

Decision on the Maximum Reserve Capacity Price Proposal for 2011/12

Submitted by the Independent Market Operator

19 January 2009

Economic Regulation Authority
 WESTERN AUSTRALIA

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DECISION

- 1 The Economic Regulation Authority (**Authority**) approves the revised value for the Maximum Reserve Capacity Price (**MRCP**) for the 2009 Reserve Capacity Cycle of \$164,100 per MW per year.
- 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 Independent Market Operator (**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,¹ and to follow that procedure to annually review the value of the MRCP. 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;
 - make a decision as to whether or not to approve the revised value of the MRCP;
 - in making its decision, 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;
 - whether the IMO has carried out an adequate public consultation process; and
 - notify the IMO that it has approved the revised value.

¹ Market Procedure for: Determination of the Maximum Reserve Capacity Price, Version 1.1. (**MRCP Market Procedure**)

- 6 In coming to its decision to approve the revised value for the MRPC, the Authority has reviewed the IMO's draft report, the IMO's corrections and updates to the draft report, the IMO's final report and Landfill Gas and Power's submission to the IMO. 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.

MRCP methodology

- 7 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 as required under the Market Rules.
- 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:
- 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.
 - Estimates of fixed operating and maintenance costs for the power station, fuel handling facilities and the transmission connection components.
- 9 Since the last annual review of the MRCP, a Market Rule change relevant to the methodology for setting the MRCP has been approved,² with the result that this methodology for setting the MRCP for the 2011/12 capacity year differs from the methodology for setting the MRCP that was used for the 2010/11 capacity year.
- 10 This Authority is satisfied that the IMO has met the requirements of the Market Rules in proposing the MRCP for the 2011/12 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 See Rule Change RC_2008_11, which commenced on 6 August 2008. Available from the IMO's web site: www.imowa.com.au

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

Input parameters to the MRCP calculation

- 11 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.
- 12 The Authority notes that no direct comments were received from stakeholders in regards to these input parameters during public consultation.

Development of Costs for the Power Station

- 13 The MRCP Market Procedure states that the power station upon which the MRCP shall be based is a 160 MW OCGT, operating on distillate, with a capacity factor of 2 per cent and low Nitrous Oxide (**NOx**) burners.
- 14 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.
- 15 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 2008 MRCP, and involved consideration of the costs of a number of OCGT plants. Based on SKM's capital cost estimate, escalated to 2009 dollars and including the cost of low NOx burners, the IMO has proposed a value of \$732,554.42 per MW for the capital cost of an OCGT.
- 16 The Authority considers that the IMO, in adopting a value of \$732,554.42 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

- 17 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.
- 18 The IMO commissioned SKM to provide an estimate of the 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 22.5 per cent. Based on SKM's estimate, the IMO has proposed a margin of 22.5 per cent for legal, financing, approvals and contingencies.
- 19 The Authority considers that the IMO, in adopting a value of 22.5 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

- 20 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.
- 21 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 2009 dollars. Based on this, the IMO has proposed a value of \$14.082 million for transmission connection costs.
- 22 The Authority considers that the IMO, in adopting a value of \$14.082 million for transmission connection 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 fuel costs

- 23 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 pipework, pumping and control equipment.
- 24 The IMO commissioned Gutteridge Haskins and Davey (**GHD**) to update the costing of fixed fuel costs, provided in its 2007 report, with prices that reflect those in 2008. Based on GHD's estimates, escalated to 2009 dollars, the IMO has proposed a value of \$3.374 million for fixed fuel costs.
- 25 The Authority considers that the IMO, in adopting a value of \$3.374 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

- 26 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.
- 27 Based on the lowest land cost estimate provided by Landgate, escalated to 2009 dollars, the IMO has proposed a value of \$313,500 for land costs.
- 28 The Authority considers that the IMO, in adopting a value of \$313,500 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

