

Independent Market Operator



**Report to the Market Advisory
Committee from the Energy Price
Limits Working Group**

Date: 13 February 2008

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Independent Market Operator

Level 22, The Forrest Centre
221 St George's Terrace, Perth WA 6000
PO Box 7096, Cloisters Square, Perth WA 6850
Tel. (08) 9254 4300
Fax. (08) 9254 4399
Email: imo@imowa.com.au
Website: www.imowa.com.au

1. INTRODUCTION

At its meeting on 14 November 2007, the Market Advisory Committee (MAC) agreed to establish a Working Group to consider and develop any amendments to the Market Rules resulting from the 2007 Review of the Energy Price Limits, published on the IMO website. In particular, the Working Group was requested to:

- Consider the recommended amendments to the methodology regarding heat rates and startup costs.
- Assess the recommendation to remove the Maximum Shutdown Price.
- Assess the need for changing or providing more flexibility regarding the frequency of the Energy Price Limits reviews.
- Consider, as necessary, issues raised in submissions made by Participants in response to the IMO's Draft Report.

The Working Group was established in November 2007 under a Terms of Reference which is attached as Appendix 1.

The Working Group has met two times and produced this Report and a Rule Change Discussion Paper for MAC to assess at the MAC meeting on 13 February 2008.

2. THE FIRST MEETING

At its first meeting, on 19 December 2007, the Working Group discussed the following issues:

Heat Rate

The Group agreed that the use of the average of the heat rates at minimum capacity and maximum capacity as set out in the Market Rules is arbitrary. The option of using the actual average heat rate for the reference generating units in the preceding year was considered. The Working Group however preferred the use of the heat rate at the relevant minimum capacity. This option would ensure that the resultant price ceiling would cover the marginal generator for all loadings.

Capacity

In setting the energy price limits the Market Rules specify the use of a 40 MW open cycle gas turbine. The Working Group discussed the applicability of this standard to the current SWIS fleet of open cycle gas turbines ranging in size from 20 MW to in excess of 160 MW. It was discussed that 20 MW units, when they are run, are run to support the network system rather than to meet system load. It was also considered inappropriate to use price ceilings applicable to 20 MW units for larger units in the SWIS. The Working Group considered that a more appropriate approach to compensating units running to meet the network requirements would be through Ancillary Services. It was, therefore, agreed to leave the 40 MW open cycle gas turbine reference in the Market Rules unchanged.

Startup Cost

In the initial determination of the Maximum STEM Price and Alternative Maximum STEM Price in 2004, the startup cost was included in the Variable O&M costs. MMA adopted a more detailed approach in its review. The Working Group discussed that the Market Rules could be left as is i.e. silent on any specific treatment of the startup cost. This would leave the expert assisting in the review to determine the appropriate approach. The alternative was to prescribe the treatment of startup costs. This could, however, lead to excluding other cost items. The Group agreed that appropriate wording will be required to avoid excluding other cost items.

Maximum Shutdown Price

Clause 6.20.8 prescribes a methodology for reviewing the Maximum Shutdown Price. The Group noted the expert advice, in the IMO Report, that the opportunity cost of a shutdown instructed by System Management could be fully recovered through the pay-as-bid prices under the provisions of the Market Rules. The small cost of shutting down a unit would also be covered by the startup cost. The Group accepted that the clauses relating to Maximum Shutdown Cost could be deleted from the Market Rules.

Commitment Cost Compensation

The Group noted that the commitment cost for scheduled generators not registered to the Electricity Generation Corporation should be covered by the inclusion of the start up costs in the limits. It was agreed, however, that the Working Group would have to discuss this further with System Management at the second Working Group meeting to ensure that plants would not be committed for unreasonably short periods.

Frequency of Energy Price Limits Review

The Group considered that the current lack of readily available market information on gas prices suggests that the current frequency for review of the Maximum STEM Price is appropriate at this stage. However, in the case of circumstances of very high gas price volatility, the Group considered that a rule change will be needed so that participants will not be hindered if there are adverse upward or downward movements in gas prices.

3. DRAFT AMENDING RULES PROPOSED BY THE IMO

Following the first meeting, the IMO proposed the following amendments to the Market Rules, which were presented to the Working Group for discussion at its second meeting.

