2014 Energy Price Limits Decision

26 June 2014

Economic Regulation Authority

WESTERN AUSTRALIA

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DECISION

1. Pursuant to clause 2.26 of the *Wholesale Electricity Market Rules* (**Market Rules**), the Economic Regulation Authority (**Authority**) approves the revised value for the Maximum Short Term Energy Market (**STEM**) Price of $330/MWh for the 2014/15 financial year.

2. Pursuant to clause 2.26 of the Market Rules, the Authority approves the non-fuel and fuel coefficients for the Alternative Maximum STEM Price for the 2014/15 financial year:

   $92.03/MWh + 19.336 multiplied by the Net Ex Terminal distillate fuel cost in $/GJ[1]

3. In accordance with clause 6.20.11 of the Market Rules, the approved revised values for the Maximum STEM Price and the Alternative 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.

REASONS

Background

4. The Energy Price Limits are a set of price limits comprising the Maximum STEM price, the Alternative Maximum STEM price and the Minimum STEM price. The Energy Price Limits are the price caps within which participants in the Wholesale Electricity Market are allowed to bid for or offer energy in the STEM and Balancing market, as provided for under the Market Rules.[2] These price caps are part of the market power mitigation mechanisms in the market.

5. The maximum price depends on whether gas or liquid fuelled generation is required to meet the electricity demand. The Maximum STEM Price is applied when gas-fuelled generation is required, and the Alternative Maximum STEM Price is applied when liquid-fuelled generation is required.

6. The Market Rules require the IMO to annually review the appropriateness of the value of the Energy Price Limits.[3] In conducting the review, the IMO may propose revised values for the Maximum STEM Price and the Alternative Maximum STEM Price.[4] 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.

7. Clause 6.20.7(b) of the Market Rules stipulates that in conducting the review required by clause 6.20.6 the IMO must calculate the Maximum STEM Price or Alternative Maximum STEM Price using the following formula:

   (1 + Risk Margin) x (Variable O&M + (Heat Rate x Fuel Cost)) / Loss Factor

[1] Currently based on the Perth Terminal Gate Price (less excise and GST).

[2] Clause 7A.2.4 and chapter 11 of the Market Rules.

[3] Clause 6.20.6 of the Market Rules.

[4] Clause 6.20.7 of the Market Rules.

Where

i. Risk Margin is a measure of uncertainty in the assessment of the mean short run average cost for a 40 MW open cycle gas turbine generating station, expressed as a fraction;

ii. Variable O&M is the mean variable operating and maintenance cost 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 the mean heat rate at minimum capacity for a 40 MW open cycle gas turbine generating station, 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 40 MW open cycle gas turbine generating station relative to the Reference Node.

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.

8. Where 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 the proposed revised values. The IMO must publish the report on the Market Website 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.[5]

9. 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 in its Final Report, including submissions received on the Draft Report, to the Authority for approval.[6]

10. 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.[7]

11. In making its decision as to whether or not to approve any proposed change to an Energy Price Limit, the Authority must only consider:[8]

- 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.

[5] Clause 6.20.9 of the Market Rules.

[6] Clause 6.20.10 of the Market Rules.

[7] Clause 2.26.1 of the Market Rules.

[8] Clause 2.26.1(c) of the Market Rules.

The IMO's process

12. The IMO engaged Sinclair Knight Merz (**Jacobs SKM**) to assist it in undertaking the 2014 Energy Price Limits review. Jacobs SKM provided the IMO with its Draft Report on the review of the 2014 Energy Price Limits on 13 March 2014, which was published for consultation on the IMO's website.[9] The consultation period closed on 30 April 2014. The IMO received one submission from Community Electricity[10] which supported the Draft Report and the proposed values for the Maximum STEM Price and Alternative Maximum STEM Price.

13. On 23 May 2014 the IMO provided the Authority with its Final Report, together with Jacobs SKM's Final Report on the review of the Energy Price Limits for the 2014/15 financial year.

14. The IMO subsequently updated the revised Loss Factors determined by Western Power for the 2014/15 financial year and the final values of the Energy Price Limits were provided to the Authority on 4 June 2014.

