

Rule Change Notice

Harmonisation of Supply-Side and Demand-Side Capacity Resources (RC_2013_10)

This notice is given under clause 2.5.7 of the Market Rules.

Submitter: Allan Dawson, IMO

Date Submitted: 21 August 2013

The Proposal

The Reserve Capacity Mechanism Working Group (RCMWG) was established in February 2012 to assess the issues highlighted by the Lantau Group in its report “*Review of RCM: Issues and Recommendations*”.¹ This report was commissioned by the IMO Board to analyse the effectiveness and efficiency of the RCM.

One of the key topics discussed during the RCMWG meetings was the harmonisation of rules relating to supply-side and demand-side capacity resources. Key considerations in these discussions were:

- the fuel requirements for generators;
- the minimum availability requirements for DSM;
- real-time data requirements for DSM;
- alignment between the Individual Reserve Capacity Requirement (IRCR); and
- Relevant Demand (RD) for a customer providing DSM.

While not unanimously accepted, the RCMWG members generally supported the changes proposed in the attached Rule Change Proposal.

Appendix 1 contains the Rule Change Proposal and gives complete information about:

- the proposed amendments to the Market Rules;

¹ http://www.imowa.com.au/f5415,2873688/09_Agenda_Item_8_Lantau_Report.pdf

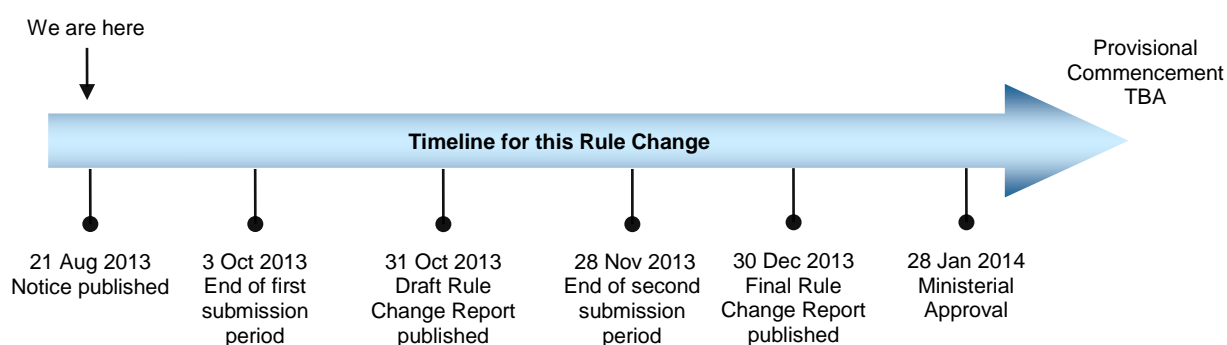
- relevant references to clauses of the Market Rules and any proposed specific amendments to those clauses; and
- the submitter's description of how the proposed amendments would allow the Market Rules to better address the Wholesale Market Objectives.

Decision to Progress the Rule Change

The IMO has decided to progress the Rule Change Proposal on the basis that Rule Participants should be given an opportunity to provide submissions as part of the rule change process.

Timeline

The projected timelines for processing this proposal are:



Call for Submissions

The IMO invites interested stakeholders to make submissions on this Rule Change Proposal. The submission period is 30 Business Days from the Rule Change Notice publication date. Submissions must be delivered to the IMO by **5.00pm** on **Wednesday, 3 October 2013**.

The IMO prefers to receive submissions by email (using the submission form available on the Market Web Site: <http://www.imowa.com.au/rule-changes>) to: market.development@imowa.com.au

Submissions may also be sent to the IMO by fax or post, addressed to:

Independent Market Operator

Attn: Group Manager, Development and Capacity
 PO Box 7096
 Cloisters Square, PERTH, WA 6850
 Fax: (08) 9254 4399



INDEPENDENT
MARKET
OPERATOR

Wholesale Electricity Market Rule Change Proposal

Rule Change Proposal ID: RC_2013_10
Date received: 21 August 2013
Change requested by:

Name:	Allan Dawson
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Organisation:	IMO
Address:	Level 17, 197 St Georges Tce, Perth 6000
Date submitted:	21 August 2013
Urgency:	Medium
Change Proposal title:	Harmonisation of Supply-Side and Demand-Side Capacity Resources
Market Rules affected:	Clauses 2.13.9, 2.29.9A, 2.35.3A, 2.35.3B, 2.35.3C, 4.5.12, 4.10.1, 4.10.2, 4.11.1, 4.11.4, 4.12.2, 4.12.4, 4.12.8, 4.25.1, 4.25.13, 4.26.2CA, 4.26.3A, 6.12.1, 7.5.1, 7.6.10, 7.7.4A, 7.7.10, 7.10.4, 7.11.1, 7.11.5 and 7.13.1D. Glossary, Appendices 1, 3 and 5.

Introduction

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

This Change Proposal can be posted, faxed or emailed to:

Independent Market Operator

Attn: Group Manager, Development and Capacity
PO Box 7096
Cloisters Square, Perth, WA 6850
Fax : (08) 9254 4339
Email : market.development@imowa.com.au

The Independent Market Operator will assess the proposal and, within 5 Business Days of receiving this Rule Change Proposal form, will notify you whether the Rule Change Proposal will be further progressed.



In order for the proposal to be progressed, all fields below must be completed and the change proposal must 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 Rule Change

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

Background

The Reserve Capacity Mechanism (RCM) is a mechanism to support the Wholesale Electricity Market (WEM) in the South West interconnected system (SWIS) in ensuring there is sufficient Reserve Capacity to meet reliability targets. The RCM allows for capacity to be provided by the addition of supply-side resources (predominantly thermal generators) or through reductions in demand, known as Demand Side Management (DSM).

The Reserve Capacity Mechanism Working Group (RCMWG) was established in February 2012 to assess the issues highlighted by the Lantau Group in its report “*Review of RCM: Issues and Recommendations*”.¹ This report was commissioned by the IMO Board to analyse the effectiveness and efficiency of the RCM.

One of the key topics discussed during the RCMWG meetings was the harmonisation of rules relating to supply-side and demand-side capacity resources. Key considerations in these discussions were:

- the fuel requirements for generators;
- the minimum availability requirements for DSM;

¹ http://www.imowa.com.au/f5415,2873688/09_Agenda_Item_8_Lantau_Report.pdf

- real-time data requirements for DSM; and
- alignment between the Individual Reserve Capacity Requirement (IRCR) and
- Relevant Demand (RD) for a customer providing DSM.

While not unanimously accepted, the RCMWG members generally supported the changes proposed in this Rule Change Proposal.

Substantial analysis was conducted by Dr Richard Tooth of Sapere Research Group to support the RCMWG. Three reports on the *Performance Requirements for Demand-Side and Supply-Side Capacity Resources* were presented by Dr Tooth at RCMWG meetings. These reports, together with the Working Group's discussions and analysis, are available on the Market Web Site: <http://www.imowa.com.au/n5415.html>.

This Rule Change Proposal identifies seven key issues for which changes to the Market Rules are proposed in order to improve harmonisation of the rules relating to demand-side and supply-side capacity. These issues and proposed changes to the Market Rules are detailed below.

Issue 1 – Fuel requirements for generators

To receive Certified Reserve Capacity for a Scheduled Generator, a Market Participant must currently demonstrate that the fuel storage, supply and transport arrangements for the generator are sufficient to allow 14 hours of continuous operation. The fuel requirements that are placed on Scheduled Generators stem from clause 4.11.1(a) of the Market Rules, which states:

“...the Certified Reserve Capacity for a Scheduled Generator for a Reserve Capacity Cycle must not exceed the IMO's reasonable expectation of the amount of capacity likely to be available, after netting off capacity required to serve Intermittent Loads, embedded loads and Parasitic Loads, for Peak Trading Intervals on Business Days [...] assuming an ambient temperature of 41^o C”

This rule has been interpreted to mean that an applicant for Certified Reserve Capacity must demonstrate that its fuel storage, supply and transport arrangements are sufficient for the IMO to reasonably expect that the Facility can maintain 14 hours of continuous operation. However, the effects of this obligation are not consistent across different sources of generation capacity. For example, this requirement is particularly onerous for gas-fuelled peaking generators.

The third report² by Dr Tooth for the RCMWG considered the commercial incentives to ensure that adequate fuel supplies are maintained for Scheduled Generators.

The analysis concluded that there are currently sufficient commercial incentives for Scheduled Generators to provide reliable supply, irrespective of the fuel requirements in clause 4.11.1(a). The combination of the market for energy, ancillary services and capacity refunds provide incentives for Market Generators to ensure the availability of their Facilities, including the availability of sufficient fuel for operation. The RCMWG noted that the value of capacity refunds currently varies according to the time of year, time of day and day of the week. The RCMWG considered that a dynamic capacity refund mechanism would enhance

² http://www.imowa.com.au/f5415,2873627/Combined_Papers_Mtg_5.pdf

the incentives to ensure the availability of adequate fuel for Scheduled Generators³.

The RCMWG concluded that the fuel requirement could be relaxed if it expected that the Facility owner would have sufficient incentives to take appropriate measures to ensure that fuel would be available.

Proposal

The IMO proposes to relax the requirement for Facilities to have “firm fuel” supply contracts in place. This will be achieved through amending clauses 2.13.9, 4.10.1(e)(v), 4.10.2, 4.11.1, 4.12.2(d), 4.25.1(a) and 4.25.13 of the Market Rules in accordance with the proposed Amending Rules.

The IMO also proposes to amend the *Market Procedure: Certification for Reserve Capacity* prior to the commencement of the proposed Amending Rules discussed in this Rule Change Proposal. Amendments to this Market Procedure will capture the assessment of primary and alternative fuel supplies for certification of Reserve Capacity.

The IMO proposes to present the proposed amended Market Procedure at the IMO Procedures and Development Working Group (IMOPDWG) on 20 September 2013. This will allow submitting parties an opportunity to view and consult on the proposed amendments to the Market Procedure prior to the closure of the first round of submissions for this rule change.

As the rule changes in issue 1 relate to certification, the IMO proposes to commence these changes by the first quarter of 2014 in preparation for certification for the 2014 Reserve Capacity Cycle.

Proposed Amending Rules

- 2.13.9. System Management must monitor Rule Participants for breaches of the following clauses:
- (a) [Blank]
 - (b) clauses 3.4.6 and 3.4.8;
 - (c) clauses 3.5.8 and 3.5.10;
 - (d) clauses 3.6.5 and 3.6.6B;
 - (e) clauses 3.16.4, 3.16.7, and 3.16.8A;
 - (f) clauses 3.17.5 and 3.17.6;
 - (g) clause 3.18.2(f);
 - (gA) clauses 3.21A.2, 3.21A.12, and 3.21A.13(a);
 - (gB) clauses 3.21B.1 and 3.21B.2;
 - (h) ~~clause 4.10.2, where System Management is instructed by the IMO under clause 4.25.13~~[Blank];
 - (hA) clause 7.2.5;

³ The IMO is currently undertaking the analysis to support a Rule Change Proposal on dynamic refunds recommended by the RCMWG.

- (hB) clause 7.5.5;
- (i) clause 7.7.6(b);
- (j) clauses 7.10.1, 7.10.3 and 7.10.6A; and
- (k) clause 7.11.7.

...

4.10.1. Each Market Participant must ensure that information submitted to the IMO with an application for certification of Reserve Capacity pertains to the Reserve Capacity Cycle to which the certification relates, is supported by documented evidence and includes, where applicable, the following information:

...

(e) for a generation system other than an Intermittent Generator:

...

v. ~~subject to clause 4.10.2,~~ details of primary and any alternative fuels, including:

1. where the Facility has primary and alternative fuels:

i. the process for changing from one fuel to another; and

ii. the fuel or fuels which the Facility is to use in respect of the application for Certified Reserve Capacity; and

2. details acceptable to the IMO (acting reasonably) and supporting evidence of both firm and any non-firm fuel supplies and the factors that determine restrictions on fuel availability that could prevent the Facility operating at its full capacity;

...

~~4.10.2. For the purpose of clause 4.10.1(e)(v), an applicant may not claim that a Facility has an alternative fuel unless the Facility has on-site storage, or uninterrupted supply of that fuel, sufficient to maintain 12 hours of operation at the level of capacity specified in clause 4.10.1(e)(ii).~~

...

4.11.1. Subject to clauses 4.11.7 and 4.11.12, the IMO must apply the following principles in assigning a quantity of Certified Reserve Capacity to a Facility for the Reserve Capacity Cycle for which an application for Certified Reserve Capacity has been submitted in accordance with clause 4.10:

(a) subject to clause 4.11.2, the Certified Reserve Capacity for a Scheduled Generator for a Reserve Capacity Cycle must not exceed the IMO's reasonable expectation of the amount of capacity likely to be available, after netting off capacity required to serve Intermittent Loads, embedded

loads and Parasitic Loads, ~~for Peak Trading Intervals on Business Days~~ in the period from:

- i. the start of December for Reserve Capacity Cycles up to and including 2009; or
- ii. the Trading Day starting on 1 October for Reserve Capacity Cycles from 2010 onwards,

in Year 3 of the Reserve Capacity Cycle to the end of July in Year 4 of the Reserve Capacity Cycle, assuming an ambient temperature of 41°C;

...

