



Notice of market rule modification

Paper No.	EMC/RCP/13/2004/233
Rule reference:	Gate Closure Reduction
Proposer:	Market Administration (EMC Pte Ltd)
Date received by EMC:	19 April 2004
Category allocated:	2
Status:	Approved by EMA
Effective Date:	1 July 2004
Summary of proposed rules change:	

The RCP had earlier tasked EMC to review if the existing 4-hour gate closure period could be reduced following the implementation of the short-term schedule (STS). In its review, EMC considered issues relating to unit commitment and system security requirements. EMC also conducted a survey on gate closure reduction with all market participants. The overall conclusion was to reduce the existing 4-hour gate closure period to 2-hour.

Date considered by Panel:	11 May 2004
Date considered by EMC Board:	26 May 2004
Date considered by Energy Market Authority:	17 June 2004
Proposed Rule Modification:	

Refer to attachment

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



PAPER NO. : **EMC/BD/03/2004/05(b)**

PAPER NO. : **EMC/RCP/13/2004/233**

SUBJECT : **GATE CLOSURE REDUCTION**

FOR : **APPROVAL**

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GENERAL MANAGER, MARKET ADMINISTRATION**

DATE : **26 MAY 2004**

Executive Summary

EMC has been tasked by the RCP to review if the existing 4-hour gate closure period could be reduced following the implementation of the short-term schedule (STS).

In its review, EMC has considered issues of economic efficiency, Genco's self-commitment and PSO's system security requirements. In addition, EMC has also conducted a survey on gate closure reduction with all market participants. The overall conclusion pointed to reducing the existing 4-hour gate closure to 2-hour.

We recommend that the EMC Board **adopt** the proposed **2-hour gate closure period** for the market, in view that the proposal would enhance market efficiency.

1. Introduction

This paper assesses EMC's rule change proposal to reduce the existing 4-hour gate closure¹ period to 2-hour. The proposed rule changes are attached in Annex 1.

2. Background

A rule change to extend the gate closure period from 2 to 4 hours was passed at the 14th PTRCP meeting held on 22 Nov 2002. The purpose was to address a 2-hour 'blind spot' in the pre-dispatch schedule (PDS) where offer variations made by the gencos might not be reflected in the PDS released to the gencos or PSO.

However, the 4-hour gate closure period was only an interim measure. A better solution was to implement short-term schedule (STS), but because this required major system modifications, it could not be completed in time for market-start. Thus, it was decided that the STS would only be developed after market-start and that once STS has been implemented, the 4-hour gate closure would revert to 2 hours.

STS became effective on 03 Mar 2004. However, in the STS rule change proposal, EMC did not recommend a reduction of the 4-hour gate closure period. The objective was to give market participants (MPs) some time to adapt to the changes brought about by STS, before EMC reviewed the gate closure period. The RCP agreed with this and requested EMC to conduct a review of gate closure within 6 months after STS has been implemented.

3. Review of the Gate Closure

3.1 The need for a gate closure

Gate closure is a feature that prevents offer variations too close to real time. The intent is to create certainty for both the system operator (certainty that projected load will be met) and generation units (certainty of real time dispatch).

Gate closure is closely related to unit commitment where generators are responsible for preparing their generation units to generate electricity on dispatch. Some generation units could take several hours to "warm up" and be synchronized to the grid. Thus, gate closure is necessary to provide some degree of certainty for these generators.

3.2 The appropriate gate closure period

Currently, the market has a 4-hour gate closure period. There are several important issues to consider when deciding the appropriate gate closure period. While there are economic arguments for having a shorter gate closure period, this should not be achieved at the expense of compromising unit commitment and system security requirements. This is elaborated below.

