

Decision on 2010 Energy Price Limits

Submitted by the Independent Market Operator

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Economic Regulation Authority



WESTERN AUSTRALIA

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For further information, contact:

Economic Regulation Authority
Perth, Western Australia
Phone: (08) 9213 1900

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DECISION

- 1 The Economic Regulation Authority (**Authority**) approves the revised value for the Maximum STEM Price of \$336/MWh pursuant to clause 2.26 of the Wholesale Electricity Market Amending Rules (**Market Rules**). In accordance with clause 6.20.11 of the Market Rules, the approved revised value for the Maximum STEM Price will apply with effect from the time specified in a notice to be published on the Independent Market Operator's (**IMO**) website.
- 2 The Authority approves the revised value for the Alternative Maximum STEM Price of \$446/MWh pursuant to clause 2.26 of the Market Rules. In accordance with clause 6.20.11 of the Market Rules, the approved revised value for the Alternative Maximum STEM Price will apply with effect from the time specified in a notice to be published on the IMO's website.

REASONS

Background

- 3 Clause 6.20.6 of the Market Rules requires the IMO to annually review the appropriateness of the value of the Energy Price Limits. Clause 6.20.7 states that in conducting the review, the IMO may propose revised values for the Maximum STEM Price and the Alternative Maximum STEM Price. If it does propose such revised values, the IMO must use the applicable methodology set out in clause 6.20.7(b) of the Market Rules.
- 4 Where, as a result of its review, the IMO has proposed a revised value for the Maximum STEM Price and/or the Alternative Maximum STEM Price, the IMO is required to prepare a draft report describing how it arrived at a proposed revised value of an Energy Price Limit. The IMO must publish the report on the Market Website¹ and advertise the report in newspapers widely published in Western Australia and request submissions from all sectors of the Western Australian energy industry, including end-users, within six weeks of the date of publication. After considering the submissions on the draft report, the IMO must propose a final revised value for any proposed change to an Energy Price Limit and submit those values and its final report, including submissions received on the draft report, to the Authority for approval.
- 5 The Market Rules require the Authority to review the final report provided by the IMO, including all submissions received by the IMO in the preparation of the report, and to make a decision as to whether or not to approve the revised value for any value comprising the Energy Price Limits.
- 6 In making its decision as to whether or not to approve any proposed change to an Energy Price Limit, the Authority must only consider:

¹ Pursuant to the *Electricity Industry (Wholesale Electricity Market) Regulations 2004*, the IMO is required to maintain an internet website for the purpose of publishing and releasing information to Market Participants.

- whether the revised value for the Energy Price Limit proposed by the IMO reasonably reflects the application of the method and guiding principles for calculating the Energy Price Limits, described in clause 6.20 of the Market Rules; and
 - whether the IMO has carried out an adequate public consultation process.
- 7 The IMO's annual Energy Price Limits review uses information on gas prices in Western Australia as an input variable. For the purposes of the IMO's 2010 Energy Price Limits review for the 2010/11 Reserve Capacity Year² the IMO engaged ACIL Tasman to assist in undertaking a review of gas prices in the Wholesale Electricity Market (**WEM**).³ The outcomes of this review were used in the 2010 Energy Price Limits review.

The Independent Market Operator's process

- 8 The IMO engaged McLennan Magasanik Associates (**MMA**) to assist it in undertaking the 2010 Energy Price Limits review. MMA assisted the IMO in conducting an assessment of the required procedures under the Market Rules to: determine whether the cost assumptions and probability levels adopted in the modelling used to establish the price limits are still appropriate; review the Energy Price Limits by conducting an analysis of the relevant costs;⁴ assess the impacts of amending the Risk Margin for the Alternative Maximum STEM Price from 90 per cent to 80 per cent; and prepare a draft and final report.
- 9 MMA provided the IMO with its draft report on the review of the 2010 Energy Price Limits on 23 June 2010, which was published on the IMO's website.⁴ The IMO invited submissions on MMA's draft report by 9 August 2010. Submissions were received from Landfill Gas and Power, Perth Energy and Synergy.⁵
- 10 The IMO invited Rule Participants to attend a workshop on the draft report, which was held on 29 July 2010. This workshop was attended by representatives from Landfill Gas and Power, Synergy, the IMO, a representative from the Authority's

² Reserve Capacity Years run from 8AM on 1 October to 8AM 1 October in the following year. The 2010/11 Reserve Capacity Year commences at 8AM on 1 October 2010 and finishes at 8AM on 1 October 2011.

