

Decision on the Maximum Reserve Capacity Price proposed by the Independent Market Operator for the 2012/13 Reserve Capacity Year

29 January 2010

Economic Regulation Authority



WESTERN AUSTRALIA

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DECISION

- 1 On 19 January 2010, the Independent Market Operator (**IMO**) provided the Economic Regulation Authority (**Authority**) with its final report on the Maximum Reserve Capacity Price (**MRCP**) Review for the 2012/13 Reserve Capacity Year. The Authority approves the revised value for the MRCP for the 2010 Reserve Capacity Cycle of \$238,500 per MW per year, as proposed in the IMO's final report.
- 2 This approval is granted pursuant to clause 2.26.1 of the Wholesale Electricity Market Rules (**Market Rules**). The approval is granted on the basis that:
 - the revised value for the MRCP proposed by the IMO reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules; and
 - the IMO has carried out an adequate public consultation process.

REASONS

Background

- 3 The MRCP sets the maximum bid that can be submitted in a Reserve Capacity Auction and, if no Reserve Capacity Auction is required, is used as the basis for determining an administered Reserve Capacity Price.
- 4 Clause 4.16.3 of the Market Rules requires the IMO to develop a Market Procedure documenting the methodology it uses and the process it follows in determining the MRCP (**MRCP Market Procedure**),¹ and to follow that procedure in an annual review of the MRCP value. The IMO must propose a revised value for the MRCP using the methodology described in the MRCP Market Procedure, and must prepare a draft report describing how it has arrived at the proposed revised value for the MRCP. Following a public consultation process, the IMO must propose a final revised value for the MRCP.
- 5 Where the IMO proposes a final revised value for the MRCP, clause 2.26.1 of the Market Rules requires the Authority:
 - to review the final report provided by the IMO, including all submissions received by the IMO in preparation of the report;
 - to make a decision as to whether or not to approve the revised value of the MRCP;
 - in making its decision, to only consider:
 - whether the proposed revised value for the MRCP reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules;

¹ IMO web site, *Market Procedure for: Determination of the Maximum Reserve Capacity Price, Version 1.1*, http://www.imowa.com.au/f711,231575/Market_Procedure_for_Maximum_Reserve_Capacity_Price.pdf

- whether the IMO has carried out an adequate public consultation process; and
 - notify the IMO that it has approved the revised value.
- 6 In coming to its decision to approve the revised value for the MRCP, the Authority has reviewed the IMO's draft report, the IMO's final report and submissions received by the IMO in response to its draft report. The Authority has also reviewed reports commissioned by the IMO in regard to input parameters for the MRCP, in order to confirm that these reports reasonably reflect the application of the method and guiding principles described in clause 4.16 of the Market Rules.

Maximum Reserve Capacity Price methodology

- 7 As required under the Market Rules, the MRCP Market Procedure sets out the principles to be applied and the steps to be taken by the IMO in order to develop and propose the MRCP.
- 8 The MRCP is to include all reasonable costs expected to be incurred in the development of a notional power station, defined in the MRCP Market Procedure as a 160 MW open cycle gas turbine (**OCGT**). Costs include the following:
- the cost of an industry standard, liquid-fuelled OCGT with a nominal nameplate capacity of 160 MW;²
 - power station balance of plant costs, which are those other ancillary and infrastructure costs that would normally be experienced when developing a project of this nature;
 - land costs;
 - costs associated with the development of liquid fuel storage and handling facilities;
 - costs associated with the connection of the power station to the bulk transmission system;
 - allowances for legal costs, insurance costs, financing costs and environmental approval costs;
 - reasonable allowance for a contingency margin; and
 - estimates of fixed operating and maintenance costs for the power station, fuel handling facilities and the transmission connection components.
- 9 The Authority is satisfied that the IMO has met the requirements of the Market Rules in proposing the MRCP for the 2012/13 capacity year because:
- the Authority is satisfied that the proposed values of all the input parameters reasonably reflect the application of the method and guiding principles described in clause 4.16 of the Market Rules;
 - the Authority is satisfied that the application of the MRCP methodology reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules; and

² A generator's nameplate capacity is the amount of electricity that the generator is designed to produce.

- the Authority is satisfied that the IMO has carried out an adequate public consultation process.