3.2.1 Economic arguments for having a shorter gate closure

There are economic arguments for having a shorter gate closure period. A shorter gate closure period will enhance efficiency by encouraging more responsive offering (or bidding). MPs would be able to vary their offers (or bids) closer to real time without breaching the rules. Such variations can be voluntary changes² in offers (or bids) made by the MPs or in response

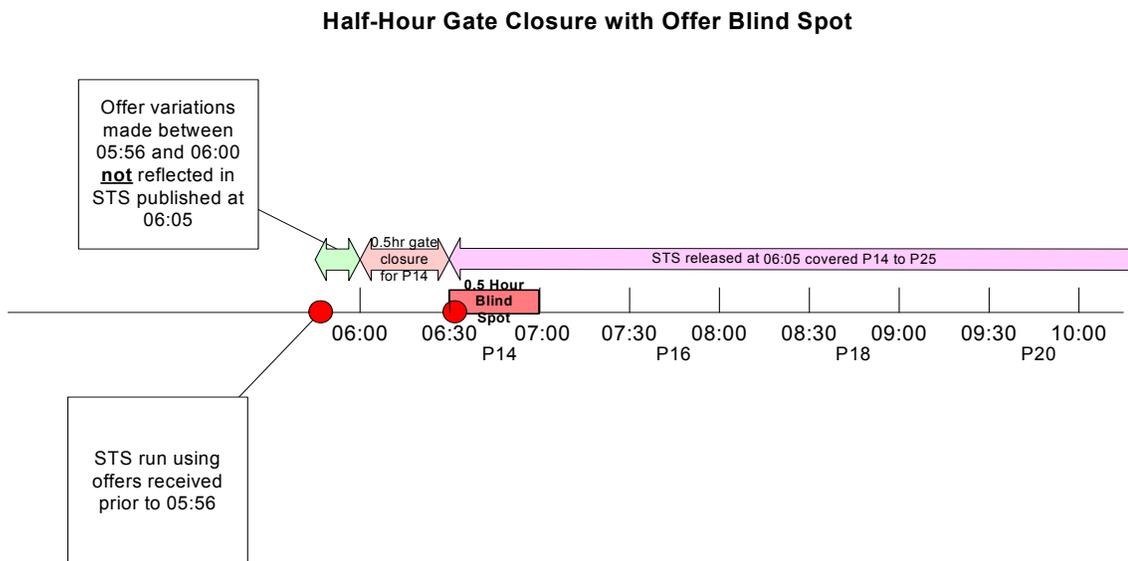
¹ In this paper, gate closure means the window period before a relevant dispatch period where an offer variation made will be accepted unconditionally. This window period is provided in Section 10.4.1 of Chapter 6 of the market rules and currently stands at 4 hours.

² These are distinguished from offer variation or a revision to the standing offer made by a Genco under circumstances permitted by section 10.4.1.1 of the rules (e.g. where the variations/revisions are intended for

to changing conditions (such as changes to the load forecast, grid configurations, security constraints, etc.).

3.2.2 Half-hour gate closure gives rise to a 'blind spot' in STS

In practice, we need to determine what the shortest possible gate closure period for our market is. In this regard, we think that a half-hour gate closure is infeasible because it will give rise to a 'blind spot', i.e. offer variations made in respect of a dispatch period will not be captured in the STS that is released to MPs or PSO. The diagram below illustrates this:



Currently, the STS runs half-hourly and 4 minutes prior to the start of a dispatch period (i.e. T - 4minutes). Suppose the MCE runs the STS at 05:56.³ If we have a half-hour gate closure, then offer variations made by gencos between 05:56 and 06:00 for P14 (as shown by the green arrow) will not be reflected in the STS released at 06:05. The unseen offer variations thus create a 'blind spot' such that the gencos and PSO would not have up-to-date information (for P14 in this example) required for them to manage the output of plants and the power system effectively.

To avoid the 'blind spot' in the STS, the gate closure has to be at least 34 minutes prior to the commencement of the first dispatch period in the STS that is released to the MPs or PSO. Since our market uses half-hourly period for dispatch, pricing and settlement, it is only natural to apply the same convention for gate closure. Then the shortest possible gate closure period would be 1-hour. As a result, the feasible range of gate closure period is between 1 and 4 hours. To determine the most appropriate gate closure period within this range, we need to further consider two important factors: unit commitment and system security.

a generator to reflect its revised capability during a force outage, its expected ramp-up and ramp-down profiles during periods following synchronisation or preceding desynchronisation, etc.)

