



Notice of market rule modification

Paper No. EMC/RCP/23/2005/246
Rule reference: Chapter 6, section 10.4; Appendix 6A
Proposer: Market Administration, EMC
Date received by EMC: 12 Aug 05
Category allocated: 3
Status: Approved by EMA
Effective Date: 19 Jan 06

Summary of proposed rules change:

This is a rule change proposal on the reduction of gate closure period.

EMC (Market Admin) proposed a 65-minute gate closure period so that PSO and MPs could have at least 55 minutes to react to any changes in offers. This proposal was supported by the RCP.

Date considered by Panel: 21 Nov 05
Date considered by EMC Board: 30 Nov 05
Date considered by Energy Market Authority: 22 Dec 05
Proposed Rule Modification:

Refer to Annex 2.

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

Paper Number **EMC/BD/07/2005/14(a)**

RCP Paper **EMC/RCP/23/2005/246**

Subject **Gate Closure Reduction**

For **Approval**

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Submitted by **Dave Carlson**
Chief Operating Officer

Date of Meeting **30 November 2005**

Executive Summary

At its 13th meeting on 11 May 2004, the RCP supported a rule change to reduce the gate closure period from four hours to two hours. At that meeting, the RCP also tasked EMC to review whether the two-hour gate closure period could be reduced further after it has been implemented for nine months.

EMC initiated the review in May 2005. A survey was conducted with market participants (MPs), MSSL and PSO. The survey results showed that all respondents supported a one-hour gate closure period. According to them, a shorter gate closure period would enable them to react to changing market or plant conditions closer to real-time. It would also encourage more responsive biddings based on most recent market information. Hence, one possible option for the RCP to consider supporting is a one-hour gate closure period.

However, EMC (Market Administration) noted that a one-hour gate closure period may give rise to a minimum reaction time of only 25 minutes. Such a short reaction time may have adverse impact on system security and unit commitment. Hence, EMC (Market Administration) recommends that the gate closure period be set to 65 minutes (instead of one hour). This will ensure that the system operator and gencos have a minimum reaction time of 55 minutes to manage system security and unit commitment respectively. Hence, the RCP is also asked to consider supporting a second option, which is a 65-minute gate closure period.

The RCP considered both options. They supported the proposed 65-minute gate closure period which would give PSO and MPs at least 55 minutes (instead of 25 minutes) to react to any changes in offers. The RCP recommends that the EMC Board adopt this proposal.

1. Introduction

This paper assesses a rule change proposal to reduce the existing gate closure period. Two options have been tabled for RCP's consideration -- Option (1): proposed one-hour gate closure period, and Option (2): proposed 65-minute gate closure period.

2. Background

At its 13th meeting on 11 May 2004, the RCP supported a rule change proposal to reduce the gate closure period from four hours to two hours. At that meeting, the RCP also requested the EMC to review if the two-hour gate closure period could be reduced further after it has been implemented for nine months.

The two-hour gate closure period came into effect on 1 Jul 2004. Following the RCP's request, EMC initiated a review of gate closure period reduction in May 2005.

3. Analysis

3.1 What is gate closure?

Gate closure is the point in time before which changes to offers for a dispatch period will be accepted unconditionally. The purpose of having a gate closure is to give the system operator and generators adequate time to manage system security and unit commitment respectively.

Currently, the Singapore wholesale electricity market has a gate closure period of two hours¹. Under the existing Market Rules, changes to offers made after gate closure are allowed only under exceptional circumstances². Offer variations submitted after gate closure will be subject to investigation by the market surveillance and compliance panel (MSCP).

3.2 What is the 'appropriate' gate closure period?

Strictly from an economics standpoint, it is desirable to allow trading up to real-time. This will enhance economic efficiency by enabling more responsive offering (or bidding) based on the most recent market information. However, this is true only if a market is efficient and if system security (and unit commitment) is not problematic.

In an electricity market where system security is a major concern, it is not feasible to allow trading up to real-time. Having said this, how much time should be set between gate closure and real-time dispatch is a controversial issue. There is no deterministic rule to follow in finding the "optimal" gate closure period.

¹ This time period is provided in Section 10.4.1 of Chapter 6 of the Market Rules.

