



Final Rule Change Report

Title: Maximum Reserve Capacity Price

Ref: RC_2008_11

Standard Rule Change Process

Date: 8 July 2008

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Independent Market Operator

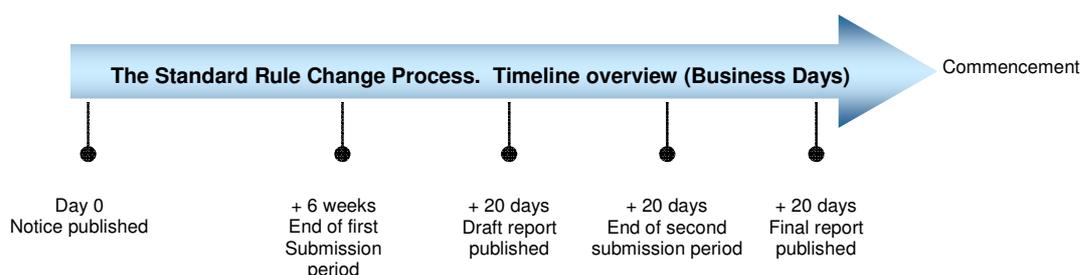
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1. INTRODUCTION

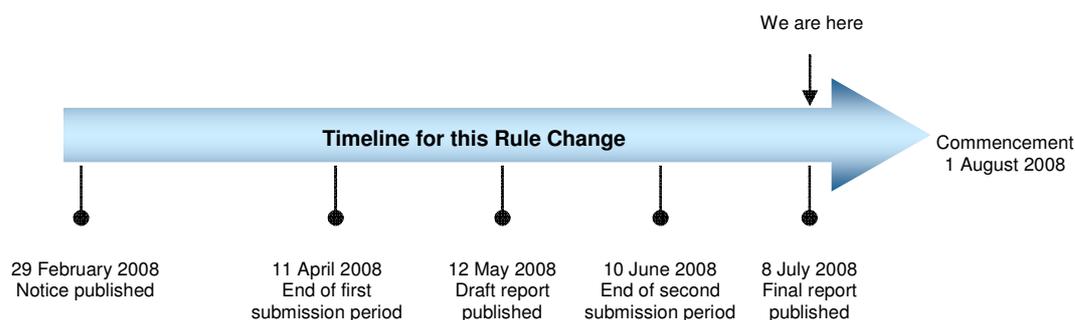
On 28 February 2008, the IMO submitted a Rule Change Proposal regarding changes to clauses 2.26.1, 2.26.3, 2.26.4, 4.1.19, 4.16.3, 4.16.4, 4.16.5, 4.16.7, 4.16.8, 4.16.9, 4.22.3 and Appendix 4 of the Wholesale Electricity Market Rules.

This Proposal has been processed using the Standard Rule Change Process, described in section 2.7 of the Wholesale Electricity Market Rules.

The standard process adheres to the following timelines, outlined in section 2.7 of the Market Rules:



The key dates in processing this Rule Change Proposal are:



Based on its own analysis and the submissions received, the IMO's final decision is to implement the Rule Change in the form outlined in section 7 of this report.

This Final Rule Change Report on the Rule Change Proposal has been prepared by the IMO in accordance with clause 2.7.6 of the Market Rules.

The amendments to the Market Rules made as a result from this Rule Change Proposal will commence at 08.00am on 1 August 2008.

2. THE RULE CHANGE PROPOSAL

2.1. Submission Details

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Date submitted:	28/02/2008
Urgency:	Medium
Change Proposal title:	Maximum Reserve Capacity Price

2.2. Details of the Proposal

The IMO submitted that, over the past year, the IMO in conjunction with an industry-based advisory group, the Maximum Reserve Capacity Price Advisory Group, had been assessing the methodology and concepts surrounding the determination of the Maximum Reserve Capacity Price. Through this review process, the Advisory Group 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 could be improved was to allow the Maximum Reserve Capacity Price to be determined in a cost-reflective and transparent manner so that minor changes to the methodology can be implemented without the need for Market Rule changes. Time responsiveness was considered to be 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;
- An 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, available on the IMO website, 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;

- A 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 should be removed and the clauses regarding Long Term Special Price Arrangements be amended.

To implement the above changes, the Advisory Group 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 was considered that the approval process required of the Economic Regulation Authority (ERA) in respect to the Maximum Reserve Capacity Price should also be clarified. The current Rules and changes presented in this Market Rule Change Proposal provide a clear and transparent process by which the Maximum Reserve Capacity Price is determined. Because of this, and the relatively short timeframes involved in the price determination each year, it was proposed to clarify the scope of work that is conducted by the ERA when completing its annual approval of the Maximum Reserve Capacity Price.

The IMO submitted that this would provide certainty to Rule Participants and potential investors that the Maximum Reserve Capacity Price will not be affected after the completion of the process prescribed under the Market Rules unless the IMO has not followed due process in the public consultation and determination steps. The IMO considered that this clarified the intent of the existing Market Rules.