4.12.2. A Market Participant holding Capacity Credits must also comply with the following obligations:

- (a) the Market Participant must comply with the outage planning obligations specified in clauses 3.18, 3.19, 3.20 and 3.21;
- (b) the Market Participant must submit to tests of availability of capacity and inspections conducted in accordance with clause 4.25; and
- (c) the Market Participant must comply with Reserve Capacity performance monitoring obligations in accordance with clause 4.27; and
- ~~(d) the Market Participant must, in relation to each Facility assigned Certified Reserve Capacity on the basis of having an alternative fuel available, maintain adequate fuel for 12 hours of operation except on any Trading Day for which the IMO has waived this requirement in response to a Planned Outage or in the event of an extended Forced Outage.~~

...

4.25.1. The IMO must take steps to verify, in accordance with clause 4.25.2, that each Facility providing Capacity Credits can:

- (a) in the case of a generation system, during the term the Reserve Capacity Obligations apply, operate at a level equivalent to its Required Level, adjusted to the level of Capacity Credits currently held, at least once during each of the following periods and such level of operation during those periods must be achieved on each type of fuel ~~available to that Facility~~ notified under clause 4.10.1(e)(v)(1)(ii):
 - i. 1 October to 31 March; and
 - ii. 1 April to 30 September; and

...

~~4.25.13. The IMO must monitor at all times the on-site fuel storage of each Scheduled Generator required to comply with clause 4.10.2. The IMO may:~~

- (a) ~~require the relevant Market Participant to submit a weekly report of the current fuel level;~~
- (b) ~~have a representative of the IMO conduct an on-site inspection to verify the fuel storage level; and~~
- (c) ~~instruct System Management to use its SCADA systems to monitor the fuel storage level and to report any failure of any Market Participant to comply with clause 4.10.2 to the IMO.~~

Issue 2 – Revised DSM availability requirements

The key amendments relating to the DSM harmonisation analysis completed on behalf of the RCMWG were proposed changes to the DSM availability requirements.

Dr Tooth presented his initial analysis on *Performance Requirements for Demand-Side and Supply-Side Capacity Resources*⁴ at the April 2012 RCMWG meeting. This first report examined the current performance requirements of both demand-side and supply-side resources and the impact of harmonisation. Additionally, the report discussed such issues as the design and use of Availability Classes and the current limitations on the use of DSM.

The first report provided two recommendations for the RCMWG to consider to ensure the effective harmonisation of demand-side and supply-side capacity. They were:

1. modify the minimum availability requirements for DSM; and
2. refine other DSM performance requirements.

The second report⁵ by Dr Tooth was presented at the July 2012 RCMWG meeting. This report analysed the following key aspects of the DSM availability requirements:

- changes to the number of dispatch events for a Demand Side Programme (DSP);
- the hours of availability for DSPs;
- the use of Availability Classes;
- the start and finish times for DSP availability; and
- a reduction in the notice period for dispatch.

These key availability requirements were discussed at the July and September 2012 RCMWG meetings. The RCMWG members agreed to progress changes to implement the DSM availability requirements for the 2014 Reserve Capacity Cycle outlined in Table 1 below.

Table 1: Minimum availability requirements for DSM

Requirement	Current Rule	Proposed Change
Days of Availability	All Business Days	All Business Days
Dispatch events per year	At least 6	5 x 52 = 260 – (public holidays) = 250*

⁴ http://www.imowa.com.au/f5415,2873678/Combined_RCMWG_Mtg_3_Papers.pdf

⁵ http://www.imowa.com.au/f5415,2873627/Combined_Papers_Mtg_5.pdf

Hours per day	4 hours	6 hours
Total hours available per year	24 hours	250 x 6 = 1,500 hours*
Earliest Start	12:00 PM	10:00 AM
Latest Finish	8:00 PM	8:00 PM
Minimum notice period of dispatch	4 hours	2 hours [Dispatch Advisory may be released by System Management within 24 hours of the capacity requirement] **

* These requirements will no longer be limited under the Market Rules; figures provided are indicative of the maximum requirement for a DSP.

** The introduction of a Dispatch Advisory was suggested at the June 2013 MAC meeting during the development of the Rule Change Paper.

In the second report, Dr Tooth presented a conceptual analysis that explored the probability of increased dispatch frequency of DSPs under the expanded availability requirements presented in Table 1. This analysis found that having greater flexibility to dispatch DSPs is likely to result in more dispatch events, but not necessarily increase the amount of DSM capacity used overall. Dr Tooth found that the key scenarios that require the use of DSM capacity do not change regardless of the availability of the resource. Thus, it was concluded that the change in availability requirements would not have a material impact on the dispatch frequency of DSPs.

The changes to the availability requirements for DSM proposed above have implications for the Availability Class definitions in the Market Rules. Since the final RCMWG meeting the IMO has assessed the implementation options. This assessment indicated that the best approach was to maintain the concept of Availability Classes but reduce the current four classes to two, as follows:

1. Availability Class 1 - Capacity that is available all the time (with the exception of Outages), which would include all Scheduled Generators, all Non-Scheduled Generators and any DSM Facilities that specified that they were available all the time; and
2. Availability Class 2 - All other DSM capacity.

The reduction of four Availability Classes to two will affect the calculation of the Availability Class quantities under clause 4.5.12 of the Market Rules. The IMO engaged PA Consulting to conduct analysis on the extent of the impact. PA Consulting found that:

- the increased availability limits, as outlined in this Rule Change Proposal, will lead to a decrease in the Availability Class 1 capacity requirement, and an equivalent increase in the DSM capacity that may be accommodated in Availability Class 2; and
- the primary drivers in achieving the decrease in the Availability Class 1 capacity are the removal of the restrictions surrounding dispatch events and hours of availability.

The full report completed by PA Consulting is attached to this Rule Change Proposal in Appendix 1.

The proposed changes captured in Table 1 will also affect the calculation of the DSP Capacity Cost Refund under clause 4.26.3A of the Market Rules. Where a DSP is issued with a Dispatch Instruction and fails to curtail as dispatched, the current refund for a DSP for a Trading Interval is:

$$12 * (\text{Monthly Reserve Capacity Price}) * (\text{Capacity Shortfall}) / (2 * H)$$

where H is the maximum number of hours per year that the DSP is available.

This formula requires the DSP to pay a refund according to the proportion of its annual availability that it has failed to deliver, providing a strong incentive for DSPs to meet Dispatch Instructions in full. The magnitude of the refund decreases as the annual hours of availability for the DSP increase.

The removal of the cap on annual availability (H in the formula above) requires that this formula be modified. In order to ensure that it is consistent with the equivalent for supply-side capacity resources, the IMO considers that the magnitude of the refund for a DSP should be reflective of that faced by generators. As such, the IMO proposes to link the new refund formula to the Refund Table in clause 4.26.1 of the Market Rules.

The IMO also considers it appropriate to retain the current concept, that a DSP that offers lower availability should face a higher refund for a single Trading Interval. Under the proposed changes, DSPs would not be able to stipulate the maximum number of dispatch hours per year, but availability may vary according to the maximum dispatch hours per day. When applied to the amended formula the IMO proposes to multiply the refund rate by (24/H), where H is the maximum dispatch hours per day for the DSP.

The proposed change to the refund calculation in clause 4.26.3A is provided in the proposed Amending Rules below.

Proposal

The IMO proposes to amend clauses 2.29.9A, 4.5.12, 4.10.1, 4.11.4, 4.12.4, 4.26.3A, 7.7.10, 7.11.1, 7.11.5, the Glossary and Appendices 1 and 3 of the Market Rules to account for the amendments to availability requirements.

The IMO also proposes to amend the defined term; Availability Class, to factor in the reduction from four classes to two.

Commencement of the proposed rules changes in issue two will require separate commencement dates in order to affect the 2014 Capacity Cycle. Rule changes that relate to certification will be required no later than 1 May 2014, while changes to the operation of DSM can be delayed to take effect for 1 October 2016.

Proposed Amending Rules

2.29.9A. The IMO must not register a Demand Side Programme where the minimum notice period required for dispatch exceeds ~~two~~four hours as specified in Standing Data.

...

4.5.12. For the second and third Capacity Years of the Long Term PASA Study Horizon, the IMO must determine the following information:

- (a) ~~the forecast capacity, in MW, required for more than 24 hours per year, 48 hours per year and 72 hours per year, determined from the Availability Curve for the Capacity Year developed under clause 4.5.10;~~ [Blank]

- (b) the minimum capacity required to be provided by ~~generation~~ Availability Class 1 capacity if Power System Security and Power System Reliability is to be maintained. This minimum capacity is to be set at a level such that if:
- i all ~~Demand Side Management~~ Availability Class 2 capacity (excluding Interruptible Load used to provide Spinning Reserve to the extent that it is anticipated to provide Certified Reserve Capacity), were activated during the Capacity Year so as to minimise the peak demand during that Capacity Year; and
 - ii the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11 were to be applied to the load scenario defined by clause 4.5.12(b)(i), then

it would be possible to satisfy the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11, as applied in clause 4.5.12(b)(ii), using, to the extent that the capacity is anticipated to provide Certified Reserve Capacity, the anticipated installed ~~generating~~ Availability Class 1 capacity, the anticipated Interruptible Load capacity available as Spinning Reserve and, to the extent that further ~~generation~~ Availability Class 1 capacity would be required, an appropriate mix of ~~generation~~ Availability Class 1 capacity to make up that shortfall; and

- (c) the capacity associated with each ~~Availability Class 2~~, where this is equal to the Reserve Capacity Target for the Capacity Year less the minimum capacity required to be provided by Availability Class 1 capacity under clause 4.5.12(b).:-

- i. ~~the capacity quantity associated with Availability Class 4 is the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and the quantity specified under clause 4.5.12(a) as being required for more than 24 hours per year;~~
- ii. ~~the capacity quantity associated with Availability Class 3 is:~~
 - 1. ~~the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and the quantity specified under clause 4.5.12(a) as being required for more than 48 hours per year; less~~
 - 2. ~~the capacity quantity associated with Availability Class 4;~~
- iii. ~~the capacity quantity associated with Availability Class 2 is:~~
 - 1. ~~the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and the quantity specified under clause 4.5.12(a) as being required for more than 72 hours per year; less~~
 - 2. ~~the sum of the capacity quantities associated with each of Availability Class 3 and Availability Class 4;~~

- ~~iv. the capacity quantity associated with Availability Class 1 is:

 - ~~1. the Reserve Capacity Target for the Capacity Year; less~~
 - ~~2. the sum of the capacity quantities associated with each of Availability Class 2, Availability Class 3 and Availability Class 4.~~~~

...

4.10.1. Each Market Participant must ensure that information submitted to the IMO with an application for certification of Reserve Capacity pertains to the Reserve Capacity Cycle to which the certification relates, is supported by documented evidence and includes, where applicable, the following information:

- (f) for Interruptible Loads, Demand Side Programmes and Dispatchable Loads:
 - i. the Reserve Capacity the Market Participant expects to make available from each of up to 3 blocks of capacity;
 - ii. ~~the maximum number of hours per year the Interruptible Load, Demand Side Programme or Dispatchable Load is available to provide Reserve Capacity, where this must be at least 24 hours; [Blank];~~
 - iii. the maximum number of hours per day that the Interruptible Load, Demand Side Programme or Dispatchable Load is available to provide Reserve Capacity if issued a Dispatch Instruction called, where this must be:
 - ~~1. not less than four six hours; and~~
 - ~~2. not more than the maximum of the periods specified in clause 4.10.1(f)(vi);~~
 - iv. ~~the maximum number of times the Interruptible Load, Demand Side Programme or Dispatchable Load can be called to provide Reserve Capacity during a 12 month period, where this must be at least six times; [Blank];~~
 - v. the minimum notice period required for dispatch of the Interruptible Load, Demand Side Programme or Dispatchable Load, where this must not be more than 4 two hours; and
 - vi. the periods when the Interruptible Load, Demand Side Programme or Dispatchable Load can be dispatched, which must include the period between ~~noon~~ 10:00 AM and 8:00 PM on all Business Days;

...

4.11.4. Subject to clause 4.11.12, when assigning Certified Reserve Capacity to an Interruptible Load, Demand Side Programme or Dispatchable Load, the IMO must

~~indicate what assign the Availability Class to apply is applicable to that Certified Reserve Capacity as follows: where this Availability Class must~~

~~(a) reflect the maximum number of hours per year that the capacity will be available and must not be Availability Class 1 where the IMO reasonably expects the Facility to be available to be dispatched for all Trading Intervals in a Capacity Year, allowing for Outages and any restrictions on the availability specified by the applicant under clause 4.10.1(g); or~~

~~(b) Availability Class 2 otherwise.~~

...

4.12.4. Subject to clause 4.12.5, where the IMO establishes the initial Reserve Capacity Obligation Quantity to apply for a Facility for a Trading Interval:

...