6.20.1. The Energy Price Limits are:

- (a) the Maximum STEM Price;
- (b) the Alternative Maximum STEM Price;
- (c) the Minimum STEM Price; and
- ~~(d) Maximum Shutdown Price.~~

~~6.20.5. Subject to clause 6.20.11, the Maximum Shutdown Price to apply for:~~

- ~~(a) the Relevant Year commencing on 1 October 2004 is equal to \$55/MW; and~~
- ~~(b) for subsequent Relevant Year is the Maximum Shutdown Price for the preceding Relevant Year multiplied by the $\frac{CPI[x]}{CPI[x-1]}$, where $CPI[x]$ represents 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 immediately preceding the start of the Relevant Year and the $CPI[x-1]$ represents the corresponding value for the quarter ending the preceding June 30.~~

6.20.7.

- (b) must calculate the Maximum STEM Price or Alternative Maximum STEM Price using the following methodology:

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

Where

- i. Profit Margin is the allowable profit margin 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 include, but is not limited to, start up related costs;
- iii. Heat Rate is ~~the average of~~ based on a 40 MW open cycle gas turbine generating station's heat rate at

minimum and maximum capacities, expressed in GJ/MWh;

~~6.20.8.~~

- ~~(a) In conducting the review required by clause 6.20.6 the IMO may re-assess the appropriateness of the value of the Maximum Shutdown Price.~~
- ~~(b) The value of the Maximum Shutdown Price is to be based on the IMO's estimate of the opportunity cost of lost revenue based on the likely values for MCAP.~~
- ~~(c) The factors considered in setting the Maximum Shutdown Price must be limited to:
 - ~~i. average MCAP in Off-Peak Trading Intervals;~~
 - ~~ii. the expected duration of shut downs;~~
 - ~~iii. minimum generation capacity of the unit most likely to be required to be shutdown;~~
 - ~~iv. average of that unit's heat rate at minimum and maximum capacities, expressed in GJ/MWh;~~
 - ~~v. variable fuel costs of that unit expressed in \$/GJ; and~~
 - ~~vi. variable operating and maintenance costs of that unit, expressed in \$/MWh.~~~~

10.5.1.

- (e) details of bid, offer and clearing price limits as approved by the Economic Regulation Authority including:
 - i. the Maximum Reserve Capacity Price;
 - ii. the Maximum STEM Price;
 - iii. the Alternative Maximum STEM Price;
 - iv. the Minimum STEM Price; and
 - ~~v. the Maximum Shutdown Price;~~

Chapter 11 (Glossary)

Energy Price Limits: The set of price limits comprising the Maximum STEM Price, the Alternative Maximum STEM Price, and the Minimum STEM Price ~~and the Maximum Shutdown Price.~~

Maximum Shutdown Price: The maximum per MW price, determined under clause 6.20.5, that can be used in setting the level of compensation a Market Participant

~~other than the Electricity Generation Corporation requires in response to being requested by System Management to shutdown a Scheduled Generator.~~

Appendix 1

(c) for a Scheduled Generator not registered to the Electricity Generation Corporation:

- i. a commitment and decommitment cost data comprising:
 1. a whole dollar amount representing the cost of committing the facility, where this amount must represent reasonable costs incurred in the typical start-up as justified by supporting evidence.
 - ~~2. a whole dollar amount representing the cost of de-committing the facility, where this amount must not exceed the Maximum Shutdown Price multiplied by the minimum dispatchable loading level defined in b(xiv);~~

4. THE SECOND MEETING

At its second meeting, on 31 January 2008, the Working Group discussed the proposed amending rules and made the following comments:

Heat Rate

The Working Group agreed that the use of the heat rate at the relevant minimum capacity was acceptable and that the proposed amendment to Market Rule 6.20.7(b)iii should be put forward at the next MAC meeting.

Startup Cost

The Working Group noted that the startup costs' initial inclusion in the Variable O&M costs in the 2004 determination of the Maximum STEM Price and Alternative Maximum STEM Price was not explicitly provided for under the Market Rules. The Working Group agreed that the proposed amendments to clause 6.20.7(b)ii were acceptable and did not preclude the inclusion of other related costs in the future. The proposed amendments were to be put forward at the next MAC meeting.