³ The STS covers 13 consecutive dispatch periods (in our example, from P13 which commences at 06:00 to P25 which commences at 12:00). However, only P14 to P25 will be published. P13 will not be published as it is covered in the RTS.

3.2.3 Unit Commitment

(i) *Physical characteristics of generation unit*

SWEM is a self-commitment market where generators are responsible for preparing their generation units to generate electricity on dispatch. Having a reasonable timeframe for gate closure is necessary because the generators need to be committed some time in advance. This is because a generation unit will require some lead time to warm up and be synchronised to the grid before it can inject energy. The amount of lead time required largely depends on the physical characteristics of a generation unit which, in turn, vary according to the generation type (i.e. whether the generation unit is a steam or CCP unit). Typically, a CCP unit is more responsive and is quicker to start up compared to a steam unit.

Generation type has an important bearing on gate closure. In making changes to the gate closure, we need to consider the type of generation unit owned by the gencos. This is because gate closure changes should not unjustly favour or discriminate against a particular genco. If the mix of generation types among gencos is relatively homogenous⁴, then gate closure changes will not create an unfair advantage for any particular genco. However, should the mix of generation types among gencos be heterogeneous, then careful considerations should be given to ensure that gate closure changes do not unjustly favour or discriminate against a particular genco.

On this issue, EMC gathered some data on the mix of generation types among gencos as well as the physical characteristics of the generation units owned by these gencos. From the data, we observed that most gencos have mixed generation types (i.e. they own both CCP- and steam-type generation units).⁵ In addition, a 'hot' CCP unit typically takes about 1 to 2 hours to synchronise to the grid upon notification, while a 'hot' steam unit takes a longer time of about 3 to 5 hours.

(ii) *Increased uncertainty leading to higher prices*

With self commitment, there is no start-up and shutdown payment made. Gencos are expected to factor start-up and shut-down costs into their offers. A gate closure period that is too short will increase the uncertainty of dispatch for gencos (e.g. a generator which had committed itself earlier, based on a STS which indicated that it would be dispatched, might later be displaced by another generator closer to real-time). Eventually, gencos will factor the increased uncertainty into their offers and this may lead to higher cleared market prices in general.

At this point, EMC feels that a 2-hour would be an appropriate gate closure period. However, this also has to be assessed against system security requirements.

3.2.4 System Security

The impact of gate closure changes on system security cannot be overlooked. In New Zealand, the system operator performs most of the security analysis after gate closure, which is two hours⁶ prior to real-time. The length of this period is limited largely by the time taken for various models to be run and their output evaluated. Hence to a certain extent, automating and integrating more of the processes involved in security analysis will enable the shortening of gate closure.

⁴ While two gencos can both CCP and steam plants, they can vary in terms of the installed capacity for each generation type over the total installed capacity.

⁵ While most gencos own CCP and steam units, some have higher installed capacity for CCP-type generation than for steam-type generation.

⁶ In 1999, consideration was given to shorten gate closure from 2- to 1-hour. But after a review of the system security issues by the grid operator, it was concluded that the 2-hour gate closure allows adequate time for system security management and any further reduction in gate closure would be unacceptable during that time.

In Singapore, the process of security assessment is semi-automated. The relevant schedules (e.g. RTS, STS) from the MCE are sent to the EMS, which automatically processes these schedules for dispatch and for the System Control personnel of the PSO to assess whether they meet system security requirements⁷. Other than the time required for the system operator to assess system security, there is another dimension to system security we need to consider. That is, with too short a gate closure period, the likelihood of a genco offering its GRFs but not being able to run-up in real-time when scheduled will be higher. This has adverse impact on system security. In regard to gate closure reduction, the PSO has been consulted. While they support the proposed 2-hour gate closure period, they are not in favour of reducing the gate closure period to less than 2-hour at this stage.

