignment of the WACC with regulatory practice.</p>
93	Infratil Energy Australia	WACC – Inflation	We note the Draft Report p22 states that “The risk free rate is determined from observed Commonwealth Government bonds”; this is the case for the Nominal	The IMO notes Infratil's submission and has updated Section 3.6 of this report.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			RFR but, by using RBA forecasts for inflation, not so for the Real RFR.	
94	Merredin Energy	WACC – Inflation	<p>The expected rate of inflation (parameter (i)) should be derived from the difference in nominal and inflation linked bond yields published by the RBA. This methodology would be consistent with the market procedures.</p> <p>Instead, the methodology for determining expected inflation proposed by the IMO results in an artificially low real WACC. That methodology takes account of today's unusually low nominal bond yields but does not account for the low real yields on inflation linked bonds. Ignoring Commonwealth inflation linked bond yields on the basis of illiquidity will bias the WACC. It seems completely illogical that an approach to determining the debt market risk premium using illiquid Australian BBB bond yields and the non-existent AAA corporate bond yields was considered appropriate, but that Commonwealth inflation linked bond yields (which are more liquid and priced daily) should be ignored.</p>	See response 92 above.
95	Merredin Energy	WACC – Asset Beta	No justification for adopting an asset beta of 0.5 has recently been provided. This number is too low and was based on dated historical data that is unreflective of the risks associated with constructing and operating a WEM peaking generation plant. We suggest an asset beta should be at least 0.6 based on the analysis presented in our memorandum of 2 January 2012.	<p>The IMO notes that beta is a measure of relative risk and considers that it is unlikely to fluctuate substantially even in volatile market conditions. This view was supported by PwC at the stakeholder workshop.</p> <p>The IMO notes also that the value of beta was reviewed by PwC in the preparation of its report for the MRCPWG, available at</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p data-bbox="1480 228 1935 256">http://www.imowa.com.au/mrcpwg.</p> <p data-bbox="1480 277 2092 440">The IMO notes, however, that the value of beta is linked to the capital structure of a business. See Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p> <p data-bbox="1480 464 2092 560">See also Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p>
96	Perth Energy	WACC – Beta	<p data-bbox="730 584 1458 959">The beta factor is a measure of the risk of an investment or business operation relative to a well diversified portfolio. In recent work commissioned by Perth Energy, KPMG has estimated the appropriate level of beta for power companies through linear regression with the stocks' historical data (based on the observed relationship between the security's return and the returns of the All Ordinaries Accumulation Index). It concludes that, considering the nature of the power industry, an asset beta in the order of 0.65 would be reasonable (we can make this report available to IMO).</p> <p data-bbox="730 975 1458 1174">To determine the equity beta, an assessment was made of the gearing ratio of the various companies considered above. Based on this and the comparable gearing levels adopted in relation to the WEM a gearing ratio of 35% debt and 65% equity has been assumed. On this basis, the equity beta value is around 0.9.</p> <p data-bbox="730 1190 1458 1251">In assessing the asset beta, consideration needs to be given to risk factors which are specific to the WEM. A</p>	<p data-bbox="1480 584 1800 612">See response 95 above.</p> <p data-bbox="1480 636 2092 697">See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>generator that is late entering service must make substantial payments to the market in addition to its revenue losses and extended construction costs. Griffin Energy's Bluewaters power station and Verve Energy's gas turbine project have both had to make very large refund payments.</p> <p>(These refunds have a material and direct impact on private company viability and are not coverable by higher regulated tariffs or taxes or levies enjoyed by regulated businesses. This underlines our earlier point that any perception of similarity between regulated assets and power generation development in WEM under the MRCP is a fallacy).</p> <p>A second significant factor is that Western Power will not provide a fixed price to connect a power station to the transmission system. Western Power provides only a best estimate and the generator is required to fully fund whatever costs are ultimately incurred. Perth Energy has experienced significant final cost surges (>30%) from prices in the executed Interconnection Works Contract.</p> <p>These local risks affect the amount of buffer equity that must be available for a project as well as the minimum level of return that equity requires before proceeding with a new project.</p>	
97	Merredin Energy	WACC – Debt Issuance Costs	The debt issuance estimate of 0.125% pa is far too low and completely out of touch with reality. Debt issuance costs are intended to cover debt raising costs including	See response 50 above.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>arranger, agency, placement, company credit rating, issue credit rating, and legal fees as well as an allowance for a dealer swap margin. The proposed cost 0.125% is completely inadequate.</p> <p>An annual debt issuance cost of 0.125% is equivalent to an up front bank fee of 0.87% for ten year debt (calculated using a net present value calculation). No Australian bank would provide a ten year facility at such a low up front fee in the current market. In addition, borrowers have to reimburse the bank's legal fees for establishing the loan documentation and all other related costs mentioned above. The 0.125% allowance also ignores the potential for any ongoing costs associated with compliance or obtaining lender consents over the loan period. It also ignores the costs associated with refinancing shorter term debt. In the current market, refinancings should be expected every three to five years.</p> <p>Merredin Energy recently agreed on a \$50m facility at an upfront cost of 1.6%. This equates to an annualised cost of 0.23% assuming no subsequent refinancings. Because of the construction S-curve, we also have to pay a line fee on the undrawn component of the loan. The line fee should be included in the d-factor since it is a true and actual cost of obtaining the debt finance. The absolute minimum d-factor that could possibly be justified, after legal and other costs, would be 0.3% pa.</p>	
98	Perth Energy	WACC – Debt Issuance Costs	Perth Energy's recent experience is that the debt issuance cost allowance of 0.125% is well below the	See response 50 above.