2.3. Amending Rules proposed by the IMO

The IMO proposed the following amendments to the Market Rules:

- 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.
- 2.26.3. 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~~.
- 4.1.19. ~~No earlier than the first Business Day following the Reserve Capacity Auction~~ 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.

4.16.3 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 dual 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.~~
- 4.16.7. 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.
- 4.22.3 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:
$$P[t] = P[t-1] \text{ multiplied by the greater of}$$

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 t th 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 t th 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 as 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:~~

$$PRICECAP[t] = k \times (FIXED_O\&M[t] + ANNUALISED_CAPCOST[t] / (CAP / SDF))$$

~~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:

$$\text{CAPCOST}[t] = (\text{PC}[t] \times (1 + M) \times \text{CAP} \times (1 + 1.5D + 0.5 \times D^2)) + \text{TC}[t] + \text{FFC}[t]$$

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:

$$\text{PC}[t] = \text{GTP}[t-x] \times (\text{USCPI}[t] / \text{USCPI}[t-x]) \times \text{ER}[t,t-x]$$

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

2.4. *The IMO's Initial Assessment of the Proposal*

The IMO decided to proceed with the proposal on the basis of its preliminary assessment, which indicated that the proposal was consistent with the Wholesale Market Objectives. This preliminary assessment was published in a Rule Change Notice on 29 February 2008.

3. SUBMISSIONS RECEIVED IN THE FIRST SUBMISSION PERIOD

The first submission period for this Rule Change Proposal was between 29 February 2008 and 11 April 2008. The IMO received two submissions, from the Economic Regulation Authority and Landfill Gas & Power Pty Ltd, on the changes proposed by the IMO. The submissions are summarised below, and their full text is available on the IMO website.

3.1. *Market Advisory Committee*

The Market Advisory Committee (MAC) was first advised of the proposed rule change at its meeting on 13 February 2008, when the IMO also presented the Advisory Group's report and proposed Market Procedure, both which are available on the IMO's website <http://www.imowa.com.au>. MAC supported the changes as proposed and that the IMO submit the change as a formal Rule Change Proposal.

MAC members were also invited to discuss the proposal at the MAC meeting on 12 March 2008, after the proposal had been published on the IMO website. All members of MAC expressed their support for the Rule Change.

3.2. *Submission from the Economic Regulation Authority (ERA)*

ERA expressed its support for the Rule Change Proposal, while noting that many of the details that will give effect to the Rule Change are yet to be developed and will be included in the proposed Market Procedure.

The ERA expressed its desire to be directly involved in the development of the methodology for transmission network connection cost allocation. The ERA also requested Rule Participants to note that any proposed change to the capital base approved by the ERA under Western Power's current Access Arrangement will be subject to the legislative requirements set out in the Electricity Access Code and will be applied in future Access Arrangement revisions.

3.3. *Submission from Landfill Gas & Power Pty Ltd (LGP)*

LGP expressed its support for the Rule Change Proposal to implement the recommendations of the Maximum Reserve Capacity Price Working Group. In its submission, LGP supported the contention that the Maximum Reserve Capacity Price needs to be set at a cost reflective and efficient level in a timely manner so as to provide confidence to investors that the mechanism is sufficiently flexible and achieves cost-reflective outcomes. Investor confidence will in turn facilitate efficient entry of new competitors.

3.4. *Public Forums and Workshops*

No public forums or workshops were held in relation to this Rule Change.

4. THE IMO'S DRAFT DECISION

During the first submission period the IMO further modified the proposed amended clause 4.16.3 to refer to conducting reviews and consultations in accordance with the proposed new Market Procedure, rather than with clause 4.16.3. The IMO considered that this further amendment would improve the clarity of the proposed clause. The amended clause 4.16.3, as proposed in the IMO's Draft Report is available in section 7 of this Final Report.

Based on the submissions received and its assessment against the Wholesale Market Objectives, the IMO's draft decision was to implement the proposed amendments to clauses 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 and Appendix 4 of the Wholesale Electricity Market Rules together with the additional amendments to clause 4.16.3 outlined in the Draft Report.

The IMO made its draft decision on the basis that the resulting Amending Rules would allow the Market Rules to better address the Wholesale Market Objectives.

5. SUBMISSIONS RECEIVED IN THE SECOND SUBMISSION PERIOD

Following the Draft Rule Change Report publication on the IMO website, the second submission period was between 13 May 2008 and 10 June 2008. The IMO did not receive any submissions during the second submission period.

6. THE IMO'S ASSESSMENT AND THE IMO'S FINAL DECISION

No interested party expressed concerns regarding the amendments to the Market Rules outlined in the Draft Rule Change Report. The IMO therefore considers that both the proposal and the IMO's draft decision have the support of the Participants in the Wholesale Electricity Market.

