Independent Market Operator

Rule Change Notice
Title: Calculation of Net STEM Shortfall for Scheduled Generators

Ref: RC_2011_07

Fast Track Rule Change Process

Date: 18 July 2011

CONTENTS

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1. THE RULE CHANGE PROPOSAL

1.1. The Submission

On 14 July 2011 Alinta submitted a Rule Change Proposal regarding amendments to clauses 4.26.2 and 4.26.2B of the Wholesale Electricity Market Rules (Market Rules).

This Rule Change Notice is published according to clause 2.5.7 of the Market Rules, which requires the Independent Market Operator (IMO) to publish a notice within 7 Business Days of receiving a Rule Change Proposal.

1.1.1 Submission details

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Date submitted:	14 July 2011
Urgency:	1 - High
Change Proposal title:	Calculation of Net STEM Shortfall for Scheduled Generators
Market Rules affected:	4.26.2 and 4.26.2B

1.2. Details of the Proposal

Background

In its Rule Change Proposal, Alinta notes that clause 4.26.1A of the Market Rules requires that the IMO calculate a Forced Outage refund for each Facility ("Facility Forced Outage Refund"), whereas the IMO must also determine whether there arises a "Net STEM Shortfall" under clause 4.26.2 and hence a Capacity Cost Refund under clause 4.26.2E.[1]

Currently, if a Market Participant operates a single Scheduled Generator and that Facility suffers a Forced Outage, the Market Participant is exposed to a Facility Forced Outage Refund, calculated under clause 4.26.1A. The specification of the Net STEM Shortfall calculation in clause 4.26.2 ensures that the Market Participant does not also incur a Net STEM Refund for the same Forced Outage.

Issue

Alinta notes that where a Market Participant operates more than one Scheduled Generator, and one of these Facilities suffers a Forced Outage while another is not dispatched, the Market Participant will be exposed to both:

- a Facility Forced Outage Refund calculated under clause 4.26.1A; and

[1] Alinta notes that clause 4.26.1A (and other clauses) will be amended from 1 October 2011 by RC_2010_29 to change references to "Facility Forced Outage Refund" to "Facility Reserve Capacity Deficit Refund".

- a Capacity Cost Refund under clause 4.26.2E, as a Net STEM Shortfall will also arise under clause 4.26.2 in respect of the same Forced Outage.

That is, for a Market Participant operating more than one Scheduled Generator, the cost of a Forced Outage in respect of a specific generator is up to twice that which would be incurred had the same generator been the only Scheduled Generator registered to that Market Participant.[2]

A worked example of the issue has been provided by Alinta and is attached as Appendix A of this Rule Change Notice.

Alinta considers that the issue is essentially the same as that rectified by the amendments to the Market Rules resulting from the Rule Change Proposal: Calculation of the Net STEM Shortfall (RC_2010_03). In RC_2010_03, the IMO identified that where a Market Participant has multiple generators in its portfolio and one (or more) suffers a real-time Forced Outage then the expected energy supplied in real-time from the portfolio is reduced to reflect just the Forced Outage.

However, the IMO also noted in RC_2010_03 that this adjustment was applied relative to the portfolio's total Reserve Capacity Obligation Quantity, including Scheduled Generators, Curtailable Loads and Interruptible Loads that were not dispatched. As a result, the IMO noted that the Market Participant would be exposed to a Net STEM Shortfall purely because some of its Facilities were not asked to supply energy or some of its Loads were not requested to reduce consumption.

Alinta notes that RC_2010_03 was subject to the Fast Track Rule Change Process, as the IMO considered that the proposed amendments were required to correct a manifest error, including the removal of a potential anomaly in determining the Net STEM Shortfall.

Proposal

Alinta proposes changes to the Net STEM Shortfall calculation in clause 4.26.2 of the Market Rules, to ensure that a Market Participant operating more than one Scheduled Generator will incur the same cost for a Forced Outage in respect of a specific Scheduled Generator as it would have incurred had the same Facility been the only Scheduled Generator registered to that Market Participant.

Alinta notes that its proposed amendments do not address any of the other issues identified by RC_2010_03 in respect of the Net STEM Shortfall calculation, including in respect of Intermittent Generators or Dispatchable Loads.

[2] The cost of the Forced Outage would be twice that which would be payable by a Market Participant with a single Scheduled Generator where the non-dispatched capacity from another Scheduled Generator (or generators) operated by the Market Participant exceeded the quantum of the Forced Outage.