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			actual costs which are currently around 1-2% upfront and 0.3% on an annualized basis. This cost applies at re-financing (every three to five years) and also to any undrawn debt.	
99	Perth Energy	WACC – Franking Credit Value	Whilst there is some merit from an academic perspective in that dividend imputation affects value, there does not appear to be any clear evidence that investors build franking credits into values based on long-term cash flows or ascribe value to them. The impact of imputation tax credits is best taken into account within the cash flows of the business and that a gamma factor of zero be adopted.	<p>The IMO notes that the value of gamma (the value of imputation credits) was reviewed by PwC in the preparation of its report for the MRCPWG (available at http://www.imowa.com.au/mrcpwg) and is consistent with regulatory practice.</p> <p>See Section 3.6.2 of this report in relation to the alignment of the WACC with regulatory practice.</p> <p>See also Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters.</p>
100	Perth Energy	WACC – Gearing Ratio	As noted above in the discussion on beta, at the WACC level used by IMO, a gearing ratio of 30-35% debt and 65-70% equity would be more reflective of the WA power industry.	<p>The IMO notes that Perth Energy's suggestion is consistent with PwC's recommendation in its report for the MRCPWG (available at http://www.imowa.com.au/mrcpwg) to lower the debt-to-total assets ratio to 35%. However, this was not supported by the MRCPWG when the recommendation was considered at the 20 January 2011 meeting. For more information on this, see the minutes of this meeting at http://www.imowa.com.au/mrcpwg.</p> <p>See Section 3.6.3 of this report in relation to the IMO's ability to exercise discretion with</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p>regard to the 5 Yearly parameters.</p> <p>See also Section 3.6.4 of this report in relation to the financing assumptions in the WACC.</p>
101	Tesla Corporation	Fixed O&M – Fixed Network Access Costs	Based upon the current price list of 2011, Tesla is paying substantially higher Fixed Network Access Costs than the per MW value allowed in the Draft MRCP calculation. We would be happy to share these with the IMO on a confidential basis. We believe the Draft MRCP calculation both underestimates the current cost of network access charges and the rate at which this will increase over time.	<p>The IMO met with Tesla to review its network access charges.</p> <p>The IMO notes that distribution-connection generators on Western Power's RT11 tariff pay additional charges compared to a generator connected to the transmission network on the TRT2 tariff. These charges are the variable connection charge and the variable demand length charge.</p> <p>The 160MW generator upon which the MRCP is based is considered to be connected to the transmission network. Consequently, the IMO considers that it is not appropriate to consider the higher network access charges that apply to distribution-connected generators.</p>
102	ERM Power	Fixed O&M – Network Access Charges	ERM notes that in order to calculate the generator network access costs (GTUOS) for 2014, the IMO has utilised an escalation factor of 4.9% on the July 2011 charges. This methodology is stated to be in line with escalation used for the transmission connection cost. This escalation appears to be materially below that forecast by Western Power in their proposed revised access arrangement for the five year period 1 July 2012 to 30 June 2017 (AA3). In their submission to the ERA, Western Power has proposed substantial increases in	<p>The IMO notes that it made an error in applying the transmission connection cost escalation factor to network access charges in the Draft Report. Step 2.5.6(c) of the Market Procedure requires the IMO to escalate the network access charges at CPI. The IMO has corrected this for this Final Report.</p> <p>However, the IMO notes ERM's submission that Western Power's network access charges</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>the order of CPI plus 16.4% for the first year and CPI plus 11% for the remaining years. This represents an above 70% escalation in real terms and follows an escalation in the order of 40% from AA2.</p> <p>A very important point to note when evaluating the escalation factor of GTUOS, is the developer's risk. Considering that generators have no ability to negotiate fix price terms with Western Power and cannot pass these regulated cost increases through to the IMO under the auction process, a prudent developer would have no option but to include a very high risk premium to the network access charges. It is unquestionable that the escalation factor used by the IMO in the calculation of the MRCP does not reflect this high level of price risk.</p> <p>Considering both the material actual GTUOS increases seen from AA2, the proposed AA3 increases and the upstream parking of unhedged regulated network charges, the IMO must review the escalation proposed in the draft report. ERM recommends escalation in the order of the compounding effect of the likely determination by the ERA for AA3 and the likely escalation above CPI for the years beyond 2017 that fall within the Reserve Capacity Auction supply period (10 years).</p>	<p>have been increasing at a rate that is faster than CPI in recent years. The IMO agrees that it would be preferable to determine an escalation factor specific to network access charges.</p> <p>This issue was raised at meeting 6 of the MRCPWG, for which the minutes are available at http://www.imowa.com.au/mrcpwg. At this meeting, Western Power "advised that changes in tariffs were difficult to forecast and that Western Power was not prepared to make forecasts in this regard."</p> <p>The IMO notes that Western Power's AA3 submission has yet to be approved by the ERA. Consequently, the IMO considers it would be inappropriate to escalate network access charges based on proposed prices in that submission.</p> <p>The IMO has, however, commenced an analysis of the historical increase in Western Power access charges. If the IMO concludes that a weighted average of historical increases would be suitable for escalating these charges, it will amend the Market Procedure during 2012.</p>
103	Tesla Corporation	Fixed O&M – Insurance Costs	On a per MW basis, Tesla is paying substantially higher premiums for the insurance of its plant. Given we have a peaking station, it is assumed that Tesla would be on	<p>The IMO notes that it met with Tesla in relation to insurance costs.</p> <p>The IMO has increased the insurance costs</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>the lower risk side of the continuum and therefore feel that the insurance costs are underestimated. We would be happy to share these with the IMO on a confidential basis.</p>	<p>within the Fixed O&M component of the MRCP, as explained in Section 3.8.4 of this report. This increase is caused by a higher limit of liability for the asset replacement and business interruption insurance.</p> <p>The IMO notes that the MRCP is based a 160 MW OCGT power station. Compared with smaller power station developments, some fixed costs for this type of power station will be cheaper on a per MW basis.</p>
104	Merredin Energy	Fixed O&M – Insurance Costs	<p>The IMO generally seeks to maintain an open and transparent process for setting the MRCP, with all the relevant consultant reports available via its website. However, it fell well short of its usual standard, having failed to commission or publish insurance reports.</p> <p>It appears that the annual insurance costs are based on some informal conversations with insurance brokers. This is no way to set the MRCP parameters. We have no visibility on the policy exclusions or the deductibles that would apply.</p> <p>Merredin Energy's insurance broker Jardine Lloyd Thompson (JLT) provided us with a detailed estimate of insurance costs for asset replacement and business interruption. JLT's advice is that premiums should total \$600,000 equivalent to 0.43% of the insured value for a generic 160 MW peaking plant. This cost excludes terrorism levy, stamp duty and GST and calculated on the following basis:</p>	<p>The IMO notes that it met with both Merredin Energy and JLT in relation to insurance costs.</p> <p>The IMO sought to obtain publishable advice with regard to insurance. SKM has advised that it is not sufficiently qualified in this area to include advice on insurance in its report. The IMO also sought to commission advice from an insurance broker, but each of the brokers contacted by the IMO indicated that it was unable to provide publishable advice due to concerns about intellectual property and competitive disadvantage.</p> <p>However, the IMO has gathered data from multiple sources in estimating the insurance costs for the MRCP, as described in Section 3.8.4 of this report. These have included advice from insurance brokers and insurance renewal documentation provided by Market</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<ul style="list-style-type: none"> • 160MW OCGT generation plant with inlet cooling and an insured value equal to the MRCP power station capacity cost • the assets are newly constructed and located in rural Western Australia below 26 degrees latitude • the plant is diesel powered • the retention levels are \$500,000 for property damage, 45 days for business interruption and \$100,000 for third party liability apply. <p>The quoted premium of \$600,000 is almost twice the IMO's cost estimate of \$321,000 for the asset replacement and business interruption insurance.</p>	<p>Participants.</p> <p>The IMO has increased the insurance costs within the Fixed O&M component of the MRCP, as explained in Section 3.8.4 of this report. This increase is caused by a higher limit of liability for the asset replacement and business interruption insurance.</p> <p>The IMO has also provided more information regarding the basis of the insurance estimate, including deductibles, in Section 3.8.4 of this report.</p>