³ See IMO website, Gas prices in Western Australia Review of inputs to the WA Wholesale Energy Market, http://www.imowa.com.au/f2138,484255/484255_ACIL_Tasman_Final_Report_-_Updated.pdf

⁴ Pursuant to clause 6.20.7(a) of the Market Rules, fundamental to the review was that the costs used to calculate the Energy Price Limits should relate to the highest cost generating works in the South West interconnected system (SWIS). The management of uncertainty in the calculations was also an important element of the review. To account for uncertainty in the calculation of the Energy Price Limits, 'Profit Margin' was replaced by a 'Risk Margin' in the Market Rules resulting from the Rule Change Proposal: 'Energy Price Limits Methodology and Consultation Process' (**RC_2009_35**) on 1 June 2010. For further details refer to the IMO web site, Rule Change: RC_2009_35 web page, http://www.imowa.com.au/RC_2009_35

⁴ See IMO website, Energy Price Limits for the Wholesale Electricity Market in Western Australia from October 2010, http://www.imowa.com.au/f2354,594486/594486_MMA_Draft_Report.pdf

⁵ See IMO website, 2010 Energy Price Limits Review web page, http://www.imowa.com.au/2010_EPL_Review

Secretariat, and MMA.⁶ At the workshop MMA provided a presentation on the outcomes of the 2010 Energy Price Limits review process.⁷

11 Based on comments received at the IMO's workshop on the draft report, a revised version of MMA's draft report was published on the IMO's website on 3 August 2010. The revised draft report provided further details of the changes in the components which resulted in the proposed amended Maximum STEM Price increasing by 21.7 per cent in total over the previous year's price. The revised draft report also identified an omission in the calculation of the Alternative Maximum STEM Price in the original draft report which led to a change in the proposed value.

12 The IMO provided the Authority with its final report, MMA's final report and copies of the submissions received during the public consultation process on 9 September 2010.

13 Clause 2.26.1 of the Market Rules states:

Where the IMO has proposed a revised value for the Maximum Reserve Capacity Price in accordance with clause 4.16 or a change in the value of one or more Energy Price Limits in accordance with clause 6.20, the Economic Regulation Authority must:

- (a) review the report provided by the IMO, including all submissions received by the IMO in preparation of the report;
- (b) make a decision as to whether or not to approve the revised value for the Maximum Reserve Capacity Price or any value comprising the Energy Price Limits;
- (c) in making its decision, only consider:
 - i. whether the proposed revised value for the Maximum Reserve Capacity Price or Energy Price Limits proposed by the IMO reasonably reflects the application of the method and guiding principles described in clauses 4.16 or 6.20 (as applicable);
 - ii. whether the IMO has carried out an adequate public consultation process; and
- (d) notify the IMO as to whether or not it has approved the revised value.

14 The Authority has reviewed MMA's draft report and final report, the submissions from Landfill Gas and Power, Perth Energy, and Synergy, and the IMO's final report on the review of the Energy Price Limits.

15 On the basis of this information, the Authority is satisfied that:

- the proposed values for the Energy Price Limits set out in MMA's final report reasonably reflect the application of the method and guiding principles for calculating the Energy Price Limits; and
- the IMO has carried out an adequate public consultation process.

⁶ See IMO website, 2010 Energy Price Limits Review Workshop Minutes, http://www.imowa.com.au/f2354,594499/594499_2010_Energy_Price_Limits_Review_Workshop_Minutes.pdf

⁷ See IMO website, 2010 Energy Price Limits Review Workshop Presentation, http://www.imowa.com.au/f2354,594503/594503_Energy_Price_Limits_2010.pdf

Methodology for calculating Energy Price Limits

- 16 Pursuant to clause 6.20.7(b) of the Market Rules, the IMO is required to calculate the Maximum STEM Price or the Alternative Maximum STEM Price using the following methodology:

$$(1 + \text{Risk Margin}) \times (\text{Variable O\&M} + (\text{Heat Rate} \times \text{Fuel Cost})) / \text{Loss Factor}$$

Where:

- i. Risk Margin is a measure of uncertainty in the assessment of the mean short run average cost for a 40MW open cycle gas turbine generating station expressed as a fraction;
- ii. Variable O&M is the variable operating and maintenance costs for a 40 MW open cycle gas turbine generating station expressed in \$/MWh, and includes, but is not limited to, start-up related costs;
- iii. Heat Rate is based on a 40 MW open cycle gas turbine generating station's heat rate at minimum capacity, expressed in GJ/MWh;
- iv. Fuel Cost is the mean unit fixed and variable fuel cost for a 40 MW open cycle gas turbine generating station expressed in \$/GJ; and
- v. Loss Factor is the marginal loss factor for a 40MW open cycle gas turbine generating station relative to the Reference Node.

Where the IMO must determine appropriate values for the factors described in paragraphs (i) to (v) as applicable to the Maximum STEM Price and Alternative Maximum STEM Price.