1.3. The Proposal and the Wholesale Market Objectives

Alinta considers that the Market Rules, as proposed to be amended or replaced by the Rule Change Proposal, would be consistent with, and better achieve, the Wholesale Market Objectives. Specifically, Alinta considers that the Rule Change Proposal would:

- better promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system (SWIS) (Wholesale Market Objective (a));
- better encourage competition among generators and retailers in the SWIS (Wholesale Market Objective (b));
- avoid discrimination against a portfolio generator and therefore better achieve Wholesale Market Objective (c); and
- be likely to further minimise the long term costs of electricity supplied to customers from the SWIS (Wholesale Market Objective (d)).

2. WHETHER THE PROPOSAL WILL BE PROGRESSED FURTHER

The IMO has decided to proceed with this proposal on the basis that the IMO's preliminary assessment indicates that the proposal is consistent with the Wholesale Market Objectives.

The IMO has decided to process this Rule Change Proposal using the Fast Track Rule Change Process, described in section 2.6 of the Market Rules, on the basis that it satisfies the criterion in clause 2.5.9(b) of the Market Rules. Clause 2.5.9 states:

The IMO may subject a Rule Change Proposal to the Fast Track Rule Change Process if, in its opinion, the Rule Change Proposal:

(a) is of a minor or procedural nature; or

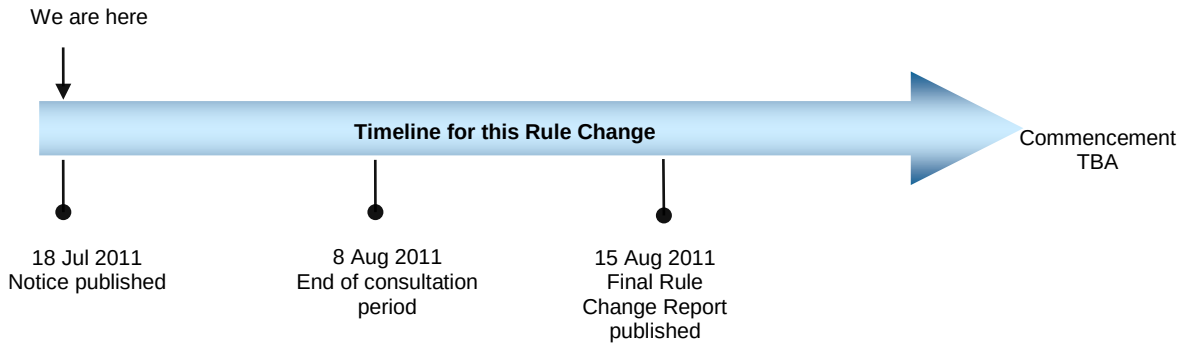
(b) is required to correct a manifest error; or

(c) is urgently required and is essential for the safe, effective and reliable operation of the market or the SWIS.

The IMO notes that a Market Participant declaring a Forced Outage for a Scheduled Generator will pay a Forced Outage Refund equivalent to the extent of the outage. However, if a Market Participant has another Scheduled Generator that was not required to operate at its full RCOQ, then under clause 4.26.2 it can be exposed to additional Net STEM Refunds in relation to the same outage.

For other Capacity Cost Refunds based on the Refund Table the level of refund payable for a particular Trading Interval is proportional to the extent of the outage (i.e. how much capacity was not made available). However, in the above scenario the Capacity Cost Refunds payable can greatly exceed this level (e.g. can be more than double the amount indicated in the Refund Table for the actual MW shortfall). The problem is not a new one, since Market Participants with multiple Scheduled Generators have existed since market start. As such, the IMO considers that the proposed amendments fulfil clause 2.5.9(b), in that they are required to correct a manifest error, and therefore may be fast tracked.

The projected timelines for processing this proposal are:



3. CALL FOR SUBMISSIONS

Any Rule Participant wishing to be consulted regarding this Rule Change Proposal is invited to notify the IMO within 5 Business Days of this notice being published (**Monday, 25 July 2011**).

The consultation period is 15 Business Days from the publication date of this Rule Change Notice. Submissions must be delivered to the IMO by 5.00pm on **Monday, 8 August 2011.**

The IMO prefers to receive submissions by email to market.development@imowa.com.au using the submission form available on the IMO website: http://www.imowa.com.au/rule-changes.