² Submission of offer variations within gate closure is allowed : (1) if it is intended: (a) for a GRF to reflect its expected ramp-up and ramp-down profiles during periods following synchronisation or preceding desynchronisation; or (b) for a GRF to reflect its revised capability during a forced outage; or (c) to contribute positively to the resolution of an energy surplus situation by allowing for decreased supply of energy; or (d) to contribute positively to the resolution of energy, reserve or regulation shortfall situations by allowing for increased supply of energy, reserve or regulation; and (2) where the price so offered, other than for additional quantities of energy, reserve and regulation, is the same as that previously offered for that dispatch period.

Gate closure period varies across jurisdictions³ (see [Annex 2](#)). It is however not meaningful to compare gate closure period across jurisdictions in isolation of other factors. In comparing gate closure periods used, one has to also consider unique features and requirements of each jurisdiction (e.g. generation technology-mix, types of market (real-time or day-ahead), etc).

3.3 Industry consultation

EMC has consulted the industry by distributing a questionnaire (see [Annex 3](#)) on gate closure period reduction to the market participants, MSSL and PSO. Broadly, the questionnaire was designed to find out:

- (1) if they supported reducing the existing two-hour gate closure period to one-hour and why; and
- (2) the issues they have in relation to gate closure period reduction.

Seven respondents (Tuas Power, Senoko Power, PowerSeraya, SembCorp Cogen, NEA, Keppel Energy and PSO) completed the questionnaire⁴. All of them supported reducing the two-hour gate closure period to one-hour. We summarise their responses below⁵.

3.3.1 Responses from gencos and Keppel Energy

All the gencos and Keppel Energy cited similar benefits of having a shorter gate closure period. According to them, a shorter gate closure period will:

- allow a genco to respond to sudden changes in plant or market conditions closer to real-time dispatch;
- reduce a genco's risk of being in an out-of-balance contractual position by allowing it to correct sudden changes in its physical position through trading closer to real-time; and
- reduce the need for a genco to justify its offer variations made after gate closure to the MSCP.

We have para-phrased examples given by market participants to illustrate the above points.

Example 1: A shorter gate closure will allow a genco to respond to sudden changes in plant or market conditions closer to real-time dispatch

Suppose it is now a few minutes before 2.00pm and there is high forecasted price (due to a sudden generating unit outage or increase in load forecast) for dispatch periods commencing from 3:00pm onwards. Based on the current two-hour gate closure period, if a genco wishes to offer its spare capacity, the earliest dispatch period it can offer would be for the one commencing at 04:00pm.

³ The information was gathered from a benchmarking survey on electricity market operation initiated by the EMC. 9 APEX members participated in this survey.

⁴ MSSL and PowerGrid have chosen to remain neutral on the issue

⁵ As EMC has assured respondents that all responses will be treated with strict confidence, we will not directly link any comments/responses received to specific respondents. Also, instead of quoting specific comments/response received, EMC has grouped similar ones together and summarized them.

If the gate closure period is reduced to one hour, then the genco can change its offer for the dispatch period commencing at 3:00pm (instead of 4:00pm). Hence, a shorter gate closure allows a genco having an online generating unit with spare capacity to quickly vary its offers and take advantage of the high prices closer to real-time dispatch. In this case, the genco may also help to restore any market imbalances quickly.

Example 2: A shorter gate closure will reduce a genco's risk of being in an out-of-balance contractual position by allowing it to correct sudden changes in its physical position through trading closer to real-time

Suppose a genco needs to generate a certain amount of energy in order to fulfil its contractual obligations (with its customers) for a particular dispatch period but faces a sudden unit outage. If the outage occurs after gate closure for that dispatch period, the genco can do little but hope that the spot price for the period would not be too high (since it will need to make up for its generation deficit from the spot market).

On the other hand, if the generating unit fails before gate closure for that dispatch period, then the genco can try to make up for its generation deficit by revising its offers⁶ for other online generating units it has in order to minimize its exposure to spot price spikes.

In short, a shorter gate closure period allows multi-unit gencos to respond to its own outages closer to real-time. By being able to adjust their offers across multiple units closer to real-time, their risk of being exposed to high spot prices is reduced.

Example 3: A shorter gate closure will reduce the need for a generator to justify its offer variations to the MSCP

Suppose a genco that is scheduled for dispatch at 01:00pm experiences an unexpected unit outage at 11:30am. The genco will need to vary its offer for the failed generating unit. With a two-hour gate closure period, the genco is required to justify to the MSCP why the offer variation was made.

