



Notice of market rule modification

Paper No. EMC/RCP/11/2004/221
Rule reference: Chapter 6, sections 9.3.4, 9.3.5 and 10.4
Chapter 3, sections 4.6.15
Proposer: Market Surveillance and Compliance Panel
Date received by EMC: 10 October 2003
Category allocated: 2
Status: Approved by EMA
Effective Date: 2 Mar 2004
Summary of proposed rules change:

This rule change submission comprises 6 proposals that seek to give clarity to the rules governing offer changes made within 4 hours of a dispatch period (gate closure). Current rules were found to lack clarity regarding circumstances under which offer variations are permitted, forms of offer variations, and compliance and enforcement of the gate closure rule.

Date considered by Panel: 06 January 2004
Date considered by EMC Board: 29 January 2004
Date considered by Energy Market Authority: 25 February 2004
Proposed Rule Modification:

Refer to attachment

Reasons for rejection/Reasons for referral back to Panel (if applicable):



PAPER NO. : **EMC/BD/01/2004/03(a)**

RCP PAPER NO. : **EMC/RCP/11/2004/221**

SUBJECT : **OFFERS EXCEEDING OFFER CHANGE LIMITS**

FOR : **DECISION**

PREPARED BY : **POA TIONG SIAW**

VETTED FOR
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DATE : **29 JANUARY 2004**

Executive Summary

This rule change submission comprises 6 proposals by the Market Surveillance and Compliance Panel (MSCP). It seeks to give clarity to the rules governing offer changes made within 4 hours of a dispatch period (gate closure). The current rules were found to lack clarity regarding circumstances under which offer variations are permitted, forms of offer variations, and compliance and enforcement of the gate closure rule. Among the 6 proposals submitted by the MSCP, 4 were assessed to give clarity to the conditions under which offer changes can be made within gate closure. The RCP recommends that the EMC Board **adopt** these 4 rule proposals, **partially adopt** 1 and **not adopt** 1 proposal.

1. Introduction

This paper assesses the Market Surveillance and Compliance Panel's (MSCP) rule modification proposal to clarify the rules governing offer changes¹ made within gate closure².

2. Background

In the design document of the wholesale electricity market (by PHB Hagler Bailly, Aug 2000), it is written that a feature of the spot market is "self-commitment".

Section 1.2.2 of the design document

"The move to a spot market with **self-commitment** is driven by both a desire for economic efficiency and for increased commercial sovereignty... However, it seems prudent, at least initially, to have a certain timeframe, some period before real time, at which the schedule is more or less frozen, so that the ISO can **have confidence** that it will be able to meet the projected load, while ensuring the **appropriate system security requirements** are met. ..."

Self-commitment and Gate Closure

Self-commitment means that generators are responsible for preparing their generation units to generate electricity upon dispatch. Section 1.2.2 above also provided for a gate closure, which is a feature that prevents offer changes too close to real time. As a principle, no offer change for a dispatch period is allowed within 4 hours prior to that dispatch period.

The intent of gate closure is to create certainty for both the system operator (certainty that projected load will be met) and generation units (certainty of real time dispatch). Some generation units could take several hours to "warm up" and connect to the grid. An enforced gate closure provides some degree of certainty for them.

A gate closure regime typically addresses the following 3 issues:

1. Circumstances under which offer changes after gate closure may be permitted

There are provisions for certain circumstances under which offer variations may be permitted after gate closure. These exceptions are typically associated with changes in machine characteristics (eg. ramp rates relating to synchronization and de-synchronization), forced outages and supply/demand imbalances that threaten system security. For instance, a last-minute technical emergency may prevent a generation unit from generating enough electricity to meet what it has offered. If no action is taken to change the original offer and it is subsequently cleared, an energy shortfall could compromise system security by lowering the frequency of the system in real time. In this case, a reduction in offered quantity for that unit within gate closure to reflect its revised capacity may be justified. The spirit behind granting such exceptions is maintenance of system security.

2. Forms of offer changes after gate closure

¹ In this paper, an offer change refers to an offer variation or a revised standing offer, which are defined terms in the market rules.

² In this paper, gate closure means the window period before a relevant dispatch period when an offer variation made will be accepted unconditionally. This window period is provided in Section 10.4.1 of Chapter 6 of the market rules and currently stands at 4 hours.

On the one hand, allowing offers variations after gate closure would enable the market to address certain system security issues just before the dispatch period. On the other hand, offer changes after gate closure, if not subject to rules governing the forms of offer change, may lead to significant changes to the real time dispatch schedule from the most recent pre-dispatch schedule for the same dispatch period, both in terms scheduled quantity and clearing prices. It is therefore imperative that the rules set out the forms of offer changes permissible after gate closure so as to minimise gaming opportunities.