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

Independent Market Operator
Attn: Group Manager, Market Development
PO Box 7096
Cloisters Square, Perth, WA 6850
Fax: (08) 9254 4399

4. PROPOSED AMENDING RULES

Alinta proposes the following amendments to the Market Rules (~~deleted text~~, added text):

4.26.2. The IMO must determine the net STEM shortfall ("**Net STEM Shortfall**") in Reserve Capacity supplied by each Market Participant p holding Capacity Credits associated with a generation system in each Trading Interval t of Trading Day d and Trading Month m as:

$$SF(p,m,d,t) = Max(RTFO(p,d,t), RCOQ(p,d,t) - A(p,d,t)) + Sum(f \in F, Max(0, B(p\ f,d,t) - C(p\ f,d,t))) - RTFO(p,d,t)$$

Where

A(p,d,t) = Min(RCOQ(p,d,t), CAPA(p,d,t));

B(~~p~~ f,d,t) = Min(RCOQ(~~p~~ f,d,t) – RTFO(~~p~~ f,d,t), DSQ(~~p~~ f,d,t));

C(~~p~~ f,d,t) = Min(DSQ(~~p~~ f,d,t), MSQ(~~p~~ f,d,t));

RCOQ(p,d,t) for Market Participant p and Trading Interval t of Trading Day d is equal to:

(a) the total Reserve Capacity Obligation Quantity of Market Participant p's unregistered facilities that have Reserve Capacity Obligations, excluding Loads that can be interrupted on request, plus

(b) the sum of the product of:

i. the factor described in clause 4.26.2B as it applies to Market Participant p's Registered Facilities; and

ii. the Reserve Capacity Obligation Quantity for each Facility

for all Market Participant p's Registered Facilities, excluding Curtailable Loads;

RCOQ (f,d,t) for Facility f and Trading Interval t of Trading Day d is equal to the product of the factor described in clause 4.26.2B as it applies to Facility f and the Reserve Capacity Obligation Quantity for Facility f.

CAPA(p,d,t) is for Market Participant p and Trading Interval t of Trading Day d:

(c) equal to RCOQ(p,d,t) for a Trading Interval where the STEM auction has been suspended by the IMO in accordance with clause 6.10;

(d) subject to paragraph (c), for the case where Market Participant p is not the Electricity Generation Corporation, the sum of:

i. the sum of the Reserve Capacity Obligation Quantities in Trading Interval t of that Market Participant's Interruptible Loads; plus

ii. the MW quantity calculated by doubling the net MWh quantity of energy sent out by Facilities registered by that Market Participant during that Trading Interval calculated as the Net Contract Position less the shortfall as indicated by the applicable Resource Plan; plus

iiA if a STEM submission does not exist for that Trading Interval, the MW quantity calculated by doubling the total MWh quantity of energy to be consumed by that Market Participant including demand associated with any Curtailable Load or Interruptible

Load, but excluding demand associated with any Dispatchable Load during that Trading Interval as indicated by the applicable Resource Plan; plus

iii. the MW quantity calculated by doubling the total MWh quantity covered by the STEM Offers which were not scheduled and the STEM Bids which were scheduled in the relevant STEM Auction, determined by the IMO for that Market Participant under clause 6.9 for Trading Interval t, corrected for Loss Factor adjustments so as to be a sent out quantity in accordance with clause 4.26.2A; plus

iv. double the total MWh quantity to be provided as Ancillary Services as specified by the IMO in accordance with clause 6.3A.2(e)(i) for that Market Participant corrected for Loss Factor adjustments so as to be a sent out quantity in accordance with clause 4.26.2A; plus

v. the greater of zero and (BSFO(p,d,t) – RTFO(p,d,t)); and

(e) subject to paragraph (c), for the case where Market Participant p is the Electricity Generation Corporation, the sum of:

i the sum of the Reserve Capacity Obligation Quantities in Trading Interval t of that Market Participant's Interruptible Loads; plus

ii the MW quantity calculated by doubling the total MWh quantity of the Net Contract Position quantity of that Market Participant for Trading Interval t, corrected for Loss Factor adjustments so as to be a sent out quantity in accordance with clause 4.26.2A; plus

iii the MW quantity calculated by doubling the total MWh quantity of the STEM Offers which were not scheduled and the STEM Bids which were scheduled in the relevant STEM Auction, determined by the IMO for that Market Participant under clause 6.9 for Trading Interval t, corrected for Loss Factor adjustments so as to be a sent out quantity in accordance with clause 4.26.2A; plus

iv. double the total MWh quantity to be provided as Ancillary Services as specified by the IMO in accordance with clause 6.3A.2(e)(i) for the Electricity Generation Corporation corrected for Loss Factor adjustments so as to be a sent out quantity in accordance with clause 4.26.2A; plus

v. the greater of zero and (BSFO(p,d,t) – RTFO(p,d,t)).