105	ERM Power	Fixed O&M – Insurance Costs	<p>ERM has reviewed the proposed insurance costs and is of the view that the annual insurance premium is understated by approximately \$1,000/MW/year. Typically a project financed development has minimal discretion in the structure of the operations insurance with the finance agreement specifying the level of cover required. This will typically consider the cost of replacement of the asset and business interruption insurance to allow the project to continue to satisfy its obligations following the loss event and during a minimum two year rebuild period.</p> <p>The property damage portion of the operations insurance must include demolition costs and professional fees for the redevelopment of the project following a material loss event. This cost does not</p>	<p>The IMO has increased the insurance costs within the Fixed O&M component of the MRCP, as explained in Section 3.8.4 of this report.</p> <p>This increase is caused by a higher limit of liability for the asset replacement and business interruption insurance. While the basis of the increase does not match ERM's estimate exactly, the IMO notes that the updated insurance cost is higher than that suggested by ERM in its submission.</p> <p>The Market Procedure includes provision for the annual cost of asset replacement, business interruption and public and products liability insurance. The Market Procedure does</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			<p>appear to have been included in the IMO's estimates.</p> <p>Business Interruption insurance must include the increased cost of working associated with payment of capacity credit refunds to the IMO and the purchase of replacement power for the 160MW OCGT (2% capacity factor MRCP CI2.1.1(d)), both covering a two year redevelopment period.</p> <p>A breakdown of likely project declared values and insurance premiums was provided by ERM, based on the IMO's advised annual premium rate of 0.23%.</p> <p>In addition to the insurance premium costs, insurance policies typically have at best a 45 day deductible period during which the project is self insured. Based on the exposure to reserve capacity refunds and replacement power, it is estimated that the cost associated with this working capital is in the order of \$100k per year and has not been considered by the IMO as a cost to the theoretical 160MW OCGT project.</p>	<p>not include a provision for any costs associated with the deductible period for this insurance.</p>
106	Merredin Energy	Impact of carbon price	<p>There has been no allowance for increases in domestic construction and fuel costs associated with \$23 carbon price and the other measures of the Clean Energy Act passed by the Australian Parliament last year.</p>	<p>The IMO considers that the MRCP already provides adequate coverage for any increases in domestic construction and fuel costs associated with the Clean Energy Act.</p> <p>The IMO notes that the RBA has considered the impact of the carbon price in its CPI forecasts published in the <i>Statement of Monetary Policy – November 2011</i>, assuming an increase in the second half of 2012. This forecast is used in the MRCP in both the CPI</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p>escalation factor and the inflation parameter in the WACC.</p> <p>In addition, taxation costs are considered within the WACC. It is assumed that the statutory corporate tax rate of 30% applies to the project.</p> <p>In its report for the MRCPWG (available at http://www.imowa.com.au/mrcpwg), PwC assessed the treatment of taxation:</p> <p><i>“Australian regulators that specify rates of return as a pre-tax WACC (including the Economic Regulation Authority) have continued to apply the corporate taxation rate as the cost of tax, which remains at 30 per cent.</i></p> <p><i>It would be open to the IMO to estimate an effective rate of tax and apply that rate rather than the corporate tax rate. In this regard, it is observed that a recent study of new entry and generation costs in the National Electricity Market assumed an effective tax rate of 22.5 per cent (ACIL Tasman, April, 2009, Final Report – Fuel resource, new entry and generation costs in the NEM, Report prepared for the Inter-Regional Planning Committee (AEMO), p. 22). To apply an effective tax rate of less than the corporate tax rate would, however,</i></p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
				<p><i>depart from Australian regulatory practice.”</i></p> <p>On this basis, the IMO considers that the use of the statutory corporate rate of 30% in the WACC, rather than the effective tax rate, is a conservative allowance that adequately covers any residual carbon tax liability.</p>
107	Merredin Energy	GST	<p>Where a WEM generator is unable to claim the full amount of the GST, the costs should be grossed up for that portion of GST.</p> <p>GST can not be fully claimed for the following items:</p> <ul style="list-style-type: none"> • Equity raising fees. These should be grossed up by 1.10. • Debt raising fees. These should be grossed up by 1.025 to account for reduced input tax credits. • Accounting, legal and other fees pertaining to establishment, equity raising and debt raising costs. <p>The relevant Margin and WACC factors should be grossed up to account for GST leakage.</p>	<p>The costs associated with capital-raising listed by Merredin Energy constitute a relatively small portion of the MRCP. Consequently, any “GST leakage” (as described by Merredin Energy) would be a small cost.</p> <p>See also response 106 above.</p>
108	Tesla Corporation	Other	<p>When undertaking market reviews of any type give consideration to the needs of the smaller non-established players that the WEM was designed to encourage into the market. Having done that, the MRCP Review and the resultant pricing now threatens their viability.</p>	<p>The IMO undertakes consultation in good faith with all industry stakeholders, including new and prospective Market Participants. The IMO does not apply additional weight to views expressed by large established Market Participants.</p>
109	Perth	Other	<p>There are other factors that should be taken into</p>	<p>See the following sections of this report:</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
	Energy	considerations	<p>account in determining the appropriate level of WACC for current power generation projects in the WEM:</p> <ul style="list-style-type: none"> • Construction and commissioning risk – the additional risk reflecting the potential difficulties and delays, and the consequential increase in capital expenditure, which are often associated with the construction of large scale projects. The continuing demand for professional and trades staff within the oil and gas and mining industries accentuates this issue • Forecasting risk – the risk associated with the ability to predict and realise any cost and revenue forecasts in the pre-construction stage • Financing risk – given the unfavourable market conditions it is noted that there are may be additional risks regarding access to new debt facilities required during the construction phase • Re-financing risk – with the relatively short debt tenor being offered, generators face a serious risk that refinancing may be required during a period of considerable economic difficulty; and • Carbon pricing scheme – adjustment to reflect the additional risk arising from the impact of the new carbon pricing scheme. 	<ul style="list-style-type: none"> • Section 3.6.2 in relation to the alignment of the WACC with regulatory practice; • Section 3.6.3 in relation to the IMO's ability to exercise discretion with regard to the 5 Yearly parameters; and • Section 3.6.4 in relation to the financing assumptions in the WACC. <p>The IMO also notes that the contingency allowance within Margin M is intended to cover contingencies in the construction power station construction.</p>
110	Tesla Corporation	Reserve Capacity Mechanism Working Group	Following the RCMWG review, we believe the pricing methodology should be again reviewed as the whole mechanism should have been reviewed prior to the	<p>The IMO notes Tesla's submission.</p> <p>The IMO undertakes consultation in good faith with all industry stakeholders, including new</p>