15. The Maximum STEM Price approved by the Authority for the 2013/14 financial year, and proposed by the IMO for the 2014/15 financial year are as follows:

Financial year	Maximum STEM Price
2013/14 (Approved)	$305/MWh
2014/15 (Proposed)	$330/MWh

16. Jacobs SKM's report notes that the increase in the Maximum STEM Price since last year's review is primarily due to a reduction in the assumed average run time and minimum capacity for Pinjar (which increased costs for dispatch)[11] and the impact of the Australian Dollar / US Dollar exchange rate, which increased Variable O&M costs. The impact of these two items is around $19/MWh, with the remaining change relating to increases in the Carbon Price and gas prices.

17. The Alternative Maximum STEM Price is recalculated monthly based on changes in the monthly distillate price. For this reason, the IMO has proposed values for non-fuel and fuel coefficients that are applied in the following equation for deriving the Alternative Maximum STEM Price each month:

    Alternative Maximum STEM Price = Non-fuel coefficient + (Fuel coefficient multiplied by the Net Ex Terminal distillate fuel cost)

[9] See IMO website, Energy Price Limits for the Wholesale Electricity Market in Western Australia, 13 March 2014, http://www.imowa.com.au/docs/default-source/rules/other-wem-consultation-docs/2014/jacobs-skm-draft-report-2014-energy-price-limits-review.pdf?sfvrsn=0

[10] Submission in response to IMO public consultation, 2014 Review of the Energy Price Limits for the Wholesale Electricity Market, http://www.imowa.com.au/docs/default-source/rules/other-wem-consultation-docs/2014/community.pdf?sfvrsn=0

[11] As noted on page 11 of Jacobs SKM's report, analysis of Pinjar dispatch showed that the frequency of unit starts has decreased by nearly a factor of two since the new high efficiency gas turbines (HEGTs) at Kwinana commenced operation in September 2012. The amount of energy dispatched per cycle also appeared to have reduced. Jacobs SKM has reflected this in its estimate of dispatch costs for Pinjar.

18. The non-fuel and fuel coefficients for the Alternative Maximum STEM Price approved by the Authority for the 2013/14 financial year, and proposed by the IMO for the 2014/15 financial year are as follows:

Financial year	Non-fuel coefficient of the Alternative Maximum STEM Price[12]	Fuel coefficient of the Alternative Maximum STEM Price[13]
2013/14 (Approved)	$67.33/MWh	19.719
2014/15 (Proposed)	$92.03/MWh	19.336

19. The Alternative Maximum STEM Price will vary depending on the distillate fuel price. The June 2014 Alternative Maximum STEM Price of $558/MWh is based on a distillate fuel price of $24.88/GJ. If the distillate fuel price were to remain unchanged, and Jacobs SKM's revised methodology[14] using the proposed parameters for 2014/15 is applied, the Alternative Maximum STEM Price would be $567/MWh.

20. Jacobs SKM's report notes that the increase in the Alternative Maximum STEM Price is mainly due to the change in the Australian Dollar / US Dollar exchange rate impacting on the assessed O&M cost per MWh, and the higher running costs for Pinjar.

21. The increase in the non-fuel coefficient of the Alternative Maximum STEM Price this year reflects the transfer of road freight cost from the fuel coefficient to the non-fuel coefficient.[15] In previous years, the road freight cost was incorporated in the fuel-coefficient. Jacobs SKM made this change because road freight cost is relatively static over a year and does not vary with the quantity of distillate used.

[12] The non-fuel coefficient of the Alternative Maximum STEM Price takes into consideration Variable O&M and the road freight costs for the delivery of the distillate fuel, as well as the Risk Margin, Heat Rate and Loss Factor, as provided for under clause 6.20.6 of the Market Rules.

[13] The fuel coefficient of the Alternative Maximum STEM Price takes into consideration the distillate fuel cost, as well as the Risk Margin, Heat Rate and Loss Factor, as provided for under clause 6.20.6 of the Market Rules.

[14] Transport costs are excluded from the distillate price in the revised methodology.

[15] The IMO estimates that $6.51/MWh of road freight cost for Pinjar has been transferred from the fuel coefficient to the non-fuel coefficient of the Alternative Maximum STEM Price.

