

Notice of Market Rules Modification

Paper No.:	EMC/RCP/47/2010/291
Rule reference:	Market Rules/Version 1 st October 2009/Chapter 6/Section 10.3A (new section)
Proposer:	Energy Market Company
Date received by EMC:	04 November 2009
Category allocated:	3
Status:	Not Approved by EMA
Effective Date:	NA

Summary of Proposed Rule Modification:

During this year's rule change work plan prioritization exercise, a proposal was received to publish the historical dispatch schedule of all generating units by period with unit ID. The proposal stated that the historical dispatch schedule is basic market information that should be made available to all market participants, so that they have more information to analyse market movements. The proposer also suggested that the provision of such information would not compromise sensitive pricing information, nor raise concerns on the exercise of market power and collusion.

This paper analyzed the proposal to make available the historical dispatch schedule of all generating units by period with unit ID, balancing the case for market transparency versus possibly facilitating the exercise of market power and collusion. Based on the analysis, releasing the historical dispatch schedules has the potential hazards of letting gencos exercise market power and facilitating collusion. At the same time, there appears to be weak justification along the lines of enhancing economic efficiency or facilitating market monitoring.

Given SWEM's high level of market concentration, EMC considers that on balance, the risks associated with publishing the identities of the generating facilities scheduled in each dispatch period, together with their respective scheduled quantities for Energy, Reserve by reserve class and Regulation are more well-established and pertinent compared to the potential benefits of doing so. Hence EMC recommended that the RCP do not support this proposal but review this proposal again when the level of market concentration has reduced (i.e. when the EMA next lowers the vesting contract level).

At the 46th RCP meeting, the RCP members considered the arguments discussed in the paper, together with the feedback received from three market participants. Some members did not agree with EMC's view that the proposal could facilitate collusion, suggesting that monitoring and surveillance panels are already in place. They also pointed out that similar markets in Australia and New Zealand already publish such dispatch schedule data, and believed that providing such data would even the playing field. The panel eventually voted 6 against 3 in favour of publishing the historical dispatch schedules, with 2 members abstaining.

The panel decided at the 47th RCP meeting that the information should be made to all market participants and the market support services licensee ("MSSL"). The information may also be made available to non-market participants, upon their request.

The RCP recommends that the EMC Board adopt this proposal to make available the historical dispatch schedule of all generating units by period with unit ID.

Date considered by Rules Change Panel: 05 January 2010

Date considered by EMC Board: 28 January 2010

Date considered by Energy Market Authority: 16 June 2010

Proposed rule modification:

See attached paper.

Reasons for rejection:

EMA had engaged IHS CERA to undertake a review of the impact of this proposed rule change on consumers.

IHS CERA's findings and recommendations :

IHS CERA stated that while most jurisdictions encourage the disclosure of more information to enhance transparency in the markets, the following unique characteristics of the National Electricity Market of Singapore (NEMS) argue against data disclosure put forth under the Proposed Rule Change:

- i As the NEMS is a highly concentrated market, there is reason to be concerned that possession of detailed cost-curves by suppliers could lead to anti-competitive behaviour and enhance the ability of generators to raise prices above the long run marginal costs on a sustained basis to the detriment of consumers;
- ii The lack of diversity in fuel-mix in NEMS makes it easier for gaming behaviour as compared to a more fuel-diverse market.
- iii The single stage market design, especially with a gate-closure time (65mins) very close to the delivery time, and with suppliers having significant flexibility in changing bids very close to delivery time, provides a relatively easy means to create supply shortage in the face of relatively inelastic demand.

Thus, IHS CERA does not recommend the proposed rule change to be implemented at this time, due to concerns over market concentration and the potential negative impact on consumers. Instead, IHS CERA has suggested that the RCP re-look at this proposal only after a number of criteria has been met, including a reduction in HHI to 1800 or less and more players in NEMS.

EMA agreed with the recommendations from IHS CERA. Given that the proposed rule change is detrimental to the interests of consumers, EMA has decided not to approve the proposed rule change.

PAPER NO. : **EMC/BD/01/2010/08(a)**

RCP PAPER NO. : **EMC/RCP/47/2010/291**

SUBJECT : **PUBLICATION OF HISTORICAL DISPATCH
SCHEDULES**

FOR : **DECISION**

PREPARED BY : **HENRY WEE
ANALYST, MARKET ADMINISTRATION**

REVIEWED BY : **PAUL POH
SVP, MARKET ADMINISTRATION**

DATE OF MEETING : **05 JANUARY 2010**

Executive Summary

During the 2009 rule change work plan prioritization exercise, a proposal was received to publish the historical dispatch schedule of all generating units by period with unit ID. The proposal stated that the historical dispatch schedule is basic market information that should be made available to all market participants, so that they have more information to analyse market movements. The proposer also suggested that the provision of such information would not compromise sensitive pricing information, nor raise concerns on the exercise of market power and collusion.