No.	Submitter	Component/Issue	Comment/Change Requested	IMO's response
			price procedure independently being modified. We would also like to ensure that the responses by all participants, including smaller capacity providers like Tesla need to be included in the overall industry response.	and prospective Market Participants. The IMO takes into account the relevant views of all parties regardless of size, and does not apply additional weight to views expressed by large established Market Participants.

5.2 Maximum Reserve Capacity Price Stakeholder Workshop

The IMO conducted a stakeholder workshop on 4 January 2012 to provide background information on the calculation of the WACC and its input parameters and to explain the underlying reasons behind the fall in the WACC since the previous MRCP. The workshop was attended by 28 stakeholders and included a short presentation by the IMO and PwC, followed by discussion.

The minutes and related documents for the workshop are available on the IMO website at <http://www.imowa.com.au/mrcp>.

6. CONCLUSION

The IMO has conducted a review of the main factors used to determine the MRCP, in accordance with the Market Procedure. The 2012 MRCP is the first to be determined since the commencement of amendments to the Market Procedure as recommended by the MRCPWG.

For the 2012 Reserve Capacity Cycle, the IMO proposes that the MRCP be set at \$163,900 per MW per year.

The MRCP of \$163,900 per MW per year represents a decrease of 32% from the 2011 price. The main drivers of the lower MRCP have been the inclusion of inlet cooling in the power station design; the implementation of the methodology for estimating transmission connection costs as recommended by the MRCPWG; and a lower WACC.

The 2012 MRCP computation has been included in Appendix B and a comparison between the 2011 and 2012 MRCPs can be found in Appendix C.

APPENDIX A: WEIGHTED AVERAGE COST OF CAPITAL (WACC)

The pre-tax real Officer WACC is used for the determination of the Maximum Reserve Capacity Price. The formulae are shown below:

$$WACC_{real} = \left(\frac{(1 + WACC_{nominal})}{(1 + i)} \right) - 1$$

and

$$WACC_{nominal} = \frac{1}{(1 - t(1 - \gamma))} R_e \frac{E}{V} + R_d \frac{D}{V}$$

where the nominal Return on Equity is calculated as:

$$R_e = R_f + \beta_e \times MRP$$

and the nominal Return on Debt is calculated as:

$$R_d = R_f + (DRP + d)$$

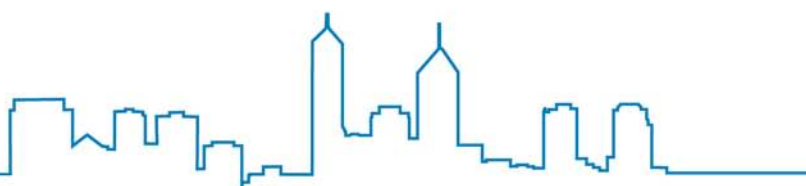
Pricewaterhouse Coopers reviewed the Annual parameters and updated the relevant parameters in line with current prices and values. A table of the parameters and values are shown in Table A1 below. The volatile Minor parameters, highlighted in yellow, have been recalculated since the publication of the draft report so that the most recent numbers are used.

Table A1: WACC parameters for 2011 and 2012

Parameter	Notation	2012 Value	2011 Value
Nominal Risk Free Rate of Return (%)	R_f	3.92	5.59
Expected Inflation (%)	i	2.55	2.9
Real risk free rate of return (%)	R_{fr}	1.34	2.65
Market Risk Premium (%)	MRP	6	6
Asset beta	β_a	0.5	0.5
Equity beta	β_e	0.83	0.83
Debt Margin / Debt Risk Premium (%)	DRP	4.13	5.25
Debt issuance costs (%)	d	0.125	0.125
Corporate tax rate (%)	t	30	30
Franking credit value	γ	0.5	0.5
Debt to total assets ratio (%)	D/V	40	40
Equity to total assets ratio (%)	E/V	60	60

For the purposes of the 2012 MRCP:

WACC = 6.83%



APPENDIX B: IMO'S OPINION REGARDING THE METHOD FOR DETERMINING THE DEBT RISK PREMIUM (FROM DRAFT REPORT)

The methodology for calculation of the majority of the Annual WACC parameters is detailed in the Market Procedure. However, the MRCPWG agreed that it was appropriate that the IMO should have discretion to determine the methodology for calculating the debt risk premium (DRP). The MRCPWG acknowledged two key limitations with regard to previous methods used for the DRP:

- The availability of bond market data has declined significantly in recent years, specifically from Bloomberg and CBASpectrum, which have historically been the two providers of fair yield curves used by regulatory authorities in Australia. CBASpectrum has now ceased publishing fair value curves, “*citing a lack of data, problems with reliability and confusion about how the curves can be used*”³³. Bloomberg ceased publishing its 10-year BBB fair value curves in 2008, its 8-year BBB curves in 2009 and 10-year AAA curves in 2010.
- This in turn has led to divergence between Australian regulatory authorities, as well as inconsistency in the approaches used by some authorities.