- 29 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.
- 30 The IMO commissioned SKM to provide an estimate of fixed operating and maintenance costs.
- 31 Subsequent to the release of the IMO's final report a procedural error in the calculation of the value for fixed operation and maintenance costs by SKM and a minor error in the calculation of fixed operating and maintenance costs have been identified and rectified. This results in a net decrease in the fixed operation and maintenance costs used to determine the MRCP.
- 32 In regard to fixed operating and maintenance costs for the power station, the IMO has determined costs by taking the first 15 years of 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 2009 dollars, providing a value of \$12,191.99 per MW per year.
- 33 In regard to fixed operating and maintenance costs for transmission connection works, the IMO has determined costs by taking the first 15 years of annual generation operating and maintenance costs determined by SKM and calculating an annuity discounted at the value of the real weighted average cost of capital (**WACC**). This is escalated to 2009 dollars, providing a value of \$575.95 per MW per year for switchyard operating and maintenance costs and a value of \$18.52 per MW per year for transmission line operating and maintenance costs. Western Power access charges, escalated to 2009 dollars, are added to these costs, providing a value of \$1,239.04 per MW per year.
- 34 Based on these estimates, the IMO has proposed a value for total fixed operating and maintenance costs of \$13,431.03 per MW per year.
- 35 The Authority considers that the IMO, in adopting a value \$13,431.03 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.

WACC

- 36 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).
- 37 The IMO commissioned Allen Consulting Group to estimate the WACC parameters. The Allen Consulting Group updated the minor 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 Allen Consulting Group to update a second time the volatile WACC parameters – the risk free rate of return and the debt margin. These updated WACC parameters were included in the IMO's Final Report, resulting in a real pre-tax WACC of 7.09 per cent.

- 38 The Authority considers that the IMO, in adopting a value of 7.09 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

- 39 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 the Table 1.

Table 1: Summary of input parameters and calculated values

	<i>Value</i>	<i>Units</i>	<i>Market Procedure definition</i>
<i>Power station inputs</i>			
Power station capacity	160	MW	CAP
Power station derating factor	1.18	%	SDF
<i>Capital cost</i>			
WACC	7.09%	%	WACC
Development costs (per MW)	\$732,554.42	\$/MW	PC[t]
Development costs (total)	\$117,208,707.00	\$	-
Factor for legal, financing, approvals and contingencies	22.5%	%	M
Transmission connection works	\$14,081,877.08	\$	TC[t]
Fixed fuel costs	\$3,374,305.00	\$	FFC[t]
Land costs	\$313,500.00	\$	LC[t]
Total capital cost	\$185,040,905.07	\$	CAP_COST[t]
Annualised capital cost	\$20,432,138.81	\$/year	ANNUALISED_CAP_COST[t]
<i>Fixed O&M</i>			
Generation fixed O&M	\$12,191.99	\$/MW/year	-
Transmission fixed O&M	\$1,239.04	\$/MW/year	-
Annualised fixed O&M	\$13,431.03	\$/MW/year	ANNUALISED_FIXED_O&M[t]
MRCP (rounded)	\$164,100	\$	PRICECAP[t]

Application of the MRCP methodology

- 40 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.
- 41 In particular, the Authority notes that the IMO has determined the value of the MRCP using calculations that reflect the formulae set out in Section 1.14 of the MRCP Market Procedure, and using the proposed input parameters discussed above.

Public consultation process

- 42 The Authority is satisfied that the IMO conducted an adequate public consultation process.
- 43 The IMO published a draft report in November 2008 describing how the IMO arrived at the proposed revised value for the MRCP. The draft report and supporting documents, including reports from SKM, GHD and The Allen Consulting Group, were released on the IMO's web site. Rule Participants and other industry stakeholders were advised that the draft report had been published. An announcement was also published in the West Australian on 8 November 2008. No responses were received through this consultation process.
- 44 Due to a misinterpretation in relation to the use of Western Power's transmission connection valuation, the IMO initiated a second consultation period from 9 December 2008 to 16 December 2008. No responses were received through this consultation process.
- 45 The IMO initiated a third period of public consultation to allow stakeholders to provide comment regarding the changes to the MRCP after the revision to the minor components of the WACC. This third period of public consultation ran from the 18 December 2008 to 24 December 2008. The IMO received one response through this consultation process – from Landfill Gas and Power (**LGP**). The IMO responded to each of the issues raised by LGP in Section 5 of the final report.
- 46 Due to a procedural error in the calculation of the value for fixed operation and maintenance costs by SKM, the IMO initiated a fourth public consultation period from 6 January 2009 to 13 January 2009. The IMO published a revised version of the SKM report on its web site. The revised value for fixed operation and maintenance costs set out as part of the fourth public consultation period also incorporated the correction of a minor error in the calculation of fixed operating and maintenance costs. No responses were received through this consultation process.

CONCLUSION

- 47 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 2009 Reserve Capacity Cycle of \$164,100 per MW per year.