This paper analyzed the proposal to make available the historical dispatch schedule of all generating units by period with unit ID, balancing the case for market transparency versus possibly facilitating the exercise of market power and collusion. Based on the analysis, releasing the historical dispatch schedules has the potential hazards of letting genscos exercise market power and facilitating collusion. At the same time, there appears to be weak justification along the lines of enhancing economic efficiency or facilitating market monitoring.

Given SWEM's high level of market concentration, EMC considers that on balance, the risks associated with publishing the identities of the generating facilities scheduled in each dispatch period, together with their respective scheduled quantities for Energy, Reserve by reserve class and Regulation are more well-established and pertinent compared to the potential benefits of doing so. Hence EMC recommended that the RCP do not support this proposal but review this proposal again when the level of market concentration has reduced (i.e. when the EMA next lowers the vesting contract level).

At the 46th RCP meeting, the RCP members considered the arguments discussed in the paper, together with the feedback received from three market participants. Some members did not agree with EMC's view that the proposal could facilitate collusion, suggesting that monitoring and surveillance panels are already in place. They also pointed out that similar markets in Australia and New Zealand already publish such dispatch schedule data, and believed that providing such data would even the playing field. The Panel eventually voted 6 against 3 in favour of publishing the historical dispatch schedules, with 2 members abstaining.

The Panel decided at the 47th RCP meeting that the information should be made available to all market participants and the market support services licensee ("MSSL"). The information may also be made available to non-market participants, upon their request.

The RCP recommends that the EMC Board adopt this proposal to make available the historical dispatch schedule of all generating units by period with unit ID.

1. Introduction

One of the issues prioritized in the Financial Year 2009/2010 Rule Change Work Plan was the “Publication of Historical Dispatch Schedules”. Specifically, the proposal is to publish the identities of the generating facilities scheduled in each dispatch period, together with their respective scheduled quantities for Energy, Reserve by Reserve Class and Regulation. The proposal stated that:

- a) the historical dispatch schedule is basic market information that should be made available to all market participants so that they have more information to analyze market movements,
- b) the provision of such information would not compromise sensitive pricing information, nor raise concerns on the exercise of market power and collusion, and;
- c) providing such additional information complements the release of generation schedules and pricing to increase transparency, which is consistent with the evolution of markets.

This paper analyzed the proposal to make such information available, balancing the case for market transparency versus possibly facilitating the exercise of market power and collusion.

The industry comments received during consultations and the decision of the panel at the 46th and 47th RCP meetings are presented in sections 5 to 8 of this paper. The subsequent sections set out the required rule and system changes to give effect to the panel's decision, the implementation timeline and costs, and the legal sign-off obtained. The final section states the RCP recommendations to the EMC Board, for its support.

2. Background

2.1 Existing Rules on Publication of Historical Dispatch Schedule

There is currently no rule associated with the publication of historical dispatch schedule.

2.2 Data Currently Available

Currently, historical dispatch information is available in various forms as shown in Table 1. As shown, they are aggregated to some extent by type, class or generation company (Genco), but not to the resolution of generating facilities level as proposed.

Table 1: Reported Historical Dispatch Schedule by Data Type

Data Type	Resolution	Frequency	Report
1) Scheduled Energy	By plant type (CCGT, ST, GT)	i) Daily average figures for last 7 trading days ii) Previous trading day by period	Daily Trading Report
	By Genco	Based on previous week or month scheduled data	Weekly/Monthly Trading Report

2) Scheduled Reserve (by Class) and Regulation	By Reserve Class or Regulation	Daily average figures for last 7 trading days	Daily Trading Report
	All Reserve Class and Regulation market share by Genco	Weekly; and Monthly from Jan to previous month	Weekly/Monthly Trading Report

2.3 Market Comparison

A few liberalized electricity markets already publish scheduled energy and/or ancillary services data at the generating unit level. Below, we identify the key characteristics of markets that publish such information, and compare them with the Singapore Wholesale Electricity Market (SWEM).

Table 2: Market Comparison (Australia; New Zealand; Texas; Singapore)

Market	Australia National Electricity Market	New Zealand Electricity Market	ERCOT (Texas)	SWEM (Singapore)
Published Data	Hourly energy schedules and ancillary services schedules by generating unit with a one day lag ¹	Hourly actual energy output by generating unit with one day lag ¹	Hourly energy schedules by generating unit with a 60-day lag ¹	Half-hourly energy schedules by plant type/genco, with a 1-day/weekly lag (see Table 1)
Market Concentration (HHI ²)	Not Concentrated (581)	Concentrated (2,348)	Not Concentrated (400)	Concentrated (2,512)
Total System Installed Capacity(MW)	42,837 ³	9,380 ⁴	101,938 ⁵	10,420 ³
Total Generation (GWh)	197,510 ³	42,453 ³	405,492 ⁵	39,073 ³
No of registered MPs (the sum of individual cat. may not equal total no of MPs due to overlap if it is under the same company)	135 MPs ⁵ 73 Gencos 49 Retailers	129 MPs/ 34 Gencos 24 Retailers	257 Gencos ⁸ 149 Retailers 197 Marketers	21 MPs 8 Gencos 5 Retailers
Top 5 generators Market Share (based on installed capacity)	1 Delta Electricity – 11.7% 2 Macquarie Generation – 10.9% 3 Stanwell Corporation – 7.6% 4 Eraring Energy –	1 Meridian Energy Ltd– 27.7% 2 Genesis Power Ltd – 21.9% 3 Contact Energy Ltd – 18.7% 4 Mighty River	1 TXU Genco LP – 12% 2 NRG Texas LLC – 11.23% 3 Luminant Genco LLC – 5.07%	1 Senoko Power – 32% 2 PowerSeraya – 28% 3 Tuas Power – 25% 4 SembCorp – 8%