Input parameters to the Maximum Reserve Capacity Price calculation

- 10 The Authority is satisfied that the input parameters that the IMO has used to calculate the proposed revised value of the MRCP are consistent with the requirements of the Market Rules.
- 11 The Authority notes that through the public consultation process, comments were received from stakeholders in regards to these input parameters. Comments include the following:
 - a call for a review of the assumptions underlying the calculation of the MRCP;
 - inclusion of the cost of operational insurance;
 - inclusion of construction costs for a plant to be operated on dual fuel;
 - inclusion of additional site specific costs incurred for connecting a plant to the transmission system;
 - the appropriateness of assumptions underlying the calculation of the weighted average cost of capital (**WACC**);
 - inability to understand how the transmission connection works cost estimates were derived based on the information provided by Western Power, and a suggestion that additional transparency on how this cost was calculated would be helpful;
 - the appropriateness of the blanket application of deep connection costs to all new generation projects;
 - whether the estimates of deep connection costs submitted by Western Power meet the New Facilities Investment Test (**NFIT**) prescribed in the *Electricity Networks Access Code 2004* (**Access Code**).
 - consideration of the application of a glide path to certain costs for the purposes of price shock mitigation; and
 - consideration of a simpler connection arrangement over what is currently prescribed in the MRCP Market Procedure, being a specific type of substation used to connect a power station to the transmission system.
- 12 The IMO's response to comments received in respect of input parameters was to either agree and correct the MRCP calculation where it was considered appropriate, or reject the comments for the purposes of the MRCP calculation for this review on the grounds that it was not considered in the MRCP Market Procedure. In most cases, where the IMO's response was to reject comments for the purposes of this review, the IMO noted that it would consider these comments as part of its review of the MRCP Market Procedure described in clause 4.16.9 of the Market Rules. Comments received from stakeholders and the IMO's responses are summarised in Section 5 of the final report.
- 13 In its final report, the IMO noted that the MRCP has been set three times using the current methodology. The IMO also noted that, before the publication of the MRCP for the 2011 Reserve Capacity Cycle, it expects to conduct the review of the MRCP Market Procedure described in clause 4.16.9 of the Market Rules, which includes

undertaking a public consultation process in respect of the outcome of the review.

- 14 The Authority considers that stakeholder comments in respect of input parameters raise substantive issues, and these issues are likely to be problematic if not addressed before the next MRCP review. Therefore, the Authority supports the IMO's decision to conduct the review of the MRCP Market Procedure described in clause 4.16.9 of the Market Rules before the publication of the MRCP for the 2011 Reserve Capacity Cycle.

Development of costs for the power station

- 15 The MRCP Market Procedure states that the power station upon which the MRCP shall be based is a 160 MW OCGT, operating on liquid fuel, with a capacity factor of 2 per cent and low Nitrous Oxide (**NOx**) burners.
- 16 The MRCP Market Procedure states that the IMO shall engage a consultant to provide advice, including providing an estimate of the cost associated with designing, purchasing and constructing the power station. The power station costs shall be determined with specific reference to the use of actual project-related data and shall take into account the specific development conditions under which the power station will be developed.
- 17 The IMO commissioned Sinclair Knight Merz (**SKM**) to provide generation capital costs for a 160 MW OCGT power station located within the South West Interconnected System (**SWIS**). The process for calculating the power station capital costs is the same as the process applied last year for the 2009 MRCP, and involved consideration of the costs of a number of OCGT plants. Based on SKM's capital cost estimate, escalated to 2010 dollars and including the cost of low NOx burners, the IMO has proposed a value of \$779,195.50 per MW for the capital cost of an OCGT.
- 18 The Authority considers that the IMO, in adopting a value of \$779,195.50 per MW for the capital cost of an OCGT, has selected a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.

Factor for legal, financing, approvals and contingencies

- 19 The MRCP Market Procedure states that the IMO shall determine an estimate of legal costs, financing costs, insurance costs, approval costs, other fixed costs and contingency costs.
- 20 The IMO commissioned SKM to provide an estimate of the cost factor for legal, financing, approvals and contingencies. SKM estimated these costs on the basis of in-house data and knowledge of recent developments. SKM proposed a margin of 18.6 per cent. Based on SKM's estimate, the IMO has proposed a margin of 18.6 per cent for legal, financing, approvals and contingencies.
- 21 The Authority considers that the IMO, in adopting a value of 18.6 per cent for the margin for legal, approval and financing costs and contingencies, has adopted a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.

Transmission connection works

- 22 The MRCP Market Procedure states that Western Power shall provide an estimate of transmission connection costs based on the capital cost of a generic 330 kV substation, including an allowance for 2 km of 330 kV overhead line, to facilitate the connection of the power station.
- 23 Estimates of the cost of connection assets (a 330 kV line and dedicated connection to a 330 kV substation) and shared assets (including a 330 kV substation and deep connection costs) were provided by Western Power. These estimates were escalated to 2010 dollars. Based on this, the IMO has proposed a value of \$57.927 million for transmission connection costs.
- 24 The Authority accepts the IMO adopted value of \$57.927 million for transmission connection costs.
- 25 The Authority considers that the IMO, in conducting the review of the MRCP Market Procedure - described in clause 4.16.9 of the Market Rules - before the publication of the MRCP for the 2011 Reserve Capacity Cycle, should give due consideration to the step in the procedure that requires Western Power to estimate deep connection costs, particularly in respect of ensuring that estimated deep connection costs meet the requirements of the NFIT prescribed in the Access Code.

