
Wholesale Electricity Market Rule Change Proposal

Change Proposal No: RC_2010_25

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Change requested by

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Address:	Level 3, Governor Stirling Tower, 197 St Georges Terrace, Perth
Date submitted:	29 November 2010
Urgency:	High
Change Proposal title:	Calculation of the Capacity Value of Intermittent Generation – Methodology 1
Market Rules affected:	4.11.3A, 7.7.5A, 7.7.5B, 7.7.5C, 10.5.1 and new clause 4.11.3B and Appendix 9

Introduction

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

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

Independent Market Operator

Attn: Troy Forward, General Manager Development
PO Box 7096
Cloisters Square, Perth, WA 6850
Fax: (08) 9254 4399
Email: market.development@imowa.com.au

The IMO 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 progressed further.

In order for the proposal to be progressed, all fields below must be completed and the rule 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.
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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:

Background

A key objective for the Wholesale Electricity Market (WEM) is to ensure that electricity and related services are provided reliably and economically. This is a significant challenge in Western Australia because the electricity system is isolated and supplies cannot be drawn from neighbouring systems during times of system peak demand.

The provision of capacity in Western Australia is achieved through the Reserve Capacity Mechanism (RCM). This is a set of processes through which the IMO determines the amount of generation and Demand Side Management capacity required to meet future peak system demand and reliability requirements.

The current incentives for investment in the WEM, as provided by the RCM, distinguish broadly between Scheduled Generation and Intermittent Generation. They are as follows:

- Scheduled Generation – assigned Capacity Credits at a level equivalent to the level of electrical output produced on a sent-out basis at 41 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 38 to 42 percent of their nameplate capacity. Modelling suggests that a solar generation plant would be valued between 20 percent and 30 percent of its nameplate capacity with this method.

¹ The IMO notes that there is no restriction on the ability of each type of technology to apply for certification in accordance with either of the Capacity Credit allocation methodologies. However, predominantly since market start Intermittent Generators have applied for certification in accordance with clause 4.11.2(b). Note that during the October 2010 MAC meeting, the MAC endorsed that the methodology for certification under clause 4.11.1(a) be limited to Scheduled Generators.

For comparison, a wind farm investing in the National Electricity Market (NEM) is assumed to receive in the order of 5 percent of nameplate capacity for reliability planning purposes. It should be noted that the NEM does not have a capacity market and the lower valuation does not affect the income of the individual wind farms.

Given the expanded Mandatory Renewable Energy Target (MRET) scheme to achieve a national target of 20 percent of renewable generation in 2020, there is a possibility of greater momentum in renewable energy generation growth, particularly wind generation, in the South West interconnected system (SWIS). Greater renewable energy penetration in the SWIS would impact significantly on the composition of the available capacity.

Issues

The intent of the RCM is to ensure that there is sufficient capacity at peak demand times. This intent is reflected in the valuation methodology for Scheduled Generators that focuses on peak demand times by assessing the sent out capacity likely to be available at an ambient temperature of 41°C. By contrast, the current methodology for Intermittent Generators, based on the three-year average output, does not focus on peak demand times and is thus not obviously aligned with the intent of the RCM. The capacity of an Intermittent Generator is subject to technology-specific constraints and risks such as weather conditions which impact on its ability to provide the required capacity during peak periods.

Given the momentum driving the growth in renewable energy providers on the SWIS, concerns have been raised regarding the current Capacity Credit valuation methodology for Intermittent Generators. Specifically:

- Doubts have been expressed as to whether the three-year average accurately represents the capacity that can be reliably delivered by wind generators. System Management, in particular, has expressed concern that excessively high valuations for wind farms could reduce the capacity available during a peak demand event and jeopardise the security of the power system; and
- It has been widely acknowledged that the current valuation methodology is unsuitable for solar generation and undervalues this capacity. The current method includes overnight and winter periods that are outside peak demand times and during which solar output is low.

These concerns highlight the importance of ensuring that the investment signals provided by the RCM strike a balance between providing appropriate remuneration for Intermittent Generation and ensuring system security and reliability can be maintained.

Renewable Energy Generation Working Group

In light of the expected increase in Intermittent Generation capacity in the SWIS, the appropriateness of the current capacity valuation methodology for Intermittent Generation capacity has been reviewed by the Renewable Energy Generation Working Group (REGWG). The REGWG was convened by the Market Advisory Committee (MAC) at its meeting on 12 March 2008 to consider and assess system and market issues arising from

increasing penetration of Intermittent Generation². A work program which broadly comprised four Work Packages was established to address these issues.