¹ Table 7 Generator Operational Data Posting, of CRA Report entitled “Analysis of Data Release Practices in Centrally-Dispatched Electricity Markets” July 25, 2007

² HHI measures the extent of market concentration, and is calculated based on $HHI = \sum (\text{installed capacity market share of each genco})^2$ (as at 31Dec2008). A HHI figure above 1,800 suggests a moderately concentrated market.

³ EMC 2008 Benchmarking Results

⁴ Table G3a of 2009 New Zealand Energy Data File (for 2008 calendar year), www.med.govt.nz/templates/StandardSummary___15169.aspx

⁵ “Existing Electric Generating units in the United States,2008” Prelim [www.eia.doe.gov/cneaf/electricity](http://www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html) /page/capacity/capacity.html ; Total Generation from Texas Electricity Profile www.eia.doe.gov/cneaf/electricity/st_profiles/texas.html

⁶ NEMMCO 2008 Annual Report

⁷ “Participant register” www.electricitycommission.govt.nz/rulesandregs/reg

⁸ www.put.state.tx.us/electric/business/inde.cfm

Market	Australia National Electricity Market	New Zealand Electricity Market	ERCOT (Texas)	SWEM (Singapore)
	7.2% 5 CS Energy Limited – 6.1% The 5 above captures 43.5% of market share ⁹	Power Ltd – 13.86% 5 TrustPower Ltd - 5.86% The 5 above captures 94% ¹⁰ of market share based on generation, other 6% by independents and embedded	4 San Antonio – 4.08% 5 South Western Electric Power – 3.4% The above 5 captures 35.8% of entire market share ¹¹	5 Keppel Merlimau Cogen – 5% The 5 above captures 98% of market share ¹²
Type of Market	Real time (5 min period)	Real time (5min period)	Day ahead (95%-98%) + Real Time (2%-5%)	Real time (30min period)
Regions	5 regions: (NSW, QLD, SA, TAS, VIC)	2 regions: North and South	Nil.	1 region
Pricing Method	Locational Marginal Pricing	Locational Marginal Pricing	Locational Marginal Pricing (as of 1Apr09)	Locational Marginal Pricing
Main Fuel Type (based on total generation proportion)	Coal – 84% Gas - 8.36% Hydro - 5.86% ¹²	Hydro - 52% Gas - 19% Coal - 9% Geothermal - 9% ¹²	Natural Gas – 49.2% Coal – 36.3% Nuclear 10.1% ¹³	Natural Gas – 83.13% Fuel Oil – 14.82% ¹²

Using the Herfindahl Hirschman Index as the measure of market concentration, it is clear that market concentration in both New Zealand and Singapore is high¹⁴ compared to the other 2 markets that publish energy schedules and ancillary schedules. In these 2 markets (NZ & SWEM), the top 5 generators contribute more than 90% of the market share. However, more than 50% of the generation fuel in New Zealand is contributed by hydro and its fuel diversity is wider and cheaper than that in SWEM. For the Australian and Texas markets, their market concentration is considered low with the top 5 generators capturing less than 50% of the total market share, which is also manifested by their low HHI levels.

⁹ NEMMCO 2008 Annual Report

¹⁰ Fig G.1a New Zealand Energy Data File (for 2008 calendar year), www.med.govt.nz/templates/StandardSummary___15169.aspx

¹¹ Derived from “Existing Electric Generating units in the United States,2008” Prelim www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html

¹² EMC Benchmarking Survey 2008

¹³ Table 5.”Electric Power Industry Generation by Primary Energy Source” of Texas Electricity Profile in http://www.eia.doe.gov/cneaf/electricity/st_profiles/texas.html

¹⁴ The U.S. Department of Justice considers a market with a result of less than 1,000 to be a competitive marketplace; a result of 1,000-1,800 to be a moderately concentrated marketplace; and a result of 1,800 or greater to be a highly concentrated marketplace. As a general rule, mergers that increase the HHI by more than 100 points in concentrated markets raise antitrust concerns.

3. Economic Analysis

Impact of Information on Economic Efficiency

Economic literature supports the generation and provision of information as one of the requirements in generating competitive outcomes. Among suppliers, competition may be enhanced by the sharing of information, for example, on new technologies or market opportunities. Correspondingly, the more informed customers are, the more effective competition is likely to be, and so making information publicly available to customers does not usually harm competition¹⁵.