Fixed fuel costs

- 26 The MRCP Market Procedure states that the IMO must determine appropriate and reasonable costs for the liquid fuel storage and handling facilities of the power station. The costs should be those associated with a fuel tank of 1,000 tonne capacity, facilities to receive fuel from road tankers and all associated pipe work, pumping and control equipment.
- 27 The IMO commissioned Gutteridge Haskins and Davey (**GHD**) to update the costing of fixed fuel costs provided in its 2007 report, with costs that reflect those in 2009. Based on GHD's estimates, escalated to 2010 dollars, the IMO has proposed a value of \$2.590 million for fixed fuel costs.
- 28 The Authority considers that the IMO, in adopting a value of \$2.590 million for fixed fuel costs, has selected a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.

Land costs

- 29 The MRCP Market Procedure states that the IMO shall retain Landgate under a consultancy agreement to provide valuations on parcels of industrial land in regions within the SWIS where generation projects are most likely to be proposed. The MRCP Market Procedure states that the size of land for areas that do not require a substantive buffer zone will have costs determined based on a 3 hectare site, and areas that do require a substantive buffer zone will have costs determined based on a 30 hectare site.
- 30 Pursuant to the MRCP Market Procedure, the IMO calculated the MRCP for locating the 160 MW OCGT at the various prescribed regions within the SWIS, and determined that using the Kemerton Industrial Park Region for the land cost

estimate yielded the lowest MRCP.

- 31 Based on the Kemerton Industrial Park Region land cost estimate provided by Landgate, escalated to 2010 dollars, the IMO has proposed a value of \$761,250 for land costs.
- 32 The Authority considers that the IMO, in adopting a value of \$761,250 for land costs, has selected a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.

Fixed operating and maintenance costs

- 33 The MRCP Market Procedure states that the IMO must determine fixed operating and maintenance costs for the power station and the associated transmission connection works. The MRCP Market Procedure states that fixed operating and maintenance costs shall be converted into an annualised amount.
- 34 The IMO commissioned SKM to provide an estimate of fixed operating and maintenance costs.
- 35 In regard to fixed operating and maintenance costs for the power station, the IMO has determined costs by taking the annual generation fixed operating and maintenance costs determined by SKM and calculating an annuity discounted at the value of the real WACC. This is escalated to 2010 dollars, providing a value of \$12,308.94 per MW per year.
- 36 In regard to fixed operating and maintenance costs for transmission connection works, the IMO has determined costs by taking the annual generation operating and maintenance costs determined by SKM and calculating an annuity discounted at the value of the real WACC. This is escalated to 2010 dollars, providing a value of \$341.58 per MW per year for switchyard operating and maintenance costs and a value of \$6.57 per MW per year for transmission line operating and maintenance costs. Western Power access charges, escalated to 2010 dollars, are added to these transmission costs, thereby providing an estimated value of \$15,025.97 per MW per year.
- 37 Based on these estimates, the IMO has proposed a value for total fixed operating and maintenance costs of \$27,334.90 per MW per year.
- 38 The Authority considers that the IMO, in adopting a value of \$27,334.90 per MW per year for fixed operating and maintenance costs, has adopted a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.

Weighted average cost of capital (WACC)

- 39 The MRCP Market Procedure states that the IMO shall determine the cost of capital to be applied to various costing components of the MRCP. This cost of capital shall be an appropriate WACC for the notional power station project considered. The MRCP Market Procedure sets out a set of formulae for calculating the real pre-tax WACC. The MRCP Market Procedure states that the WACC components will be classed as those that require annual review (called minor components) and those that require review less frequently (called major components).

- 40 The IMO commissioned the Allen Consulting Group to estimate the WACC parameters. The Allen Consulting Group updated the components of the WACC, and these updated WACC parameters were included in the IMO's draft report. Prior to the release of the IMO's final report, the IMO commissioned the Allen Consulting Group to further update the minor WACC components – the risk free rate of return and the debt margin. These updated parameters were included in the IMO's final report, resulting in a real pre-tax WACC of 8.06 per cent.
- 41 The Authority considers that the IMO, in adopting a value of 8.06 per cent for the real pre-tax WACC, has adopted a value that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure, including the formulae for the calculation of the real pre-tax WACC set out in the MRCP Market Procedure.

Summary of input parameters and calculated values

- 42 A summary of the input parameters to the MRCP calculation, and the values calculated according to the formulae set out in Section 1.14 of the MRCP Market Procedure, is provided in Table 1.