Work Package 2 sought to address these issues through the development of a capacity valuation methodology that would accurately value the contribution of Intermittent Generators at times of peak demand.

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.

While failing to reach a consensus position on the matter of valuing Capacity Credits for Intermittent Generation, the REGWG supported the proposal that the IMO would nominate the valuation methodology that it felt best served the Market Objectives and would submit a Rule Change Proposal to the MAC.

Proposal

The IMO recommends the implementation of the following methodology:

1. Identify in each of the eight previous years, the 12 Trading Intervals which experienced the highest LSG. For this purpose, the LSG is calculated for each Trading Interval by subtracting the output from Intermittent Generation facilities (measured output from existing facilities and modelled output where the facility had not yet entered service) from the total sent out generation during that Trading Interval.
2. For each of the eight years, determine the average output of the Intermittent Generation fleet during the 12 Trading Intervals with the highest LSG.
3. Determine the 95 percent PoE level of the eight annual averages. This is the fleet capacity value.
4. Identify in each of the three previous years the 250 Trading Intervals which experienced the highest LSG.
5. Determine the average output of each individual Intermittent Generation facility for the 750 intervals determined in step 4. This is denoted below as the facility performance level.
6. Determine the sum of the facility performance levels determined in step 5. This is denoted below as the fleet performance level.
7. Apportion the fleet capacity value to each Intermittent Generation facility according to its performance over the 750 intervals.

$$\text{Relevant Level} = (\text{Facility Performance Level}) / (\text{Fleet Performance Level}) \times \text{Fleet Capacity Value}$$

² Additional detail on the REGWG can be found on the IMO website: www.imowa.com.au/REGWG

The IMO has also considered the proposed amendments presented in the Draft Rule Change Report: Adjustment of the Relevant Level for Intermittent Generation (RC_2010_24). As agreed at the October 2010 MAC meeting the IMO has incorporated Alinta's proposed amendments to adjust for Trading Intervals where a Planned or Consequential Outage occurred or where output was curtailed following a request from System Management in the calculation of the highest 12 Trading Intervals for the Fleet each year. Additionally the IMO has adjusted for the incidence of Forced Outages in these intervals to avoid penalising all Non-Scheduled Generators due to Forced Outage at a single Facility.

The IMO has however excluded only periods where a Facility experiences a Consequential Outage from the determination of the 750 intervals for each individual Intermittent Generation facility. This is because instances of a Consequential Outage occurring are outside the control of a Facility. The IMO considers that it is reasonable to include all other instances of outages or curtailment following an instruction by System Management during the 750 Trading Intervals, as this will more appropriately reflect the availability of a facility during peak demand times. Network-related failures that result in a Dispatch Instruction being issued to a Facility should be reported as a Consequential Outage, and would be excluded accordingly.

The IMO considers that this solution provides the following advantages:

- gives consideration to the reliability impacts of the capacity valuation methodology by valuing the intermittent generation fleet at the 95 percent PoE level;
- focuses on critical intervals of high system demand; and
- more fairly reflects the contribution of solar generation facilities to power system reliability at times of peak demand.

2. Explain the reason for the degree of urgency:

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

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)

The proposed amendment will specify that the IMO must determine the Relevant Level for a Facility in accordance with the methodology specified in Appendix 9.

- 4.11.3A. Where the IMO accepts a nomination to use the methodology prescribed in clause 4.11.2(b) to assign Certified Reserve Capacity, the IMO must determine the Relevant Level for that Facility using the methodology described in Appendix 9.

~~The Relevant Level in respect of a Facility at a point in time is determined by the IMO following these steps:~~

- ~~(a) — take all the Trading Intervals that fell within the last three years up to, and including, the last Hot Season;~~
- ~~(b) — determine the amount of electricity (in MWh) sent out by the Facility in accordance with metered data submissions received by the IMO in accordance with clause 8.4 during these Trading Intervals;~~
- ~~(c) — If the Generator has not entered service, or if it entered service during the period referred to in step (a), estimate the amount of electricity (in MWh) that would have been sent out by the facility, had it been in service, for all Trading Intervals occurring during the period referred to in (a) which are prior to it entering service;~~
- ~~(d) — set the Relevant Level as double the sum of the quantities determined in (b) and (c) divided by 52,560~~

The proposed new clause will require the IMO to conduct a five year review of the methodology for determining the Relevant Level for a Facility to ensure it is effective in its application.