3. Compliance and enforcement of Gate Closure

The effectiveness of the gate closure rule depends on a robust compliance and enforcement regime. In the NEMS, for every offer change made within gate closure, a report is submitted to the MSCP for investigation. The MSCP then determines ex-post if such variations fall within the provided exceptions. Any violation without an acceptable cause is liable to penalty determined by the MSCP.

3. Economic Analysis

3.1 Problem Definition

In the first 10 months following market start, over 6500 instances (ie. over 600 instances per month on average) of offer changes submitted within gate closure were reported to the MSCP³. In investigating these reports, the MSCP felt that the rules governing offer changes made within gate closure lacked clarity. Hence, the MSCP proposed the following amendments to Section 10.4 of Chapter 6 and Section 4.6.15 of Chapter 3:

1. Remove reference that there is no “tolerance” for offer changes made within the gate closure;
2. Prohibit changes in price for offer changes made within the gate closure period, except for additional quantities offered during a shortfall situation;
3. Allow offer changes within gate closure to reflect revised capability of a unit “following a forced outage” instead of “during a forced outage”;
4. Remove (i) reduced prices and (ii) positive contribution to the resolution of energy surplus situations as permissible exceptions to violation of gate closure;
5. Be explicit that an offer change made within gate closure constitutes a rule breach unless it falls within some exceptions; and
6. Remove section 4.6.15 of Chapter 3 which gives uncertainty to the MSCP’s authority in investigating instances of violation of offer change limits.

The following sub-sections present each of these proposals by the MSCP.

In essence, the MSCP’s 6 proposals address clarity issues concerning

- Circumstances under which offer variations after gate closure is permitted - Proposals 3 and 5
- Forms of offer variations after gate closure – Proposals 2 and 4
- Compliance and enforcement of the gate closure rule – Proposal 1 and 6

For each proposal, we present our analysis and recommendation, and make reference to the relevant text of modification we recommend.

³ New Zealand has had similar number of instances per month of offer variations submitted after gate closure which is 2 hours before the start of the relevant dispatch period.

3.1.1 Circumstances under which offer variations after gate closure is permitted - Proposals 3 and 5.

3.1.1.1 Proposal 3

When a generation unit experiences a forced outage, current rules (Section 10.4.4.2) provide for that unit to vary its offer to reflect its revised capability **during** the forced outage. The MSCP's proposal is to replace "**during**" with "**following**". The MSCP's proposal is aimed at:

1. reflecting the fact that generators revise their capabilities **after** the occurrence of a forced outage; and
2. taking into account generators re-offering into the market when their units recover from the outage.

Analysis of Proposal 3:

On analysis, we felt that the use of "during" is still most accurate. The word best describes the period between the beginning and the end of a forced outage, which is exactly the window that violation of gate closure can reasonably be allowed. Using the word "following" implies there is no end to the window period, i.e. it implies that a generation unit that has experienced a forced outage can continue to make offer changes within gate closure even after the unit has "recovered" from the outage. Interpreted loosely, there could potentially be no end to the period in which that generation unit is allowed to make offer changes after gate closure.

Hence, we **do not concur** with **Proposal 3**.

3.1.1.2 Proposal 5

The MSCP proposes for the rules to be explicit that offer changes made under circumstances falling outside the defined exceptions are considered rule breaches and enforcement action may be taken.

Analysis of Proposal 5

We **concur** with **Proposal 5** to make it clear that offer changes should not be made after gate closure except under some specific circumstances. A new rule would be drafted to effect this change [Section 10.4.1 in Appendix 1].

3.1.2 Forms of offer changes

3.1.2.1 Proposal 2

Sections 10.4.4 and 10.4.5 of Chapter 6 describe conditions under which offer changes made within gate closure qualify as exceptions. It is also implicit in these two sections that changes to both offer quantities and prices are acceptable if they fall within the provided exceptions. Proposal 2 is to prohibit changes in price for quantities already offered but allow additional quantities offered to be made at any price in a shortfall situation.

Analysis of Proposal 2:

The rationale behind providing for exceptions to gate closure rules is maintenance of system security. In a situation where system security is at risk, the objective is solely to ensure that demand and supply quantities are matched. Hence, prices are not a consideration. In maintaining the spirit of gate closure (unit commitment), the prices of quantities already offered should not be allowed to change. However, there should not be a restriction on the offer price for additional quantities that are offered in a shortfall situation because these additional quantities are meant to address the shortfall.

We **concur** with **Proposal 2**. Hence, the proposed drafting of section 10.4.1 includes a condition that prices of quantities already offered should not be changed.

3.1.2.1 Proposal 4

Section 10.4.5 of Chapter 6 provides that offer variations made within gate closure should not be penalized if they:

1. “contribute positively to the resolution of shortfall situations by allowing for increased supply or **reduced prices**; or
2. contribute positively to the resolution of surplus situations by allowing for reduced supply.”