Table 1: Summary of input parameters and calculated values

	Value	Units	Market Procedure definition
<i>Power station inputs</i>			
Power station capacity	160	MW	CAP
Power station derating factor	1.18	%	SDF
<i>Capital cost</i>			
WACC	8.06	%	WACC
Development costs	779,195.50	\$/MW	PC[t]
Factor for legal, financing, approvals and contingencies	18.6	%	M
Transmission connection works	57,926,935.90	\$	TC[t]
Fixed fuel costs	2,590,280.00	\$	FFC[t]
Land costs	761,250.00	\$	LC[t]
Total capital cost	244,210,386.60	\$	CAP_COST[t]
Annualised capital cost	28,635,599.54	\$/year	ANNUALISED_CAP_COST[t]
<i>Fixed O&M</i>			
Generation fixed O&M	12,308.94	\$/MW/year	-
Transmission fixed O&M	15,025.97	\$/MW/year	-
Annualised fixed O&M	27,334.90	\$/MW/year	ANNUALISED_FIXED_O&M[t]
MRCP (rounded)	238,500	\$/MW/year	PRICECAP[t]

Application of the Maximum Reserve Capacity Price methodology

- 43 The Authority is satisfied that the IMO has calculated the value of the MRCP according to a methodology that reasonably reflects the application of the method and guiding principles described in clause 4.16 of the Market Rules and the MRCP Market Procedure.
- 44 In particular, the Authority notes that the IMO has determined the value of the MRCP using the proposed input parameters (as discussed above) and that the IMO calculations reflect the formulae set out in Section 1.14 of the MRCP Market Procedure.

Public consultation process

- 45 The Authority is satisfied that the IMO conducted an adequate public consultation process.
- 46 The IMO published a draft report in November 2009, which described how the IMO arrived at the proposed revised value for the MRCP and called for submissions by 18 December 2009. Rule Participants and other industry stakeholders were advised that the draft report had been published. Announcements were also published in the Australian Financial Review newspaper on 27 November 2009 and the West Australian newspaper on 28 November 2009. The draft report and supporting documents, including reports from SKM, GHD and The Allen Consulting Group, were published on the IMO's web site.³
- 47 In the draft report the IMO reviewed both the minor and the major WACC components. The IMO then reversed its decision to review the major components. A notice of correction⁴ was published and the IMO reissued the draft report on 10 December 2009. As a result of this change, the IMO extended the period of public consultation until 4 January 2010 to allow for comments on the new proposed MRCP. Rule Participants and other industry stakeholders were advised that the draft report had been reissued. Announcements were also published in the Australian Financial Review newspaper on 18 December 2009 and the West Australian newspaper on 19 December 2009.
- 48 The IMO received seven submissions through the public consultation process on the draft report – from Alinta, Griffin Energy, Infratil Energy Australia, Landfill Gas and Power, Perth Energy, Synergy and Tesla Corporation. The IMO responded to each of the issues raised in submissions in Section 5 of the final report.
- 49 Further to the IMO's review of submissions in response to the draft report, the IMO made the following changes to components used in the calculation of the MRCP in its final report:
- the removal of the financing charges component from the margin M

³ IMO web site, MRCP web page, <http://www.imowa.com.au/mrcp>

⁴ IMO web site, *IMO Notice of Correction*, 10 December 2009.

parameter;⁵

- the inclusion of debt and equity raising cost in the margin M parameter;⁶
 - the inclusion of a cost estimate for the acquisition of easements in the calculation of transmission costs;⁷ and
 - an update of the transmission connection works cost estimates based on approved network tariff increases.⁸
- 50 As foreshadowed in the draft report, the IMO commissioned the Allen Consulting Group to update the minor components of the WACC for the purposes of calculating the MRCP in the final report.⁹
- 51 The MRCP proposed in the final report is 3 per cent higher in comparison to that proposed in the draft report and 45 per cent higher in comparison to the MRCP determined for the 2009 Reserve Capacity Cycle.

CONCLUSION

- 52 Based on the above assessment, the Authority is satisfied that the IMO has met the requirements of the Market Rules, and the Authority approves the revised value for the MRCP for the 2010 Reserve Capacity Cycle of \$238,500 per MW per year.

⁵ IMO web site, SKM Report: *Review of the MRCP - Power Station Elements Revision 2*, updated 14 January 2010.

⁶ IMO web site, SKM Report: *Review of the MRCP - Power Station Elements Revision 2*, updated 14 January 2010.

⁷ IMO web site, SKM Report: *Review of the MRCP - Non Power Station Elements*, 2 October 2009.

⁸ IMO web site, Allen Consulting Group Memorandum: *Update volatile WACC parameters*, 6 January 2010

⁹ IMO web site, Western Power Assessment: *Maximum Reserve Capacity Price – Cost of Transmission Works*, updated 14 January 2010.