4.11.3B At least once in every five year period, commencing from 1 October 2011, the IMO must conduct a review of the methodology for determining the Relevant Level for a Facility specified in clause 4.11.3A.

The proposed amendments are consistent with the amended requirement for all renewable energy generators to provide details of their fuel data for the Facility to System Management (i.e. wind data and number of turbines operating for a wind farm). The provision of wind farm data has previously been optional for Market Participants.

7.7.5A. For the purpose of determining the quantity described in clause 6.17.6(c)(i) for each Trading Interval the quantity is:

- ~~(a) — where System Management has been provided with information in accordance with clause 7.7.5B, System Management's estimate of the MWh reduction in output, by Trading Interval, of the Non-Scheduled Generator as a result of System Management's Dispatch Instruction; or~~
- ~~(b) — in the case of a Non-Scheduled Generator included in a Resource Plan, for which System Management has not been provided with information in accordance with clause 7.7.5B, the greater of zero and the MWh difference between the Resource Plan MWh quantity of the Non-Scheduled Generator less the MWh output of the Non-Scheduled generator over the Trading Interval implied by its Dispatch Instruction.~~

- 7.7.5B. ~~A Market Participant~~ Non-Scheduled Generator may ~~must~~ provide System Management with the information specified in the Power System Operation Procedure to support System Management's ~~the~~ calculation of the quantity described in clause 7.7.5A(a) and the IMO's estimation in Appendix 9 of the impact of Planned Outages, Consequential Outages and Forced Outages on the output, by Trading Interval, of a Facility assigned Certified Reserve Capacity in accordance with the methodology specified in clause 4.11.2(b).
- 7.7.5C. The Power System Operation Procedure must specify the data required to be provided by a Non-Scheduled Generator to System Management for each Facility during each Trading Interval, where this information must be ~~that actual wind data for the site of a wind farm and the number of turbines operating, if made available by a Market Participant to System Management,~~ are sufficient to allow:
- a) System Management to determine, in accordance with clause 7.7.5A, what the output of the each Facility ~~a wind farm~~ would have been had no Dispatch Instruction or request to deviate from its Dispatch Plan or change its commitment or output been issued; and
 - b) the IMO to determine, in accordance with Appendix 9, what the output of the Facility would have been had a Planned Outage, Consequential Outage or Forced Outage not occurred.
- 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:
- ...
- (g) details of the instructions provided to:
 - i. Curtailable Loads that have Reserve Capacity Obligations; and
 - ii. providers of Supplementary Capacity;on the Trading Day; ~~and~~
 - (h) the identity of the Facilities which were subject to either a Commissioning Test or a test of Reserve Capacity for each Trading Interval of the Trading Day; and
 - (i) the data provided by a Market Participant in accordance with clause 7.7.5B.

The proposed amendment will allow the IMO to publish the relevant information required by Market Participants to determine their certification value. This information will be published
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as public information by 1 May of each year. Further details of the level of information to be published will be specified in the Market Procedure for Certification of Reserve Capacity.

Note that the REGWG at its 12 August 2010 meeting agreed to progress a Rule Change Proposal to publish details of aggregate Intermittent Generator data.

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. Fleet-Assessment Load for Scheduled Generation, Facility-Assessment Load for Scheduled Generation and the relevant Trading Intervals as determined under Appendix 9.

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.

Fleet-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 on the output of those Facilities due to Consequential Outages, Planned

Outages, Forced Outages, Dispatch Instructions and deviations from Dispatch Plans due to instructions from System Management.

The proposed new Appendix 9 will specify the methodology followed by the IMO in determining each Facility's Relevant Level. Alternatively, this could be presented in a Market Procedure.

Appendix 9: Relevant Level Determination

This Appendix presents the methodology for determining the Relevant Level for a Facility which has applied for certification of Reserve Capacity in accordance with the methodology prescribed in clause 4.11.2(b).

The IMO must perform the following steps in determining the Relevant Level for Facility in accordance with clause 4.11.3A:

Determining the Fleet Capacity Value

Step 1: Take all the Trading Intervals that occurred with the eight year period ending on the Trading Day ending on 1 April of Year 1 of the relevant Reserve Capacity Cycle.