For consistency with Proposal 2, the MSCP proposes the removal of reduced prices as permissible ground for making offer changes within gate closure. The MSCP also proposes removing point (2), reasoning that a surplus situation would not be selected by the MCE. Hence, there is no need to provide for this situation.

Analysis of Proposal 4:

We **concur** with the first part of MSCP’s proposal as the principle of providing exceptions to the gate closure rule is based solely on ensuring system security. Reduced prices should not be an acceptable reason.

However, we **do not concur** with the MSCP’s proposal to remove point (2) above as permissible ground. This is because it is possible for an Energy surplus to be scheduled. It can potentially happen in two situations:

1. When a transmission line goes out and a generator unit cannot ramp down fast enough; and
2. When spring washer effect takes place and a generator unit cannot ramp down fast enough.

In both cases, allowing specific generators to reduce their offer quantity can potentially contribute to relieving the surplus. Moreover, an energy surplus advisory notice is issued by the system when there is a surplus situation. Therefore, it is intended that participants be allowed to react to the notice.

For a detailed description of the two situations, please see **Annex 2**.

3.1.3 Compliance and Enforcement of the gate closure rule

3.1.3.1 Proposal 1

Sections 10.4.2.1 and 10.4.2.2 of Chapter 6 use the terms “no tolerance” within specified offer change limits and “complete tolerance” to describe the stance on offer variations made within and prior to gate closure respectively. The MSCP requested that these terms not be used.

Analysis of Proposal 1:

We **concur** with the MSCP in **Proposal 1** that the two terms are not clear. According to Section 4.3.1 of Chapter 6 of the market rules, all offer variations up to 5 minutes prior to the production of dispatch schedules (RTS, PDS and MOS) are guaranteed to be used by the MCE for market clearing, i.e. the production of the relevant dispatch schedules. This is an inherent feature to allow changes to be made for system security reasons.

Nevertheless, following Proposal 5, it would be clear as a general rule that any offer change within gate closure is prohibited. Hence, there is no need for the use of terms such as “no tolerance” or “complete tolerance”.

To effect this proposal, Sections 10.4.2.1 and 10.4.2.2 are to be deleted. Also, Section 10.4 “Offer Change Limits” is to be renamed “Gate Closure”.

3.1.3.2 Proposal 6

Section 4.6 of Chapter 3 describes the process and authority of the MSCP in carrying out investigations. However, section 4.6.15 of Chapter 6 provides that the whole of section 4.6 of Chapter 3 is not applicable to any MSCP investigation into offer variations (Section 10.4 of Chapter 6). With section 4.6.15, the rules become silent on the MSCP’s investigative powers when considering cases relating to offer variations. The MSCP proposes that section 4.6.15 be deleted, reasoning that if violation of gate closure is to be treated as a rule breach, its investigative powers over any other form of rule breach should apply.

Analysis of Proposal 6

We **concur** with MSCP’s Proposal 6. The potential for gaming within gate closure would undermine the integrity of the market and has financial implications for all market participants. Hence, it is important that the MSCP be able to exercise the same powers given to it for all other investigations.

3.2 Additional Recommendation

For consistency, we recommend that sections 9.3.4 and 9.3.5 of Chapter 6 be amended so that the gate closure rules apply to situations when:

1. Energy/reserve/regulation shortfall advisory notices (Section 9.3.4) are issued by EMC; or
2. Energy surplus advisory notices (Section 9.3.5) are issued by EMC.

The intent of issuing these advisory notices is to encourage generators to make offer variations that alleviate a shortfall or surplus situation. The current drafting, however, is not clear that rules on gate closure apply.

4. Assessment against Section 46(4) of the Electricity Act

- The rule modification proposal does not unjustly discriminates in favour of or against a market participant or a class of market participants;
- It is consistent with the functions and duties of the EMA under section 3(3)(g)(i) of the Electricity Act.

It promotes and safeguards competition and fair and efficient market conduct.

5. Conclusion

There is insufficient clarity in the current rules governing offer variations made after gate closure. This creates grey areas for both market participants and the MSCP when they consider offer changes made within gate closure. Of the 6 rule change proposals submitted by the MSCP, we support 4, partially support 1 and do not support 1. In summary:

Proposal	Conclusion
1. Remove reference that there is no “tolerance” for offer changes made within the gate closure;	Supported
2. Prohibit changes in price for offer changes made within the gate closure period, except for additional quantities offered during a shortfall situation;	Supported
3. Allow offer changes within gate closure to reflect revised capability of a unit “following a forced outage” instead of “during a forced outage”;	Not supported
4. Remove (i) reduced prices and (ii) positive contribution to the resolution of energy surplus situations as permissible exceptions to violation of gate closure;	(i) Supported (ii) Not supported
5. Be explicit that an offer change made within gate closure constitutes a rule breach unless it falls within some exceptions	Supported
6. Remove section 4.6.15 of Chapter 3 which gives uncertainty to the MSCP’s authority in investigating instances of violation of offer change limits	Supported

The proposed re-drafting of the rules provides more clarity and conciseness around exceptions to the gate closure rule. Specifically, by restricting changes to offer prices, the proposed rules also better reflect the objective of providing for these exceptions, which is to ensure system security.

