Wholesale Electricity Market
Pre Market Rule Change Discussion Paper

Change requested by

Name:	Dora Guzeleva
Phone:	(08) 9254 4351
Fax:	(08) 9254 4399
Email:	imo@imowa.com.au
Organisation:	Independent Market Operator
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Market Rule(s) affected:	2.26.1, 2.26.3, 2.26.4, 4.1.19, 4.16.3, 4.16.4, 4.16.5, 4.16.7, 4.16.8, 4.16.9, 4.22.3, Appendix 4.

Introduction

This Pre Market Rule Change Discussion Paper can be posted, faxed or emailed to:

Independent Market Operator
Attn: Dora Guzeleva, Manager Market Administration
PO Box 7096
Cloisters Square, Perth, WA 6850

Fax: (08) 9254 4399
Email: dora.guzeleva@imowa.com.au

The discussion paper should explain how it will enable the Market Rules to better contribute to the achievement of the wholesale electricity market objectives. The objectives of the market are:

(a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;
(b) to encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;

(c) to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;
(d) to minimise the long-term cost of electricity supplied to customers from the South West interconnected system; and
(e) to encourage the taking of measures to manage the amount of electricity used and when it is used.

Details of the proposed Market Rule Change

1. Describe the concern with the existing Market Rules that is to be addressed by the proposed Market Rule change:

Over the past year the IMO in conjunction with an industry-based advisory group, the Maximum Reserve Capacity Price Advisory Group, has been assessing the methodology and concepts surrounding the determination of the Maximum Reserve Capacity Price. Through this review process, the Advisory Group has found that the existing Market Rules to determine and review the Maximum Reserve Capacity Price could be improved.

One of the main areas where the mechanism can be improved is to allow the Maximum Reserve Capacity Price to be determined in a cost-reflective and transparent manner by implementing any minor changes to the methodology can be implemented without the need for undertaking Market Rule changes process, as can currently be the case under the existing Market Rule provisions. Time responsiveness is a key to improving the efficiency of this process.

Other issues considered by the Advisory Group included:

- Methods that can be used to calculate the open-cycle gas turbine power station costs, including how the engine costs and the balance of plant costs are determined.
- The inclusion of land purchase costs;
- Assessment of how transmission connection costs should be estimated;
- A review of the Weighted Average Cost of Capital (WACC) for the purposes of determining the Maximum Reserve Capacity Price; and
- A review of the way the K Factor is determined under the current Market Rules.

The outcomes of the review, which have been presented in a discussion paper, are summarised below. The Advisory Group proposed that:

- Power station costs should be determined each year with the assistance of a suitable consultant;
- Land purchase costs should be included as part of the Maximum Reserve Capacity Price;

- Transmission connection scenario should be well defined and ideally should be costed by Western Power;
- A WACC review should be included as part of the package of Market Rule and Market Procedure changes; and
- The K Factor be removed, together with modifications to the clauses regarding Long Term Special Price Arrangements.

To implement the above changes, the Advisory Group has proposed that the detail that exists in the current Market Rules be replaced with general provisions for the determination and review of the MRCP. Detail on the determination process will then be provided in a new Market Procedure, which will undergo structural review at least once every five years.

It is considered that the approval process required of the Economic Regulation Authority (ERA) in respect to the Maximum Reserve Capacity Price should also be streamlined. Changes presented in this Market Rule Change Proposal will provide a clear and transparent process by which the Maximum Reserve Capacity Price will be determined. Because of this and the relatively short timeframes involved in the price determination each year, changes are proposed which clarify the scope of work that is conducted by the ERA when completing its annual approval of the Maximum Reserve Capacity Price. This will provide certainty to Rule Participants and potential investors that the Maximum Reserve Capacity Price will not be amended after the completion of the public consultation process unless the IMO has not followed due process in the determination and consultation steps. The IMO believes that this clarification is consistent with the intent of the Market Rules.

On 15 October 2007 the IMO proposed a Fast-Track Rule Change (RC2007_24) which took effect on 17 December 2007 to partially address the issue of flexibility to include significant changes when calculating the Maximum Reserve Capacity Price. Rule Change 2007_24, titled "Maximum Reserve Capacity Price Methodology and Review" provided the IMO with discretion to make changes to the methodology by which the Maximum Reserve Capacity Price is determined in cases where material improvements in the process would benefit the efficiency of the Maximum Reserve Capacity Price outcome. When proposing this Rule Change, the IMO noted that it was the first step in creating a more robust process. The Market Rule changes in this proposal are intended to complete this review process and create a better framework by which the Maximum Reserve Capacity Price is determined.