Authority's assessment

22. The Authority notes that it published the *Review of methodology for setting the Maximum Reserve Capacity Price and the Energy Price Limits in the Wholesale Electricity Market* Final Report on 15 January 2014, as required under clause 2.26.3 of the Market Rules.[16] In that report the Authority recommended a number of changes to the methodology, including:

    - The Market Rules should be amended to reflect the principle that the determination of the Energy Price Limits and the relevant input components making up the Energy Price Limits be based on the highest cost generation plant that exists in the South West Interconnected System, without restricting this to a 40MW OCGT generating plant (as is currently specified in clause 6.20.7(b)).

    - The Market Rules should be amended to require the IMO to develop a Market Procedure that transparently describes the methodology to be used and the process to be followed for the Energy Price Limits review. As part of this Market Procedure development, consideration should be given to: whether a thorough Energy Price Limits review should be conducted every three years, with appropriate escalators being applied to the components making up the Energy Price Limits between reviews; and the ability for the IMO to conduct a thorough review, at any time, should there be any significant changes in the market.

23. The Authority notes the IMO's consideration for reformulating clause 6.20.7 of the Market Rules to more clearly describe the use of probability distributions and a choice of a percentile value to derive the Energy Price Limits, rather than defining a Risk Margin and adding it to the expected value of the combined distribution of average dispatch cycle cost, or to a function of mean values. The Authority also notes the IMO's consideration of other potential amendments to the Market Rules relating to the Energy Price Limits, which have been raised in previous Energy Price Limits reviews and in the Authority's review of the methodology for setting the Energy Price Limits.

24. The Authority reiterates the need for an Energy Price Limits Market Procedure to be developed, which could include consideration of such matters. However, for the purposes of this decision, as required under clause 2.26.1 of the Market Rules, the Authority is required to only consider whether the IMO's proposed values reflect the application of the existing methods and principles. Consequently the issues raised in the Authority's review are not considered in this decision.

25. The Authority is satisfied that the IMO has carried out an adequate public consultation process. The IMO published the Draft Report prepared by SKM MMA, describing how it arrived at the proposed revised values of the Maximum STEM Price and the Alternative Maximum STEM Price on the Market Website, accompanied by an invitation for submissions. The IMO also advertised a notice in newspapers widely distributed in Western Australia, inviting submissions from all sectors of the Western Australian energy industry, including end-users.

26. The Authority has reviewed Jacobs SKM's Draft and Final Report and the IMO's Final Report on the review of the Energy Price Limits for the 2014/15 financial year.

[16] Review of methodology for setting the Maximum Reserve Capacity Price and the Energy Price Limits in the Wholesale Electricity Market, http://www.erawa.com.au/cproot/12036/2/Review%20of%20methodology%20for%20setting%20the%20MRCP%20and%20the%20EPLs%20in%20the%20WEM.pdf

27. The Authority notes that, as in previous years, Jacobs SKM has identified the likely variability in key inputs to the calculation of Energy Price Limits and modelled the impact that the variability in the key inputs would have on the dispatch cycle cost. This method results in a probability distribution of possible costs from which the price limits have been selected to cover 80% of the possible outcomes. Jacobs SKM acknowledges that through this approach, the Risk Margin is an output of the calculation rather than an input in determining the Energy Price Limits (as set out in the formula in clause 6.20.7(b)) but considers the approach it has taken to be industry best practice. The Authority considers this approach to be appropriate and notes the calculation of the Risk Margin should be dealt with through a Market Rule change and the development of a Market Procedure for setting the Energy Price Limits, as recommended in its final report on *Review of methodology for setting the Maximum Reserve Capacity Price and the Energy Price Limits in the Wholesale Electricity Market*.

28. In last year's decision, the Authority noted that the IMO should review the methodology for calculating the Alternative Maximum STEM Price. Specifically, the Authority considered that the fuel coefficient of the Alternative Maximum STEM Price should not incorporate the cost of transport and excise, as these are fixed costs. The Authority notes that in this year's review, Jacobs SKM has removed road freight from the variable fuel coefficient of the Alternative Maximum STEM Price, as the road freight is relatively fixed over a one-year period. The road freight component has been included in the fuel transport cost, which is part of the non-fuel coefficient of the Alternative Maximum STEM Price. The Authority considers that the IMO has applied an appropriate method in calculating the Alternative Maximum STEM Price and has adequately addressed this issue.