(c) for Interruptible Loads, Demand Side Programmes and Dispatchable Loads, except where otherwise precluded by this clause 4.12.4, the Reserve Capacity Obligation Quantity:

- i. ~~will equal zero once the capacity has been dispatched under clause 7.6.1C(d) for the number of hours per year that are specified under clause 4.10.1(f)(ii); [Blank]~~
- ii. will equal zero for the remainder of a Trading Day in which the capacity has been dispatched under clause 7.6.1C(d) for the number of hours per day that are specified under clause 4.10.1(f)(iii);
- iii. ~~will equal zero once the capacity has been dispatched under clause 7.6.1C(d) for the maximum number of times per year specified under clause 4.10.1(f)(iv); [Blank]~~
- iv. must account for staffing and other restrictions on the ability of the Facility to curtail energy upon request; and
- v. will equal zero for Trading Intervals which fall outside of the periods specified in clause 4.10.1(f)(vi).

...

4.26.3A. The Demand Side Programme Capacity Cost Refund for Trading Month m for a Demand Side Programme is equal to the lesser of:

- (a) twelve times the Monthly Reserve Capacity Price for Trading Month m multiplied by the number of Capacity Credits associated with the Facility, less all Demand Side Programme Capacity Cost Refunds applicable to the Facility in previous Trading Months falling in the same Capacity Year as Trading Month m; and
- (b) the sum of:

- i. the sum over all Trading Intervals t in Trading Month m of:

$$12 * \text{Monthly Reserve Capacity Price} * S / (2 * H)$$

$$\underline{(24 / H) * \text{TIRR} * S}$$

Where:

S is the Capacity Shortfall in MW determined in accordance with clause 4.26.2D in any Trading Interval; ~~and~~

H is the maximum number of hours per Trading Day that the Facility is available to provide Reserve Capacity ~~that the Facility was certified to be available~~ in accordance with clause 4.10.1(f)(iii); and

TIRR is the Off-Peak Trading Interval Rate or Peak Trading Interval Rate applicable to Trading Interval t; and

- ii. the Facility Reserve Capacity Deficit Refund for Trading Month m for the Facility, ~~determined in accordance with clause 4.26.1A.~~

...

- 7.7.10. When System Management has issued a Dispatch Instruction or an Operating Instruction to a Demand Side Programme to decrease its consumption, System Management may issue a further instruction terminating the requirement for the Demand Side Programme to decrease its consumption providing that:

(a) ~~the further instruction is issued at least four~~ two hours before it is to come into effect; ~~and~~

(b) ~~the minimum period for which the Demand Side Programme is instructed to decrease its consumption is not less than two hours.~~

...

7.11. Dispatch Advisories

- 7.11.1. A Dispatch Advisory is a communication by System Management to Market Participants, Network Operators and the IMO that there has been, or is likely to be, an event that will require the dispatch of Demand Side Programmes ~~of Facilities~~ Out of Merit or will restrict communication between System Management and any of the Market Participants, Network Operators, or the IMO.

...

- 7.11.5. System Management must release a Dispatch Advisory in the event of, or in anticipation of situations where:

- (a) involuntary load shedding is occurring or expected to occur;
- (b) committed generation at minimum loading is, or is expected to, exceed forecast load;

- (c) Ancillary Service Requirements will not be fully met;
- (d) significant outages of generation transmission or customer equipment are occurring or expected to occur;
- (e) fuel supply on the Trading Day is significantly more restricted than usual, or if fuel supply limitations mean it is not possible for some Market Participants to supply in accordance with their Resource Plans;
- (f) scheduling or communication systems required for the normal conduct of the scheduling and dispatch process are, or are expected to be, unavailable;
- (g) System Management expects to issue a Dispatch Instruction Out of Merit including, for the purpose of this clause, issuing a Dispatch Order to the Verve Energy Balancing Portfolio in accordance with clause 7.6.2, which will result in Out of Merit dispatch of the Verve Balancing Portfolio;
- (h) System Management expects to use LFAS Facilities other than in accordance with the LFAS Merit Order under clause 7B.3.8; ~~or~~
- (i) the system is in, or is expected to be in, a High Risk Operating State or an Emergency Operating State; ~~or~~
- (j) System Management expects to issue a Dispatch Instruction to a Demand Side Programme within the next 24 hours.

...

Availability Class: Means either Availability Class 1 or Availability Class 2 or both, as applicable. ~~Any one of 4 classes of annual availability of Reserve Capacity set out in clause 4.5.12(c), where each class corresponds to Reserve Capacity being available from a Facility for not more than a specified number of hours per year.~~

Availability Class 1: means the Availability Class assigned by the IMO to Certified Reserve Capacity under clause 4.11.4(a).

Availability Class 2: means the Availability Class assigned by the IMO to Certified Reserve Capacity under clause 4.11.4(b).

Non-Balancing Dispatch Merit Order: An ordered list of ~~Scheduled Generators~~, Demand Side Programmes and Dispatchable Loads registered by Market Participants, other than Verve Energy, determined by the IMO in accordance with clause 6.12.1.

Off-Peak Trading Interval Rate: means the rate determined for the applicable Off-Peak Trading Interval under the Refund Table.

Peak Trading Interval Rate: means the rate determined for the applicable Peak Trading Interval under the Refund Table.

Refund Table: The table titled "Refund Table" and set out in ~~Chapter 4~~ clause 4.26.1.

Appendix 1: Standing Data

This Appendix describes the Standing Data to be maintained by the IMO for use by the IMO in market processes and by System Management in dispatch processes.

Standing Data required to be provided as a pre-condition of Facility Registration and which Rule Participants are to update as necessary, is described in clauses (a) to (i).

Standing Data not required to be provided as a pre-condition of Facility Registration but which the IMO is required to maintain, and which Rule Participants are to update as necessary, includes the data described in clauses (j) to (m).

...

- (h) for a Demand Side Programme:
 - i. [Blank]
 - ii. evidence that the communication and control systems required by clause 2.35 are in place and operational;
 - iii. the maximum amount of load that can be curtailed;
 - iv. the maximum duration of any single curtailment;
 - v. [Blank]
 - vi. for a Demand Side Programme that is registered to a Market Participant other than Verve Energy, data comprising:
 - 1. a Consumption Decrease Price for Peak Trading Intervals; and
 - 2. a Consumption Decrease Price for Off-Peak Trading Intervals,where these prices must be expressed in units of \$/MWh to a precision of \$0.01/MWh;
 - vii. the minimum response time before the Demand Side Programme can begin to respond to an instruction from System Management to change its output;
 - viii. ~~the maximum number of hours per year the Demand Side Programme can be curtailed;~~ [Blank]
 - ix. the Trading Intervals where the Demand Side Programme can be curtailed;
 - x. any restrictions on the availability of the Demand Side Programme;
 - xi. the normal ramp up and ramp down rates as a function of output level, if applicable; and
 - xii. emergency ramp up and ramp down rates, if applicable; ~~and~~

~~xiii. — the maximum number of times that the Demand Side Programme can be curtailed during the term of its Capacity Credits.~~

Appendix 3: Reserve Capacity Auction & Trade Methodology

This appendix describes a single algorithm which performs two functions. One version of the algorithm is used to prevent the IMO accepting bilateral trades that have insufficient availability to usefully address the Reserve Capacity Requirement. Another version of the algorithm is used in the conduct of the Reserve Capacity Auction as required by clause 4.19.1.

The parameter “a” denotes the active Availability Class where “a” can have a value of {1, or 2, ~~3, 4~~}. Availability Class 1 has the highest availability requirement, followed by Availability Class 2, ~~Availability Class 3 and then Availability Class 4~~. All Certified Reserve Capacity is assigned an Availability Class. However the algorithms in this appendix allow capacity from ~~an~~ Availability Class with higher availability₁ to be used in place of capacity from an Availability Class with lower availability₂. For example, a Any capacity accepted from Availability Class 1 that is in excess of the capacity requirement for Availability Class 1 will be available to meet the capacity requirement for Availability Class 2.

~~All Certified Reserve Capacity associated with Interruptible Loads, Demand Side Programmes or Dispatchable Loads is assigned an Availability Class according to the following table, where “Hours of Availability” is the maximum number of hours of availability per year specified for the relevant Facility under clause 4.10.1(f)(ii).~~

Hours of Availability	Availability Class (i.e. value of “a”)
≥ 72	2
≥ 48 and < 72	3
≥ 24 and < 48	4

~~All other Certified Reserve Capacity is automatically in Availability Class 1.~~

The following algorithm applies for both the testing of bilateral trades and for the auction. Terminology that differs in each case is

- “offers”
 - For the testing of bilateral trades the “offer” is a proposed bilateral transaction (as specified in clause 4.14.1 for each Facility or block).
 - For an auction an “offer” is a “Reserve Capacity Offer”.
- the capacity requirements of Availability Class “a”

- For the testing of bilateral trades, for Availability Class $a = 1$ this is the greater of zero and $Q[a] - X[a]$ while for Availability Classes $a = 2, 3$ or 4 , this is the greater of zero and $(Q[a] - X[a] - Y[a-1])$ where
 - $Q[a]$ is the quantity associated with Availability Class “a” in clause 4.5.12(b) or clause 4.5.12(c).
 - $X[a]$ is the total quantity of
 - i Certified Reserve Capacity to be provided by Facilities subject to Network Control Service Contracts and by Facilities under Long Term Special Price Arrangements during the period to which the Reserve Capacity Requirement applies; plus
 - ii the amount of Capacity Credits assigned under clause 4.28C for the period to which the Reserve Capacity Requirement applies

where the capacity is certified as belonging to Availability Class “a” and is not subject to a bilateral trade.

$Y[a]$ represents the amount by which $(X[a] + Y[a-1])$ exceeds $Q[a]$, with the exception that $Y[0] = 0$.
- For an auction this is the same as the capacity requirement for the case of bilateral trades except that it is reduced by the amount of capacity accepted as a bilateral trade.

The algorithm is as follows:

Step 1: Start with $a = 1$

Step 2: Let the set of active offers comprise all offers from Availability Class “a”.

Step 2A: In the case of bilateral trade offers, accept offers from operating facilities and committed facilities and remove them from the set of active offers.

Step 3: Accept offers from the set of active offers in order of

- In the case of testing bilateral schedules, decreasing availability.
- In the case of the Reserve Capacity Auction, increasing price

until the capacity requirements of Availability Class “a” are fully covered or until there are no offers left unaccepted in the set of active offers.

Where two or more offers are tied with respect to the selection criteria such that accepting all but one of them would result in the total capacity selected exceeding the total capacity requirement of the Availability Class then the tied offers are to be accepted according to the following rules until the tie is resolved.

- In the case of the Reserve Capacity Auction, offers from operating facilities and committed facilities are to be accepted ahead of facilities that are not yet committed; then
- Offers are to be accepted in decreasing order of capacity offered; then
- Offers for capacity that was included in an Expression of Interest are to be accepted ahead of capacity that was not; then
- Offers are to be accepted in the order of the time the offers were received, with the earlier offer being taken first; and then
- Offers are to be accepted in the order the capacity secured Certified Reserve Capacity;

Step 4: If all offers in the set of active offers have been accepted but the capacity requirements of Availability Class “a” have not been covered, then record the difference as the capacity shortfall for Availability Class “a”.

Step 5: Remove all offers accepted in Step 3 from the set of active offers.

Step 6: If $a = 42$ then go to Step 8A otherwise increase a by 1.

Step 7: Add all offers from Availability Class “a” to the set of active offers.

Step 8: Return to Step 2A.

Step 8A: In the case of the auction only:

- The Reserve Capacity Price must equal the price of the highest priced offer accepted; and
- In the special case where the Reserve Capacity Price is zero and there are offers with a price of zero that have not been accepted, then accept those offers with zero price.

Step 9: Report the offers accepted

Step 10: For each Availability Class report the capacity shortfall:

- In the case of testing bilateral schedules, this indicates the amount to be procured in the auction.
- In the case of the Reserve Capacity Auction, this indicates the amount to be procured through supplementary capacity.

Step 11: End.

In the case of the auction only:

- While leaving the Reserve Capacity Price unchanged, the IMO must exchange one or more offers not accepted for one or more offers accepted in the auction if

- the total capacity scheduled in the auction exceeds the Reserve Capacity Auction Requirement by more than 100 MW;
- the Reserve Capacity Price exceeds zero,
- the exchange produces the maximum possible reduction in the total value of offers accepted;
- the exchange does not create an overall Reserve Capacity shortfall where none existed;
- in the event that a capacity shortfall exists in one or more Availability Classes, the exchange will not shift a shortfall from an Availability Class with low availability to an Availability Class with high availability; and
- this would not result in an existing facility, or a committed facility being excluded.

Issue 3 – Real-time telemetry service for DSPs

System Management currently has information regarding a DSP's likely availability provided through the certification process but does not have real-time information on the availability and performance of DSP's. This lack of information about a DSP's circumstances at any time means that System Management is likely to be less confident in the use of DSM, and may result in the inefficient use of DSP's. The availability of real-time information would increase System Management's ability to maintain the security and reliability of the SWIS.