Maximum Shutdown Price

The Working Group agreed that the shut down price should be removed from the Market Rules as participants have the ability to fully recover their costs through their bidding behaviour in the STEM and when instructed by System Management to shutdown. The Group agreed that relevant clauses should be deleted from the Market Rules.

Commitment Cost Compensation

Commitment costs for scheduled generators are covered by the inclusion of startup costs in the Price Limits. However, this is based on certain assumptions regarding average running times. It was discussed that the potential for System Management to call on a generator to startup for only one or two intervals would be unlikely and does not normally occur in the SWIS. The Working Group agreed that without substantial historical data, the minimum amount of time for a generator to run once called upon could not be determined. It was also suggested that a minimum amount of time to run may be restrictive as System Management should not be restricted by the Market Rules regarding its management of the system. It was also noted that a once off payment for being called upon to generate may also be examined once sufficient historical data becomes available. The Group recommended that the IMO is to again consider the commitment compensation costs during the 2008 Energy Price Limits Review.

5. PROPOSED AMENDING RULES AS PRESENTED TO MAC

Following the second meeting of the Working Group, the IMO prepared a discussion paper to be presented to MAC at its meeting on 13 February 2008. This paper proposed the following amendments to the Market Rules:

2.34.14 The IMO must commence using revised Standing Data from:

- (a) 8:00 AM on the Scheduling Day following the IMO's acceptance of the revised Standing Data in the case of:
 - i. Standing STEM Submissions;
 - iA. Standing Bilateral Submissions;
 - iB. Standing Resource Plan Submissions;
 - ii. commitment and decommitment cost data and Standing Balancing Data; and
 - iii. Standing Data changes stemming from acceptance of an application under clause 6.6.9;

with the exception that the previous Standing Data remains current for the purpose of settling the Trading Day that commences at the same time as that Scheduling Day; and

6.18.1. Subject to clause 6.18.3, Commitment Compensation will be payable by the IMO to a Market Participant (other than the Electricity Generation Corporation) in the event that:

- (a) the Market Participant is instructed by System Management to start up a Scheduled Generator registered by the Market Participant more times than indicated in the applicable Resource Plan for that Scheduled Generator; ~~or~~
- (b) ~~the Market Participant is instructed by System Management to shutdown a Scheduled Generator registered by the Market Participant more times than indicated in the applicable Resource Plan for that Scheduled Generator.~~

6.18.2. Subject to clause 6.18.3, the Commitment Compensation equals the sum of:

- (a) for each additional start up required of a Scheduled Generator during a Peak Trading Interval or Off-Peak Trading Interval the dollar amount for a commitment of the Facility specified in Standing Data, as defined in Appendix 1(c)(i); and
- (b) [Blank]

(c) ~~for each additional shut down required of a Scheduled Generator during a Peak Trading Interval or Off-Peak Trading Interval the dollar amount for a de-commitment of the Facility specified in Standing Data as defined in Appendix 1(c)(i).~~

(d) [Blank]

6.18.3. No Commitment Compensation will be payable:

(a) to the Electricity Generation Corporation;

(b) for the first start in the Trading Day of a Scheduled Generator if the relevant Market Participant has Reserve Capacity Obligations in respect of that Facility; or

(c) for any start-up ~~or shut-down~~ instructed by System Management in connection with any Ancillary Services Contract, Balancing Support Contract or Network Control Service Contract.

6.20.1. The Energy Price Limits are:

(a) the Maximum STEM Price;

(b) the Alternative Maximum STEM Price;

(c) the Minimum STEM Price; ~~and~~

~~(d) Maximum Shutdown Price.~~

~~6.20.5. Subject to clause 6.20.11, the Maximum Shutdown Price to apply for:~~

~~(a) the Relevant Year commencing on 1 October 2004 is equal to \$55/MW; and~~

~~(b) for subsequent Relevant Year is the Maximum Shutdown Price for the preceding Relevant Year multiplied by the $CPI[x]$ divided by $CPI[x-1]$, where $CPI[x]$ represents 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 immediately preceding the start of the Relevant Year and the $CPI[x-1]$ represents the corresponding value for the quarter ending the preceding June 30.~~

6.20.7.