The proposed changes are a positive step towards robust gate closure rules that minimize gaming opportunities and the cost of enforcement. As a result, the overall efficiency of the market is enhanced.

6. Impact on market systems

There is no impact on any market system.

7. Consultation

We have published the proposed text of modifications on the EMC website for comments. No comments have been received for consideration.

For the proposed amendment on Section 4.15.6 of Chapter 3, it was deemed that the Chair of MSCP has been consulted since it is a proposal submitted by the MSCP.

8. Legal sign off

Text of the rule modifications has been vetted by EMC's external legal counsel whose opinion is that the modification reflects the intent of the rule modification as expressed in the analysis section of this paper.

9. Recommendations

The RCP recommends by consensus that the EMC Board

a. **adopt** the MSCP rule modification proposals to:

- 1) Remove reference that there is no "tolerance" for offer changes made within the gate closure;
- 2) Prohibit changes in price for offer changes made within the gate closure period, except for additional quantities offered during a shortfall situation;
- 3) Remove reduced prices as permissible ground for violation of gate closure;
- 4) Be explicit that an offer change made within gate closure constitutes a rule breach unless it falls within defined exceptions;
- 5) Remove section 4.6.15 of Chapter 3 which gives uncertainty to the MSCP's authority in investigating instances of violation of offer change limits; and
- 6) As proposed by EMC, amend sections 9.3.4 and 9.3.5 of Chapter 6 so that it is explicit that gate closure applies in situations where shortfall or surplus advisory notices are issued;

as set out in **Annex 1** of this paper.

- b. **not adopt** the MSCP's rule modification proposals to:
 - 1) Allow offer changes within gate closure to reflect revised capability of a unit "following a forced outage" instead of "during a forced outage";
 - 2) Remove positive contribution to the resolution of energy surplus situations as permissible exceptions to violation of gate closure;
- c. **seek** the Authority's approval of the rule change modifications adopted; and
- d. recommend that the adopted modifications come into force one business day after the date on which the approval of the Authority is published by the EMC.

ANNEX 1: Proposed Rule Modification

Existing Rules (Release 1 Jul 2003)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p>CHAPTER 6</p> <p>9.3.4 Where the <i>EMC</i> issues an <i>energy surplus advisory notice</i> pursuant to section 9.3.1.1 the <i>EMC</i> shall, unless the <i>EMC</i> determines that it is not able to do so for operational reasons or because such actions will place at risk the <i>security</i> of the <i>PSO controlled system</i>, and notwithstanding any notification requirements or other conditions specified elsewhere in these <i>market rules</i>, solicit <i>offer variations</i> that will decrease the aggregate output from <i>generation facilities</i> in such locations as may be designated by the <i>EMC</i>.</p> <p>9.3.5 Where the <i>EMC</i> issues an <i>energy, reserve or regulation shortfall advisory notice</i> pursuant to section 9.3.1.2, 9.3.1.3 or 9.3.1.4 or issues a system status <i>advisory notice</i> pursuant to section 9.3.2.1 that advises of <i>load shedding</i>, the <i>EMC</i> shall, unless the <i>EMC</i> determines that it is not able to do so for operational reasons or because such actions will place at risk the <i>security</i> of the <i>PSO controlled system</i>, and notwithstanding any notification requirements or other conditions specified elsewhere in these <i>market rules</i>, solicit <i>offer variations</i></p>	<p>CHAPTER 6</p> <p>9.3.4 Where the <i>EMC</i> issues an <i>energy surplus advisory notice</i> pursuant to section 9.3.1.1, the <i>EMC</i> shall, unless the <i>EMC</i> determines that it is not able to do so for operational reasons or because such actions will place at risk the <i>security</i> of the <i>PSO controlled system</i>, and notwithstanding any notification requirements or other conditions specified elsewhere in these <i>market rules</i>, solicit <i>offer variations</i> that will, <u>subject to section 10.4</u>, decrease the aggregate output from <i>generation facilities</i> in such locations as may be designated by the <i>EMC</i>.</p> <p>9.3.5 Where the <i>EMC</i> issues an <i>energy, reserve or regulation shortfall advisory notice</i> pursuant to section 9.3.1.2, 9.3.1.3 or 9.3.1.4 or issues a system status <i>advisory notice</i> pursuant to section 9.3.2.1 that advises of <i>load shedding</i>, the <i>EMC</i> shall, unless the <i>EMC</i> determines that it is not able to do so for operational reasons or because such actions will place at risk the <i>security</i> of the <i>PSO controlled system</i>, and notwithstanding any notification requirements or other conditions specified elsewhere in these <i>market rules</i>, solicit <i>offer variations</i> that will, <u>subject to section 10.4</u>, increase <i>energy, reserve or regulation</i>, as the case may be, in such</p>