The RCMWG members agreed that real-time information should be provided to System Management on the availability and performance of each DSP. The IMO notes that there are expected to be costs both to DSP's in providing it and System Management in gathering, delivering and using this real-time information. However, in the interests of harmonisation, there is a benefit to the consistent provision of real-time information on availability and performance of DSP's.

Without the implementation of a real-time telemetry service, the benefits of the other issues identified in this Rule Change Proposal are somewhat limited. With this in mind, the IMO engaged System Management to assist in identifying and assessing the possible options to receive and use the required data.

The MAC discussed these options at its 7 August 2013 meeting and agreed that the use of the existing B2B Web Service functionality in the *System Management Automated Real-Time System* would be the most cost effective and reliable solution.

This approach involves the creation of a DSP Load Web Service that is capable of accepting real-time load data from DSP providers. Under this service a DSP provider would be required to send an update through to System Management shortly before each Trading Interval on the performance of each of its DSP's. This update would be a single file or data transfer from each DSP but would consist of the consumption Load of each Associated Load within the DSP. This level of Load data is required to ensure accurate understanding of the size and makeup of the respective DSP Load.

The real-time data received by System Management would need to be stored in the Operational Data Store, incorporated into the System Operations Control User Interface and may also be required by the Dispatch Planning Tool.

The costs of this project are captured in Table 2 below. This analysis only captures costs of the B2B Web Service at the DSP level. It would be up to individual Market Participants to implement controls and processes to capture the performance of each Associated Load in their programme.

Table 2: Cost analysis for B2B Web Service

Project	Cost	Implementation Time
B2B Web Service for DSP's	Development of Web Service to accept real-time DSP readings ~ \$62,000 Updating of the SOCUI to include DSP readings including design, development, testing, training, procedure updates ~ \$82,000 Total Cost ~ \$144,000 This does not include the cost to the individual Market Participant. This will be significantly different dependent of the Market Participant and each DSP it operates.	10 – 12 weeks from the start of the implementation period.

Proposal

The IMO proposes to amend the Market Rules and relevant Procedures to require that all DSPs provide a telemetry service to enable provision of real-time information on its availability and performance to System Management. This is intended to take effect from the year one of the 2014 Reserve Capacity Cycle, with all procedural and physical changes in place by 1 October 2016.

Specifically, the IMO proposes to create clauses 2.35.3A, 2.35.3B and 2.35.3C of the Market Rules that mandates the provision of “real-time” data from DSP’s to System Management.

The IMO also proposes to amend clause 7.10.4 which currently excludes DSPs from System Management’s monitoring of compliance with Dispatch Instructions in accordance with clause 7.10.1. The amendment will remove this exclusion.

Once System Management has finalised development of the B2B Web Service for DSP’s, changes to the relevant PSOP’s can commence. Through consultation with System Management proposed procedural changes should be ready for consultation shortly after project development. The IMO will continue to work with System Management to ensure the required amendments to the relevant PSOP’s occur prior to the commencement of any rule changes discussed in this Rule Change Proposal.

Proposed Amending Rules

2.35.3A. System Management must develop, in the Power System Operation Procedure, a reasonable method of communication that Market Participants with Demand Side Programmes must use when communicating with System Management under the Market Rules.

2.35.3B Market Participants with Demand Side Programmes must:

- (a) have and maintain systems to enable them to use the method of communication referred to in clause 2.35.3A; and
- (b) use that method when communicating with System Management under the Market Rules.

2.35.3C. As close as reasonably possible to five minutes prior to the start of a Trading Interval a Market Participant with a Demand Side Programme must provide System Management with the following data:

- (a) the then current consumption, in MW, of the Demand Side Programme; and
- (b) the then current consumption, in MW, of each Associated Load within the Demand Side Programme,

in the form specified in the Power System Operation Procedure.

...

7.10.4. System Management must monitor the behaviour of Market Participants with Registered Facilities to assess whether they are complying with clause 7.10.1 in accordance with its Monitoring and Reporting Protocol, ~~except where it relates to a Demand Side Programme.~~

Issue 4 – The “Third Day” Rule

Under clause 4.12.8, a DSP that has been dispatched on two consecutive days will have a Reserve Capacity Obligation Quantity (RCOQ) of zero on the third day. By having a RCOQ of zero the DSP is not subject to capacity refunds.

Scenarios in which a DSP may be required for three consecutive days include:

- a major fuel disruption, in which DSPs may be required to help manage a risk to fuel stocks; and
- a series of very hot days coupled with some unexpected large Outages.

This is inconsistent with the obligations for the provision of supply-side capacity. Therefore, the RCMWG members agreed to remove this restriction on the dispatch of a DSP.

Proposal

The IMO proposes to remove clause 4.12.8 from the Market Rules. This is intended to take effect from the start of the 2014 Reserve Capacity Cycle, with all procedural changes in place by 1 October 2016.

Proposed Amending Rules

~~4.12.8. Where a Demand Side Programme is dispatched under clause 7.6.1C(d) to a level equal to its Reserve Capacity Obligation Quantity on two consecutive days the Reserve Capacity Obligation Quantity for the third consecutive day will be zero.~~

Issue 5 – Non-Balancing Dispatch Merit Order

The Non-Balancing Dispatch Merit Order (DMO) currently orders the dispatch of

Non-Balancing Facilities (including DSP's) by price. In the event that one or more DSPs have the same price, they are then ordered from largest to smallest by Facility size.

The RCMWG members agreed that ranking Facilities according to size was inappropriate and created a disincentive for DSP's to aggregate Loads. Instead, the RCMWG members agreed to replace it with a ranking based on the time since its last dispatch.

Another issue identified by the IMO is that the current Non-Balancing DMOs do not remove Facilities that have an RCOQ of zero. This makes it difficult for System Management to dispatch Facilities in the Non-Balancing DMO. As such, the IMO has explored the option to improve the Non-Balancing DMOs by ranking Facilities in priority order from top to bottom as follows:

- Facilities that have an RCOQ > 0:
 - order by price, from lowest to highest;
 - where tied on price, order by the time since last dispatch, from longest time to shortest time; and
 - where tied on the time since last dispatch, as randomly assigned by the IMO to break the tie;
- Facilities with an RCOQ of zero, according to price, time since last dispatch and random assignment (as above).

This approach would result in two Non-Balancing DMOs being generated for each Trading Interval for the Trading Day; one for decreases in consumption and one for increases. The current process results in four Non-Balancing DMOs being created each Trading Day (decreases and increases in consumption for both Peak Trading Intervals and Off-Peak Trading Intervals).

The requirement for System Management to provide dispatch data to the IMO, and subsequently the requirement for the IMO to release the Non-Balancing DMOs, will remain a daily occurrence. However, in order to improve fairness the IMO proposes to make amendments to the provision of dispatch data, specific to DSP's, from System Management to the IMO and change the timing of calculating and publishing the Non-Balancing DMOs.

These changes would require System Management to provide the IMO with a separate file detailing any dispatch of DSM in the previous 10 hours (8:00 AM to 6:00 PM). This data would be provided at 6:30 PM on the Scheduling Day for the previous 20 Trading Intervals. The IMO would then use this data to calculate the Non-Balancing DMOs for the Trading Day. The IMO would provide the Non-Balancing DMOs to System Management by 8:00PM on the Scheduling Day.

This amended approach would ensure that any Facility that was dispatched within the mandated availability requirements for DSM during the Scheduling Day is factored into the Non-Balancing DMOs for the Trading Day. In the very unique situation where System Management requires a DSP to provide capacity outside of the availability window for DSM, this would be on a "best endeavors" basis.

This new paradigm is illustrated in Figure 1 below:

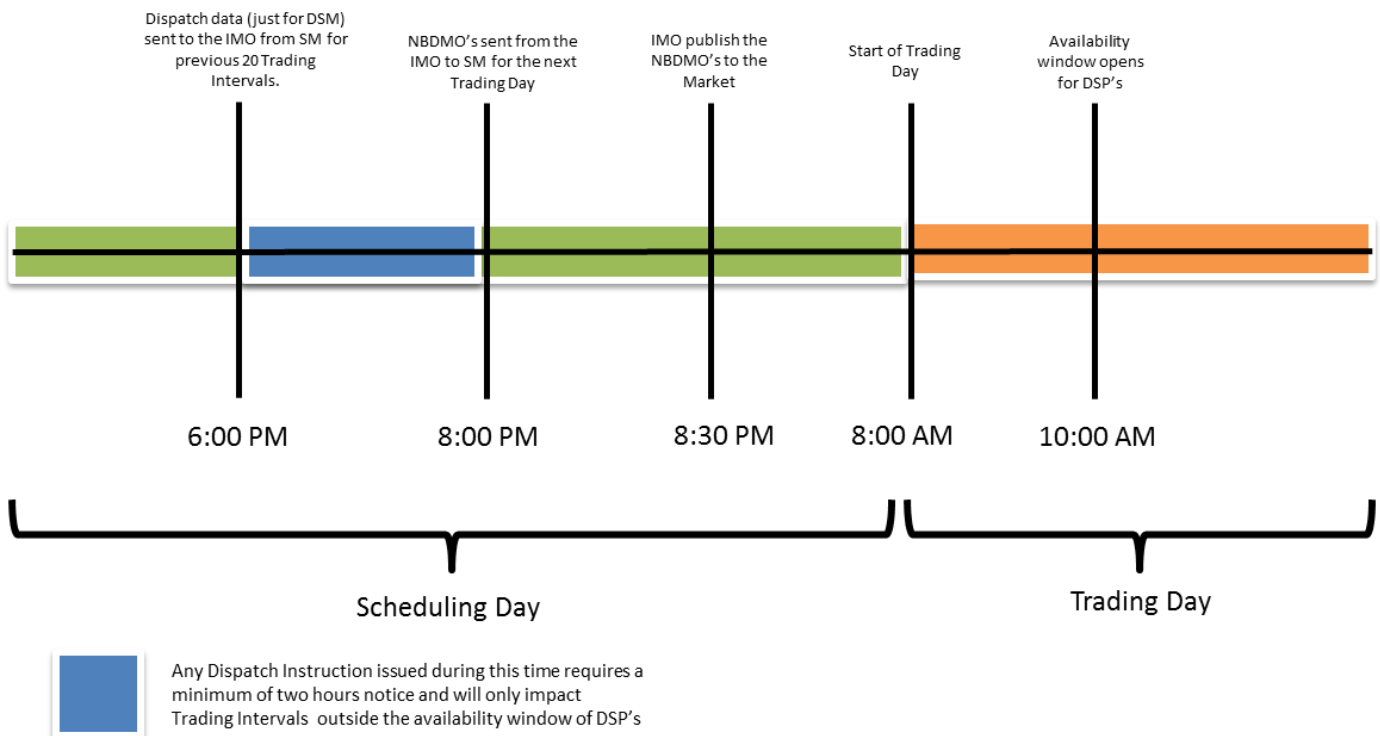


Figure 1: Timeframes for issuing the Non-Balancing Dispatch Merit Orders

Proposal

The IMO proposes to implement changes to the Market Rules so that Facilities in the Non-Balancing DMOs are ranked based on the time since last dispatch, rather than Facility size. This principle will be achieved by amending clause 6.12.1 and 7.7.4A.

The amendments to clause 6.12.1 will also ensure the Non-Balancing DMOs relegate a Facility with an RCOQ of zero below any Facility with a positive RCOQ. The approach will provide System Management with a more robust and “user friendly” Non-Balancing DMOs.

The IMO proposes to create clause 7.13.1D which will compel System Management to provide dispatch data to the IMO for the most recent 20 Trading Intervals at 6:30 PM on the Scheduling Day. This will also result in amendments to clause 7.5.1 to change the obligation on the IMO to provide the Non-Balancing DMOs to System Management by 8:00 PM on the Scheduling Day.

These changes are intended to take effect from year one of the 2014 Reserve Capacity Cycle, with all system and procedural changes in place by 1 October 2016.

Proposed Amending Rules

6.12.1.

- (a) By ~~8:00~~4:30 PM on the Scheduling Day (or within 40 minutes of a closing time extended in accordance with clause 6.5.1(b)) the IMO must determine the Non-Balancing Dispatch Merit Orders identified in clauses 6.12.1(b) ~~and~~ 6.12.1(ec) for the Trading Day. A Non-Balancing Dispatch Merit Order lists the order in which the Dispatchable Loads and Demand Side Programmes of Market Participants other than Verve Energy will be issued

Dispatch Instructions by System Management under clause 7.6.1C(d) to increase or decrease consumption, as applicable.