6.1. The IMO's Assessment of the Rule Change Proposal

According to clauses 2.4.2 of the Market Rules "the IMO must not make Amending Rules unless it is satisfied that the Market Rules, as proposed to be amended or replaced, are consistent with the Wholesale Market Objectives".

The IMO considers that the proposed Amending Rules will have the following impact on how the Market Rules address the Wholesale Market Objectives:

Impact	Wholesale Market Objectives
Allow the Market Rules to better address objective	a and b
Consistent with objective	c, d and e
Inconsistent with objective	

The IMO's assessment against market objectives (a) and (b) is as follows:

(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 amendments allow the Market Rules to better address market objective (a) by providing more flexibility in the Maximum Reserve Capacity Price determination process. At present, the Market Rules provide for a process which is relatively inflexible and, as a result, the relevant methodology and components are difficult to change. This has the potential to result in sub-optimal maximum price outcomes. The proposal will ensure that the price can be set at a level which is economically efficient by allowing for future adjustments in the methodology to reflect changes in the underlying costs.

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

The proposed amendments allow the Market Rules to better address market objective (b) by creating an environment where the principles for determining the Maximum Reserve Capacity Price are clearly defined, while allowing for the Maximum Reserve Capacity Price to be set at a cost reflective and efficient level in a timely manner. This will provide confidence to investors that the mechanism is sufficiently flexible and achieves, to the highest extent practicable, cost-reflective outcomes for the Maximum Reserve Capacity Price. Investor confidence will facilitate efficient entry of new competitors in the South West interconnected system. In its submission, Landfill Gas and Power agreed with this assessment.

In accordance with Clause 2.4.3(b) of the Market Rules, in deciding whether or not to make Amending Rules, the IMO must also have regard to the practicality and cost of implementing the Amending Rules.

The proposed changes will not require any changes to the Wholesale Electricity Market Systems operated by the IMO. No other costs have been identified in relation to the implementation of the proposed changes.

6.2. *The IMO's Final Decision*

The IMO's final decision is to implement the amendments to clauses 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 and Appendix 4 as proposed by the IMO in its Draft Rule Change Report.

The wording of the relevant Amending Rules is presented in section 7 of this Report.

The IMO has made its decision on the basis that the resulting Amending Rules will allow the Market Rules to better address the Wholesale Market Objectives.

6.3. *Amending Rules Commencement*

The amendments to the Market Rules made from this Rule Change Proposal will commence at **08.00am** on **1 August 2008**.

7. AMENDING RULES

The following clauses are amended (~~deleted wording~~, new wording):

Clause 2.26.1

- 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.

Clause 2.26.3

- 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.

Clause 2.26.4

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~~.

Clause 4.1.19

4.1.19. ~~No earlier than the first Business Day following the Reserve Capacity Auction~~ 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.

Clause 4.16.3

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 that Market Procedure and clause 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.

Clause 4.16.4

~~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 dual 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.~~

Clause 4.16.5

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.

Clause 4.16.7

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.~~

Clause 4.16.8

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.

Clause 4.16.9

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.

Clause 4.22.3

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:
$$P[t] = P[t-1] \text{ multiplied by the greater of}$$

unity, and

$$(1 + ((CPI[t] - CPI[t-1]) / CPI[t-1]))^{0.04}$$

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 as determined by the Australian Bureau of Statistics for the quarter ending on June 30 of the preceding calendar year.

Appendix 4

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:~~

$$\text{PRICECAP}[t] = k \times (\text{FIXED_O\&M}[t] + \text{ANNUALISED_CAPCOST}[t] / (\text{CAP} / \text{SDF}))$$

~~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:

$$\text{CAPCOST}[t] = (\text{PC}[t] \times (1 + M) \times \text{CAP} \times (1 + 1.5D + 0.5 \times D^2)) + \text{TC}[t] + \text{FFC}[t]$$

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:~~

$$\text{PC}[t] = \text{GTP}[t-x] \times (\text{USCPI}[t] / \text{USCPI}[t-x]) \times \text{ER}[t,t-x]$$

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%

$x = 1$

8. GENERAL INFORMATION ABOUT RULE CHANGE PROPOSALS

Clause 2.5.1 of the Wholesale Electricity Market Rules (Market Rules) provides that any person (including the Independent Market Operator) may make a Rule Change Proposal by completing a Rule Change Proposal Form and submitting this to the Independent Market Operator (IMO).

In order for the proposal to be progressed, the change proposal must explain how it will enable the Market Rules to better contribute to the achievement of the Wholesale Market Objectives. The market objectives 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
- (e) to encourage the taking of measures to manage the amount of electricity used and when it is used

A Rule Change Proposal can be processed using a Standard Rule Change Process or a Fast Track Rule Change Process. The standard process involves a combined 10 weeks public submission period. Under the shorter fast track process the IMO consults with Rule Participants who either advise the IMO that they wish to be consulted or the IMO considers have an interest in the change.