BSFO(p,d,t) is the total MW quantity of Forced Outage associated with Market Participant p before the STEM Auction for Trading Interval t of Trading Day d, where this is the sum over all the Market Participant's Registered Facilities of the lesser of the Reserve Capacity Obligation Quantity of the Facility for Trading Interval t and the MW Forced Outage of the Facility for Trading Interval t as provided to the IMO by System Management in accordance with clause 7.3;

RTFO(p,d,t) is the total MW quantity of Forced Outage associated with Market Participant p in real-time for Trading Interval t of Trading Day d, where this is the sum over all the Market Participant's Registered Facilities of the lesser of the Reserve Capacity Obligation Quantity of the Facility for Trading Interval t and the MW Forced Outage of the Facility for Trading Interval t as provided to the IMO by System Management in accordance with clause 7.13.1A (b);

RTFO(f,d,t) is the total MW quantity of Forced Outage associated with Facility f in real-time for Trading Interval t of Trading Day d, where this is the lesser of the Reserve Capacity Obligation Quantity of the Facility f for Trading Interval t and the MW Forced Outage of the Facility f for Trading Interval t as provided to the IMO by System Management in accordance with clause 7.13.1A (b);

DSQ(~~p~~ f,d,t) is a MW quantity calculated by doubling the MWh value of ~~sum over all of the Facilities registered by Market Participant p of each~~ Facility f's Dispatch Schedule for Trading Interval t of Trading Day d;

MSQ(~~p~~ f,d,t) is a MW quantity calculated by doubling the greater of zero and the MWh value of ~~sum over all of the Facilities registered by Market Participant p of the greater of zero and~~ Facility f's Metered Schedule for Trading Interval t of Trading Day d, corrected for Loss Factor adjustments applicable to that Facility so as to be a sent out quantity;

F denotes the set of Scheduled Generators registered by Market Participant p, where "f" is used to refer to a member of that set.

4.26.2A. All values in clause 4.26.2 which are required to be corrected for Loss Factor adjustments so as to be a sent out quantity are to be adjusted based on an assumed Loss Factor of 1.

4.26.2B. The IMO is to set the factor described in the definition of RCOQ(p,d,t) and RCOQ(f,d,t) in clause 4.26.2 to equal one in all situations except for Scheduled Generators, Non-Scheduled Generators and Dispatchable Loads with Loss Factors less than one in which event the factor must equal the facilities Loss Factor.

5. ABOUT RULE CHANGE PROPOSALS

Any person (including the IMO) may make a Rule Change Proposal by completing a Rule Change Proposal Form and submitting this to the IMO (Clause 2.5.1 of the Market Rules).

The IMO will assess the proposal and, within 5 Business Days of receiving the proposal form, will notify the proponent whether the proposal will be progressed further.

In order for the proposal to be progressed the change proposal must explain how it will enable the Market Rules to better contribute to the achievement of the Wholesale Market Objectives. The market objectives are:

(a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;

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

(c) to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;

(d) to minimise the long-term cost of electricity supplied to customers from the South West interconnected system; and

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

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

APPENDIX A. ALINTA'S WORKED EXAMPLE OF THE ISSUE

Scenario 1
Single Scheduled Generator (130 MW) with a Resource Plan (DSQ) that does not meet the dispatch and does not log a forced outage.

Under the existing and proposed changes, a shortfall of 130 MW is calculated.

	EXISTING Net STEM Shortfall	
	RTFO (p,d,t)	**0**
	CAPA	**750**
	RCOQ (p,d,t)	**130**
A = Min(RCOQ, CAPA)	**A**	**130**
	RCOQ(p,d,t) – RTFO(p,d,t)	**130**
	DSQ(p,d,t)	**130**
B = Min(RCOQ–RTFO, DSQ)	**B**	**130**
	MSQ(p,d,t)	**0**
	DSQ(p,d,t)	**130**
C = Min(DSQ, MSQ)	**C**	**0**
	SF	**130**
	PROPOSED Net STEM Shortfall	
	RTFO (p,d,t)	**0**
	CAPA	**750**
	RCOQ (p,d,t)	**130**
A = Min(RCOQ, CAPA)	**A**	**130**
	RCOQ(f,d,t) – RTFO(f,d,t)	
	DSQ(f,d,t)	
B = Min(RCOQ–RTFO, DSQ)	**B**	
	MSQ(f,d,t)	
	DSQ(f,d,t)	
C = Min(DSQ, MSQ)	**C**	
	Max(0, B – C)	
	∑ Scheduled Generators	**130**
	SF	**130**

Scenario 2
Single Scheduled Generator (130 MW) with a DSQ that does not meet the dispatch, and where a forced outage is logged.