(b) must calculate the Maximum STEM Price or Alternative Maximum STEM Price using the following methodology:

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

Where

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- i. Profit Margin is the allowable profit margin 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 include, but is not limited to, start up related costs;
- iii. Heat Rate is ~~the average of~~ based on a 40 MW open cycle gas turbine generating station's heat rate at minimum ~~and maximum capacities~~ capacity, expressed in GJ/MWh;

~~6.20.8.~~

- ~~(a) In conducting the review required by clause 6.20.6 the IMO may re-assess the appropriateness of the value of the Maximum Shutdown Price.~~
- ~~(b) The value of the Maximum Shutdown Price is to be based on the IMO's estimate of the opportunity cost of lost revenue based on the likely values for MCAP.~~
- ~~(c) The factors considered in setting the Maximum Shutdown Price must be limited to:
 - ~~i. average MCAP in Off-Peak Trading Intervals;~~
 - ~~ii. the expected duration of shut downs;~~
 - ~~iii. minimum generation capacity of the unit most likely to be required to be shutdown;~~
 - ~~iv. average of that unit's heat rate at minimum and maximum capacities, expressed in GJ/MWh;~~
 - ~~v. variable fuel costs of that unit expressed in \$/GJ; and~~
 - ~~vi. variable operating and maintenance costs of that unit, expressed in \$/MWh.~~~~

10.5.1.

- (e) details of bid, offer and clearing price limits as approved by the Economic Regulation Authority including:
 - i. the Maximum Reserve Capacity Price;
 - ii. the Maximum STEM Price;
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 - iv. the Minimum STEM Price; ~~and~~
 - ~~v. the Maximum Shutdown Price,~~

Chapter 11 (Glossary)

Energy Price Limits: The set of price limits comprising the Maximum STEM Price, the Alternative Maximum STEM Price, and the Minimum STEM Price ~~and the Maximum Shutdown Price.~~

~~**Maximum Shutdown Price:** The maximum per MW price, determined under clause 6.20.5, that can be used in setting the level of compensation a Market Participant other than the Electricity Generation Corporation requires in response to being requested by System Management to shutdown a Scheduled Generator.~~

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- i. a commitment ~~and decommitment~~ cost data comprising:
 1. a whole dollar amount representing the cost of committing the facility, where this amount must represent reasonable costs incurred in the typical start-up as justified by supporting evidence.
 2. ~~a whole dollar amount representing the cost of de-committing the facility, where this amount must not exceed the Maximum Shutdown Price multiplied by the minimum dispatchable loading level defined in b(xiv);~~

6. RECOMMENDATIONS

It is recommended that the Market Advisory Committee endorses the formal submittal by the IMO of the proposal relating to the determination of Energy Price Limits.

Appendix 1 - Terms of Reference

Energy Price Limits Working Group

SCOPE

The Working Group will consider and develop any amendments to the Market Rules resulting from the 2007 Review of the Energy Price Limits. In particular, the Working Group is requested to:

- Consider the recommended amendments to the methodology regarding heat rates and startup costs.
- Assess the recommendation to remove the Maximum Shutdown Price.
- Assess the need for changing or providing more flexibility regarding the frequency of the Energy Price Limits reviews.
- Consider, as necessary, issues raised in submissions made by Participants in response to the IMO's Draft Report.

TERMS OF REFERENCE

- Members of the Working Group are appointed by MAC.
- The members of the Working Group are:

Dora Guzeleva (Chair)	-	IMO
Kristian Myhre	-	Alinta
Shane Cremin	-	Griffin Energy
Steve Gould	-	Landfill Gas and Power
TBA	-	NewGen
Tony Perrin	-	Synergy
Andrew Sutherland	-	Transalta
Andrew Everett	-	Verve Energy
Robert Pullella	-	ERA
Chin Koay	-	IMO
- The Working Group must provide a report of the assessment, and any proposed revised Market Rule amendments, by mid February 2007.
- The Working Group will focus on clauses 6.20.7 and 6.20.8 of the Market Rules.
- The Working Group will refer any other issues that emerge during its deliberations back to MAC for consideration.
- Members are expected to attend as many Working Group meetings as practicable.
- MAC may review, amend and extend these terms of reference, as necessary.