Existing Rules (Release 1 Jul 2003)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p>that will increase <i>energy, reserve or regulation</i>, as the case may be, in such locations as may be designated by the <i>EMC</i>.</p> <p>10.4 OFFER CHANGE LIMITS</p> <p>10.4.1 The <i>EMC</i> shall review <i>offer variations</i> and revisions to <i>standing offers</i> submitted by <i>market participants</i> and shall report certain <i>offer variations</i> and revisions to <i>standing offers</i> to the <i>market surveillance and compliance panel</i> in accordance with this section 10.4.</p> <p>10.4.2 <i>Offer</i> change limits shall be established by the <i>EMC</i> that allow for:</p> <p style="padding-left: 40px;">10.4.2.1 no tolerance for <i>offer variations</i> or revisions to <i>standing offers</i> within 4 hours prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revision applies; and</p> <p style="padding-left: 40px;">10.4.2.2 complete tolerance for <i>offer variations</i> or revisions to <i>standing offers</i> submitted in advance of 4 hours prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revision applies.</p>	<p>locations as may be designated by the <i>EMC</i>.</p> <p>10.4 OFFER CHANGE LIMITS</p> <p>10.4.1 The <i>EMC</i> shall review <i>offer variations</i> and revisions to <i>standing offers</i> submitted by <i>market participants</i> and shall report certain <i>offer variations</i> and revisions to <i>standing offers</i> to the <i>market surveillance and compliance panel</i> in accordance with this section 10.4.</p> <p>10.4.2 <i>Offer</i> change limits shall be established by the <i>EMC</i> that allow for:</p> <p style="padding-left: 40px;">10.4.2.1 no tolerance for <i>offer variations</i> or revisions to <i>standing offers</i> within 4 hours prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revision applies; and</p> <p style="padding-left: 40px;">10.4.2.2 complete tolerance for <i>offer variations</i> or revisions to <i>standing offers</i> submitted in advance of 4 hours prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revision applies.</p>

Existing Rules (Release 1 Jul 2003)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
<p>10.4.3 The <i>EMC</i> shall report to the <i>market surveillance and compliance panel</i> any <i>offer</i> that exceeds the <i>offer</i> change limits referred to in section 10.4.2. Where an <i>offer variation</i> or a revision to a <i>standing offer</i> is so reported by the <i>EMC</i>, the <i>EMC</i> shall also advise the <i>market surveillance and compliance panel</i> of any factors of which the <i>EMC</i> is aware that could reasonably justify the <i>offer variation</i> or revision.</p> <p>10.4.4 When considering <i>offer variations</i> or revisions to <i>standing offers</i> reported to it pursuant to section 10.4.3, the <i>market surveillance and compliance panel</i> shall have regard to the fact that a <i>dispatch coordinator</i> for a <i>generation registered facility</i> may be required to submit an <i>offer variation</i> or a revision to a <i>standing offer</i> that contains a significant change relative to the <i>offer</i> being varied or revised in order to reflect:</p> <p>10.4.4.1 expected ramp-up and ramp-down profiles during periods following <i>synchronisation</i> or preceding <i>desynchronisation</i>; or</p> <p>10.4.4.2 revised capability during a <i>forced outage</i>.</p> <p>10.4.5 When considering <i>offer variations</i> and revisions to <i>standing offers</i> reported to it pursuant to section 10.4.3,</p>	<p>10.4.3 The <i>EMC</i> shall report to the <i>market surveillance and compliance panel</i> any <i>offer</i> that exceeds the <i>offer</i> change limits referred to in section 10.4.2. Where an <i>offer variation</i> or a revision to a <i>standing offer</i> is so reported by the <i>EMC</i>, the <i>EMC</i> shall also advise the <i>market surveillance and compliance panel</i> of any factors of which the <i>EMC</i> is aware that could reasonably justify the <i>offer variation</i> or revision.</p> <p>10.4.4 When considering <i>offer variations</i> or revisions to <i>standing offers</i> reported to it pursuant to section 10.4.3, the <i>market surveillance and compliance panel</i> shall have regard to the fact that a <i>dispatch coordinator</i> for a <i>generation registered facility</i> may be required to submit an <i>offer variation</i> or a revision to a <i>standing offer</i> that contains a significant change relative to the <i>offer</i> being varied or revised in order to reflect:</p> <p>10.4.4.1 expected ramp-up and ramp-down profiles during periods following <i>synchronisation</i> or preceding <i>desynchronisation</i>; or</p> <p>10.4.4.2 revised capability during a <i>forced outage</i>.</p> <p>10.4.5 When considering <i>offer variations</i> and revisions to <i>standing offers</i> reported to it pursuant to section 10.4.3, the <i>market surveillance and compliance panel</i> shall have regard to the objective that <i>offer variations</i> and revisions to <i>standing</i></p>