However, economic literature on dynamic models of collusion also highlighted that information exchange can improve the ability to collude and eliminate competition, hence harming consumers. For example, producers can use the exchange of information to coordinate their behaviour in the market in order to keep prices above the competitive level, limit production or the amount of new capacity, or share the market¹⁶.

The new European Committee Merger Guidelines provide a good summary of the environment where coordination may occur¹⁷:

“Coordination is more likely to emerge in markets where it is relatively simple to reach a common understanding on the terms of coordination. In addition, three conditions are necessary for coordination to be sustainable. First, the coordinating firms must be able to monitor to a sufficient degree whether the terms of coordination are being adhered to. Second, discipline requires that there is some form of credible deterrent mechanism that can be activated if deviation is detected. Third, the reactions of outsiders, such as current and future competitors not participating in the coordination, as well as customers, should not be able to jeopardise the results expected from the coordination. “

Information exchange may facilitate the agreement, monitoring and punishment, and may therefore lead to or stabilise collusion.

It follows therefore that communication and information revelation can have either pro-consumer or anti-competitive impacts, depending on whether collusion is likely to be a problem or not, and depending on the type and characteristics of the information that is exchanged. Since there is no general intuition with regards to the effect of information exchange, it is necessary to study the specific context for each industry.

The subsequent sections will discuss the potential benefits and hazards of making available the dispatch schedules at the generating facility level in the context of SWEM's market concentration and dynamics.

¹⁵ Page 9, Understanding Competition Law, Office of Fair Trading, 2004. The Office of Fair Trading is a non-ministerial government department in UK that oversees competition and consumer protection. http://www.of.gov.uk/shared_of/business_leaflets/ca98_guidelines/oft408.pdf

¹⁶ Page 5, Competitive Impacts of Information Exchange, Dr. Rainer Nitsche and Nils von Hinten-Reed, CRA, June 2004. http://ec.europa.eu/competition/consultations/2004_6_reg_4056_86/note_on_information_exchange_en.pdf

¹⁷ Page 15, Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, Official Journal of the European Union, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:265:0006:01:EN:HTML>

3.1 Potential Hazard: Market Power and Collusion

Economic Argument against Releasing Individual Quantities

The exchange of information has an adverse effect on competition where it serves to reduce or remove uncertainties inherent in the process of competition. Whether or not the information exchange has an appreciable effect on competition depends on the circumstances of each individual case: the market characteristics, the type of information and the way in which it is exchanged. The exchange is adjudged to have an appreciable effect on competition the smaller the number of independent firms operating in the market, the more frequent the exchange and the more sensitive, detailed and confidential the nature of the information which is exchanged¹⁸.

In general, the exchange of information on output and sales should not affect competition provided that it is sufficiently historic and aggregated and cannot influence future competitive market behaviour. There may however be an appreciable effect on competition if it is possible to disaggregate the information and identify the participants. This may also be the case if the exchange relates to recent or current information, or information which relates to future plans.

As a result, information exchange on individual price and quantity data is likely to allow firms to achieve collusive outcomes without having to resort to explicit agreements on prices and quantities that are illegal. Indeed, it is hard to find plausible business reasons, other than collusion, that might justify the exchange of individual price and output data¹⁹.

Indeed, under European Commission's Competition Law, the exchange of individual price and quantity data will be considered a restriction of competition in itself and is therefore an infringement of Article 85(1). An exemption should only be granted if the firms demonstrate that there are business reasons (other than collusion) that require this type of information exchange and cannot be achieved otherwise²⁰. In addition the exemption should only be granted if the structural features of the industry make collusive outcomes unlikely. Individual price and quantity data, as well as individual data on stocks and capacities are not usually necessary for firms to improve the efficiency of operations. They can normally only be explained by the attempt to facilitate collusive conduct including tacit collusion¹⁸.

Application of Economic Argument in SWEM's Context

Based on the above arguments, there appears to be a strong case **against** releasing historical dispatch schedules (which constitutes individual quantities), especially if the data is recent. Hypothetically, some of the possible gaming strategies that gencos could adopt using such data include:

- **Exercise Market Power** – For example, a genco observes that on a regular basis, the generating units of other gencos are running at full capacity for a given period of the day. Since the genco knows that the rest of the market has an inelastic supply, it will be tempted to exercise market power by changing its offers to drive up market prices.

¹⁸ Pg 11, Understanding Competition Law, Office of Fair Trading, 2004.

¹⁹ Pg 121, Information Exchanges among Firms and Their Impact on Competition, Kuhn and Vives, 1994.

²⁰ Pg 250, European Competition Law: A Practitioner's Guide, Lennart Ritter, W. David Braun

- **Facilitate Collusion (Signalling)** – Through their offers, different gencos could intentionally schedule their generating units to run close to their maximum capacity. This in turn could serve as an implicit signal to the other gencos that market supply is tight and that they could drive up prices for subsequent periods by withholding supply.
- **Facilitate Collusion (Monitoring)** – If gencos already have a collusive agreement in place, the publication of scheduled energy at the generating unit level could facilitate collusion by allowing them to monitor each other to ensure that all parties are adhering to the collusive agreement, or penalise those that deviate from it.