3.3 Review Conclusion

After taking into account all the relevant factors, **EMC recommends a 2-hour gate closure period for a start**. The proposed 2-hour gate closure would not only enhance market efficiency, but also meet the needs for self-commitment (for the gencos) and system security (for the PSO).

EMC also recommends that it reviews whether the gate closure period can be further reduced after the 2-hour period has been implemented for 9 months. This is to give MPs (including the PSO) adequate time to fully assess the effects of STS and the 2-hour gate closure period.

4 EMC's Questionnaire on Gate Closure Reduction

4.1 Questionnaire design

Since gate closure reduction has industry-wide impact, EMC feels that it is important that MPs are consulted on this subject matter. To do this, EMC designed a questionnaire (see Annex 2) on gate closure reduction. The questionnaire was sent to all MPs.⁸

Broadly, the questionnaire was designed to find out (with reasons) from the MPs:

- (1) whether they have any objections to reducing the existing 4-hour gate closure to 2-hour;
- (2) whether they are currently in favour of a gate closure shorter than 2-hour; and
- (3) what are the relevant issues/concerns which they want EMC to pay attention to in relation to gate closure reduction.

⁷ For the RTS, which covers 1 dispatch period, the feasibility assessment is essentially automated where the scheduled energy, reserve and regulation are checked against required amounts. There is also visual inspection of any abrupt startup/shutdown of GRF in the RTS against the STS. For the STS, which covers 12 dispatch periods each, the same check as that for the RTS is performed for those dispatch periods which are less than 2-hour ahead. In addition, the PSO also assesses if the generation schedule (for those dispatch periods which are more than 2-hour ahead) would result in overloading of any transmission equipment/cables, taking into consideration transmission planned outages and probable forced outages. This assessment process is time consuming (typically takes about 2 hours) and cannot be fully automated as the PSO dispatcher needs to manually set up the cases, activate some programs in the EMS, analyze the results and decide if any follow up actions is required.

⁸ The questionnaire was addressed to the CEOs (or equivalent), who then assigned suitable persons to complete the questionnaire.

4.2 Summary of questionnaire responses

A total of 7 respondents (representing the respective organisations) completed the questionnaire.⁹ All respondents have no objections to reducing the existing 4-hour gate closure period to 2-hour. However, they all cautioned against reducing it further. The reasons given relate to unit commitment and system security requirements. A summary of the MPs' responses is tabled in Annex 3.

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

EMC's rules modification proposal does not unjustly discriminate 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)(b)(ii) of the Electricity Act:

by promoting **economic efficiency** and the maintenance of such efficiency in the electricity industry.

6. Conclusion

There are pros and cons of having a shorter gate closure period. On the one hand, having a shorter gate closure will benefit MPs by encouraging more responsive offering (or bidding). This will enhance market efficiency. On the other hand, it can also create greater uncertainty (in terms of unit commitment) for gencos and impose higher risk on system security.

In the gate closure review, EMC has considered the mix of generation types among gencos, unit commitment issues and system security requirements. Based on its review, EMC considered that 2 hours would be an appropriate gate closure period for the market. A survey conducted by EMC with MPs also showed that all the MPs shared the same sentiments as EMC. Thus, taking all things into consideration, **EMC recommends that the existing 4-hour gate closure period be reduced to 2-hour.** EMC further recommends that it reviews whether the gate closure period can be further reduced after the 2-hour gate closure has been implemented for 9 months.

7. Impact on market systems

There will be some modifications to EMC system to set the gate closure to 2-hour, such that any offer variations made in respect of a relevant dispatch period after gate closure will be brought to MSCP's attention.

8. Consultation

EMC has conducted a survey on gate closure reduction among MPs (please see Para 4).

The proposed text of modifications has been published on EMC's website for comments. No comments have been received for consideration.

⁹ As EMC has assured respondents that all responses will be treated with strict confidence, EMC will not reveal the identity of the respondents. Also, rather than giving specific comments/responses made by the respondents, EMC has grouped similar ones together and summarized them.

9. Legal sign off

Text of rule modification has been vetted by EMC's legal counsel to reflect the intent of the rule change submission.