29. The Authority notes that, for the purpose of deriving the Maximum STEM Price, Jacobs SKM has modified the methodology for determining the spot gas price range used in past reviews. In last year's review, ACIL Tasman[17] determined the spot gas price range based on the opportunities in the spot gas market for gas that would be used by a 40MW peaking plant at Pinjar. The gas price ranges were based on publicly available data and reports, information from consultations with key stakeholders, and ACIL Tasman's own judgment. In this review, Jacobs SKM has determined the spot gas price range based on a statistical model that estimates the impact of contract price movements on the gasTrading[18] maximum spot price distribution.

30. The Authority notes that, in Jacobs SKM's report that there are currently three short term gas trading platforms in WA, namely, the gasTrading platform, the Inlet Trading market operated by DBNGP and the gas trading platform operated by Energy Access Services. Of these three platforms, only the spot gas prices in the gasTrading platform are published and Jacobs SKM has only considered these prices. Jacobs SKM recognises that, ideally, prices from all three platforms should be considered, however, this was not achievable within the review time frame[19]. Therefore, Jacobs SKM has used only gasTrading's spot prices as representative of the market as a whole. The Authority agrees that consideration of spot gas prices from all short term gas trading

[17] ACIL Tasman was engaged by the IMO to assist it in undertaking a review of gas prices in the Wholesale Electricity Market as part of the 2013 Energy Price Limits review.

[18] The gasTrading platform enables prospective buyers and sellers to make offers to purchase and bids to sell gas on a month-ahead basis at any gas injection point. The gasTrading spot market matches individual bids and offers over a range of prices, and provides summary information on offers to purchase and gas scheduled.

[19] Jacobs SKM is of the view that obtaining non-published prices would require a rigorous survey of Market Participants in order to avoid using potentially unreliable anecdotal information.

platforms would be a much more robust method and should be considered in future reviews.

31. For the purposes of calculating the Maximum STEM Price, forecast gas prices are capped at the level where the dispatch cycle cost would be equal for gas and for distillate firing for a dual fuel turbine. In previous reviews the variation in the Brent crude price has been used to establish this cap. This year, Jacobs SKM has used the standard deviation of daily Singapore gasoil prices to establish the cap. The Authority considers this approach to be reasonable on the basis that it provides a better representation of the variation in Western Australian distillate prices. Also, the Singapore gasoil price is what is used to estimate the distillate price in deriving the Alternative Maximum STEM Price. Hence, this ensures consistency in the distillate price used in the review.

32. The Authority notes that the modelled spot gas price range has not changed substantially compared to the last review.[20] The Authority considers that the approach adopted reasonably reflects the application of the methodology, as defined in the Market Rules. However, the Authority notes that further improvements can be made to the methodology for determining the spot gas price range, as discussed above.

33. The Authority considers that the IMO's proposed values for the Energy Price Limits reasonably reflect the application of the methodology, as defined in clause 6.20.7(b) of the Market Rules.

CONCLUSION

34. On the basis of the above assessment, the Authority is satisfied that:

    - the proposed values for the Energy Price Limits by the IMO 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.

35. The Authority notes that,as the Alternative Maximum STEM Price is revised every month according to changes in the Singapore Gas Oil (0.5% sulphur) price, as provided in clause 6.20.3(b) of the Market Rules, it is more appropriate to approve the coefficients for the Alternative Maximum STEM Price, rather than a single revised value.

36. Pursuant to clause 2.26 of the Market Rules, for the 2014/15 financial year, the Authority approves the proposed revised value for the Maximum STEM Price of $330/MWh, and the non-fuel and fuel coefficients for the Alternative Maximum STEM Price:

    $92.03/MWh + 19.336 multiplied by the Net Ex Terminal distillate fuel cost in $/GJ

[20] Jacobs SKM notes on page 3 of its report that the change in spot gas prices has increased the Maximum STEM Price by $5.91/MWh for 2014/15. This represents less than 2 per cent of the 2013/14 Maximum STEM Price ($305/MWh) and represents 23 per cent of the increase in the Maximum STEM Price from 2013/14 ($25/MWh) .