With the current instability, the MRCPWG considered that the allowance of discretion would enable the IMO to nominate the method it deemed most appropriate at the time that the MRCP is determined.

This is reflected in the Market Procedure, as amended following Procedure Change PC_2011_06. Step 2.9.7(h) of the Market Procedure states that:

The debt risk premium, DRP, for a Capacity Year is a margin above the risk free rate reflecting the risk in provision of debt finance. This will be estimated by the IMO as the margin between the observed annualised yields of Australian corporate bonds which have a BBB (or equivalent) credit rating from Standard and Poors and the nominal risk free rate.

The IMO must determine the methodology to estimate the DRP, which in the opinion of the IMO is consistent with current Australian accepted regulatory practice.¹

The footnote on page 15 of the Procedure states:

Given observed issues with Bloomberg data, the ERA adopted an alternative ‘Bond-Yield Approach’ to establishing the DRP in its Final Decision on revisions proposed by WA Gas Networks (WAGN) to the access arrangement for the Mid

³³ See paragraph 21, Australian Competition Tribunal, Application by Jemena Gas Networks (NSW) Ltd (No 5) [2011] ACompT 10 (9 June 2011), available at <http://www.austlii.edu.au/au/cases/cth/ACompT/2011/10.html>

West and South West gas distribution systems. It is understood that WAGN is appealing the use of this method to the Australian Competition Tribunal. Pending the outcomes of the appeal, and if the 'Bond-Yield Approach' were to become accepted Australian regulatory practice, the IMO intends to amend this Market Procedure.

The IMO notes that the requirements for the methodology to be “current” and “accepted” would appear to be conflicting at this time. The IMO has placed emphasis on the acceptance of various methodologies, consistent with the footnote incorporated in the Market Procedure. The IMO considers that a methodology for determining the DRP is accepted if it has been challenged (for example, to the Australian Competition Tribunal) and the application of this methodology has been upheld.

In forming its opinion of the method that is consistent with current Australian accepted regulatory practice, the IMO has considered:

- the requirements of the Market Procedure;
- methodologies used by the ERA and the Australian Energy Regulator (AER); and
- decisions of the Australian Competition Tribunal (ACT).

The IMO notes that the Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has recently utilised a methodology that has similarities to the *Bond-Yield Approach* employed by the ERA. However, the IMO notes that IPART’s decisions in relation to the WACC are not reviewable by the ACT. The IMO has thus not considered IPART’s methodology.

The ERA has developed the *Bond-Yield Approach* that was first employed in the *Final decision on WA Gas Networks Pty Ltd proposed revised access arrangement for the Mid-West and South-West Gas Distribution System*³⁴ on 28 February 2011. The IMO notes the ERA’s efforts to restore consistency through consistent application of the *Bond-Yield Approach* in subsequent decisions. The ERA had previously determined the DRP from CBASpectrum data.

However, the IMO notes that WA Gas Networks (WAGN) has appealed the ERA’s Final Decision, including the determination of the cost of capital, to the ACT.

At the initial hearing on 28 October 2011, the ACT indicated that “*there is a serious question to be tried*”³⁵ in relation to the WACC proposed in the WAGN Final decision, within which the DRP is one element of the WACC that WAGN has specifically challenged. The ACT gave leave to WAGN to apply for a review of the Reviewable Decision.

³⁴ Available at http://www.erawa.com.au/3/1086/48/dampier_to_bunbury_natural_gas_pipeline_revised_a_pm

³⁵ See paragraph 24, Australian Competition Tribunal, *WA Gas Networks Pty Ltd (No 1)* [2011] ACompT 14 (28 October 2011), available at <http://www.austlii.edu.au/au/cases/cth/ACompT/2011/14.html>

The consistent use of the *Bond-Yield Approach* by the ERA since the WAGN Final Decision, as well as IPART's adoption of a methodology that is similar to ERA's approach, adds currency to the suggestion that the *Bond-Yield Approach* is the most current DRP adopted by Australian regulators. However, as noted above, the IMO does not consider this methodology to be consistent with accepted regulatory practice until the imposition of the methodology has been upheld by ACT.

By contrast, the AER has utilised various methods in recent decisions, some of which have been amended by order of the ACT.

- In its final decision on the access arrangement for ActewAGL (released on 30 March 2010), the AER used CBASpectrum data to determine the DRP. The AER considered that CBASpectrum best reflected bond market conditions based on comparison with a selection of corporate bonds.

The ACT rejected the AER's decision on 17 September 2010³⁶ on the grounds that the comparative analysis undertaken by the AER was flawed. In its ruling, the ACT stated that:

"74. In a robust bond market, it would likely be possible for the AER to calculate the yield based on particular representative bonds issued in Australia in reasonably close proximity to the time of the AER's determination.

75. In the absence of a deep market for corporate bonds, the AER will likely have to rely on published fair value curves to estimate benchmark debt financing costs.

76. If the fair value curves differ substantially, the AER will need to choose between them."

Despite limitations in the availability of 10-year BBB data from Bloomberg, the ACT considered that this could be estimated by extrapolation of Bloomberg's 7-year BBB fair value curve:

"21. ... Both the parties agreed that it was possible to extrapolate Bloomberg's curve to 10 years by adding to it the spread between Bloomberg's AAA seven year and 10 year fair value curves."