However, if the gate closure period is reduced to one-hour, then there is no need for that genco to justify the offer variation to the MSCP. This reduces administrative costs for the gencos as well as the MSCP.

Furthermore, if the genco manages to fix the problem quickly, say before 12:00pm, then that generator can possibly re-submit, before gate closure, its offer for dispatch at 1:00pm.

3.3.2 Responses from PSO

The impact of gate closure period reduction on system security cannot be overlooked. Typically, the system operator will require some time before real-time dispatch to perform security assessment and planning.

⁶ Revising offer by a genco in this case would likely be to adjust the price it offered downwards so as to have the MCE cleared more of its quantity offered (since we presume that gencos typically would have already offered up to the maximum capacity under normal conditions).

According to the PSO, a shorter gate closure period could result in more volatility in dispatch schedules and a shorter reaction time. There is also a potential risk of a genco withdrawing a large capacity offered just before the one-hour gate closure. This may take other gencos by surprise and render them unable to respond with more capacity (e.g. from their standby units), although the Market Rules do allow for offer variations after gate closure if there is an energy shortfall.

However, the PSO also noted that there may also be potential benefits. For instance, reducing the gate closure period will enable gencos to react closer to real time by offering more capacity of their online generating units should there be high forecasted prices caused by a shortfall in offered Energy, Reserve or Regulation⁷. This will help to moderate price spikes in a tight supply situation. However, this may not be true if offline generating units⁸ have to be brought in because they generally take at least two hours to be run up.

Overall, the PSO supported a one-hour gate closure period but suggested that EMC conduct a cost-benefit analysis and proceed only if there are significant gains.

3.4 Two Options for Consideration

Two options were presented for the RCP to consider in relation to the reduction in gate closure period.

3.4.1 Option (1): Proposed one-hour gate closure period

EMC's survey showed that all respondents supported a one-hour gate closure period.

Gencos supported the one-hour gate closure period because that generally would give them more flexibility to respond to sudden changes in physical or commercial circumstances closer to real time. It would also encourage more responsive biddings based on most recent market information.

PSO highlighted some potential benefits and costs associated with a one-hour gate closure period. On balance, PSO still supported a one-hour gate closure period although it suggested that EMC proceed only if benefits exceed costs.

However, it is not possible to have a quantitative benefit-and-cost analysis. The analysis can only be a qualitative one. Overall, there is still a strong support for a one-hour gate closure period from the survey respondents. Hence, one possible option is for the RCP to consider supporting the proposed one-hour gate closure period.

⁷ This is true only if the gencos can offer spare capacity from their online generating units in the first place, or if there are offline fast-start units available for offers. Fast-start (or 'open cycle gas turbine') unit, typically takes a total of about 20 minutes to connect to the power system and reach its full capacity.

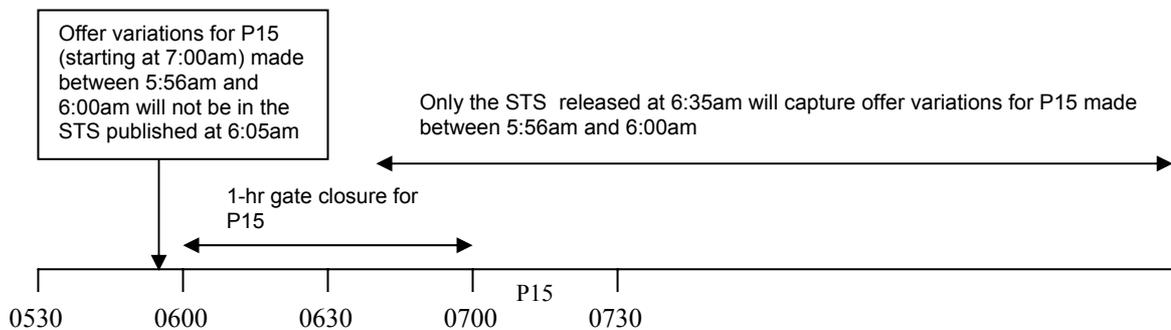
⁸ Besides fast start, the next fastest thermal plant in our power system is combine cycle gas turbine (CCGT). From the time instruction is issued, an offline CCGT typically required a total of at least about 90 minutes to connect to the power system and reach its minimum stable load level of about 180MW.