- (b) A Non-Balancing Dispatch Merit Order for a decrease in consumption relative to the quantities included in the applicable Resource Plan (or the current operating level of a Facility not included in a Resource Plan) ~~during Peak for a Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order must:~~
- i. ~~this Non-Balancing Dispatch Merit Order must list all Demand Side Programmes and Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(b)(i) in increasing order of the Consumption Decrease Price for Peak Trading Intervals as follows:~~
 1. Registered Facilities with a Reserve Capacity Obligation Quantity greater than zero in that Trading Interval ranked in increasing order of the Facility's Consumption Decrease Price applicable to that Trading Interval; followed by
 2. Registered Facilities with a Reserve Capacity Obligation Quantity of zero in that Trading Interval, ranked in increasing order of the Facility's Consumption Decrease Price applicable to that Trading Interval.
- (c) A Non-Balancing Dispatch Merit Order for an increase in consumption relative to the quantities included in the applicable Resource Plan ~~during Peak for a Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order must:~~
- i. ~~this Non-Balancing Dispatch Merit Order must list all Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(c)(i) in increasing order of the Facility's Consumption Increase Price for applicable to that Peak-Trading Intervals.~~
- (d) ~~A Non-Balancing Dispatch Merit Order for a decrease in consumption relative to quantities included in the applicable Resource Plan (or the current operating level of a Facility not included in a Resource Plan) during Off-Peak Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order:~~
- i. ~~this Non-Balancing Dispatch Merit Order must list all Demand Side Programmes and Dispatchable Loads registered by Market Participants other than Verve Energy; and~~

~~ii. this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(d)(i) in increasing order of the Consumption Decrease Price for Off-Peak Trading Intervals; [Blank]~~

(e) ~~A Non-Balancing Dispatch Merit Order for an increase in consumption relative to the quantities included in the applicable Resource Plan during Off-Peak Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order:~~

~~i. this Non-Balancing Dispatch Merit Order must list all Dispatchable Loads registered by Market Participants other than Verve Energy; and~~

~~ii. this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(e)(i) in increasing order of the Consumption Increase Price for Off-Peak Trading Intervals. [Blank]~~

(f) Where the prices described in Standing Data for two or more Registered Facilities are equal, then, for the purposes of determining the ranking in any Non-Balancing Dispatch Merit Order, the IMO must rank those Registered Facilities in decreasing order of the time since the Facility was last issued a Dispatch Instruction with a greater load registered in Standing Data in items (h)(iii) or (i)(iii) of Appendix 1 before a Registered Facility with a lesser load. In the event of a tie, the IMO will randomly assign priority to break the tie.

...

7.5.1. The IMO must provide System Management with the Non-Balancing Dispatch Merit Orders and Fuel Declarations for a Trading Day by 8:00:30 PM on the Scheduling Day.

...

7.7.4A. When selecting Non-Balancing Facilities from the Non-Balancing Dispatch Merit Order, System Management must select them in accordance with the Power System Operation Procedure. The selection process specified in the Power System Operation Procedure must:

(a) only discriminate between Non-Balancing Facilities based on ~~size of the capacity~~, response time and availability; and

(b) permit System Management to not curtail a Demand Side Programme when, due to limitations on the availability of the Demand Side Programme, such curtailment would prevent that Demand Side Programme from being available to System Management at a later time when it would have greater benefit with respect to maintaining Power System Security and Power System Reliability.

...

7.13.1D. System Management must provide to the IMO, by 6:30 PM on the Scheduling Day, a schedule detailing all of the Dispatch Instructions that System Management issued for each Trading Interval occurring in the period 8:00 AM to 6:00 PM during the Scheduling Day for:

- (a) any Demand Side Programme; and
- (b) any Dispatchable Load.

Issues 6 – Dispatch of DSPs outside nominated availability

Similar to issues four and five, the RCMWG members agreed that some DSPs may be able to provide availability outside their nominated availability limits. System Management currently is unable to dispatch DSP's outside of their availability limit pursuant to clause 7.6.10(b). In cases where additional capacity is needed, it seems prudent that System Management should have the ability to request a DSP to curtail consumption if it can.

The RCMWG members agreed that changes should be made to the Market Rules to enable DSP's to be dispatched in these circumstances on a "best efforts basis". This means that there will continue to be no capacity refunds for non-performance when a DSP's RCOQ is equal to zero.

Proposal

The IMO proposes to amend clause 7.6.10 to remove the restriction on System Management that prevents the dispatch of DSM due to Reserve Capacity Obligations.

The IMO intends to maintain the principle that a DSP is not subject to capacity refunds when its RCOQ is equal to zero, noting the changes discussed in issues four and five.

These changes are intended to take effect from year one of the 2014 Reserve Capacity Cycle, with all procedural changes in place by 1 October 2016.

Proposed Amending Rules

7.6.10. Where a Market Participant has Capacity Credits granted in respect of an Interruptible Load, Demand Side Programme or Dispatchable Load :

- ~~(a) —the IMO must provide System Management with the details of the Reserve Capacity Obligations to enable System Management to dispatch the Demand Side Programme; and~~
- ~~(b) —any Dispatch Instructions issued by System Management to the Demand Side Programme under clause 7.6.1C(d) must be in accordance with those Reserve Capacity Obligations.~~

Issue 7 – Relationship between Individual Reserve Capacity Requirement and Relevant Demand

The amount of Reserve Capacity that a DSP can provide is currently determined by its Relevant Demand (RD). The RD is the median value that the Associated Loads of a DSP consumed during the 32 Trading Intervals of highest demand in the preceding Hot Season, reflecting a normal operating level during the intervals when the DSP is most likely to be dispatched.

Under clause 4.26.2C(b)(iii), the RD for a DSP may be adjusted upward where one or more Associated Loads performed maintenance during these peak intervals. This differs from the calculation of the Individual Reserve Capacity Requirement (IRCR), for which there is no such adjustment. The IMO considers that the exclusion of maintenance periods from the calculation of RD coupled with its inclusion in IRCR provides a dual incentive for Associated Loads to perform maintenance during Trading Intervals that they assume will also be used in the calculation of IRCR intervals under Appendix 5 of the Market Rules.⁶

This reduction of consumption at times of system peak can result in the Associated Load having a RD (representing the upper limit on the Capacity Credits that it may sell to the market) that is greater than its IRCR (representing the Capacity Credits that it buys from the market). The IMO considers it inappropriate that a Load that is incapable of sending electricity into the SWIS can be a net seller of Capacity Credits to the market.

The RCMWG members agreed in February 2013⁷ to pursue an approach that reduced this incentive. The amendments focus on the principle that a DSP Load may not sell more capacity (through DSM) than it buys (through the IRCR). The IMO intends to limit the RD of a DSP without redefining the Trading Intervals used to calculate the RD or the IRCR.

The IMO proposes to calculate the RD of a DSP for a Trading Day as the lesser of:

- the historical consumption quantities of the 32 Trading Intervals identified under clause 4.26.2C(a) for the Capacity Year; and
- the sum of the IRCR contributions of each Associated Load that form a DSP.

Proposal

The IMO proposes to amend clause 4.26.2CA of the Market Rules to restrict a DSP from selling more capacity than it buys through IRCR.

The IMO also proposes to amend Appendix 5 and the Glossary to create a new defined term; Individual Reserve Capacity Requirement Contribution (IRCRC), which is the specific contribution of a Load rather than a Market Customer. This new defined term will enable the methodology proposed in Appendix 5 Step 11 to appropriately calculate the IRCR of each Associated Load.

These changes are proposed to commence prior to 1 October 2014 in order to affect year one of the 2014 Reserve Capacity Cycle. It should be noted that Market Participants have the ability to apply for a reduction of Capacity Credits under clauses 4.25.4A to 4.25.4F if the introduction of this rule change adversely affects their existing commitments.

Proposed Amending Rules

4.26.2CA. The Relevant Demand of a Demand Side Programme for a Trading Day *d* in a Capacity Year is the lesser of: ~~median of the historical consumption quantities determined by the IMO for each of the 32 Trading Intervals identified under clause 4.26.2C(a) for the Capacity Year. The historical consumption quantity for each Trading Interval is the sum, over all the Associated Loads associated with the Demand Side Programme during Trading Day *d*, of the MW quantity determined by~~

⁶ Note that the IRCR and RD intervals are likely to be similar intervals.

⁷ http://www.imowa.com.au/f5415,3854323/Minutes_Meeting_10_v5.0_FINAL.pdf

the IMO for each Associated Load and the Trading Interval under clause 4.26.2C(b).

- (a) the median of the historical consumption quantities determined by the IMO for each of the 32 Trading Intervals identified under clause 4.26.2C(a) for the Capacity Year. The historical consumption quantity for each Trading Interval is the sum, over all the Associated Loads associated with the Demand Side Programme during Trading Day d, of the MW quantity determined by the IMO for each Associated Load and the Trading Interval under clause 4.26.2C(b); or
- (b) the sum of Individual Reserve Capacity Requirement Contributions of the Associated Loads Demand Side Programmes.

Individual Reserve Capacity Requirement Contribution: Means the contribution of an Associated Load to Individual Reserve Capacity Requirement determined in accordance with Step 11 of Appendix 5.

Appendix 5: Individual Reserve Capacity Requirements

...

STEP 11: The contribution of an individual metered Load for Trading Month n of a Capacity Year is determined as follows:

- (a) for meter u at an existing connection point measuring Non-Temperature Dependent Load equals $(NTDL(u) \times NTDL_Ratio \times Total_Ratio)$;
- (b) for meter v at an existing connection point measuring Temperature Dependent Load equals $(TDL(v) \times TDL_Ratio \times Total_Ratio)$;
- (c) for meter u at a new connection point measuring Non-Temperature Dependent Load equals $(NMNTCR(u) \times Total_Ratio)$; and
- (d) for meter v at a new connection point measuring Temperature Dependent Load equals $(NMTDCR(v) \times Total_Ratio)$.

2. Explain the reason for the degree of urgency:

The IMO proposes to commence the Amending Rules set out in this Rule Change Proposal in order for them to apply for the 2014 Reserve Capacity Cycle. Market Participants should note:

- changes related to certification of Reserve Capacity are proposed to commence no later than 1 May 2014 in time for the opening of the window for applications for

Certified Reserve Capacity for the 2014 Reserve Capacity Cycle (issue 1 and 2);

- changes that impact the operation of DSPs are proposed to commence on 1 October 2016 (issues 2, 3, 4, 5 and 6); and
- changes discussed that relate to the IRCR and RD are proposed to commence no later than 1 October 2014 in order to affect year one of the 2014 Reserve Capacity Cycle (issue 7).

The IMO considers that these commencement dates will provide Market Participants adequate time for the necessary changes to IT and operational systems and processes.

As such, the IMO proposes to progress this Rule Change Proposal through the Standard Rule Change Process commencing in August 2013. This will allow adequate time to commence the amendments before the 2014 Reserve Capacity Cycle.

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).*

Issue 1 – Proposed Drafting

2.13.9. System Management must monitor Rule Participants for breaches of the following clauses:

- (a) [Blank]
- (b) clauses 3.4.6 and 3.4.8;
- (c) clauses 3.5.8 and 3.5.10;
- (d) clauses 3.6.5 and 3.6.6B;
- (e) clauses 3.16.4, 3.16.7, and 3.16.8A;
- (f) clauses 3.17.5 and 3.17.6;
- (g) clause 3.18.2(f);
- (gA) clauses 3.21A.2, 3.21A.12, and 3.21A.13(a);
- (gB) clauses 3.21B.1 and 3.21B.2;
- (h) ~~clause 4.10.2, where System Management is instructed by the IMO under clause 4.25.13~~[Blank];
- (hA) clause 7.2.5;
- (hB) clause 7.5.5;
- (i) clause 7.7.6(b);
- (j) clauses 7.10.1, 7.10.3 and 7.10.6A; and
- (k) clause 7.11.7.

...

4.10.1. Each Market Participant must ensure that information submitted to the IMO with an application for certification of Reserve Capacity pertains to the Reserve Capacity Cycle to which the certification relates, is supported by documented evidence and includes, where applicable, the following information:

...

(e) for a generation system other than an Intermittent Generator:

...

v. ~~subject to clause 4.10.2,~~ details of primary and any alternative fuels, including:

1. where the Facility has primary and alternative fuels:

i. the process for changing from one fuel to another; and

ii. the fuel or fuels which the Facility is to use in respect of the application for Certified Reserve Capacity; and

2. details acceptable to the IMO (acting reasonably) and supporting evidence of both firm and any non-firm fuel supplies and the factors that determine restrictions on fuel availability that could prevent the Facility operating at its full capacity;

...

~~4.10.2. For the purpose of clause 4.10.1(e)(v), an applicant may not claim that a Facility has an alternative fuel unless the Facility has on-site storage, or uninterrupted supply of that fuel, sufficient to maintain 12 hours of operation at the level of capacity specified in clause 4.10.1(e)(ii).~~

...

4.11.1. Subject to clauses 4.11.7 and 4.11.12, the IMO must apply the following principles in assigning a quantity of Certified Reserve Capacity to a Facility for the Reserve Capacity Cycle for which an application for Certified Reserve Capacity has been submitted in accordance with clause 4.10:

(a) subject to clause 4.11.2, the Certified Reserve Capacity for a Scheduled Generator for a Reserve Capacity Cycle must not exceed the IMO's reasonable expectation of the amount of capacity likely to be available, after netting off capacity required to serve Intermittent Loads, embedded loads and Parasitic Loads, ~~for Peak Trading Intervals on Business Days~~ in the period from:

i. the start of December for Reserve Capacity Cycles up to and including 2009; or

ii. the Trading Day starting on 1 October for Reserve Capacity Cycles from 2010 onwards,

in Year 3 of the Reserve Capacity Cycle to the end of July in Year 4 of the Reserve Capacity Cycle, assuming an ambient temperature of 41°C;

...