Given the above possible scenarios, there is a very real concern that providing historical dispatch schedule could facilitate the exercise of market power or collusion in SWEM, especially given the current market concentration. This is particularly true, since the demand for energy, reserve and regulation is inelastic (i.e. through lack of demand response for energy, while demand for reserve/regulation is determined based on system security considerations).

3.2 Potential Benefit: Market Transparency

Based on the earlier comparison in Table 2, some markets do release scheduled quantities by generating facilities, albeit with some time lag. Indeed, in many electricity markets around the world, there is a move towards greater transparency by releasing relevant market data.

Some of the arguments for greater data transparency are as follows:

- **Enhancement in Economic Efficiency** - One potential benefit of market transparency is that the data released can help the Genco to make better-informed decisions, and hence enhance the overall efficiency in the electricity market. However, the uniform pricing regime in SWEM is predicated on Gencos offering based on their marginal costs. It is therefore unclear how the provision of scheduled quantities by generating facilities could be useful in enhancing efficiency. If anything, Gencos could waste resources poring over this data, and/or using it to deviate from the original intent of marginal cost bidding, undermining market efficiency as a result.
- **Facilitate Public Monitoring** – Another argument of making more data publicly available is that it facilitates the public to better monitor market behaviour, hence keeping defiant behaviour or market power in check. One article, for example, stated that the threat of public identification will deter unwarranted, high offers by generators averse to bad publicity (or in some cases, adverse to further bad publicity) and by public power authorities who must be responsive to elected public officials²¹. However, it is unclear if the Singapore public is either informed or motivated enough to make sense of scheduled quantity data. In any case, we already have EMA and the MSCP monitoring market behavior, both of which having access to more detailed data and complex monitoring tools.

²¹ Protecting the Market from “Hockey Stick” Pricing: How the Public Utility Commission of Texas is Dealing with Potential Price Gouging by David Hurlbut, Keith Rogas, and Shmuel Oren, The Electricity Journal, April 2004, page 32

4. Conclusion and EMC's Recommendation

Based on the above analysis, releasing the historical dispatch schedules has the potential hazards of letting Gencos exercise market power and facilitating collusion. At the same time, there appears to be weak justification along the lines of enhancing economic efficiency or facilitating market monitoring.

Given SWEM's high level of market concentration, EMC consider that on balance, the risks associated with this proposal to publish the identities of the generating facilities scheduled in each dispatch period, together with their respective scheduled quantities for Energy, Reserve and Regulation are more well-established and pertinent compared to the potential benefits of doing so.

EMC therefore recommend that the RCP do not support this proposal, and suggest that this issue be reviewed when the level of market concentration is reduced (i.e. when the EMA next lowers the vesting contract level).

5. Consultation

EMC published the concept paper (CP21) for comments on 30 September 2009, seeking the industry's views on whether historical dispatch schedules by generating facilities should be published, and the reasons either for or against the proposal.

EMC received comments from three market participants; Diamond Energy and Senoko supported the proposal premised upon the general benefits that transparency brings to market, while PowerSeraya opposed it, quoting the concerns over the potential exercise of market power. The comments and EMC's responses are reproduced in Annex 1.

6. Deliberation and Decision by the RCP

At the 46th RCP meeting, the RCP considered the arguments raised in the paper, the feedback received from three market participants, and EMC's response to them.

Mr Wauters noted that Singapore is frequently benchmarked against the Australian and New Zealand markets, both of which already release such historical dispatch data. Mr Kay similarly supported the proposal by suggesting that concerns on market power abuse would already be addressed by the monitoring and surveillance panels in place, while Mr Landgale affirmed that such data should be made available to all instead of just some parties to level the playing field.

Mr Philip Tan, on the other hand, cautioned that information release should be complete (i.e. including line constraints and supply conditions), so as to give a full picture of the electricity system. Otherwise, a partial release could lead to people drawing wrong perceptions of what is actually happening.

6 RCP members **voted for** the proposal to publish historical dispatch schedules of all registered facilities by period with unit ID:

1. Brendan Wauters
2. Ng Meng Poh
3. Annie Tan
4. Dallon Kay
5. Robin Langdale
6. Goh Bee Hua

3 RCP members **voted against** the proposal:

1. Sim Meng Khuan
2. Philip Tan
3. Kenneth Lim

2 RCP members **abstained** from voting:

1. Chan Hung Kwan
2. Yeo Lai Hin

7. Consultation on Rule Change Proposal

Following the panel's decision at the 46th RCP meeting, EMC published a rule modification proposal for comments on 25 November 2009, seeking industry's views on the rule changes to effect the publication of historical dispatch schedules by generating facilities. Three comments were received – the comments are reproduced together with EMC's responses in Annex 2.

8 RCP Decision on Rule Change Proposal

At the 47th RCP meeting, the panel decided that the historical dispatch data should be made available to all market participants and the MSSL. The data may also be made available to non – market participants, upon their request.