- In its final decision on the access arrangement for Jemena Gas Networks (released on 11 June 2010), the AER used an average of Bloomberg and CBASpectrum data to determine the DRP. Following an analysis of the relative merits of the two data sources, the ACT rejected the AER's decision on 9 June 2011:

"86. We therefore find that the appropriate curve from which the debt risk premium for JGN should be calculated is the Bloomberg fair value curve. The Bloomberg fair value curve is a much better fit than the CBASpectrum curve. The latter is so poor a fit to the

³⁶ Available at <http://www.austlii.edu.au/au/cases/cth/ACompT/2010/4.html>

data that it would not even be appropriate to consider averaging it with the Bloomberg curve.”

- In its *Final decision, Victorian electricity distribution network service providers, Distribution determination 2011-2015*³⁷, the AER determined the DRP from a weighted average of Bloomberg data (75%) and the observed yield for the Australian Pipeline Trust (APT) BBB-rated 10-year bond (25%). In subsequent decisions, the AER determined the DRP by applying equal weightings to the Bloomberg data and APT bond. In initial hearings on 12 October 2011, the ACT gave leave to Envestra to apply for a review of the Reviewable Decision in relation to the debt risk premium (and other parameters) used in the access arrangement decisions related to its Queensland and South Australia gas distribution networks³⁸.
- In its *Draft decision, Powerlink Transmission determination, 2012-13 to 2016-17*³⁹, issued on 29 November 2011, the AER determined the DRP from the average yield of a sample of 9 Australian corporate bonds with a remaining term to maturity between 7 and 13 years. Powerlink has indicated that it will be responding to the Draft decision by 16 January 2012⁴⁰. The IMO considers that this methodology is similar in principle to the ERA’s *Bond-Yield Approach*, which is subject to appeal to the ACT as noted above.

The IMO acknowledges that current Australian regulatory practice with regard to the determination of the DRP is in a state of transition and is awaiting a number of ACT decisions that will provide significant clarity to determinations of DRP. However, the IMO does not have the benefit of delaying its MRCP determination until methodologies have either been upheld or rejected in an ACT decision.

On the balance of the information presented, the IMO is of the opinion that it should determine the DRP from the 7-year Bloomberg BBB fair value curve, extrapolated to ten years using the difference between the AAA 7-year and 10-year fair value curves (taken from the most recent publication of those AAA curves). This opinion is based on:

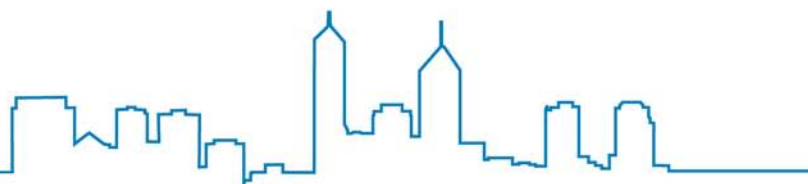
- paragraphs 74 and 75 from the ACT’s ActewAGL decision, which indicate that the DRP should be determined from published fair value curves in the absence of a deep bond market (a finding that remains relevant in current market conditions);
- the ACT’s Jemena decision, which indicates that Bloomberg provides the more reliable fair value curve (compared to CBASpectrum);
- the extrapolation technique agreed by both parties in the ACT’s ActewAGL decision;

³⁷ Available at <http://www.aer.gov.au/content/index.phtml/itemId/740791>

³⁸ Available at <http://www.austlii.edu.au/au/cases/cth/ACCompT/recent.html>

³⁹ Available at <http://www.aer.gov.au/content/index.phtml/itemId/750738>

⁴⁰ See http://www.powerlink.com.au/Network/Connection_and_pricing/Revenue_reset_proposal.aspx for more information.



- the outstanding applications to the ACT in relation to the use of the APT bond and the ERA's *Bond-Yield Approach*, leading the IMO to conclude that these methods are not yet "accepted"; and
- the drafting of the Market Procedure.

The IMO notes that this is consistent with the recommendation of PwC in its report for the MRCPWG⁴¹.

Despite this, the IMO notes the significant shortcomings with the nominated method, particularly in relation to its currency. The method relies on extrapolation of Bloomberg fair value curves, which are determined through a confidential method. Further, the extrapolation technique is reliant on the 10-year AAA fair value curve that Bloomberg ceased publishing in June 2010. The IMO also notes that regulatory authorities have variously formed the view that extrapolated Bloomberg fair value curves over-estimate the true cost of debt and have moved away from methodologies based on Bloomberg data.

In acknowledgement of these shortcomings, the IMO has committed to amend the Market Procedure to adopt the *Bond-Yield Approach* for future MRCP determinations if it is upheld by the ACT.

⁴¹ Available at <http://www.imowa.com.au/mrcpwg>

APPENDIX C: CALCULATION OF THE MAXIMUM RESERVE CAPACITY PRICE

The Maximum Reserve Capacity Price is calculated as described by the *Market Procedure: Maximum Reserve Capacity Price*. This is shown below:

$$\text{MRCP} = \text{ANNUALISED_FIXED_O\&M} + (\text{ANNUALISED_CAP_COST} / \text{CC})$$

where:

MRCP is the Maximum Reserve Capacity Price to apply in a Reserve Capacity Auction.

ANNUALISED_FIXED_O&M is the annualised fixed operating and maintenance costs for the power station and any associated electricity transmission facilities, expressed in Australian dollars, per MW per year.

ANNUALISED_CAP_COST is the CAPCOST, expressed in Australian dollars, annualised over a 15 year period using the Weighted Average Cost of Capital (WACC).

CC is the expected Capacity Credit allocation determined in conjunction with the power station capital cost, expressed in MW.

