



Wholesale Electr

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 Market Rule Change

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

A key outcome for the Wholesale Electricity Market (WEM) is to ensure that electricity and related services are provided reliably and economically.

The Long Term Projected Assessment of System Adequacy (PASA) is a process through which the Independent Market Operator (IMO) determines the amount of capacity required to meet future peak system demand and reliability requirements.

The Reserve Capacity Mechanism (RCM) provides incentives for investment in capacity in the WEM, and distinguishes broadly between Scheduled Generation and Intermittent Generation.

Scheduled Generation assigned Capacity Credits at a level equivalent to the level of electrical output produced on a sent-out basis at 15 degrees Celsius (in accordance with clause 4.11.1(a)); and

Intermittent Generation assigned Capacity Credits based on their average capacity factor over a three year period (in accordance with clause 4.11.2(b)¹). This has historically equated to valuing wind farms at 42 percent of their nameplate capacity.

¹ While there is no restriction on the ability of any type of technology to apply for certification in accordance with either of the Capacity Credit allocation methodologies, since market start Intermittent Generators have predominantly applied for certification in accordance with clause 4.11.2(b).

Modelling suggests that a solar generation plant would be valued between 20 percent and 30 percent of its nameplate capacity with this method.

The expanded Mandatory Renewable Energy Target (MRET) scheme has a national target for renewable generation to comprise 20 percent of all generation by 2020. As a result, it is expected that capacity (and energy) from renewable energy generation, particularly wind

A key concept that was considered and recommended was the use of Load for Scheduled Generation (LSG) when identifying the critical peak demand intervals. LSG is calculated using the load that remains after removing the level of intermittent generation in the market.

The use of LSG can change the timing of critical system reliability conditions towards those times where the demand on Scheduled Generators is highest. This technique accounts for increasing penetration of Intermittent Generation and promotes diversity of technology types and location. LSG has been incorporated into each of the valuation methodologies explained below.

MMA, through its analysis, recommended a methodology based upon the average output of each facility in 750 peak intervals for selected high demand years, which are scaled to future load forecasts. This methodology delivers valuations of between 35 percent and 40 percent of nameplate capacity for the existing wind farms, and between 50 percent and 60 percent for the modelled solar generation facilities. A more simple and transparent variant of this methodology, using 750 Trading intervals from the last three years, was also considered and was known as Proposal 2B. Proposal 2B is expected to deliver valuations of between 30 percent and 35 percent of nameplate capacity for the existing wind farms, and between 35 percent and 50 percent for the modelled solar generation facilities.

System Management expressed concern that this methodology relied on simulated data, and that, being based on an average performance level, did not represent the capacity that could reliably be delivered by Intermittent Generators.

Consequently, System Management proposed an alternative methodology that assessed the value of the fleet at the 90 percent probability of exceedance (PoE) level of the top 1 percent of Trading Intervals during the last three years (175 Trading Intervals per year). It then proportioned this fleet capacity value between various Intermittent Generators according to their performance in the top 250 intervals during the last three years. The methodology proposed by System Management would deliver valuations of between 6 percent and 17 percent of nameplate capacity for the existing individual wind farms, and between 10 percent and 30 percent for the modelled solar generation facilities.

The Office of Energy proposed a further alternative methodology that would assess the average performance of the intermittent generation fleet over 12 peak Trading Intervals for each year, and then value the fleet at the 95 percent PoE level of these averages from the preceding eight years. The fleet capacity value would then be apportioned between the various Intermittent Generators according to their performance in the top 250 Trading Intervals during the last three years. The Office of Energy's methodology is estimated to deliver valuations of between 16 percent and 20 percent of nameplate capacity for existing wind farms and between 40 percent and 50 percent for the solar generation facilities modelled.

Throughout the REGWG process, System Management maintained that valuations higher than around 20 percent of nameplate capacity could compromise the reliability of the power system.

² It is unclear if this represented a blanket capacity credit cap for all intermittent generation, or would be applied to each intermittent facility, (wind or solar), irrespective of underlying renewable resource.