9.1 Proposed Rule Changes to Give Effect to RCP's Decision

A summary of the proposed rule changes to give effect to the RCP's decision, at the 47th RCP meeting, to make available the historical dispatch data is given in table 3 below. The detailed proposed rule changes are in Annex 3.

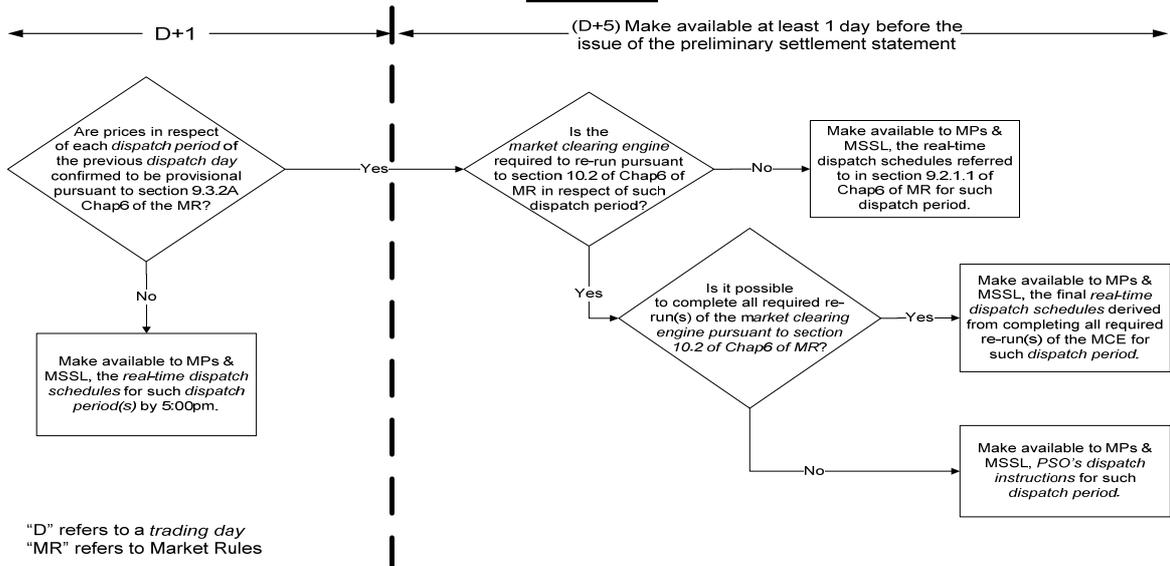
Table 3: Summary of Proposed Rule Changes

Chapter	Section	Reason for Rule Change
6	10.3A.1 (new section)	To require EMC to make available the historical dispatch schedule such that if the prices of the dispatch period(s) were not determined to be provisional, then EMC shall make available to each market participants and the market support services licensee, the real time dispatch schedules for such dispatch period(s) by 5:00pm of the following day.
6	10.3A.2 (new section)	To provide for the conditions where prices for the dispatch period are determined to be provisional.
6	10.3A.2.1	If prices for any dispatch period were determined to be

Chapter	Section	Reason for Rule Change
	(new section)	provisional but the market clearing engine (MCE) was not required to be re-run, then EMC shall make available to each market participants and the market support services licensee, the <u>original real time dispatch schedules</u> for such dispatch period, at least 1 business day before the issue of the preliminary settlement statement.
6	10.3A.2.2a (new section)	If prices for any dispatch period were determined to be provisional, and MCE was required to be re-run and the re-run was possible, then EMC shall make available to each market participants and the market support services licensee, the <u>final real time dispatch schedules</u> derived from completing all required re-run(s) of the MCE for such dispatch period, at least 1 business day before the issue of the preliminary settlement statement.
6	10.3A.2.2b (new section)	If prices for any dispatch period were determined to be provisional, and the MCE was required to be re-run but all required re-run(s) was not possible, then EMC shall make available to each market participants and the market support services licensee, the PSO's final dispatch instructions for such dispatch period, at least 1 business day before the issue of the preliminary settlement statement.
6	10.3A.3	To allow EMC to make available the real-time dispatch schedule describe in sections 10.3A.1, 10.3A.2.1, 10.3A.2.2a and the PSO's dispatch instructions describe in 10.3A.2.2b to non-market participants upon their request.

The proposed rule changes in Table 3 will implement the process to make available the data, which is illustrated in the flow chart below:

Figure 1: Flowchart on Operational Procedures to Make Available Historical Dispatch Schedules



9.2 Consequential Rule Changes

In the process of reviewing the rules changes in section 6.1, it was found that the usage of the term “real-time dispatch schedule” was not consistent in certain sections of the rules. The inconsistencies are corrected accordingly and reflected in table 4 below. The detailed proposed rule changes are in Annex 4.