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2. Explain the reason for the degree of urgency:

It is proposed that due to the significance of these proposed changes to the Market Rules, the Standard Rule Change Process be applied.

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3. Provide any proposed specific changes to particular Rules: (for clarity, please use the current wording of the Rules and place a ~~strikethrough~~ where words are deleted and underline words added)

2.26 Economic Regulation Authority Approval of Maximum and Minimum Prices

2.26.1. 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 Limit 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.

2.26.2. ....

2.26.3. The Economic Regulation Authority must review the methodology for setting the Maximum Reserve Capacity Price and the Energy Price Limits not later than the fifth anniversary of the first Reserve Capacity Cycle and, subsequently, not later than the fifth anniversary of the completion of the preceding review under this clause 2.26.3. A review must examine:

(a) the level of competition in the market;

(b) the level of market power being exercised and the potential for the exercise of market power;

(c) the effectiveness of the methodology in curbing the use of market power;

(d) historical Reserve Capacity Offers and the proportion of Reserve Capacity Offers with prices equal to the Maximum Reserve Capacity Price;

(e) historical STEM Bids and STEM Offers and the proportion of STEM Bids and Offers with prices equal to the Energy Price Limits;

(f) the appropriateness of the parameters and methodology in clause 4.16 and ~~Appendix 4~~ the Market Procedure referred to in clause 4.16.3 for recalculating the Maximum Reserve Capacity Price;

(g) the appropriateness of the parameters and methodology in clause 6.20 for recalculating the Energy Price Limits;

(h) the performance of Reserve Capacity Auctions, STEM Auctions and Balancing in meeting the Wholesale Market Objectives; and

(i) other matters which the Economic Regulation Authority considers relevant.

2.26.4. The Economic Regulation Authority must provide a report to the Minister on the review conducted under clause 2.26.3 ~~to the Minister~~.

4.1 The Reserve Capacity Cycle

…

4.1.19. ~~No earlier than the first Business Day following the Reserve Capacity Auction the~~ The IMO must commence a review of the Maximum Reserve Capacity Price as required by clause 4.16.3 with the objective of completing the review, including consideration of public submissions in relation to that review, so as to allow a reasonable time for the Economic Regulation Authority to approve any proposed change in value and for that value to be implemented prior to the date and time specified in clause 4.1.4 that relates to the following Reserve Capacity Cycle.

4.16. The Maximum Reserve Capacity Price

4.16.1. For all Reserve Capacity Cycles, the IMO must publish a Maximum Reserve Capacity Price as determined in accordance with this clause 4.16 prior to the time specified in clause 4.1.4.

4.16.2. The Maximum Reserve Capacity Price to apply for the first Reserve Capacity Cycle is $150,000 per MW per year.

4.16.3 The IMO must develop a Market Procedure documenting the methodology it uses and the process it follows in determining the Maximum Reserve Capacity Price, and:

(a) the IMO and Market Participants must follow that documented Market Procedure when conducting any review and consultations in accordance with clause 4.16.3 and 4.16.6; and

(b) the IMO must follow the documented Market Procedure to annually review the value of the Maximum Reserve Capacity Price in accordance with this clause 4.16 and in accordance with the timing requirements specified in clause 4.1.19.

~~4.16.4. In conducting the review required by clause 4.16.3, the IMO must assess the appropriateness of the following values specified in Appendix 4 for calculating the Maximum Reserve Capacity Price:~~

~~(a) the optimum size of an open cycle gas turbine for the SWIS, where the optimum size is a size that is expected by the IMO to minimise the cost of energy to Market Customers over the long term;~~

~~(b) the capital cost of open cycle gas turbine power stations based on current data and the methodology specified in Appendix 4;~~

~~(c) the level of electricity transmission connection costs, including:~~

~~i. the cost of electricity transmission assets required to connect an open cycle gas turbine power station to the SWIS; and~~

~~ii. an estimate of the cost of augmenting the shared network to facilitate the connection of the open cycle gas turbine power station,~~

~~where the IMO may seek a reasonable estimate of this value from the Electricity Network Corporation;~~

~~(d) the cost of acquiring and installing fuel tanks sufficient to accommodate 24 hours of liquid fuel storage including the cost of keeping this tank half full at all times;~~

~~(e) the capital cost of a pipeline lateral of reasonable length to connect to a main gas pipeline (so as to allow for duel fuel capability);~~

~~(f) the estimate of the fixed operating and maintenance costs for a typical open cycle gas turbine power station and the transmission facilities described in (c);~~

~~(g) a margin allowed for legal, approval and financing costs; and~~

~~(h) a margin allowed for contingences.~~

4.16.5. The IMO must propose a revised value for the Maximum Reserve Capacity Price using the methodology described in ~~Appendix 4~~ the Market Procedure referred to in clause 4.16.3. ~~after taking into account any significant modifications to the methodology resulting from the review conducted in accordance with clause 4.16.3 and 4.16.4.~~

4.16.6. ...