Table B1: 2012 MRCP and associated parameters

Parameter	Value	Unit
2012 MRCP	\$163,900.00	A\$/MW/Year
Where		
ANNUALISED_FIXED_O&M	\$33,391.76	A\$/MW/Year
ANNUALISED_CAPCOST	\$20,829,728.91	A\$/Year
CC	159.6	MW



Table B2: ANNUALISED_CAPCOST and associated parameters

Parameter	Value	Unit
CAPCOST	\$191,790,889.30	A\$
Where		
PC	\$858,987.37	A\$/MW
M	18.20%	%
TC	\$109,821.00	A\$
CC	159.6	MW
FFC	\$3,183,074.82	A\$
LC	\$2,804,181.83	A\$
WACC	6.83%	%
Annualisation		
ANNUALISED_CAPCOST	\$20,829,728.91	A\$/Year
Where		
CAPCOST	\$191,790,889.30	A\$
WACC	6.83%	%
Term of Finance (Years)	15	Years



APPENDIX D: COMPARISON BETWEEN THE 2011 AND 2012 MAXIMUM RESERVE CAPACITY PRICES

Table D1: Comparison between 2011 and 2012 MRCPs

Parameter	Reserve Capacity Year		Units
	2012	2011	
PC	\$858,987.37	\$790,634.25	A\$/MW
M	18.2%	18.6%	%
TC (\$/MW)	\$109,821.00	\$304,985.68	A\$/MW
TC (\$)	\$17,527,431.60	\$48,797,708.54	A\$
FFC	\$3,183,074.82	\$2,670,126.35	A\$
LC	\$2,804,181.83	\$772,904.19	A\$
CAPCOST	\$191,790,889.30	\$238,777,908.78	A\$
Term of Finance	15	15	Years
WACC	6.83%	8.65%	%
ANNUALISED_CAPCOST	\$20,829,728.91	\$29,013,199.36	A\$/Year
CC	159.6		MW
CAP		160.0	MW
SDF		1.18	N/A
ANNUALISED_CAPCOST	\$20,829,728.91	\$29,013,199.36	A\$/Year
ANNUALISED_FIXED_O&M	\$33,391.76	\$26,648.64	A\$/MW/Year
MRCP	\$163,900.00	\$240,600.00	A\$/MW/Year



Table D2: Impact of year-on-year changes in input parameters

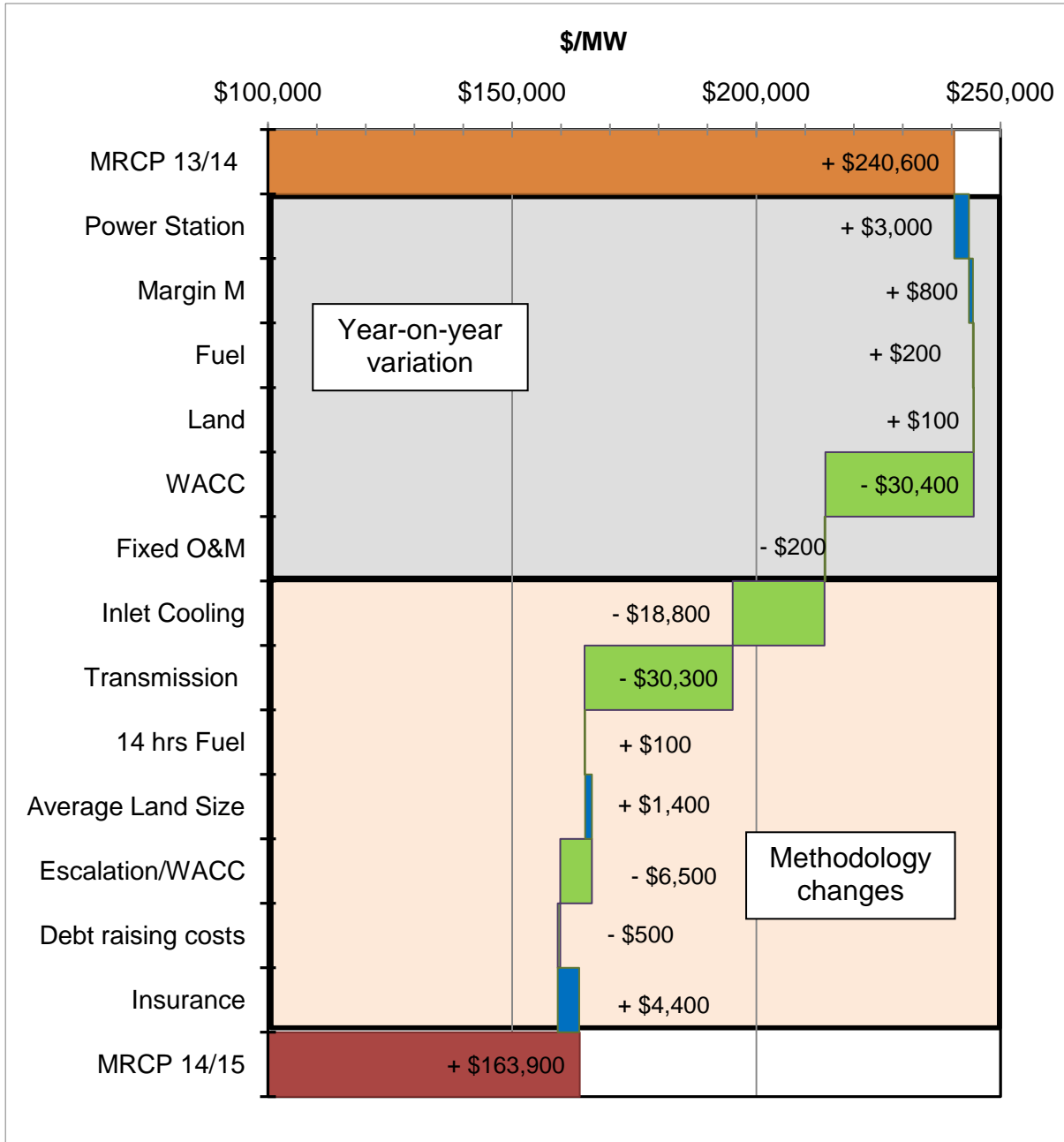
	Impact (\$)	Impact (%)	MRCP (\$)
2013/14 MRCP			240,600
Power Station costs	+ 3,000	+ 1.2%	243,600
Margin M	+ 800	+ 0.3%	244,400
Fixed Fuel Cost	+ 200	+ 0.1%	244,600
Land Cost	+ 100	+ 0.0%	244,700
WACC	- 30,400	- 12.6%	214,300
Fixed O&M	- 200	- 0.1%	214,100
Combined impact	- 26,500	- 11.0%	214,100