Table 4: Summary of Consequential Rule Changes

Chapter	Section	Reason for Rule Change
5	9.7.2	Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in Chapter 8
6	9.2.1.1	Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in Chapter 8. To remove the references to section 9.1.2 of Chapter 5, as that section only applies to the extract of real-time dispatch schedule referred to in the revised Section 9.2.3.
6	9.2.3	Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in Chapter 8. To clarify that section 9.1.2 of Chapter 5 applies to the extract of real-time dispatch schedule referred to in this revised Section 9.2.3.

Chapter	Section	Reason for Rule Change
8	1.1.203	To clarify that the term 'real-time dispatch schedule' has two different meaning when used in the market rules, and to specify in the definition which meaning is intended in which sections of the market rules when the term is used. 'Real time dispatch schedule' that is intended to refer to the consolidated schedules determined by the MCE in respect of registered facilities is defined in section 1.1.203.1 of this chapter Otherwise, 'Real time dispatch schedule' is intended to refer to an extract of the schedule referred to in section 1.1.203.2, in respect of a given registered facility.
Appendix 6A	A.2	The Market Operations Timetable: Real-time Dispatch For clarity and consequential amendment for consistency with the amended definition of 'real-time dispatch schedule' in Chapter 8.

10. Impact on market systems

As a result of implementing the proposed rule change, EMC will require system changes to publish the identities of the registered facilities scheduled in each dispatch period, together with their respective scheduled quantities for Energy, Reserve by Reserve Class and Regulation for the previous dispatch day. Specifically, the data will contain the following fields:

- a. Identity of the GRF/LRF
- b. Scheduled Energy (generation level) for each dispatch period
- c. Scheduled Regulation for each dispatch period
- d. Scheduled Primary Reserve for each dispatch period
- e. Scheduled Secondary Reserve for each dispatch period
- f. Scheduled Contingency Reserve for each dispatch period

11. Implementation process

Enhancement will be made to the Single Electronic Window (SEW), such that when the SEW is implemented on 30 June 2010, MPs and MSSL will be able to download the historical dispatch schedules through the website or through their back-end system integration. This enhancement to the SEW is estimated to cost S\$50,160.

The format which the historical dispatch data will be presented is shown in Annex 5.

12. Legal sign-off

The text of the rule modification has been vetted by EMC's external legal counsel, whose opinion is that the modification reflects the intent of the rule modification proposal as expressed in section 9.1 & 9.2 of this paper.

13. Recommendations

The RCP recommend that the EMC Board:

- a. **support** the rule modification proposal in Annex 3 to make available the historical dispatch schedule by generating unit;
- b. **support** the rule modification proposal in Annex 4 to correct the inconsistency in the usage of '*Real-time Dispatch Schedule*';
- b. **adopt** the rule modification proposal to insert the new Section 10.3A in Chapter 6 as set out in Annex 3;
- c. **adopt** the consequential rule modification proposal to modify the following:
 - i. Section 9.7.2 of Chapter 5; and
 - ii. Section 9.2.1.1 and 9.2.3 of Chapter 6; and
 - iii. Appendix 6A.2; and
 - iv. Section 1.1.203 of Chapter 8;as set out in Annex 4;
- d. **recommend** that the rule modification proposal come into force on 1 July 2010, after the approval of the Authority is published by the EMC.

Annex 1 – Comments on CP 21**1. Comments from PowerSeraya Limited**

PowerSeraya does not support the release of historical dispatch schedules as it could facilitate the exercise of market power or collusion in Singapore's electricity market. The release of historical dispatch schedules can be relooked at a later date when there are more participants in generation.

1A. Response from EMC

The comments are noted.

2. Comments from Diamond Energy


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Private & Confidential

15th October 2009

Energy Market Company
238A Thomson Road
#11-01 Novena Square Tower A
Singapore 307684

Attention: Mr. Dave Carlson
Chair Rule Change Panel
c/o Energy Market Company

Subject: Publication of Historical Dispatch Schedules

Dear Mr. Carlson,

I refer to RCP Paper No EMC/RCP/2009/CP21 titled Publication of Historical Dispatch Schedules.

Diamond Energy Pte Ltd ("Diamond Energy") fully supports the proposal to publish the Historical Dispatch Schedules of all generating units for each 30-minute trading period and for each unit ID. This will enhance the efficiency of the NEMS as it will allow investors and existing market participants to establish a more informed outlook of the market and hence make more efficient decisions.

Based on our experience in electricity markets, both as an "outside" investor and as an incumbent, we are firmly of the view that releasing Historical Dispatch Schedules will improve market efficiency, lower market entry barriers through increased transparency, and reduce the ability of generator portfolio companies to exert market power. In general, the key benefits associated with the full release of data in an electricity market include the following:

- The ability of outside investors to understand the market and have confidence that assessments of wholesale and/or retail projections have a sound basis;
- Electricity markets themselves are competing to attract investors and therefore having a sound information release policy is crucial to achieve this;
- The ability of the industry to understand and verify the spot price determination process;
- Issues associated with information asymmetry between regulators / market surveillance bodies and the wider industry. Without the ability of the industry to undertake the same analysis as any regulatory body and to comment on analysis undertaken there is a risk of inappropriate assessments and compromised policy decisions. It has been our experience that the ability of the industry to review, check and undertake independent analysis based on full information substantially increases sustained confidence in the market;
- Improves risk management through increased market understanding. For example, without the release of Historical Dispatch Schedules it would not be clear how the relative contributions of transmission or generation have influenced prices or the reliability of physical supply;

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COMPANY REGISTRATION NUMBER
200208266G

- Reduce the information gap between the smaller market players and the larger players who have the capital to better assess the dynamics of the market; and
- The potential for improved contract trading through an increased ability to price such contracts.