4.12.2. A Market Participant holding Capacity Credits must also comply with the following obligations:

- (a) the Market Participant must comply with the outage planning obligations specified in clauses 3.18, 3.19, 3.20 and 3.21;
- (b) the Market Participant must submit to tests of availability of capacity and inspections conducted in accordance with clause 4.25; and
- (c) the Market Participant must comply with Reserve Capacity performance monitoring obligations in accordance with clause 4.27; and
- ~~(d) the Market Participant must, in relation to each Facility assigned Certified Reserve Capacity on the basis of having an alternative fuel available, maintain adequate fuel for 12 hours of operation except on any Trading Day for which the IMO has waived this requirement in response to a Planned Outage or in the event of an extended Forced Outage.~~

...

4.25.1. The IMO must take steps to verify, in accordance with clause 4.25.2, that each Facility providing Capacity Credits can:

- (a) in the case of a generation system, during the term the Reserve Capacity Obligations apply, operate at a level equivalent to its Required Level, adjusted to the level of Capacity Credits currently held, at least once during each of the following periods and such level of operation during those periods must be achieved on each type of fuel available to that Facility notified under clause 4.10.1(e)(v)(1)(ii):
 - i. 1 October to 31 March; and
 - ii. 1 April to 30 September; and

...

~~4.25.13. The IMO must monitor at all times the on-site fuel storage of each Scheduled Generator required to comply with clause 4.10.2. The IMO may:~~

- ~~(a) require the relevant Market Participant to submit a weekly report of the current fuel level;~~
- ~~(b) have a representative of the IMO conduct an on-site inspection to verify the fuel storage level; and~~
- ~~(c) instruct System Management to use its SCADA systems to monitor the fuel storage level and to report any failure of any Market Participant to comply with clause 4.10.2 to the IMO.~~

Issue 2 – Proposed Drafting

2.29.9A. The IMO must not register a Demand Side Programme where the minimum notice period required for dispatch exceeds ~~two~~four hours as specified in Standing Data.

...

4.5.12. For the second and third Capacity Years of the Long Term PASA Study Horizon, the IMO must determine the following information:

- (a) ~~the forecast capacity, in MW, required for more than 24 hours per year, 48 hours per year and 72 hours per year, determined from the Availability Curve for the Capacity Year developed under clause 4.5.10!; [Blank]~~
- (b) the minimum capacity required to be provided by ~~generation~~Availability Class 1 capacity if Power System Security and Power System Reliability is to be maintained. This minimum capacity is to be set at a level such that if:

- i ~~all Demand Side Management~~Availability Class 2 capacity (excluding Interruptible Load used to provide Spinning Reserve to the extent that it is anticipated to provide Certified Reserve Capacity), were activated during the Capacity Year so as to minimise the peak demand during that Capacity Year; and
- ii the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11 were to be applied to the load scenario defined by clause 4.5.12(b)(i), then

it would be possible to satisfy the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11, as applied in clause 4.5.12(b)(ii), using, to the extent that the capacity is anticipated to provide Certified Reserve Capacity, the anticipated installed ~~generating~~Availability Class 1 capacity, the anticipated Interruptible Load capacity available as Spinning Reserve and, to the extent that further ~~generation~~Availability Class 1 capacity would be required, an appropriate mix of ~~generation~~Availability Class 1 capacity to make up that shortfall; and

- (c) the capacity associated with ~~each~~Availability Class 2, where this is equal to the Reserve Capacity Target for the Capacity Year less the minimum capacity required to be provided by Availability Class 1 capacity under clause 4.5.12(b).:-

- i. ~~the capacity quantity associated with Availability Class 4 is the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and the quantity specified under clause 4.5.12(a) as being required for more than 24 hours per year;~~
- ii. ~~the capacity quantity associated with Availability Class 3 is:~~
1. ~~the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and~~

- ~~the quantity specified under clause 4.5.12(a) as being required for more than 48 hours per year; less~~
- ~~2. the capacity quantity associated with Availability Class 4;~~
- ~~iii. the capacity quantity associated with Availability Class 2 is:~~
 - ~~1. the Reserve Capacity Target for the Capacity Year less the greater of the quantity specified under clause 4.5.12(b) and the quantity specified under clause 4.5.12(a) as being required for more than 72 hours per year; less~~
 - ~~2. the sum of the capacity quantities associated with each of Availability Class 3 and Availability Class 4;~~
- ~~iv. the capacity quantity associated with Availability Class 1 is:~~
 - ~~1. the Reserve Capacity Target for the Capacity Year; less~~
 - ~~2. the sum of the capacity quantities associated with each of Availability Class 2, Availability Class 3 and Availability Class 4.~~

...

4.10.1. Each Market Participant must ensure that information submitted to the IMO with an application for certification of Reserve Capacity pertains to the Reserve Capacity Cycle to which the certification relates, is supported by documented evidence and includes, where applicable, the following information:

- (f) for Interruptible Loads, Demand Side Programmes and Dispatchable Loads:
 - i. the Reserve Capacity the Market Participant expects to make available from each of up to 3 blocks of capacity;
 - ii. ~~the maximum number of hours per year the Interruptible Load, Demand Side Programme or Dispatchable Load is available to provide Reserve Capacity, where this must be at least 24 hours; [Blank];~~
 - iii. the maximum number of hours per day that the Interruptible Load, Demand Side Programme or Dispatchable Load is available to provide Reserve Capacity if issued a Dispatch Instruction called, where this must be:
 - ~~1. not less than four six hours; and~~
 - ~~2. not more than the maximum of the periods specified in clause 4.10.1(f)(vi);~~
 - iv. ~~the maximum number of times the Interruptible Load, Demand Side Programme or Dispatchable Load can be called to provide Reserve Capacity during a 12 month period, where this must be at least six times; [Blank];~~

- v. the minimum notice period required for dispatch of the Interruptible Load, Demand Side Programme or Dispatchable Load, where this must not be more than ~~4~~two hours; and
- vi. the periods when the Interruptible Load, Demand Side Programme or Dispatchable Load can be dispatched, which must include the period between ~~noon~~ 10:00 AM and 8:00 PM on all Business Days;

...

4.11.4. Subject to clause 4.11.12, when assigning Certified Reserve Capacity to an Interruptible Load, Demand Side Programme or Dispatchable Load, the IMO must ~~indicate what assign the Availability Class to apply is applicable~~ to that Certified Reserve Capacity as follows: ~~where this Availability Class must~~

(a) ~~_____ reflect the maximum number of hours per year that the capacity will be available and must not be Availability Class 1 where the IMO reasonably expects the Facility to be available to be dispatched for all Trading Intervals in a Capacity Year, allowing for Outages and any restrictions on the availability specified by the applicant under clause 4.10.1(g); or~~

(b) _____ Availability Class 2 otherwise.

...

4.12.4. Subject to clause 4.12.5, where the IMO establishes the initial Reserve Capacity Obligation Quantity to apply for a Facility for a Trading Interval:

...

- (c) for Interruptible Loads, Demand Side Programmes and Dispatchable Loads, except where otherwise precluded by this clause 4.12.4, the Reserve Capacity Obligation Quantity:
 - i. ~~will equal zero once the capacity has been dispatched under clause 7.6.1C(d) for the number of hours per year that are specified under clause 4.10.1(f)(ii); [Blank]~~
 - ii. will equal zero for the remainder of a Trading Day in which the capacity has been dispatched under clause 7.6.1C(d) for the number of hours per day that are specified under clause 4.10.1(f)(iii);
 - iii. ~~will equal zero once the capacity has been dispatched under clause 7.6.1C(d) for the maximum number of times per year specified under clause 4.10.1(f)(iv); [Blank]~~
 - iv. must account for staffing and other restrictions on the ability of the Facility to curtail energy upon request; and
 - v. will equal zero for Trading Intervals which fall outside of the periods specified in clause 4.10.1(f)(vi).

...

4.26.3A. The Demand Side Programme Capacity Cost Refund for Trading Month m for a Demand Side Programme is equal to the lesser of:

(a) twelve times the Monthly Reserve Capacity Price for Trading Month m multiplied by the number of Capacity Credits associated with the Facility, less all Demand Side Programme Capacity Cost Refunds applicable to the Facility in previous Trading Months falling in the same Capacity Year as Trading Month m; and

(b) the sum of:

i. the sum over all Trading Intervals t in Trading Month m of:

$$\frac{12 * \text{Monthly Reserve Capacity Price} * S}{(2 * H)}$$
$$\underline{(24 / H) * \text{TIRR} * S}$$

Where:

S is the Capacity Shortfall in MW determined in accordance with clause 4.26.2D in any Trading Interval; ~~and~~

H is the maximum number of hours per Trading Day that the Facility is available to provide Reserve Capacity that the Facility was certified to be available in accordance with clause 4.10.1(f)(iii); and

TIRR is the Off-Peak Trading Interval Rate or Peak Trading Interval Rate applicable to Trading Interval t; and

ii. the Facility Reserve Capacity Deficit Refund for Trading Month m for the Facility, ~~determined in accordance with clause 4.26.1A.~~

...

7.7.10. When System Management has issued a Dispatch Instruction or an Operating Instruction to a Demand Side Programme to decrease its consumption, System Management may issue a further instruction terminating the requirement for the Demand Side Programme to decrease its consumption providing that:

(a) ~~the further instruction is issued at least four~~two hours before it is to come into effect; ~~and~~

(b) ~~the minimum period for which the Demand Side Programme is instructed to decrease its consumption is not less than two hours.~~

...

7.11. Dispatch Advisories

7.11.1. A Dispatch Advisory is a communication by System Management to Market Participants, Network Operators and the IMO that there has been, or is likely to be, an event that will require the dispatch of Demand Side Programmes, of Facilities

Out of Merit or will restrict communication between System Management and any of the Market Participants, Network Operators, or the IMO.

...

- 7.11.5. System Management must release a Dispatch Advisory in the event of, or in anticipation of situations where:
- (a) involuntary load shedding is occurring or expected to occur;
 - (b) committed generation at minimum loading is, or is expected to, exceed forecast load;
 - (c) Ancillary Service Requirements will not be fully met;
 - (d) significant outages of generation transmission or customer equipment are occurring or expected to occur;
 - (e) fuel supply on the Trading Day is significantly more restricted than usual, or if fuel supply limitations mean it is not possible for some Market Participants to supply in accordance with their Resource Plans;
 - (f) scheduling or communication systems required for the normal conduct of the scheduling and dispatch process are, or are expected to be, unavailable;
 - (g) System Management expects to issue a Dispatch Instruction Out of Merit including, for the purpose of this clause, issuing a Dispatch Order to the Verve Energy Balancing Portfolio in accordance with clause 7.6.2, which will result in Out of Merit dispatch of the Verve Balancing Portfolio;
 - (h) System Management expects to use LFAS Facilities other than in accordance with the LFAS Merit Order under clause 7B.3.8; or
 - (i) the system is in, or is expected to be in, a High Risk Operating State or an Emergency Operating State; or
 - (j) System Management expects to issue a Dispatch Instruction to a Demand Side Programme within the next 24 hours.

...

Availability Class: Means either Availability Class 1 or Availability Class 2 or both, as applicable. Any one of 4 classes of annual availability of Reserve Capacity set out in clause 4.5.12(c), where each class corresponds to Reserve Capacity being available from a Facility for not more than a specified number of hours per year.

Availability Class 1: means the Availability Class assigned by the IMO to Certified Reserve Capacity under clause 4.11.4(a).

Availability Class 2: means the Availability Class assigned by the IMO to Certified Reserve Capacity under clause 4.11.4(b).

Non-Balancing Dispatch Merit Order: An ordered list of ~~Scheduled Generators~~, Demand Side Programmes and Dispatchable Loads registered by Market Participants, other than Verve Energy, determined by the IMO in accordance with clause 6.12.1.

Off-Peak Trading Interval Rate: means the rate determined for the applicable Off-Peak Trading Interval under the Refund Table.

Peak Trading Interval Rate: means the rate determined for the applicable Peak Trading Interval under the Refund Table.

Refund Table: The table titled “Refund Table” and set out in Chapter 4 clause 4.26.1.

Appendix 1: Standing Data

This Appendix describes the Standing Data to be maintained by the IMO for use by the IMO in market processes and by System Management in dispatch processes.

Standing Data required to be provided as a pre-condition of Facility Registration and which Rule Participants are to update as necessary, is described in clauses (a) to (i).

Standing Data not required to be provided as a pre-condition of Facility Registration but which the IMO is required to maintain, and which Rule Participants are to update as necessary, includes the data described in clauses (j) to (m).

...