Step 2: Determine the amount of electricity (in MWh) sent out by all Facilities applying for Certified Reserve Capacity under clause 4.11.2(b) using the Meter Data Submissions received by the IMO in accordance with clause 8.4 during the Trading Intervals identified in step 1.

Step 3: Identify any Trading Intervals in step 1 where a Facility, as identified in step 2, either:

- a) was owned, controlled or operated by a Market Participant other than the Electricity Generation Corporation and was issued a Dispatch Instruction from System Management as notified under clause 7.13.1(c); or
- b) was owned, controlled or operated by the Electricity Generation Corporation and 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); or
- c) was affected by a Forced Outage, Planned Outage or Consequential Outage as notified under clause 7.13.1A; or

Step 4: If, as identified in step 3 (a), a Facility's output was reduced in order to comply with a Dispatch Instruction from System Management, issued in accordance with clause 7.7, use:

- a) 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
- b) the amount of electricity (in MWh) sent out for the Facility in accordance with the Metered Data Submissions received by the IMO in accordance with clause 8.4 for all the Trading Intervals that were identified under step 3 (a)(ii.),

to estimate the amount of electricity (in MWh) that would have been sent out by the Facility, had it not complied with the Dispatch Instruction for all the Trading Intervals identified under step 3(a)(ii.). Use these estimated values to replace the amount of electricity identified in step 2 for the relevant Trading Intervals.

Step 5: If, as identified in step 3 (b), a 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:

- a) the estimated decrease (in MWh) in the output of that Facility, by Trading Interval, as a result of an instruction from System Management in accordance with clause 7.6A.3(a), provided by System Management in accordance with clause 7.13.1(eD); and
- b) the amount of electricity (in MWh) sent out for that 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 identified under step 3 (b)(ii.),

to estimate the amount of electricity (in MWh) that would have been sent out by that Facility had it not complied with System Management's instruction for all the relevant Trading Intervals that were excluded under step 3 (b)(ii). Use these estimated values to replace of the amount of electricity identified in step 2 for all the relevant Trading Intervals identified in step 3.

Step 6: If, as identified in step 3 (c), a Facility's output was reduced due to a Forced Outage, Planned Outage or Consequential Outage, as notified under clause 7.13.1A, use:

- a) the schedule of Planned Outages, Consequential Outages and Forced Outages provided by System Management in accordance with clause 7.3.4 and 7.13.1A;
- b) the amount of electricity sent out for that 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 identified under step 3 (a) (i) and step (b) (i); and
- c) the data provided by System Management in accordance with clause 7.13.1(i).

to estimate the amount of electricity (in MWh) that would have been sent out by that Facility had it not experienced a Forced Outage, Planned Outage or Consequential Outage . Use these estimated values to replace of the amount of electricity identified in step 2 for all the relevant Trading Intervals identified in step 3.

Step 7: If a Facility has not yet entered service, or if it entered service during the period referred to in step 1, use the estimates included in the expert report provided in accordance with clause 4.10.3 for the period that Facility was not in service, unless the IMO reasonably believes the report to be inaccurate.

Step 8: Determine, for each Trading Interval during the period described in step 1, the Fleet-Assessment Load for Scheduled Generation by subtracting the sent out generation contribution of all Facilities which applied to be certified under clause 4.11.2(b), as identified in step 2 and updated under steps 4, 5, 6 and 7 as applicable (“Fleet Interval Performance Level”), from the total sent out generation of all Facilities for each Trading Interval.

Step 9: Determine for each year during the period identified in step 1, the 12 Trading Intervals with the highest Fleet-Assessment Load for Scheduled Generation as identified under step 8.

Step 10: Determine for each year during the period identified in step 1, the mean of the Fleet Interval Performance Level (“Fleet Annual Mean Performance Level”) during the 12 Trading Intervals identified under step 9.

Step 11 Determine using a t-distribution the mean (“Fleet Mean”) and standard deviation (“Fleet SD”) of the Fleet Annual Mean Performance Levels for the period identified in step 1.

Step 12: Determine the **Fleet Capacity Value (MW)** by calculating the 5 percent Probability of Exceedance level in accordance with the following formula:

$$\text{Fleet Capacity Value} = 2 \times (\text{Fleet Mean} - (1.895 \times \text{Fleet SD}))$$

Step 13: If the value for the Fleet Capacity Value determined under step 12 is equal to or less than zero then set the Fleet Capacity Value equal to zero.