4.16.7. After considering of the submissions on the draft report described in clause 4.16.6 the IMO must propose a final revised value for the Maximum Reserve Capacity Price and ~~submit~~ publish that value and its final report, including submissions received on the draft report on the Market Web-Site ~~to the Economic Regulation Authority for approval~~.

4.16.8. A proposed revised value for the Maximum Reserve Capacity Price becomes the Maximum Reserve Capacity Price after~~:~~

~~(a) the Economic Regulation Authority has approved that value in accordance with clause 2.26; and~~

~~(b)~~ the IMO has posted a notice on the Market Web Site of the new value of the Maximum Reserve Capacity Price,

with effect from the time specified in the IMO's notice.

4.16.9 At least once in every five year period, the IMO must review the Market Procedure referred to in clause 4.16.3 and must undertake a public consultation process in respect of the outcome of the review.

4.22. Long Term Special Price Arrangements

4.22.1. ....

4.22.2. …

4.22.3. Special Reserve Capacity Price for Capacity Credits covered by a Long Term Special Price Arrangement is:

(a) in the first Capacity Year of the Long Term Special Price Arrangement, the Monthly Reserve Capacity Price applicable in the first Trading Month of the term of the Long Term Special Price Arrangement; and

(b) in each subsequent Capacity Year of the Long Term Special Price Arrangement, the price calculated in accordance with the following formula:

P[t] = P[t-1] multiplied by the greater of

unity, and

(1 + ((CPI[t] – CPI[t-1]) / CPI[t-1])~~0.01~~)

for t > 0

Where

t indicates the number of years that have elapsed since the commencement of the Long Term Special Price Arrangement where t has a value of 0 in the first Capacity Year and increases by 1 for each subsequent Capacity Year;

P[0] is the Monthly Reserve Capacity Price applicable in the first Trading Month of the term of the Long Term Special Price Arrangement;

P[t] is the Special Reserve Capacity Price applicable for the tth Capacity Year; and

CPI[t] is the weighted average of the Consumer Price Index All Groups values for the eight Australian State and Territory capital cities as determined by the Australian Bureau of Statistics for the quarter_ending June 30 of the calendar year in which the tth Capacity Year commences; and

CPI[t-1] is the weighted average of the Consumer Price Index All Groups values for the eight Australian State and Territory capital cities are determined by the Australian Bureau of Statistics for the quarter ending on June 30 of the preceding calendar year.

Appendix 4: [Blank] ~~Maximum Reserve Capacity Price Methodology~~

~~This Appendix presents the method for setting the Maximum Reserve Capacity Price allowed under Clause 4.16. Unless otherwise stated, all dollar amounts are in real dollar terms.~~

~~The Maximum Reserve Capacity Price to apply for a Reserve Capacity Auction held in calendar year t is PRICECAP[t] where this is to be calculated as:~~

~~PRICECAP[t] = k×(FIXED_O&M[t] + ANNUALISED_CAPCOST[t] / (CAP / SDF))~~

~~Where:~~

~~PRICECAP[t] is the Maximum Reserve Capacity Price to apply in a Reserve Capacity Auction held in calendar year t;~~

~~ANNUALISED_CAPCOST[t] is the CAPCOST[t], expressed in Australian dollars in year t, annualised over a 15 year period, using a real pre-tax return to equity equal to the Commonwealth 10 Year Bond Rate (Real) plus a Margin for Equity of 15.1%, a real return to debt equal to the Commonwealth 10 Year Bond Rate (Nominal) plus a Margin for Debt of 1.5%, and a debt to equity ratio of 60:40;~~

~~CAP is the capacity of an open cycle gas turbine, expressed in MW;~~

~~SDF is the summer derating factor of a new open cycle gas turbine, and equals 1.18;~~

~~CAPCOST[t] is the total capital cost, expressed in million Australian dollars in year t, assumed for an open cycle gas turbine power station of capacity CAP; and~~

~~FIXED_O&M[t] is the fixed operating and maintenance costs for a typical open cycle gas turbine power station and any associated electricity transmission facilities, expressed in Australian dollars in year t, per MW per year.~~

k is a factor set so that the net present value of 10 years worth of payments escalated on a CPI-1% basis is equivalent to the payment stream from 10 years worth of an unescalated payments.