Under the existing and proposed changes, no shortfall is calculated as the refund will be applied at the facility level.

	EXISTING Net STEM Shortfall	
	RTFO (p,d,t)	**130**
	CAPA	**750**
	RCOQ (p,d,t)	**130**
A = Min(RCOQ, CAPA)	**A**	**130**
	RCOQ(p,d,t) – RTFO(p,d,t)	**0**
	DSQ(p,d,t)	**130**
B = Min(RCOQ–RTFO, DSQ)	**B**	**0**
	MSQ(p,d,t)	**0**
	DSQ(p,d,t)	**130**
C = Min(DSQ, MSQ)	**C**	**0**
	SF	**0**
	PROPOSED Net STEM Shortfall	
	RTFO (p,d,t)	**130**
	CAPA	**750**
	RCOQ (p,d,t)	**130**
A = Min(RCOQ, CAPA)	**A**	**130**
	RCOQ(f,d,t) – RTFO(f,d,t)	
	DSQ(f,d,t)	
B = Min(RCOQ–RTFO, DSQ)	**B**	
	MSQ(f,d,t)	
	DSQ(f,d,t)	
C = Min(DSQ, MSQ)	**C**	
	Max(0, B – C)	
	∑ Scheduled Generators	**0**
	SF	**0**

Scenario 3

Two Scheduled Generators (130 MW each), one with a DSQ that does not meet the dispatch and does not log a forced outage. The other unit is not required to run.

Under the existing and proposed changes, a shortfall is calculated.

	EXISTING Net STEM Shortfall	
	RTFO (p,d,t)	**0**
	CAPA	**750**
	RCOQ (p,d,t)	**260**
A = Min(RCOQ, CAPA)	**A**	**260**
	RCOQ(p,d,t) – RTFO(p,d,t)	**260**
	DSQ(p,d,t)	**130**
B = Min(RCOQ–RTFO, DSQ)	**B**	**130**
	MSQ(p,d,t)	**0**
	DSQ(p,d,t)	**130**
C = Min(DSQ, MSQ)	**C**	**0**
	SF	**130**
	PROPOSED Net STEM Shortfall	
	RTFO (p,d,t)	**0**
	CAPA	**750**
	RCOQ (p,d,t)	**260**
A = Min(RCOQ, CAPA)	**A**	**260**
	RCOQ(f,d,t) – RTFO(f,d,t)	
	DSQ(f,d,t)	
B = Min(RCOQ–RTFO, DSQ)	**B**	
	MSQ(f,d,t)	
	DSQ(f,d,t)	
C = Min(DSQ, MSQ)	**C**	
	Max(0, B – C)	
	∑ Scheduled Generators	**130**
	SF	**130**

Scenario 4

Two Scheduled Generators (130 MW each), one with a DSQ that does not meet the dispatch, but where forced outage is logged. The other unit is not required to run.

Under the existing rules a shortfall is calculated as well as the Forced Outage refund.

Under the proposed changes no shortfall is calculated as the changes pick up the forced outage of the facility that did not deliver.

	EXISTING Net STEM Shortfall	
	RTFO (p,d,t)	**130**
	CAPA	**750**
	RCOQ (p,d,t)	**260**
A = Min(RCOQ, CAPA)	**A**	**260**
	RCOQ(p,d,t) – RTFO(p,d,t)	**130**
	DSQ(p,d,t)	**130**
B = Min(RCOQ–RTFO, DSQ)	**B**	**130**
	MSQ(p,d,t)	**0**
	DSQ(p,d,t)	**130**
C = Min(DSQ, MSQ)	**C**	**0**
	SF	**130**
	PROPOSED Net STEM Shortfall	
	RTFO (p,d,t)	**130**
	CAPA	**750**
	RCOQ (p,d,t)	**260**
A = Min(RCOQ, CAPA)	**A**	**260**
	RCOQ(f,d,t) – RTFO(f,d,t)	
	DSQ(f,d,t)	
B = Min(RCOQ–RTFO, DSQ)	**B**	
	MSQ(f,d,t)	
	DSQ(f,d,t)	
C = Min(DSQ, MSQ)	**C**	
	Max(0, B – C)	
	∑ Scheduled Generators	**0**
	SF	**0**