10. Recommendation

The RCP has accepted by consensus EMC's proposed rule modifications and recommends that the EMC Board:

- a. **adopts** EMC's proposed rule modifications as set out in Annex 1;
- b. **seeks** the Authority's approval of EMC's proposed rule modifications;
- c. supports that EMC review whether the gate closure period can be further reduced after the 2-hour gate closure has been implemented for 9 months; and
- d. recommends that the supported modifications come into force **one week** after the date on which the approval of the Authority is published by the EMC.

ANNEX 1 PROPOSED RULE MODIFICATIONS

EXISTING RULES	PROPOSED RULES (Deletion marked by strikethrough text and addition underlined.)
<p>10.4 GATE CLOSURE</p> <p>10.4.1 No <i>offer variation</i> or revised <i>standing offer</i> shall be submitted by or for a <i>market participant</i> within 4 hours immediately prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revised <i>standing offer</i> applies, except:</p> <p>10.4.1.1 where it is intended:</p> <ul style="list-style-type: none"> a. for a <i>generation registered facility</i>, to reflect its expected ramp-up and ramp-down profiles during periods following <i>synchronisation</i> or preceding <i>desynchronisation</i>; or b. for a <i>generation registered facility</i>, to reflect its revised capability during a <i>forced outage</i>; or c. to contribute positively to the resolution of an <i>energy</i> surplus situation by allowing for decreased supply of <i>energy</i>; or d. to contribute positively to the resolution of <i>energy</i>, <i>reserve</i> or <i>regulation</i> shortfall situations by allowing for increased supply of <i>energy</i>, <i>reserve</i> or <i>regulation</i>; and <p>10.4.1.2 where the price so offered, other than for additional quantities of <i>energy</i>, <i>reserve</i> or <i>regulation</i>, is the same as that previously offered for that <i>dispatch period</i>.</p>	<p>10.4 GATE CLOSURE</p> <p>10.4.1 No <i>offer variation</i> or revised <i>standing offer</i> shall be submitted by or for a <i>market participant</i> within-4 <u>2</u> hours immediately prior to the <i>dispatch period</i> to which the <i>offer variation</i> or revised <i>standing offer</i> applies, except:</p> <p>10.4.1.1 where it is intended:</p> <ul style="list-style-type: none"> a. for a <i>generation registered facility</i>, to reflect its expected ramp-up and ramp-down profiles during periods following <i>synchronisation</i> or preceding <i>desynchronisation</i>; or b. for a <i>generation registered facility</i>, to reflect its revised capability during a <i>forced outage</i>; or c. to contribute positively to the resolution of an <i>energy</i> surplus situation by allowing for decreased supply of <i>energy</i>; or d. to contribute positively to the resolution of <i>energy</i>, <i>reserve</i> or <i>regulation</i> shortfall situations by allowing for increased supply of <i>energy</i>, <i>reserve</i> or <i>regulation</i>; and <p>10.4.1.2 where the price so offered, other than for additional quantities of <i>energy</i>, <i>reserve</i> or <i>regulation</i>, is the same as that previously offered for that <i>dispatch period</i>.</p>

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*.

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~~ 2-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*.

APPENDIX A MARKET OPERATIONS TIMETABLE

A.1 INTRODUCTION

A.1.1 This Appendix sets forth certain obligations respecting actions to be taken, and the time at which such actions must be taken, by the EMC, the PSO and market participants in respect of *real-time market operations*.

A.1.2 In this Appendix:

A.1.2.1 “D” shall refer to a *trading day*;

A.1.2.2 “T” shall refer to the beginning of a *dispatch period*; and

A.1.2.3 “PDS” shall refer to a *pre-dispatch schedule*.