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<p>the <i>market surveillance and compliance panel</i> shall have regard to the objective that <i>offer variations</i> and revisions to <i>standing offers</i> that contribute positively to the resolution of <i>energy, reserve or regulation</i> shortfall situations by allowing for increased supply, or reduced prices, for the relevant commodity, or that contribute positively to the resolution of <i>energy</i> surplus situations by allowing for decreased supply, should not be penalised.</p>	<p>offers that contribute positively to the resolution of <i>energy, reserve or regulation</i> shortfall situations by allowing for increased supply, or reduced prices, for the relevant commodity, or that contribute positively to the resolution of <i>energy</i> surplus situations by allowing for decreased supply, should not be penalised.</p> <p><u>10.4 GATE CLOSURE</u></p> <p>10.4.1 <u>No offer variation or revised standing offer shall be submitted by or for a market participant within 4 hours immediately prior to the dispatch period to which the offer variation or revised standing offer applies, except:</u></p> <p><u>10.4.1.1 where it is intended:</u></p> <ul style="list-style-type: none"> a. <u>for a generation registered facility, to reflect its expected ramp-up and ramp-down profiles during periods following synchronisation or preceding desynchronisation; or</u> b. <u>for a generation registered facility, to reflect its revised capability during a forced outage; or</u> c. <u>to contribute positively to the resolution of an</u>

Existing Rules (Release 1 Jul 2003)	Proposed Rules (Deletion represented by strikethrough text and addition underlined.)
	<p><u>energy surplus situation by allowing for decreased supply of energy; or</u></p> <p>d. <u>to contribute positively to the resolution of energy, reserve or regulation shortfall situations by allowing for increased supply of energy, reserve or regulation; and</u></p> <p><u>10.4.1.2 where the price so offered, other than for additional quantities of energy, reserve or regulation, is the same as that previously offered for that dispatch period.</u></p> <p><u>10.4.2 The EMC shall report to the market surveillance and compliance panel for investigation, offer variations or revised standing offers submitted during the 4-hour period referred to in section 10.4.1, and provide any factors of which the EMC is aware that could reasonably justify the offer variations or revised standing offer.</u></p>
<p>CHAPTER 3</p> <p>4.6.15 This section 4.6 shall not apply to any investigations initiated by the <i>market surveillance and compliance panel</i> in respect of <i>offer variations</i> reported to it by the</p>	<p>CHAPTER 3</p> <p>4.6.15—This section 4.6 shall not apply to any investigations initiated by the market surveillance and compliance panel in respect of offer variations reported to it by the EMC pursuant to section 10.4 of Chapter 6.</p>

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<i>EMC</i> pursuant to section 10.4 of Chapter 6.	

ANNEX 2: SURPLUS SITUATIONS AND EXCESS GENERATION

A surplus situation is indicated when the MCE makes use of the ExcessGenerationBlock term that exists within the Node Balance Generation Constraint.

Node Balance Generation Constraint:

$$\begin{aligned} \text{NodeNetInjection}_n = & \sum_{g \in \text{OFFERS}_n} \text{Generation}_g - \sum_{p \in \text{BIDS}_n} \text{Purchase}_p \\ & + \sum_{j \in \text{DEFICITGENERATIONBLOCKS}_n} \text{DeficitGenerationBlock}_{n,j} \\ & - \sum_{j \in \text{EXCESSGENERATIONBLOCKS}_n} \text{ExcessGenerationBlock}_{n,j} \end{aligned}$$

The ExcessGenerationBlock is the counterpoint to the DeficitGenerationBlock:

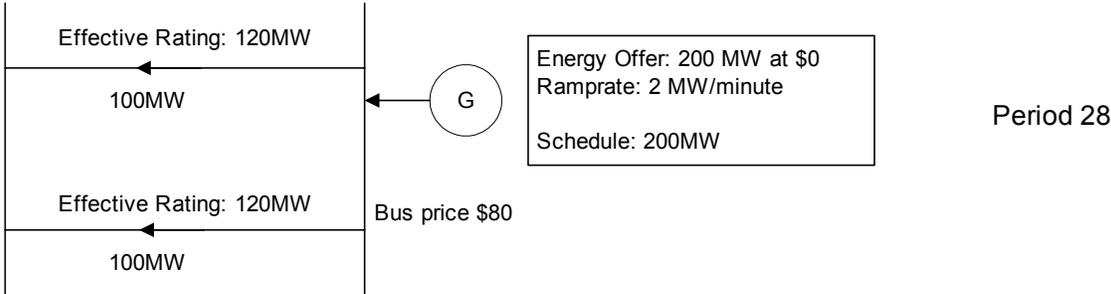
- DeficitGenerationBlock = deficit generation, used by the solver when extra generation is required at a node in order to prevent a violation
- ExcessGenerationBlock = deficit load, used by the solver when extra load is required at a node in order to prevent a violation. It is easier to think about the ExcessGenerationBlock if it is referred to as deficit load.

There are two situations where the MCE may want to use deficit load:

1. When a generator cannot ramp down fast enough to prevent a line from overloading. The MCE uses the deficit load to take up the generation and prevent the line from overloading.
2. When the spring-washer effect has occurred and the MCE requires extra demand at a node to facilitate flow along a parallel line. The MCE uses the deficit load to produce the extra demand.

Situation 1: Using ExcessGeneration to prevent line overload

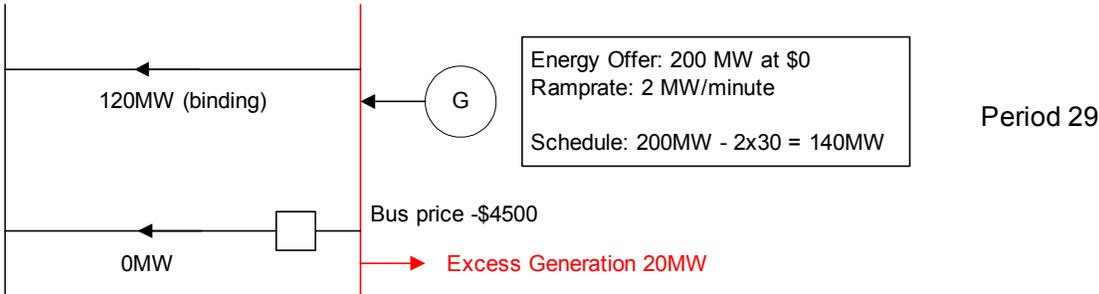
Consider the situation below. The generator is scheduled 200MW. There is no load at the generator bus, so this 200MW is flowing to the rest of the grid along two lines that have an effective rating of 120MW each.



In Period 29 one of the lines is scheduled out. Because the generator has an offered ramp rate of 2 MW/minute it can only ramp down to 140 MW. The solver has a few options:

1. breach the line overload by 20 MW. This will cost 20 MW x Line Violation Penalty i.e. $20 \times 2.2 \times \text{VoLL}$ i.e. $20 \times \$11000$
2. breach the excess down ramp rate by 20 MW. This will cost 20 MW x Excess Down Ramp Rate Penalty i.e. $20 \times 20 \times \text{VoLL}$ i.e. $20 \times \$100000$
3. use 20 MW from the Excess Generation Block. This will cost 20 MW x -CDC i.e. $20 \times \$5000$

The MCE will choose the least cost option which is the Excess Generation Block. This will effectively assign a fictitious load to the bus which will "soak up" the Excess Generation, as shown below.



Energy Surplus Advisory issued

The use of the ExcessGeneration will cause an Energy Surplus Advisory notice to be issued at the bus. The price at the bus will drop to -\$5000 (capped to -\$4500). This represents the fact that 1 MW less generation will save \$5000 of penalty.

The rules provide generators with the right to make offer variations within gate closure, provided they contribute positively to surplus situations.

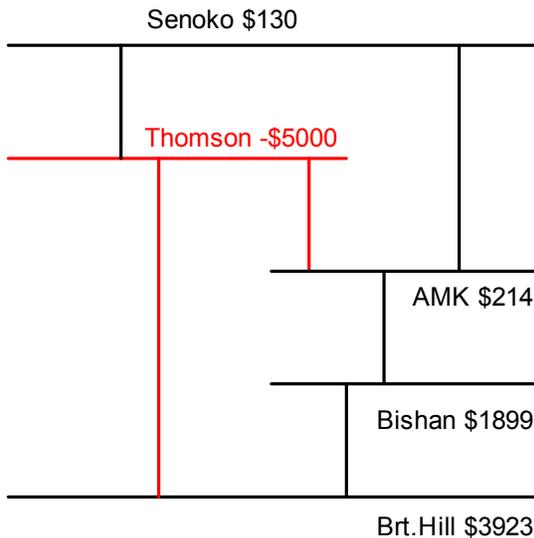
Section 10.4.5 of Chapter 6 provides that offer variations made within gate closure should not be penalized if they:

1. “contribute positively to the resolution of shortfall situations by allowing for increased supply or reduced prices; or
2. contribute positively to the resolution of surplus situations by allowing for reduced supply.”