System Management's views were countered by various REGWG members, including Market Participants with existing Intermittent Generation facilities (Alinta, Griffin Energy), proponents of new Intermittent Generation facilities (Pacific Hydro, Mid West Energy) and Synergy. These members supported Proposal 2A (or its variant 2B), suggesting that this proposal, developed and recommended by an expert consultant, has the strongest scientific basis and strongest link to system reliability. It also indicated that any reduction in the capacity valuation for Intermittent Generation would harm investment in the renewable energy sector in the SWIS and increase the perceived regulatory risk of investing in the WEM.

The IMO suggested Proposal 1 at the 2 September 2010 REGWG meeting, which was supported by LGP on the basis that it is a compromise between the other proposals. System Management indicated that it could accept Proposal 1 provided that the valuation did not exceed 20 percent of nameplate capacity. This was not supported by the other parties

Proposal

Griffin proposes to change the current methodology for allocating capacity credits for intermittent generators in the Market Rules to that based on Proposal 2B, developed by MMA for the REGWG. While not as technically perfect as Proposal 2A (MMA's preferred methodology), it delivers the following benefits:

balances consideration of both the reliability and reserved energy impacts of the capacity valuation methodology with respect to IVO Planning Criterion by only awarding capacity credits to intermittent generation facilities based on their output during periods of highest demand on scheduled generation (using the top 750 LSG intervals in a year);
uses recent historical data averaged over three years to smooth any annual variation;
Is the simplest and most transparent methodology;
Is the most consistent with the current methodology; and
more fairly reflects the contribution of generation facilities to power system reliability at times of peak demand.

The methodology is as follows:

1. Identify the top 750 Trading intervals associated with the highest Load for Scheduled Generation output in each of the three previous years.
2. For each of the 2,250 intervals identified in Step 1, determine the metered output of the intermittent generation facility (or the estimated output if the facility is experiencing a Planned or Consequential Outage or where its output was curtailed following a request from System management).
3. Double the value determined in Step 2 and divide this number by 2,250. The result is the Relevant Level for that facility (or is the quantity of capacity credit allocated to that facility).

This proposal includes the proposed amendments presented in the Draft Rule Change Report: Adjustment of the Relevant Level for Intermittent Generation (RC_2010_24). Alinta's proposed amendments adjust for Trading Intervals where a Planned or Consequential Outage occurred or where output was curtailed following a request from System Management.

3. Explain the reason for the degree of urgency:

Griffin proposes that the Rule Change Proposal be progressed via the Standard Rule Change Process.

- 4.11.3A. The Relevant Level in respect of a ~~Facility~~ at a point in time is determined by the IMO following these steps:
- (a) ~~take the top 750 Facility-Assessment Load for Scheduled Generation~~ Trading Intervals that fell within ~~each of~~ last three years up ~~and~~ including, the last Hot Season, excluding any Trading Intervals where the Facility either:
 - i. was owned, controlled or operated by a Market Participant other than the Electricity Generation Corporation and:
 - 1. was affected by a Planned Outage or Consequential Outage as notified under clause 7.13.1A; or
 - 2. was issued a Dispatch Instruction from System Management as notified under clause 7.13.1(c); or
 - ii. was owned, controlled or operated by the Electricity Generation Corporation and:
 - 1. was affected by a Planned Outage or Consequential Outage as notified under clause 7.13.1A; or
 - 2. was issued an instruction from System Management to deviate from its Dispatch Plan or change its commitment or output as notified under clause 7.13.1(cC);
 - (b) determine the amount of electricity (in MWh) sent out by the Facility in accordance with ~~meter data submissions~~ Meter Data Submissions received by the IMO in accordance with clause 8.4 during these Trading Intervals;
 - (c) ~~if the Generator Facility~~ has not entered service, or if it entered service during the period referred to in step (a), estimate in accordance with the Reserve Capacity Procedure the amount of electricity (in MWh) that would have been sent out by the ~~Facility~~, had it been in service, ~~for the top 750 Facility-Assessment Load for Scheduled Generation~~ Trading Intervals occurring during the period referred to in step (a) which are prior to it entering service;
 - (cA) if, during the period described in step (a), the Facility's output was reduced in order to comply with a Dispatch Instruction from System Management, issued in accordance with clause 7.7, use:
 - i. the estimated decrease (in MWh) in the output of each Facility, by Trading Interval, as a result of System Management Dispatch Instructions, provided by System Management in accordance with clause 7.13.1(eB); and
 - ii. the amount of electricity (in MWh) sent for the Facility in accordance with