A.2 THE MARKET OPERATIONS TIMETABLE

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
		Standing Capability Data				
Prior to facility registration	As specified in the applicable <i>market manual</i>	Provide initial <i>standing capability data</i> where such data shall have been provided to the <i>PSO</i> by a <i>market participant</i> , and approved by the <i>PSO</i> , in accordance with the <i>systems operations manual</i> .	<i>PSO</i>	<i>EMC</i>	From first day of participation and until superseded.	Once
Before day D	As specified in the applicable <i>market manual</i>	Provide revised <i>standing capability data</i> where such data shall have been provided to the <i>PSO</i> by a <i>market participant</i> , and approved by the <i>PSO</i> , in accordance with the <i>systems operations manual</i> .	<i>PSO</i>	<i>EMC</i>	From day D until superseded	As required
		Standing Offers for Energy, Reserve and Regulation				
Prior to facility registration	Any	First <i>standing offer</i> submitted	<i>Market participant</i>	<i>EMC</i>	Until superseded	Once
Any time, until D	T-4 <u>2</u> hours	Last time at which valid revised <i>standing offer</i> may be submitted without being subject to review in accordance with section 10.4 of Chapter 6.	<i>Market participant</i>	<i>EMC</i>	Until superseded	On going/as required

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
Any time, until D	T-5 minutes.	Last time at which a valid revised <i>standing offer</i> is guaranteed to be included in the <i>real-time scheduling</i> process.	<i>Market participant</i>	<i>EMC</i>	Until superseded	On going/as required
		Offer Variations for Energy, Reserve and Regulation				
D-8 days	9:00	<i>EMC</i> begins accepting <i>offer variations</i> for <i>dispatch periods</i> during <i>trading day D</i> .	<i>EMC</i>		D	On going
D-8 days to D	From 9:00 on D-8, within 5 minutes of receipt	Notification of acceptance/rejection of <i>offer</i> .	<i>EMC</i>	<i>Market participant</i>	D	On going
D	T-4 <u>2</u> hours	Last time at which valid <i>offer variation</i> may be submitted without being subject to review in accordance with section 10.4 of Chapter 6.	<i>Market participant</i>	<i>EMC</i>	T	On going

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
D	T-5 minutes.	Last time at which a valid <i>offer variation</i> is guaranteed to be included in the <i>real-time scheduling</i> process.	<i>Market participant</i>	<i>EMC</i>	T	On going
		Market Outlook Scenarios				
D-7 days	21:00	Last time at which valid <i>offer variations</i> are guaranteed to be included in <i>market outlook scenarios</i> run at 21:00 on D-7 days.	<i>Market participant</i>	<i>EMC</i>		Daily
D-7 days	By 21:00	<i>Dispatch-related data</i> issued for D, and revised data issued for days D-5 to D-1.	<i>PSO</i>	<i>EMC</i>	2 to 7 days hence	Daily
D-7 days	From 21:00	<i>EMC</i> runs <i>market outlook scenarios</i> for period from beginning of D-5 to end of D.	<i>EMC</i>		End of current <i>pre-dispatch horizon</i> (beginning of D-5 to end of D)	Daily
D-6 days	9:00	<i>Market outlook scenario</i> results for period from the beginning of D-5 to end of D <i>published</i> .	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> . All to <i>PSO</i> .	D-5 00:00 to D 23:30	Daily

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
		Pre-Dispatch Schedules				
D-1 day/ D	PDS publication time – 125 minutes	Latest time at which <i>offer variations</i> are guaranteed to be included in PDS run.				Every 120 minutes
D-1 day/ D	PDS publication time – 120 minutes	Latest time to complete updating of <i>PSO</i> data to be used in the PDS.	<i>PSO</i>	<i>EMC</i>	<i>pre-dispatch horizon</i> as at that time.	Every 120 minutes
D-1 day / D	PDS publication time – 120 minutes	Computation begins of PDS using the <i>market clearing engine</i> .	<i>EMC</i>		<i>pre-dispatch horizon</i> as at that time.	Every 120 minutes
D-1 day	By 11:45	First PDS information released for <i>trading day</i> .	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> All to <i>PSO</i> .	12:00 on D-1 day to 23:30 on D	Daily
D-1 day to D	Every 120 minutes from 11:45 on D-1 day.	PDS information released for remaining periods in day D.	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> All to <i>PSO</i> .	PDS <i>publication</i> time plus 15 minutes to 23:30 on D	Every 120 minutes