- (h) for a Demand Side Programme:
 - i. [Blank]
 - ii. evidence that the communication and control systems required by clause 2.35 are in place and operational;
 - iii. the maximum amount of load that can be curtailed;
 - iv. the maximum duration of any single curtailment;
 - v. [Blank]
 - vi. for a Demand Side Programme that is registered to a Market Participant other than Verve Energy, data comprising:
 - 1. a Consumption Decrease Price for Peak Trading Intervals; and
 - 2. a Consumption Decrease Price for Off-Peak Trading Intervals,where these prices must be expressed in units of \$/MWh to a precision of \$0.01/MWh;
 - vii. the minimum response time before the Demand Side Programme can begin to respond to an instruction from System Management to change its output;

- viii. ~~the maximum number of hours per year the Demand Side Programme can be curtailed; [Blank]~~
- ix. the Trading Intervals where the Demand Side Programme can be curtailed;
- x. any restrictions on the availability of the Demand Side Programme;
- xi. the normal ramp up and ramp down rates as a function of output level, if applicable; and
- xii. emergency ramp up and ramp down rates, if applicable; and
- xiii. ~~the maximum number of times that the Demand Side Programme can be curtailed during the term of its Capacity Credits.~~

Appendix 3: Reserve Capacity Auction & Trade Methodology

This appendix describes a single algorithm which performs two functions. One version of the algorithm is used to prevent the IMO accepting bilateral trades that have insufficient availability to usefully address the Reserve Capacity Requirement. Another version of the algorithm is used in the conduct of the Reserve Capacity Auction as required by clause 4.19.1.

The parameter “a” denotes the active Availability Class where “a” can have a value of {1, or 2, ~~3, 4~~}. Availability Class 1 has the highest availability requirement, followed by Availability Class 2, ~~Availability Class 3 and then Availability Class 4~~. All Certified Reserve Capacity is assigned an Availability Class. However the algorithms in this appendix allow capacity from ~~an Availability Class with higher availability~~1 to be used in place of capacity from ~~an Availability Class with lower availability~~2. ~~For example, a~~Any capacity accepted from Availability Class 1 that is in excess of the capacity requirement for Availability Class 1 will be available to meet the capacity requirement for Availability Class 2.

~~All Certified Reserve Capacity associated with Interruptible Loads, Demand Side Programmes or Dispatchable Loads is assigned an Availability Class according to the following table, where “Hours of Availability” is the maximum number of hours of availability per year specified for the relevant Facility under clause 4.10.1(f)(ii).~~

Hours of Availability	Availability Class (i.e. value of “a”)
≥ 72	2
≥ 48 and < 72	3
≥ 24 and < 48	4

~~All other Certified Reserve Capacity is automatically in Availability Class 1.~~

The following algorithm applies for both the testing of bilateral trades and for the auction. Terminology that differs in each case is

- “offers”
 - For the testing of bilateral trades the “offer” is a proposed bilateral transaction (as specified in clause 4.14.1 for each Facility or block).
 - For an auction an “offer” is a “Reserve Capacity Offer”.
- the capacity requirements of Availability Class “a”
 - For the testing of bilateral trades, for Availability Class $a = 1$ this is the greater of zero and $Q[a] - X[a]$ while for Availability Classes $a = 2, 3$ or 4 , this is the greater of zero and $(Q[a] - X[a] - Y[a-1])$ where

$Q[a]$ is the quantity associated with Availability Class “a” in clause 4.5.12(b) or clause 4.5.12(c).

$X[a]$ is the total quantity of

 - i Certified Reserve Capacity to be provided by Facilities subject to Network Control Service Contracts and by Facilities under Long Term Special Price Arrangements during the period to which the Reserve Capacity Requirement applies; plus
 - ii the amount of Capacity Credits assigned under clause 4.28C for the period to which the Reserve Capacity Requirement applies

where the capacity is certified as belonging to Availability Class “a” and is not subject to a bilateral trade.

$Y[a]$ represents the amount by which $(X[a] + Y[a-1])$ exceeds $Q[a]$, with the exception that $Y[0] = 0$.
 - For an auction this is the same as the capacity requirement for the case of bilateral trades except that it is reduced by the amount of capacity accepted as a bilateral trade.

The algorithm is as follows:

Step 1: Start with $a = 1$

Step 2: Let the set of active offers comprise all offers from Availability Class “a”.

Step 2A: In the case of bilateral trade offers, accept offers from operating facilities and committed facilities and remove them from the set of active offers.

Step 3: Accept offers from the set of active offers in order of

- In the case of testing bilateral schedules, decreasing availability.
- In the case of the Reserve Capacity Auction, increasing price

until the capacity requirements of Availability Class “a” are fully covered or until there are no offers left unaccepted in the set of active offers.

Where two or more offers are tied with respect to the selection criteria such that accepting all but one of them would result in the total capacity selected exceeding the total capacity requirement of the Availability Class then the tied offers are to be accepted according to the following rules until the tie is resolved.

- In the case of the Reserve Capacity Auction, offers from operating facilities and committed facilities are to be accepted ahead of facilities that are not yet committed; then
- Offers are to be accepted in decreasing order of capacity offered; then
- Offers for capacity that was included in an Expression of Interest are to be accepted ahead of capacity that was not; then
- Offers are to be accepted in the order of the time the offers were received, with the earlier offer being taken first; and then
- Offers are to be accepted in the order the capacity secured Certified Reserve Capacity;

Step 4: If all offers in the set of active offers have been accepted but the capacity requirements of Availability Class “a” have not been covered, then record the difference as the capacity shortfall for Availability Class “a”.

Step 5: Remove all offers accepted in Step 3 from the set of active offers.

Step 6: If $a = 42$ then go to Step 8A otherwise increase a by 1.

Step 7: Add all offers from Availability Class “a” to the set of active offers.

Step 8: Return to Step 2A.

Step 8A: In the case of the auction only:

- The Reserve Capacity Price must equal the price of the highest priced offer accepted; and
- In the special case where the Reserve Capacity Price is zero and there are offers with a price of zero that have not been accepted, then accept those offers with zero price.

Step 9: Report the offers accepted

Step 10: For each Availability Class report the capacity shortfall:

- In the case of testing bilateral schedules, this indicates the amount to be procured in the auction.
- In the case of the Reserve Capacity Auction, this indicates the amount to be procured through supplementary capacity.

Step 11: End.

In the case of the auction only:

- While leaving the Reserve Capacity Price unchanged, the IMO must exchange one or more offers not accepted for one or more offers accepted in the auction if
 - the total capacity scheduled in the auction exceeds the Reserve Capacity Auction Requirement by more than 100 MW;
 - the Reserve Capacity Price exceeds zero,
 - the exchange produces the maximum possible reduction in the total value of offers accepted;
 - the exchange does not create an overall Reserve Capacity shortfall where none existed;
 - in the event that a capacity shortfall exists in one or more Availability Classes, the exchange will not shift a shortfall from an Availability Class with low availability to an Availability Class with high availability; and
 - this would not result in an existing facility, or a committed facility being excluded.

Issue 3 – Proposed Drafting

2.35.3A. System Management must develop, in the Power System Operation Procedure, a reasonable method of communication that Market Participants with Demand Side Programmes must use when communicating with System Management under the Market Rules.

2.35.3B Market Participants with Demand Side Programmes must:

- (a) have and maintain systems to enable them to use the method of communication referred to in clause 2.35.3A; and
- (b) use that method when communicating with System Management under the Market Rules.

2.35.3C. As close as reasonably possible to five minutes prior to the start of a Trading Interval a Market Participant with a Demand Side Programme must provide System Management with the following data:

- (a) the then current consumption, in MW, of the Demand Side Programme; and
- (b) the then current consumption, in MW, of each Associated Load within the Demand Side Programme.

in the form specified in the Power System Operation Procedure.

...

7.10.4. System Management must monitor the behaviour of Market Participants with

Registered Facilities to assess whether they are complying with clause 7.10.1 in accordance with its Monitoring and Reporting Protocol, ~~except where it relates to a Demand Side Programme.~~

Issue 4 – Proposed Drafting

~~4.12.8. Where a Demand Side Programme is dispatched under clause 7.6.1C(d) to a level equal to its Reserve Capacity Obligation Quantity on two consecutive days the Reserve Capacity Obligation Quantity for the third consecutive day will be zero.~~

Issue 5 – Proposed Drafting

6.12.1.

- (a) By ~~8:00~~4:30 PM on the Scheduling Day (or within 40 minutes of a closing time extended in accordance with clause 6.5.1(b)) the IMO must determine the Non-Balancing Dispatch Merit Orders identified in clauses 6.12.1(b) ~~and~~ 6.12.1(ec) for the Trading Day. A Non-Balancing Dispatch Merit Order lists the order in which the Dispatchable Loads and Demand Side Programmes of Market Participants other than Verve Energy will be issued Dispatch Instructions by System Management under clause 7.6.1C(d) to increase or decrease consumption, as applicable.
- (b) A Non-Balancing Dispatch Merit Order for a decrease in consumption relative to the quantities included in the applicable Resource Plan (or the current operating level of a Facility not included in a Resource Plan) ~~during Peak for a Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order must:~~
 - i. ~~this Non-Balancing Dispatch Merit Order must list all Demand Side Programmes and Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(b)(i) in increasing order of the Consumption Decrease Price for Peak Trading Intervals, as follows:~~
 - 1. Registered Facilities with a Reserve Capacity Obligation Quantity greater than zero in that Trading Interval ranked in increasing order of the Facility's Consumption Decrease Price applicable to that Trading Interval; followed by
 - 2. Registered Facilities with a Reserve Capacity Obligation Quantity of zero in that Trading Interval, ranked in increasing order of the Facility's Consumption Decrease Price applicable to that Trading Interval.
- (c) A Non-Balancing Dispatch Merit Order for an increase in consumption relative to the quantities included in the applicable Resource Plan ~~during Peak for a Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order must:~~

- i. ~~this Non-Balancing Dispatch Merit Order must list all Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(c)(i) in increasing order of the Facility's Consumption Increase Price for applicable to that Peak Trading Intervals.~~
- (d) ~~A Non-Balancing Dispatch Merit Order for a decrease in consumption relative to quantities included in the applicable Resource Plan (or the current operating level of a Facility not included in a Resource Plan) during Off-Peak Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order:~~
 - i. ~~this Non-Balancing Dispatch Merit Order must list all Demand Side Programmes and Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(d)(i) in increasing order of the Consumption Decrease Price for Off-Peak Trading Intervals; [Blank]~~
- (e) ~~A Non-Balancing Dispatch Merit Order for an increase in consumption relative to the quantities included in the applicable Resource Plan during Off-Peak Trading Intervals. The IMO must take into account the following principles when determining this Non-Balancing Dispatch Merit Order:~~
 - i. ~~this Non-Balancing Dispatch Merit Order must list all Dispatchable Loads registered by Market Participants other than Verve Energy; and~~
 - ii. ~~this Non-Balancing Dispatch Merit Order must be determined by ranking the Registered Facilities referred to in clause 6.12.1(e)(i) in increasing order of the Consumption Increase Price for Off-Peak Trading Intervals. [Blank]~~
- (f) Where the prices described in Standing Data for two or more Registered Facilities are equal, then, for the purposes of determining the ranking in any Non-Balancing Dispatch Merit Order, the IMO must rank those a Registered Facilityies in decreasing order of the time since the Facility was last issued a Dispatch Instruction with a greater load registered in Standing Data in items (h)(iii) or (i)(iii) of Appendix 1 before a Registered Facility with a lesser load. In the event of a tie, the IMO will randomly assign priority to break the tie.

...

7.5.1. The IMO must provide System Management with the Non-Balancing Dispatch Merit Orders and Fuel Declarations for a Trading Day by ~~8:00~~ 30 PM on the Scheduling Day.

...

7.7.4A. When selecting Non-Balancing Facilities from the Non-Balancing Dispatch Merit Order, System Management must select them in accordance with the Power System Operation Procedure. The selection process specified in the Power System Operation Procedure must:

- (a) only discriminate between Non-Balancing Facilities based on ~~size of the capacity~~, response time and availability; and
- (b) permit System Management to not curtail a Demand Side Programme when, due to limitations on the availability of the Demand Side Programme, such curtailment would prevent that Demand Side Programme from being available to System Management at a later time when it would have greater benefit with respect to maintaining Power System Security and Power System Reliability.

...

7.13.1D. System Management must provide to the IMO, by 6:30 PM on the Scheduling Day, a schedule detailing all of the Dispatch Instructions that System Management issued for each Trading Interval occurring in the period 8:00 AM to 6:00 PM during the Scheduling Day for:

(a) any Demand Side Programme; and

(b) any Dispatchable Load.

Issue 6 – Proposed Drafting

7.6.10. Where a Market Participant has Capacity Credits granted in respect of an Interruptible Load, Demand Side Programme or Dispatchable Load :

(a) ~~the IMO must provide System Management with the details of the Reserve Capacity Obligations to enable System Management to dispatch the Demand Side Programme; and~~

(b) ~~any Dispatch Instructions issued by System Management to the Demand Side Programme under clause 7.6.1C(d) must be in accordance with those Reserve Capacity Obligations.~~

Issue 7 – Proposed Drafting

4.26.2CA. The Relevant Demand of a Demand Side Programme for a Trading Day d in a Capacity Year is the lesser of: ~~median of the historical consumption quantities determined by the IMO for each of the 32 Trading Intervals identified under clause 4.26.2C(a) for the Capacity Year. The historical consumption quantity for each Trading Interval is the sum, over all the Associated Loads associated with the~~

~~Demand Side Programme during Trading Day d, of the MW quantity determined by the IMO for each Associated Load and the Trading Interval under clause 4.26.2C(b).~~

(a) the median of the historical consumption quantities determined by the IMO for each of the 32 Trading Intervals identified under clause 4.26.2C(a) for the Capacity Year. The historical consumption quantity for each Trading Interval is the sum, over all the Associated Loads associated with the Demand Side Programme during Trading Day d, of the MW quantity determined by the IMO for each Associated Load and the Trading Interval under clause 4.26.2C(b); or

(b) the sum of Individual Reserve Capacity Requirement Contributions of the Associated Loads Demand Side Programmes.