- 17 The Authority considers that the proposed revised values for the Energy Price Limits reasonably reflect the application of this methodology. In particular, the Authority notes:

- The IMO, on the basis of advice provided by MMA⁸, has updated the costs of running a 40MW gas turbine in the South West Interconnected System, for both industrial and aero type plant. The parameters used in previous reviews for the start up fuel consumption are unchanged. This includes the run up and run down times and the fuel consumption during start up and run down. However, the premium on the operating and maintenance costs when firing with distillate as applied in the IMO's 2009 Energy Price Limits review for the 2009/10 Reserve Capacity Year (**2009 Review**) was removed in this year's review. The new values for variable operating and maintenance, and fuel costs are discussed in more detail in MMA's final report.⁹
- MMA has considered the use of heat rate at minimum capacity as a conservative approach and assumed that the 40 MW gas turbines are primarily providing Spinning Reserve Ancillary Services.
- The MMA analysis used by the IMO has again instituted the probabilistic treatment of uncertain variables, such as heat rates, as was done in the 2009 Review. Maximum prices have been set such that the actual cost of gas-fired generation will be less than the Maximum STEM Price of \$336/MWh on 80 per cent of occasions, while the actual cost of liquid-fired generation will be less than the Alternative Maximum STEM Price of \$446/MWh on 80 per cent of occasions (which is reduced from 90 per cent used in previous years).

⁸ Advice was provided in conjunction with Sinclair Knight Merz.

⁹ See MMA's final report section 3.6, p. 31.

- The IMO has accepted MMA's technique for calculating the non-fuel component and fuel coefficient values used in determining the Alternative Maximum STEM Price.¹⁰
- MMA has amended the modelling of the gas supply having regard to the recommendations made by ACIL Tasman in its report on gas prices in Western Australia. The daily load factor was changed to a range between 80 per cent and 100 per cent with a mean of 95 per cent using a lognormal distribution.¹¹ The gas commodity pricing was based on parameters that were deemed applicable to the spot purchase and transport of gas for peaking purposes. The gas price range used was \$4/GJ to \$20/GJ with an 80 per cent confidence range of \$5/GJ to \$12/GJ, with a mean of \$9.27/GJ.¹² The spot gas transport cost to the Perth area used was \$1.55/GJ to \$2.50/GJ with a mean of \$1.88/GJ.

Public consultation process

- 18 The Authority is satisfied that the IMO has carried out an adequate public consultation process.
- 19 MMA prepared a draft report describing how it arrived at the proposed revised values of the Maximum STEM Price and the Alternative Maximum STEM Price, and the IMO published this report on the Market Website.
- 20 The draft report and a notice were advertised in newspapers widely distributed in Western Australia inviting submissions from all sectors of the Western Australian energy industry, including end-users.
- 21 The Authority is satisfied that the IMO has considered the three submissions received from Landfill Gas and Power, Perth Energy, and Synergy, which are addressed in Section 3 of the IMO's final report.
- 22 The Authority notes that, in response to MMA's draft report, Landfill Gas and Power, Synergy and Perth Energy were generally supportive of the draft report and its conclusions. In particular, Perth Energy agreed with MMA's use of the spot gas price in the WEM. Similarly, Landfill Gas and Power supported the rigorous assessment of fuel and other costs undertaken. Synergy was of the view that the maximum gas price in MMA's calculations should not exceed \$9/GJ. Synergy considered that a Market Generator would be reluctant to switch from gas to distillate generation sources at the threshold when these two fuels are equivalently priced. Synergy suggested that a switch between fuel sources would occur at a lower price than at the Maximum STEM Price.
- 23 The Authority also notes that, in response to MMA's draft report, both Landfill Gas and Power and Synergy were supportive of a reduction of the Risk Margin in calculating the Alternative Maximum STEM Price from 90 per cent to 80 per cent.

¹⁰ See MMA's final report section 3.8.2, p. 36.

¹¹ The gas supply daily load factor adopted for the 2009/10 Reserve Capacity Year (i.e. the previous year) was a maximum probable value of 75 per cent and a range between 70 per cent and 85 per cent using a triangular distribution. See MMA's final report section 3.1.2, p. 24.

¹² See MMA's final report section 3.1.1, p. 22.

Perth Energy did not support a reduction in the Risk Margin adopted in determining the Alternative Maximum STEM Price and suggested a Risk Margin of 100 per cent should be adopted.

- 24 The Authority considers that the IMO has applied a measured approach to its decision making process with regard to reducing the Risk Margin for calculating the Alternative Maximum STEM Price from 90 per cent to 80 per cent. This removes a current discrimination between gas and liquid fired technologies and hence promotes the WEM Objectives.
- 25 The Authority also considers that the IMO has appropriately regarded and responded to submissions from interested parties for the 2010 Energy Price Limits review. Accordingly, for the reasons outlined above, the Authority considers that the IMO has carried out an adequate public consultation process.