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
D	21:45	Final PDS information released for last <i>dispatch period</i> in day D. (Information for D+1 also included.)	EMC	Some just to <i>market participants</i> , some <i>published</i> All to <i>PSO</i> .		Daily
		Short-Term Schedule				
D	T-4 minutes	Latest time at which <i>offer variations</i> are guaranteed to be included in <i>short-term schedule</i> run.	Market participant	EMC		Every 30 minutes
D	T-4 minutes	Latest time to complete updating of <i>PSO</i> data to be used in the <i>short-term schedule</i> .	PSO	EMC	13 consecutive <i>dispatch periods</i> commencing at T. (Note: The first dispatch period will not be published. This is covered in the RTS.)	Every 30 minutes
D	T-4 minutes	Computation begins of <i>short-term schedule</i> using the <i>market clearing engine</i> .	EMC		13 consecutive <i>dispatch periods</i> commencing at T. (Note: The first dispatch period will not be published. This is covered in the RTS.)	Every 30 minutes

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
D	T+5 minutes	<i>Short-term schedule</i> information released.	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> All to <i>PSO</i> .	12 consecutive <i>dispatch periods</i> commencing at T+30 minutes	Every 30 minutes
		Real-Time Dispatch				
D	T-5	Latest time to complete updating of <i>dispatch-related data</i> to be used in the <i>real-time dispatch schedule</i> .	<i>PSO</i>	<i>EMC</i>		Every 30 minutes
D	T –5	Computation begins of <i>real-time dispatch schedule</i> using the <i>market clearing engine</i> .	<i>EMC</i>			Every 30 minutes
D	Prior to T – 30 seconds	Issuance of <i>real-time dispatch schedules</i> , <i>real-time pricing schedule</i> , and the market information set out in section 9.2.4 of this Chapter.	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> . <i>Real-time dispatch schedules</i> to <i>PSO</i> .	T + 30 minutes, or until revised.	Every 30 minutes
D	Prior to T	Where necessary, <i>PSO</i> issues dispatch instructions.	<i>PSO</i>	<i>Market participants</i> .	T + 30 minutes, or until revised.	Every 30 minutes

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
D	All times	In accordance with Chapter 5, <i>PSO</i> monitors dispatch and may intervene by issuing <i>dispatch instructions</i> via <i>AGC</i> or voice communications.	<i>PSO</i>	<i>Market participants</i>	T + 30 minutes	On going
		After Real-Time Dispatch				
D+1 day	12:00	Issue report as required for day D.	<i>EMC</i>	<i>Market Surveillance and Compliance Panel</i>	<i>Previous trading day</i>	Daily



(To: All CEOs or equivalent)

EMC's QUESTIONNAIRE ON REDUCTION OF GATE CLOSURE

INTRODUCTION

A rule change to extend the gate closure from 2 to 4 hours was passed at the 14th PTRCP meeting held on 22 November 2002. The rule change sought to address a 2-hour 'blind spot' in the pre-dispatch schedules (PDS) where offer variations submitted by the Gencos might not be reflected in the PDS which the Gencos or PSO received. Two options were presented at the meeting for the PTRCP to consider:

1. To extend the gate closure from 2 to 4 hours; or
2. To introduce the STS.

In its deliberation, the PTRCP noted that the STS would best solve the 2-hour 'blind spot' issue. This is because the STS would provide the Gencos and PSO with enhanced information for them manage their generation units more effectively without having to impose a longer gate closure. However, the STS required major system modifications which could not be completed prior to market-start.

Given this, the PTRCP supported the alternative of extending the gate closure as an interim measure to solve the 2-hour 'blind spot' issue. It was noted that the STS, which offered the long-term solution, would be developed and implemented after market-start. Subsequent to the STS implementation, the gate closure could be moved back to 2-hour again.

At the 11th meeting on 06 Jan 2004, the Rule Change Panel (RCP) supported the rule changes on STS. At that time, the RCP also requested EMC to conduct a gate closure review after the short-term schedules (STS) have been implemented. Specifically, it is timely for EMC to study whether the existing 4-hour gate closure can now be reduced, given that the STS have replaced the interim measure in solving the 2-hour 'blind spot' issue.