Table D3: Impact of methodology changes in input parameters

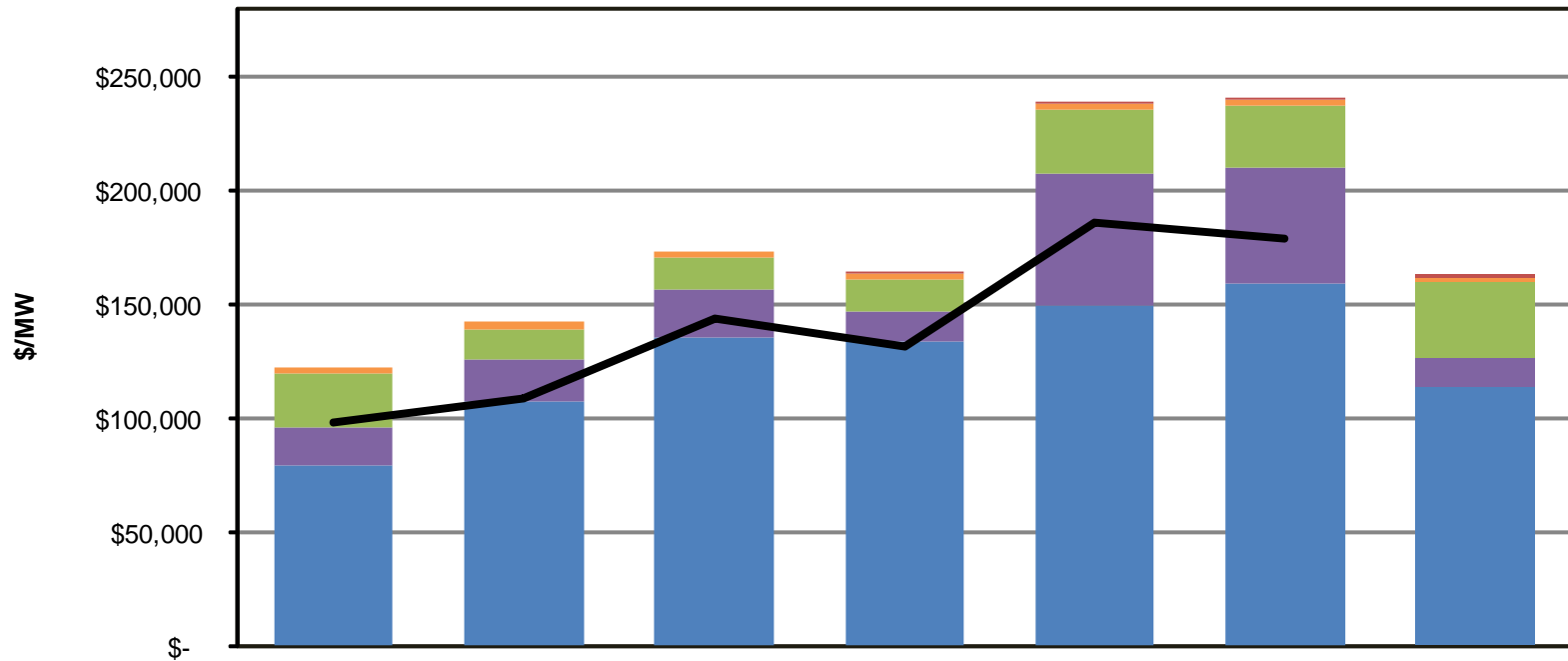
	Impact (\$)	Impact (%)	MRCP (\$)
MRCP after year-on-year changes			214,100
Inclusion of inlet cooling	- 18,800	- 8.8%	195,300
Revised Transmission Cost methodology	- 30,300	- 14.2%	165,000
Increased fuel allowance (increase from 12 to 14 hours)	+ 100	+ 0.0%	165,100
Use of average land cost	+ 1,400	+ 0.7%	166,500
Revised cost escalation/WACC methodology	- 6,500	- 3.0%	160,000
Debt issuance cost included in WACC, corresponding costs removed from Margin M	- 500	- 0.2%	159,500
Annual insurance costs included in Fixed O&M	+ 4,400	+ 2.1%	163,900
Net change	- 50,100	- 23.4%	163,900



Figure D1: Comparison of 2011 and 2012 MRCPs



APPENDIX E: VARIATION IN THE MAXIMUM RESERVE CAPACITY PRICE AND CONSTITUENT COSTS



Capacity Year	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Power Station Cost	\$ 79,110	\$ 107,404	\$ 135,701	\$ 134,091	\$ 149,306	\$ 158,710	\$ 113,956
Transmission Costs	\$ 16,558	\$ 18,017	\$ 20,672	\$ 13,151	\$ 58,493	\$ 51,621	\$ 12,328
Fixed O& M	\$ 23,900	\$ 13,363	\$ 14,392	\$ 13,431	\$ 27,335	\$ 26,649	\$ 33,384
Fuel Costs	\$ 2,907	\$ 3,456	\$ 2,631	\$ 3,151	\$ 2,615	\$ 2,825	\$ 2,239
Land Costs	\$ -	\$ -	\$ -	\$ 293	\$ 769	\$ 818	\$ 1,972
MRCP (nearest \$100)	\$ 122,500	\$ 142,200	\$ 173,400	\$ 164,100	\$ 238,500	\$ 240,600	\$ 163,900
Excess Capacity	6.43%	11.44%	2.19%	5.83%	8.99%	14.59%	NA
Reserve Capacity Price (per yr) —	\$ 97,837	\$ 108,459	\$ 144,235	\$ 131,805	\$ 186,001	\$ 178,477	NA

APPENDIX F: ABBREVIATIONS

ABS – Australian Bureau of Statistics

ACT – Australian Competition Tribunal

AER – Australian Energy Regulator

CAPM – Capital Asset Pricing Model

CPI – Consumer Price Index

DRP – Debt Risk Premium

ERA – Economic Regulation Authority

GST – Goods and Services Tax

IMO – Independent Market Operator

IPART – Independent Pricing and Regulatory Tribunal of New South Wales

MAC – Market Advisory Committee

MRCP – Maximum Reserve Capacity Price

MRCPWG – Maximum Reserve Capacity Price Working Group

MW – Megawatt

OCGT – Open Cycle Gas Turbine

O&M – Operation and Maintenance

PwC – Pricewaterhouse Coopers

RBA – Reserve Bank of Australia

SKM – Sinclair Knight Merz

SWIS – South West interconnected system

WACC – Weighted Average Cost of Capital

WAGN – WA Gas Networks

WEM – Wholesale Electricity Market