The value of CAPCOST[t] is to be calculated as:

CAPCOST[t] = (PC[t] x (1 + M) x CAP x (1 + 1.5D + 0.5xD2))+TC[t]+FFC[t]

Where:

PC[t] is the capital cost of an open cycle gas turbine power station in year t, expressed in Australian dollars in year t per MW;

M is a margin to cover legal, approval, and financing costs and contingencies;

TC[t] is the cost of electricity transmission assets required to connect an open cycle gas turbine power station to the SWIS, plus an estimate of the costs of augmenting the shared network to facilitate the connection of the open cycle gas turbine power station, expressed in Australian million dollars in year t;

FFC[t] is the fixed fuel costs and must represent the fixed costs associated with an on-site liquid storage tank with sufficient capacity for 24 hours of Liquid Fuel including the cost of keeping this tank half full at all times expressed in Australian million dollars in year t; and

D is the real interest rate on debt and equals the Commonwealth 10 Year Bond Rate (real) plus a Margin for Debt of 1.5%. This rate is used to determine the total interest cost by assuming a construction period of two years with 50% of the capital costs incurred in each year.The value of PC[t] is to be calculated using the following formula:

PC[t] = GTP[t-x] × (USCPI[t] / USCPI[t-x]) × ER[t,t-x]

Where:

GTP[t-x] is double the lowest quoted equipment price of the three open cycle gas turbines with capacities nearest to CAP, quoted in United States dollars per MW, contained in the most recent issue of Gas Turbine World Handbook, or a similar reputable international trade price, current as at year t-x.

USCPI[t] is a forecast, made in year t-x, of the Consumer Price Index - All Urban Consumers (CPI-U) for the United States of America midway through year t as compiled by the United States Bureau of Labor Statistics.

USCPI[t-x] is the actual value of the Consumer Price Index - All Urban Consumers (CPI-U) for the United States of America midway through year t-x as compiled by the United States Bureau of Labor Statistics.

ER[t,t-x] is the forecast Australian dollar to United States of America dollar exchange rate, made in year t-x, for midway through year t, based on the Australian Federal Government's budget forecasts.

x is the number of years prior to year t for which the latest available open cycle gas turbine data is available at the time of calculating the value of PRICECAP[t].

For the first Reserve Capacity Cycle, where t=2005, the following values are to be used in evaluating PRICECAP[2005]:

the real pre-tax return to equity = 18%

the real return to debt = 5%

CAP = 160 MW

FIXED_O&M[2005] = $34,000/MW (comprising $15,000/MW for power station O&M costs and $19,000/MW for electricity transmission O &M costs)

M = 15% (comprising a 5% margin associated with legal, approval and financing costs and a 10% margin for contingences).

TC[2005] = $17 million.

FFC[2005] = $3 million.

D = 5%

x = 1

Level 22 Forest Centre 221 St Georges Terrace Perth Western Australia 6000
Tel: (08) 9254 4300 Fax: (08) 9254 4399
Email: imo@imowa.com.au www.imowa.com.au

4. Describe how the proposed Market Rule change would allow the Market Rules to better address the Wholesale Market Objectives:

(a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;

The proposed Market Rule changes promote Wholesale Market Objective (a) by providing more flexibility in the Maximum Reserve Capacity Price determination process. At present, the Market Rules provide a process which is relatively inflexible and difficult to change and which has the potential to result in sub-optimal price outcomes. By allowing some flexibility in the process, to account for small changes in the costing environment, the Maximum Reserve Capacity Price will be more cost-reflective than is currently the case. At the same time, regulatory risk would be reduced by clearly outlining the basis by which the Maximum Reserve Capacity Price is determined, and by removing uncertainty in the review and approval processes undertaken by the ERA.

(b) to encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;

The proposed Market Rule changes promote Wholesale Market Objective (b) by creating an environment where the principles for determining the Maximum Reserve Capacity Price are clearly defined while allowing for sufficient flexibility in the process by which the Maximum Reserve Capacity Price is determined. Investor confidence will be supported by adopting a mechanism which is sufficiently flexible and achieves, to the highest extent practicable, cost-reflective outcomes for the Maximum Reserve Capacity Price. Higher levels of investor confidence will lead to more competition amongst generators in the South West interconnected system.

5. Provide any identifiable costs and benefits of the change:

Estimating land purchase costs are expected in incur a fee by Landgate. These costs are not expected to be significant. No other costs, in addition to those already incurred in the process of determining the Maximum Reserve Capacity Price have been identified.

The principle benefit of implementing this change will be that the process used to determine the Maximum Reserve Capacity Price will result in more efficient pricing outcomes for the Reserve Capacity Mechanism. Better pricing outcomes are expected because the proposed Market Rule changes would create more flexibility in the process to account for changes in costs including in the project development environment in Western Australia.