In view that gate closure reduction is an important issue and has industry-wide impact, EMC would like to initiate a round of consultation with relevant stakeholders first. To facilitate this process, EMC has devised a questionnaire on gate closure reduction (please see overleaf) for the stakeholders to respond. EMC will appreciate it if you can complete the questionnaire below and return it to us by **13 April 2004**, via fax at tel. no.:67793030 (Attn: Ms Ong Pui Sze, EMC Market Administration).

Please be assured that your response will be treated with **strict confidence** by EMC. If you have any queries, please feel free to contact Mr Teo Wee Guan at 67793000.

Reply to:

EMC Market Administration (Attn: Ms Ong Pui Sze)

Fax No.: 67793030

Deadline: 13 April 2004

QUESTIONNAIRE

Q1. The extension of gate closure from 2- to 4-hour supported by PTRCP in Nov 2002 was used an interim measure to solve the 2-hour 'blind spot' in the PDS. It was also noted then that subsequent to the STS implementation, the gate closure could be moved back to 2-hour again. As such, do you have any objections if the current 4-hour gate closure is proposed to change back to 2-hour again?

- NO (please proceed to answer only **Part A** and **Part C** of the questionnaire.)
- YES (please proceed to answer only **Part B** and **Part C** of the questionnaire.)

Part A (Answer this part only if your response to Q1 is 'No')

Q2. Currently, are you in favour of reducing the gate closure even further from the proposed 2-hour?

- YES (please specify what the appropriate gate closure should be: _____ hour)
- NO, 2-hour is just fine; Do not reduce it further.

Q3. Please explain in details the reasons for your response to Q2 above. Where applicable, substantiate your explanation with examples.

Part B (Answer this part only if your response to Q1 is 'Yes')

Q4. Please explain in details why the gate closure should NOT be moved back to 2-hour again. Where applicable, illustrate/substantiate your explanation with the relevant examples.

- Q5. While the 4-hour gate closure should not be reduced now, do you think that it should be reduced eventually in future?
- YES (please specify clearly when would be the appropriate time to reduce the gate closure: _____ (e.g. 2 years from now)
- NO, 4-hour works just fine; we should not change it at all, even in the future.

Q6. Please explain in details the reasons for your response to Q5 above. Where applicable, substantiate your explanation with examples.

PART C (Answer by all)

- Q7. Are there any other relevant issues/concerns which you want to raise to EMC's attention in relation to the reduction of gate closure? Please explain in details below (with the most important one first):

- Q8. Please furnish us with your particulars so that EMC can contact you if we have any queries to your response.

Name of Respondent: _____

Designation: _____

Organisation: _____

Telephone No. : _____

E-mail: _____

Signature of Respondent: _____

END OF QUESTIONNAIRE

EMC would like to thank you for taking time to complete this questionnaire. Your views are important to us. EMC will take into consideration stakeholders' views/concerns when it submits any recommendations to the Rule Change Panel for consideration.

ANNEX 3 SUMMARY OF QUESTIONNAIRE RESPONSES

Questions	"Yes"	"No"	Reasons Given
<i>Do you have <u>any objections</u> if the current 4-hour gate closure is reduced to 2-hour?</i>	0	7	(N.A. - respondents only need to give reasons if they have objections.)
<i>Are you <u>in favour</u> of reducing the gate closure further from the proposed 2-hour?</i>	0	7	<p><u>Unit Commitment</u></p> <ul style="list-style-type: none"> - may create too much uncertainty for the Gencos; Operationally, it can be difficult for Gencos to cope and adjust if gate closure is too short; - plants require a reasonable lead time to synchronise to the grid (even CCPs typically require 2 hours) - need time to evaluate the full implications of the 2-hour gate closure on trading and operational procedures; <p><u>System Security</u></p> <ul style="list-style-type: none"> - increases the risk that generators, when scheduled, are unable to run-up in real time.