3.4.2 Option (2): Proposed 65-minute gate closure period

However, EMC (Market Administration) noted that a one-hour gate closure period has two potential drawbacks. They are: (i) a significant reduction in reaction time and, (ii) possibly greater dispatch volatility for the market. We elaborate on these two issues below.

Considerable reduction in reaction time

By reducing the gate closure period from two hours to one hour, the reaction time for both the system operator and the generators will be significantly reduced. Based on the existing market operations timetable, it is possible that the market players will have a minimum reaction time of only 25 minutes. The diagram below illustrates this point.



The Short Term Schedule (STS) runs at half-hourly intervals four minutes before a dispatch period begins (i.e. T- 4 minutes). Suppose the MCE runs a STS at 5:56am. This STS will be published at 6:05am and will cover P14 (commencing at 06:30am) to P25.

If a genco makes an offer variation for P15 (which commences at 7:00am) between 5:56am to 6:00am, i.e. within 4 minutes before the one-hour gate closure for P15, this offer variation would not be captured in this STS. It will only be captured in the next STS which will run at 06:26am and be published at 6:35am. By the time the PSO and other generators receive this STS, they will only have 25 minutes (i.e. from 6:35am to 7:00am) to react to any change in information for P15.

This short reaction time can have adverse impact on system security. This is especially so when a genco suddenly withdraws a large amount of capacity offered just prior to the one-hour gate closure period. The withdrawal would take the system operator and other market participants by surprise and they are unlikely to have adequate time and means to respond to it (e.g. for other generators to offer more capacity and for the system operator to manage power security effectively).

Also, with a very short reaction time, gencos may have greater difficulty managing unit commitment to meet their obligations in the real-time dispatch schedule.

Greater dispatch volatility

One-hour gate closure period may give rise to greater dispatch uncertainty. It is possible for a genco that has committed its generating unit earlier (based on a STS which cleared that unit) to be subsequently displaced by another genco very close to real-time. Since the Singapore wholesale electricity market is a self-commitment market where gencos are not paid separately for their start-up and shut-down costs, it is probable that they may factor the dispatch uncertainty into their offers. If this happens, it may lead to higher cleared prices for the market in general.

However, one can also counter-argue that genco will offer very low prices into the market to guarantee dispatch (i.e. to avoid its generating unit being displaced last minute) and this can have an overall downward pressure on cleared prices.

It is impossible to ascertain which scenario will prevail in reality. However, one can expect a shorter gate closure period to give rise to greater dispatch volatility which can then translate into greater price volatility for the market.

EMC (Market Administration)'s proposed solution

To mitigate the problems above, EMC (Market Administration) proposes that the gate closure period be set to 65 minutes before real-time dispatch (i.e. there is a five-minute increase from the one-hour gate closure period originally proposed).

This slight extension (by 5 minutes) would ensure that, for each dispatch period, there is a minimum reaction time of 55 minutes⁹ (instead of 25 minutes) for both the system operator and gencos. This 5-minute extension would not significantly erode the benefits of a shorter gate closure period to gencos. Conversely, it will help to increase the reaction time and reduce dispatch uncertainty considerably. Thus, another possible option for the RCP to consider supporting is the proposed 65-minute gate closure period.

4. Conclusion

From EMC's survey, it is clear that relevant market participants and PSO have all supported a one-hour gate closure period.

However, in the paper, EMC (Market Administration) has highlighted two potential concerns associated with a shorter gate closure period. First, the reaction time will be significantly reduced. This can have adverse impact on system security and unit commitment. Second, there may be greater dispatch uncertainty. Both problems could be exacerbated with a one-hour gate closure period, which gives a minimum reaction time of only 25 minutes. To mitigate these concerns, EMC (Market Administration) has proposed the gate closure period be 65-minute instead. This will ensure that, for every dispatch period, market players have a minimum reaction time of 55 minutes (instead of only 25 minutes) if a market player submits its offer (or offer variations) very close to gate closure.

⁹ The minimum reaction time will be at least 55 minutes since the STS is released every half-hourly by T+5 minutes.