Determining the Facility Performance Level

Step 14: Take all the Trading Intervals that occurred within the last three year period ending on the Trading Day ending on 1 April of Year 1 of the relevant Reserve Capacity Cycle.

Step 15: Determine the amount of electricity (in MWh) sent out by the Facility using the Meter Data Submissions received by the IMO in accordance with clause 8.4 during the Trading Intervals identified in step 14.

- Step 16: Identify any Trading Intervals in step 15 where the Facility was affected by a Consequential Outage as notified under clause 7.13.1A.
- Step 17 If, as identified in step 16, the Facility's output was reduced due a Consequential Outage, use
- a) the schedule of Consequential Outages a provided by System Management in accordance with clause 7.3.4 and 7.13.1A;
 - b) the amount of electricity sent out 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 identified under step 16; and
 - c) the data provided by System Management in accordance with clause 7.13.1(i).
- to estimate the amount of electricity (in MWh) that would have been sent out by the Facility had it not experienced a Consequential Outage for all the relevant Trading Intervals identified in step 16.
- Step 18: If the Facility has not yet entered service, or if it entered service during the period referred to in step 15, use the estimates included in the expert report provided in accordance with clause 4.10.3 for the period that the Facility was not in service, unless the IMO reasonably believes the report to be inaccurate.
- Step 19: Determine for each Trading Interval during the period described in step 14 the Facility-Assessment Load for Scheduled Generation by subtracting the sent out generation contribution of all Facilities which applied to be certified under clause 4.11.2(b), as identified in step 15 and updated under steps 17 and 18 as applicable, from the total sent out generation of all Facilities for each Trading Interval.
- Step 20: Determine for each year during the period identified in step 14, the 250 Trading Intervals with the highest Facility-Assessment Load for Scheduled Generation as identified under step 19.
- Step 21: Determine the **Facility Performance Level** for each Facility that applied to be certified under clause 4.11.2(b). The Facility Performance Level for Facility f is the mean of that Facility's sent out generation during the 750 Trading Intervals identified under step 15 and updated under steps 17 and 18, as applicable.

Determining the Relevant Level for a Facility

Step 22: Determine the Relevant Level for each Facility f (in MW) in accordance with the following formula:

$$\text{Relevant Level}(f) = \text{Facility Performance Level}(f) / \text{Sum}(f \in F, \text{Facility Performance Level}(f)) \times \text{Fleet Capacity}$$

Where

F is the set of all Facilities which applied to be certified under clause 4.11.2(b), where “f” is a member of that set.

Step 21. Publish the Fleet-Assessment Load for Scheduled Generation. Facility-Assessment Load for Scheduled Generation and relevant Trading Intervals identified in steps 1, 9 and 14 on the Market Web Site by 1 May of the relevant year.

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

The IMO considers the changes proposed will have the following impact on the Wholesale Market Objectives:

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

The IMO considers that the proposed amendment will better achieve the Wholesale Market Objectives by focussing the IMO’s valuation of Capacity Credits for intermittent facilities on periods of peak demand. In particular the IMO considers that the proposed amendments will better achieve both Market Objectives (a) and (c):

- (a) *to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;*
- (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 proposed changes will apply a methodology to the calculation of Capacity Credits for Intermittent Generators that more appropriately reflects the contribution of a renewable generator at times of high system demand. This will:

- Promote greater system security and reliability by providing certainty to System Management that the capacity available in the market can meet peak demand requirements (Market Objective (a)); and
- Remove a current source of discrimination between Scheduled Generators and Intermittent Generators by determining the level of certification of Intermittent Generators during peak demand periods (Market Objective (c))

The IMO considers that the proposed changes are consistent with the other market objectives.

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

Costs:

- The IMO will have IT costs associated with this proposal. These costs will be quantified during the first submission period.
- The proposed change is not expected to impose additional costs on Market Participants.
- The proposed change is expected to result in a reduction in capacity payments from previous levels to existing renewable generators.

Benefits:

- Provide certainty to proponents of renewable generation projects for one component of their future revenue stream.
- Represents a reasonable balance of the need to accurately reflect the contribution of Intermittent Generators, while not presenting unwarranted complexity and administrative burden on the Market.
- Provides Capacity Credits consistent with the contribution to reliability relative to scheduled plant.