- (cB) if, during the period described in step (a), the Facility's output was reduced in order to comply with an instruction from System Management under clause 7.6A.3(a) to deviate from its Dispatch Plan or change its commitment or output, use:
- i. the estimated decrease (in MWh) in the output of each Facility, by Trading Interval, as a result of an instruction from System Management in accordance with clause 7.6A.3(a), where this information has been either:
 - a. provided by System Management in accordance with clause 7.13.1(eD) for the relevant Trading Intervals that were excluded under step (a), where actual data for the site of the Facility has been provided to System Management under clause 7.7.5B; or
 - b. determined by the IMO in accordance with the Reserve Capacity Procedure for all the relevant Trading Intervals that were excluded under step (a), where actual data for the site of the Facility has not been made available to System Management under clause 7.7.5B; and
 - ii. the amount of electricity (in MWh) set for the Facility in accordance with the Meter Data Submissions received by the IMO in accordance with clause 8.4 for all the Trading Intervals that were excluded under step (a)(iii.), to estimate

7.13.1. System Management must provide the IMO with the following data for a Trading Day by noon on the first Business Day following the day on which the Trading Day ends:

- (c) a schedule of all of the Dispatch ~~instructions~~ other than instructions with respect to Registered Facilities to which clauses 3.21A.14 or 4.25.10 apply, that System Management issued for each Trading Interval in the Trading Day by Market Participant and Facility, including the information specified in clause 7.7.3, or as agreed between the IMO and System Management;
- (cA) a schedule of the MWh output of each generating system monitored by System Management's SCADA system for each Trading Interval of the Trading Day;
- (cB) the maximum daily ambient temperature at the site of each generating system monitored by System Management's SCADA system for the Trading Day;
- (cC) a schedule of all instructions provided to the Electricity Generation Corporation's Non-Scheduled Generators to deviate from its Dispatch Plan or change its commitment of output in accordance with clause 7.6A.3 for each Trading Interval of the Trading Day;
- (eB) the estimated decrease, in MWh, in the output of each Non-Scheduled Generator, by Trading Interval, as a result of System Management Dispatch Instructions, as determined in accordance with clause 7.7.5A, where this is to be used in settlement as the quantity described in clause 6.17.6(c)(i).
- (eC) the required decrease, in MWh, in the consumption of each Curtailable Load, by Trading Interval, as a result of System Management Dispatch Instructions, where this is to be used in settlement as the quantity described in clause 6.17.6(d)(i).

- (i) the data provided by a Market Participant in accordance with clause 7.7.5B.

10.5.1. The IMO must set the class of confidentiality status for the following information under clause 10.2.1, as Public and the IMO must make each item of information available from the Market Web-Site after that item of information becomes available to the IMO:

- (a) the following Market Rule and Market Procedure information and documents:

- (f) the following Reserve Capacity information (if applicable):

- i. Requests for Expressions of Interest described in clause 4.2.3 for the previous five Reserve Capacity Cycles;

- ix. The following annually calculated and monthly adjusted ratios:

1. NTDL_Ratio as calculated in accordance with Appendix 5, STEP 8;
2. TDL_Ratio as calculated in accordance with Appendix 5, STEP 8; and
3. Total_Ratio as calculated in accordance with Appendix 5, STEP 10; and

- x. Facility-Assessment Load for Scheduled Generation.

Glossary

Facility-Assessment Load for Scheduled Generation: The total sent out generation of all Facilities minus the sent out generation (measured or estimated) of Facilities which applied to be assigned Certified Reserve Capacity in accordance with clause 4.11.2(b) adjusted for the impact of Consequential Outages on those Facilities.

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

Griffin considers the proposed rule changes will have the following affect on the market objectives:

Objective Impact

- a) The rule change promotes greater reliability as the quantity of capacity credits received by an intermittent generation facility is closely aligned with the peak summer demand periods, when system reliability is most at risk. It also promotes economic efficiency by rewarding intermittent generation facilities a suitable quantity of capacity credits relative to other generation facilities, ensuring

investment in generation technologies is optimised in the WEM.
The rule change promotes competition among new entrant

b)

System reliability will be strengthened as those