Hence, two options were presented for the RCP to consider:

Option (1): a one-hour gate closure, based on the support for it by all respondents; or
Option (2): a 65-minute gate closure period, so that gencos and PSO can have a longer reaction time to better manage unit commitment and system security respectively.

The RCP considered both options, and supported Option (2). The RCP agreed that a 65-minute gate closure period would give market participants and PSO a longer minimum reaction time. The proposed rule modifications for Option (2) are attached in Annex 1.

5. Impact on market systems

There will be some modifications to EMC system to modify the gate closure period. These modifications can be done in-house with minimal cost.

6. Implementation process

EMC will need 2 weeks to modify its system to set the proposed gate closure period. This modification can be done in-house with minimal costs.

7. Consultation

EMC has conducted a survey on gate closure period reduction with market participants, MSSL and PSO.

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

8. Legal signoff

Texts of rule modifications for both options have been vetted by EMC's legal counsel to reflect the intent of the rule modification proposal.

9. Recommendations

The RCP unanimously recommends that the EMC Board:

- (a) **adopt** Option (2): a 65-minute gate closure period (as set out in Annex 1);
- (b) **seek** EMA's approval of the proposed rule modifications for Option (2); and
- (c) **recommend** that the proposed rule modifications for Option (2) come into force **two weeks** after the date on which the approval of the Authority is published by the EMC.

ANNEX 1 PROPOSED RULE MODIFICATIONS FOR OPTION (2): 65-MINUTE GATE CLOSURE PERIOD

Existing Rules (Release 1 April 2005)	Proposed Rules (Deletion represented by strikethrough text and addition underlined)	Reason for Modification
<p>CHAPTER 6</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 2 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> <p>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</p> <p>b. for a <i>generation registered facility</i>, to reflect its revised capability during a <i>forced outage</i>; or</p>	<p>CHAPTER 6</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 2 hours <u>65 minutes</u> 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> <p>a. for a generation registered facility, to reflect its expected ramp-up and ramp-down profiles during periods following synchronisation or preceding desynchronisation; or</p> <p>b. for a generation registered facility, to reflect its revised capability during a forced outage; or</p>	<p>MPs indicated in EMC’s survey their support for a one-hour gate closure period. However, EMC (Market Administration) is recommending a 65-minute gate closure period. This is to ensure that the gencos and system operator have a minimum reaction time of 55 minutes to effectively manage unit commitment and system security should a market player submit or vary its offers very close to gate closure. (Under a one-hour gate closure period, the minimum reaction time would be only 25 minutes.)</p>

Existing Rules (Release 1 April 2005)	Proposed Rules (Deletion represented by strikethrough text and addition underlined)	Reason for Modification
<p>c. to contribute positively to the resolution of an <i>energy</i> surplus situation by allowing for decreased supply of <i>energy</i>; or</p> <p>d. to contribute positively to the resolution of <i>energy, reserve</i> or <i>regulation</i> shortfall situations by allowing for increased supply of <i>energy, reserve</i> or <i>regulation</i>; and</p> <p>10.4.1.2 where the price so offered, other than for additional quantities of <i>energy, reserve</i> or <i>regulation</i>, is the same as that previously offered for that <i>dispatch period</i>.</p> <p>10.4.2 The <i>EMC</i> shall report to the <i>market surveillance and compliance panel</i> for investigation, <i>offer variations</i> or revised <i>standing offers</i> submitted during the 2-hour period referred to in section 10.4.1, and provide any factors of which the <i>EMC</i> is aware that could reasonably justify the <i>offer variations</i> or revised <i>standing offer</i>.</p>	<p>c. to contribute positively to the resolution of an energy surplus situation by allowing for decreased supply of energy; or</p> <p>d. to contribute positively to the resolution of energy, reserve or regulation shortfall situations by allowing for increased supply of energy, reserve or regulation; and</p> <p>10.4.1.2 where the price so offered, other than for additional quantities of <i>energy, reserve</i> or <i>regulation</i>, is the same as that previously offered for that <i>dispatch period</i>.</p> <p>10.4.2 The <i>EMC</i> shall report to the <i>market surveillance and compliance panel</i> for investigation, <i>offer variations</i> or revised <i>standing offers</i> submitted during the 2-hour <u>65-minute</u> period referred to in section 10.4.1, and provide any factors of which the <i>EMC</i> is aware that could reasonably justify the <i>offer variations</i> or revised <i>standing offer</i>.</p>	