If this were a late planned outage then the generator will see the Advisory Notice and the price signal in the PDS (or in the future in the STS). They will be able to respond by lowering their generation offer, or by increasing their ramp-rate.

10.4.3 Situation 2: ExcessGeneration triggered by the Spring Washer effect

In the network diagram shown below, the lines Thomson-AMK and Thomson-Brt.Hill have been de-rated to a maximum of 0MW due to incorrect SCADA data.



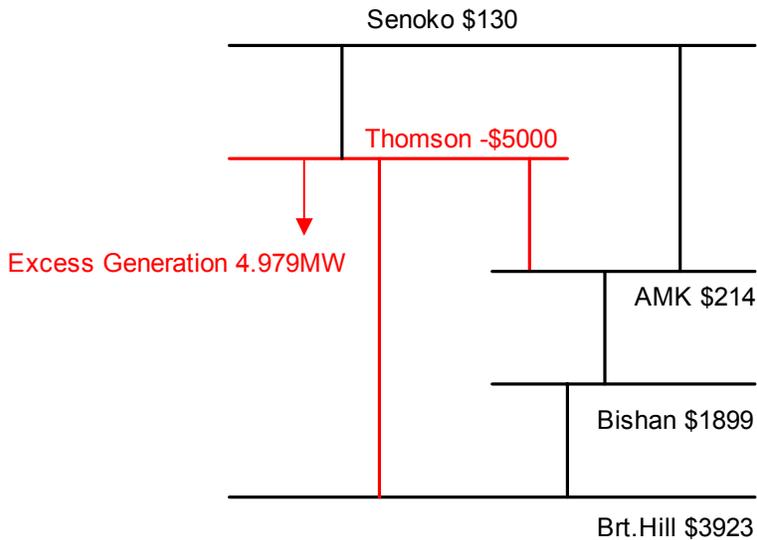
The high prices at AMK, Bishan and Brt.Hill are because the solver is having trouble delivering Energy to these locations. When energy is required, prices rise. The solver has raised the price to try and attract generation.

However for energy to flow from Senoko to AMK there must be a corresponding flow on the parallel circuit between Senoko and Thomson. This is the same as if the above setup represented pipes transporting water. If the pressure at Senoko is increased to push more water to AMK then the parallel pipe to Thomson must also increase its flow.

The problem is that the two pipes out of Thomson are at their limit. Any more water pushed into Thomson will burst these pipes.

An increased off-take at Thomson would allow more flow from Senoko, which would allow more flow on the parallel circuit to AMK. The solver has lowered the price at Thomson to try and attract more demand to Thomson.

If the price at Brt.Hill had reached \$5000 then deficit generation would have been scheduled at Brt.Hill. In this case the price at Thomson reached -\$5000 first. This cause deficit load (ExcessGeneration) to be scheduled at Thomson. This allowed increased flow in the Senoko-Thomson circuit. This in turn allowed enough parallel flow on the circuit to AMK for the demand at AMK, Bishan and Brt.Hill to be met.



This scenario actually occurred on 26-Jul-2003 for periods 39 and 40. Although an Energy Surplus notice was issued (see Appendix 1), there was no way that anyone could respond, because the warning was not caused by excess generation.

APPENDIX 1: ENERGY SURPLUS NOTICES

Issued for DPR on 26-Jul-2003 due to spring washer effect:

Display Window

ENERGY SURPLUS for 26 Jul 2003 period 39 (19:00)

Load Scenario: Medium
Market Run Details: DPR
Energy surplus 4.979 MW
This energy surplus is localised relating to the following nodes:

Dispatch Network Node	Energy surplus amount
THOMSON-66-BUSBAR 2	4.979

Notice was last EDITED on 28 Jul 2003 13:36 by KIANLOONG.CHOK
Notice went to DRAFT status on 28 Jul 2003 13:36 by KIANLOONG.CHOK
Notice went to ISSUED status on 28 Jul 2003 13:37 by KIANLOONG.CHOK

ENERGY SURPLUS for 26 Jul 2003 period 40 (19:30)

Load Scenario: Medium
Market Run Details: DPR
Energy surplus 5.436 MW
This energy surplus is localised relating to the following nodes:

Dispatch Network Node	Energy surplus amount
THOMSON-66-BUSBAR 2	5.436

Notice was last EDITED on 28 Jul 2003 13:36 by KIANLOONG.CHOK
Notice went to DRAFT status on 28 Jul 2003 13:36 by KIANLOONG.CHOK
Notice went to ISSUED status on 28 Jul 2003 13:37 by KIANLOONG.CHOK