Individual Reserve Capacity Requirement Contribution: Means the contribution of an Associated Load to Individual Reserve Capacity Requirement determined in accordance with Step 11 of Appendix 5.

Appendix 5: Individual Reserve Capacity Requirements

...

STEP 11: The contribution of an individual metered Load for Trading Month n of a Capacity Year is determined as follows:

- (a) for meter u at an existing connection point measuring Non-Temperature Dependent Load equals $(NTDL(u) \times NTDL_Ratio \times Total_Ratio)$;
- (b) for meter v at an existing connection point measuring Temperature Dependent Load equals $(TDL(v) \times TDL_Ratio \times Total_Ratio)$;
- (c) for meter u at a new connection point measuring Non-Temperature Dependent Load equals $(NMNTCR(u) \times Total_Ratio)$; and
- (d) for meter v at a new connection point measuring Temperature Dependent Load equals $(NMTDCR(v) \times Total_Ratio)$.

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

The IMO proposes that the key issues identified in this Rule Change Proposal better achieve Wholesale Market Objectives (a), (c) and (e) and are consistent with Wholesale Market Objectives (b) and (d).

(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 key deliverable of any demand-side service is to provide an alternative to generated capacity. Through the harmonisation of the availability of supply-side and demand-side capacity the IMO contends that the provision of capacity would be more economically efficient and provide greater reliability to the market. Additionally, it is economically prudent to ensure capacity that is paid for by consumers is available for use.

Having more flexibility in the use of DSPs will give System Management the ability to dispatch DSM as the network requires it, without onerous restrictions. With greater visibility of DSM by System Management, the operation and dispatch of the service becomes more efficient and cost effective in the long-term.

(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.

The current Market Rules arguably discriminate between Market Participants who provide demand-side and supply-side capacity. The key principle behind this Rule Change Proposal is to harmonise the treatment of the capacity provided by peaking generators and DSPs which provide similar capacity services to the market.

(e) To encourage the taking of measures to manage the amount of electricity used and when it is used.

Through changing the obligations on demand-side resources within the market the IMO intends to enable greater reliability and versatility in the use of DSPs. Through fundamental changes to the way the Non-Balancing DMO is calculated and the way Facilities are dispatched, the IMO is ensuring capacity is appropriately managed. Increasing dispatch hours and events will also give System Management more flexibility in the way in which demand-side capacity is used and when it is used.

Having a greater understanding on the amount of DSM available to the market, coupled with the changes in the availability requirements of DSPs, the IMO contends the rule changes suggested in this Rule Change Proposal better achieve Wholesale Market Objective (e).

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

Costs:

The proposed changes detailed in this Rule Change Proposal have implications for System Management, Market Participants and the IMO. It is expected that that the associated costs will be material. Tentative costs associated with the changes discussed in this Rule Change Proposal, as the Amending Rules are currently drafted, are as follows:

- IT and operational costs to the IMO of approximately \$130,000 to \$160,000;
- costs to System Management of approximately \$200,000 to \$400,000, primarily associated with the real-time data requirements (discussed in issue three); and
- costs to individual Market Participants of approximately \$100,000 to \$200,000, primarily associated with the real-time data requirements (discussed in issue three).

The estimated costs above are based on initial consultation with System Management.

Benefits:

- greater achievement of Wholesale Market Objectives (a), (c) and (e);
- consistency with Wholesale Market Objectives (b) and (d); and
- improved reliability and transparency of DSM within the WEM.

Appendix 1. Reliability Assessment by PA Consulting

Subject RELIABILITY ASSESSMENT 2013 - EXTENSION

To Greg Ruthven
Manager, System Capacity
Independent Market Operator
PO Box 7096
PERTH WA 6850
Australia

From Sue Paul

Date 1 July 2013

This memo presents the results from our extension to the 2013 Availability Curve Analysis. For this extension, the IMO asked us to assess the impact of proposed changes to the availability requirements imposed on Demand Side Management (DSM) facilities on the Availability Curve.

This report contains the following:

- We first summarise the context in which the IMO has requested this additional analysis;
- We then briefly summarize our methodology and assumptions; and
- Finally we present our results.

Context and background

The Availability Curve is defined by Market Rule (MR) 4.5.12 and is a means of assessing the manner in which the Reserve Capacity Target should be split into generation capacity vis-à-vis DSM capacity taking into account the hourly forecast capacity requirement (as defined by MR 4.5.12(a) and MR 4.5.10(e)).

Of particular importance to this assessment is MR 4.5.12(b) that defines the Minimum Generation Capacity (to be used in the development of the Availability Curve) as:

“The minimum capacity required to be provided by generation capacity if Power System Security and Power System Reliability is to be maintained. This minimum capacity is to be set at a level such that if:

- all Demand Side Management capacity (excluding Interruptible Load used to provide Spinning Reserve to the extent that it is anticipated to provide Certified Reserve Capacity), were activated during the Capacity Year so as to minimise the peak demand during that year; and*

- ii. *the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11 were to be applied to the load scenario defined by clause 4.5.12(b)(i), then*

it would be possible to satisfy the Planning Criterion and the criteria for evaluating Outage Plans set out in clause 3.18.11, as applied in clause 4.5.12(b)(ii), using, to the extent that the capacity is anticipated to provide Certified Reserve Capacity, the anticipated installed generating capacity, the anticipated Interruptible Load capacity available as Spinning Reserve and, to the extent that further generation capacity would be required, an appropriate mix of generation capacity to make up that shortfall.”

Hence, the Minimum Generation Capacity should be set at a level that ensures once all DSM facilities have been dispatched to their maximum capability (subject to various availability requirements), there should be enough generation capacity to satisfy both the Planning Criterion (as defined by MR 4.5.9) and System Management’s outage evaluation criteria as set by MR 3.18.11(a).

Clearly, the level of minimum generation capacity required will depend on the extent to which DSM facilities are available (i.e. the more restrictive the constraints around DSM availability, the more generation capacity will be required). Currently, there are a number of restrictions around the availability of DSM facilities, such as:

- Maximum number of hours per year and per day that a DSM facility can be called upon;
- Maximum number of calls per year;
- Maximum dispatch duration; and
- Unavailability during non-business days for some DSM facilities.

In 2013 the Reserve Capacity Mechanism Working Group (RCMWG) proposed changes to increase the availability of DSM facilities. It is in this context that the IMO is developing a Rule Change Proposal. As part of this Rule Change Proposal, the IMO has requested PA to assess the impacts of increased DSM availability on the Availability Curve; in particular, modelling what the anticipated change to the Minimum Generation Capacity quantity contemplated by MR 4.5.12(b) would be.

Methodology and assumptions

Since 2012, PA has carried out the Reliability Assessment and development of the Availability Curve as an input to the Statement of Opportunities.

The methodology and assumptions that we use to develop the Availability Curve is detailed in full in the reports that we submit to the IMO as part of the analysis above.

Here, we briefly summarize the general approach used to estimate the Minimum Generation Capacity prescribed by MR 4.5.12(b).

- We first allocate DSM throughout the year using an optimisation model, which given the forecasted hourly load, dispatches DSM facilities so as to minimise the forecasted peak demand subject to the DSM's availability and dispatch constraints. The model performs the dispatch using a heuristic allocation method.
- We then adjust the forecasted load duration curves (LDC) used in the market modeling by subtracting the forecasted DSM dispatch in the relevant hours from the

forecasted hourly load. This adjusted LDC represents the hourly "effective demand" net of DSM capacity.

- We then input the above LDC into our Western Australian electricity market model (additionally specifying a reserve requirement of 515 MW to represent the Ancillary Services Requirement contemplated by MR 3.18.11(a)).
- The electricity market model is simulated iteratively (using Monte Carlo techniques and varying the maximum quantity of DSM allowable) until the Expected Unserved Energy (EUE) criterion in MR 4.5.9(b) (0.002% of expected annual demand) is violated.
- The Minimum Generation Capacity is set by the level of generation capacity at which the EUE equals 0.002% of annual expected demand.

Assumptions

The Rule Change Proposal involves reducing the number of Availability Classes from four to two as follows:

- Availability Class 1 would include facilities that are available 24 hours per day, all days of the year (subject to Planned Outages).
- Availability Class 2 would DSM facilities with availability that is less than Availability Class 1, but at least equal to the minimum requirements of:
 - 10am-8pm on all Business Days;
 - Maximum dispatch duration of 6 hours per day;
 - Unlimited events per year and unlimited hours per year; and
 - Minimum notice period for dispatch may not exceed two hours.

For the purposes of our modeling and in consultation with the IMO, we have assumed that all DSM facilities would be included under Availability Class 2. Table 3 summarises DSM facility availability assumptions under the status quo and the Rule Change Proposal.

Table 3: DSM facility availability assumptions under status quo and Rule Change Proposal

Availability Parameter	Arrangement under Status Quo	Arrangement under Rule Change Proposal
Days of Availability	All DSM facilities are currently required to be available (at a minimum) from 12-8pm on all Business Days Approximately 40% of DSM facilities are unavailable on Non-Business Days.	DSM Facilities must be available from 10am-8pm on all Business Days
Dispatch events per year	Between 6 to 10, with the majority having a max of 6 events per year	DSM Facilities must be available for unlimited calls per year

Availability Parameter	Arrangement under Status Quo	Arrangement under Rule Change Proposal
Hours per day	DSM facilities are available for between 4 and 6 hours per day, with the majority of facilities being available for 4 hours per day.	All DSM facilities must be available for at least 6 hours per day
Total hours available	Between 24 and 48, but majority available for only 24 hours per year	DSM facilities must be available for an unlimited number of hours per year
Start and finish times	9% of DSM capacity is available 24 hours per day 4% from 1am-midnight 12% from 4am-8pm 1% from 7am-8pm 4% from 8am-8pm 22% from 12-9pm 48% from 12-8pm	All DSM facilities must be available no later than 10 am All DSM facilities must finish no earlier than 8pm
Minimum notice period of dispatch (hours)	4	2
Days of Availability	All DSM facilities are currently required to be available (at a minimum) from 12-8pm on all Business Days Approximately 40% of DSM facilities are unavailable on Non-Business Days.	DSM Facilities must be available from 10am-8pm on all Business Days

Results

In this section we summarise the impact of increased DSM availability (as summarised in Table 3) on:

- The Minimum Generation Capacity prescribed by MR 4.5.12(b); and
- The DSM capacity limit, calculated as the Reserve Capacity Target less the Minimum Generation Capacity.

Table 3 summarizes the above quantities as estimated under:

- The status quo using current DSM availability assumptions. These results are as presented to the IMO in our report dated 14 June 2013; and
- The Rule Change Proposal assumption as summarised in Table 3.

Note we cannot assess the impact of the changes on MR 4.5.12(a) or MR 4.5.12(c) as these

clauses may change as a result of the reduction in the number of availability classes, and the removal of the “hours per year” constraint.

Table 4: Minimum Generation Capacity and DSM capacity limit under status quo and Rule Change Proposal

Capacity year	MW	Status Quo	Rule Change Proposal	Difference – MW and (%)
2014/2015	Reserve Capacity Target	5000	5000	0
	Minimum Generation Capacity	4275	3950	-325 (-7.6%)
	DSM capacity limit	725	1050	325 (44.8%)
2015/2016	Reserve Capacity Target	5119	5119	0
	Minimum Generation Capacity	4394	4009	-385 (-8.8%)
	DSM capacity limit	725	1110	385 (53.1%)
2016/2017	Reserve Capacity Target	5263	5263	0
	Minimum Generation Capacity	4578	4063	-515 (-11.2%)
	DSM capacity limit	685	1200	515 (75.2%)

As expected, the increased availability limits under the Rule Change Proposal has led to a decrease in the Minimum Generation Capacity requirement, and an equivalent increase in the DSM capacity limit. In particular, across capacity years 2014/2015 to 2016/2017 Minimum Generation Capacity has decreased by approximately 325 to 515MW compared with the status quo. This is indicative of a 45-75% increase in the level of maximum allowable DSM capacity compared with the status quo.

The driving factor behind these changes is the fact that under the Rule Change Proposal, the only remaining major constraint around DSM availability is the “hours per day” constraint. In particular, the decrease in Minimum Generation Capacity and increase in DSM capacity is being driven by the removal of the two following constraints.

- Number of calls per year (now unlimited); and
- Number of hours per year (now unlimited).

On the basis of our analysis, we conclude that the availability changes contemplated by the Rule Change Proposal would allow the WEM to accommodate a higher level of DSM, with a subsequent decrease in the minimum generation capacity requirement in the determination of the Availability Curve.