ANNEX 1 PROPOSED RULE MODIFICATIONS FOR OPTION 2**APPENDIX 6A MARKET OPERATIONS TIMETABLE**

“D” shall refer to a trading day

“T” shall refer to the beginning of a dispatch period

Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
Any time, until D	T-2 hours <u>T-65minutes</u>	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
D	T-2 hours <u>T-65minutes</u>	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

ANNEX 2**Gate Closure - A Look at Other Jurisdictions**

Market	Products	Gate Closure	Duration of trading period
APX	Real-time (Spot): - Day-ahead: 1hr, strips Other: Derivatives, physical FTRs, bilaterals	1 hour	15-60 minutes
EEX	Real-time (Spot): - Day-ahead: Power, CO2 allowances 1hr, strips Other: Options, Futures	N.A.	4 hours + auction
Elexon	Real-time (Spot): Energy and balancing services Day-ahead: Energy and balancing services Other: Interconnector access, bilaterals	1 hour	30 minutes
ISA	Real-time (Spot): - Day-ahead: Bilaterals Other: -	1 hour and 30 minutes	1 hour
KPX	Real-time (Spot): - Day-ahead: hourly energy Other: Fixed price capacity payment	No response	1 hour
NEMS	Real-time (Spot): Energy, Regulation and Reserves Day-ahead: - Other: vesting contracts, bilaterals	2 hours	30 minutes
NZEM	Real-time (Spot): Energy, Reserves Day-ahead: - Other: -	2 hours	30 minutes
Nord Pool	Real-time (Spot): - Day-ahead: Energy, Transmission Capacity Other: -	1 hour	1 hour
PJM	Real-time (Spot): Energy Day-ahead: Energy, Reserves and Regulation Other: FTRs, capacity, bilaterals	45 minutes	1 hour

ANNEX 3

QUESTIONNAIRE ON REDUCTION OF GATE CLOSURE PERIOD

(To: All CEOs or equivalent)

INTRODUCTION

At its 13th meeting on 11 May 2004, the Rules Change Panel (RCP) supported a rule change proposal to reduce the gate closure period from 4 hours to 2 hours. At that meeting, the RCP also requested that the EMC review whether the gate closure period can be further reduced after the 2-hour gate closure had been implemented for 9 months.

In view that it has been 9 months since the implementation of the 2-hour gate closure period on 01 Jul 2004, it is timely for EMC to review whether the existing 2-hour period can now be further reduced to 1 hour.

Because changing the gate closure period has industry-wide impact, EMC would like to first consult stakeholders. Hence, we have prepared a simple questionnaire for you to complete. We would appreciate it if you could return the completed questionnaire to us by **COB 17 May 2005**, via fax: 6779 3030 (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 query, please feel free to contact Mr Teo Wee Guan at Tel: 6779 3000. Thank you.

Reply to:

EMC Market Administration (Attn: Ms Ong Pui Sze)

Fax No.: 6779 3030

Deadline: 17 May 2005

QUESTIONNAIRE

Q1. Please indicate whether you support reducing the current gate closure period from 2 hours to 1 hour, along with reasons for your view. Where possible, please substantiate with specific examples.

YES, we support reducing the gate closure period to 1 hour.

NO, we are do not support reducing the gate closure period to 1 hour.

Reasons:

Q2. If you do not support reducing the gate closure period to 1 hour now, please indicate whether you are open to having it reduced in the future, along with reasons for your view.

YES, we are open to reducing the gate closure period in _____ months'/years' time.

NO, we do not want it to be reduced any further, even in the future.

Reasons:

Q3. Are there any other relevant issues/concerns which you want to bring to EMC's attention in relation to reducing the 2-hour gate closure period? Please give the details below.

Q4. Please furnish us with your particulars so that EMC can contact you if we have any queries to your response.

Name of Respondent: _____

Designation: _____

Company: _____

Contact No. : _____

E-mail: _____

Signature: _____

END OF QUESTIONNAIRE

Thank you for taking the time to complete this questionnaire. Your views are important to us. EMC will take into consideration all stakeholders' views/concerns when it submits its recommendations to the RCP for consideration.