We note concerns regarding the release of similar data in other markets, however, once released, such concerns have proven to be unfounded. To illustrate this, the practices of three other energy-only gross pool electricity markets in the Asia-Pacific region are summarized in Table 1 below.

Table 1: Generator Offer Release Practices in Similar Markets

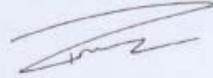
Electricity Market	Is Dispatch Data Released?	Time Lag (Delay)	Format
Australian National Electricity Market (NEM)	YES	1 Day	Hourly energy schedules by generating unit
New Zealand Electricity Market (NZEM)	YES	1 Day	Hourly actual energy output by generating unit
Philippines Wholesale Electricity Spot Market (WESM)	YES	1 Month	Hourly energy schedules by generating unit

We urge the Singapore NEMS to keep pace with what has become standard industry practice elsewhere. To ensure the NEMS continues to meet the challenges of future competition it should consider the release of Historical Dispatch Schedules. This could commence with earlier years data and upon review move to more recent data.

We recommend, as a first step, that the EMC publishes the Historical Dispatch Schedules for years 2003, 2004 and 2005. This could in no way influence market bidding behavior as the information is dated, however, it would provide increased transparency.

I look forward to your consideration on this important matter.

Yours faithfully,



Rozaiman Rosidi
Business Development Manager

cc Mr. Paul Poh, SVP Market Administration
Mr. Henry Wee, Analyst Market Administration

2A. Response from EMC

While we acknowledge that there could be benefits to gencos by releasing the historical dispatch schedule by generating units, EMC is of the opinion that on balance, the associated risks and potential hazards do not justify the publication, based on the arguments in the paper.

As for Diamond Energy's suggestion to publish the historical dispatch schedule for years 2003, 2004 & 2005, we do not perceive any strong benefits of doing so. EMC has already made available much information derived from scheduled generation on a daily, weekly and monthly basis. The details of such releases are presented in table 1 of this paper. As such, we do not see how releasing such data can meaningfully add more value. Additional cost would need to be incurred to release the information.

3. Comments from Senoko Power Ltd

Senoko has been the proponent of greater market transparency. We had commented several times on rule change proposals to publish various versions of offer and dispatch information. These proposals were subsequently rejected by the Rule Change Panel.

The proposal CP21 focuses solely on releasing historical dispatch information (energy; reserve; regulation) by unit. No price information will be published under this proposal.

Enhance risk management, increase market efficiency

Given the competitive nature of the Wholesale Electricity Market, market modelling is common and normal function besides day-to-day. The availability of historical dispatch data would enable market participants to perform a more accurate market modelling.

More accurate market modelling would enable each genco to undertake its risk management better. Power generation being a capital-intensive industry, it is to each genco's advantage to be able to model the market more accurately. By so doing, each genco would be able to make better and more efficient decisions on planned maintenance and future planting, for instance. Potential new entrants would also be able to assess if the market is ready for additional capacity and when.

We note that the EMC questioned the value of gencos "poring over data...using it to deviate from the original intent of marginal cost bidding". We wish to state that it is not the prerogative of the EMC to determine how gencos should use market data, whether this is efficient, or how gencos should structure their bids. The Singapore electricity market is a self-commitment market; gencos would bid their units in accordance with their commercial strategies. The availability of historical dispatch information would aid the gencos in their commercial reviews.

With large sums of capital at risk in the WEP, Senoko hopes that the RCP will give due consideration to the risk that generating companies is exposed to daily, and the concerns of risk management each genco faces.

Market power/collusion arguments do not stand

Given that bid price information will not be published, it is rather far fetched to suggest that release of dispatch information would "achieve collusive outcome".

With the imposition of vesting contracts on the three large gencos, it is rather tenuous to suggest that market power is still a concern in our market. As we are not in a position to comment on vesting contract's effectiveness, we suggest that the EMC seek input from the EMA as to its views on the effectiveness of the vesting contracts in controlling market power.

Gencos are generally highly contracted via the vesting contracts as well as their own retail and CfD contracts. Prudent risk management requires these contracts to be adequately covered by self-generation or CfDs. With high contract levels in the Singapore market, the ability for each genco to exercise its purported market power is limited.

As for the collusion scenarios painted by the EMC, while these concerns are legitimate, we note that these concerns are not limited to only the Singapore market. Companies intending to collude would not be deterred by constraints such as limited market information. Also, the Electricity Act and Market Rules grant the EMA and EMC extensive powers to investigate and penalise market participants found guilty of distorting competition. There has not been any case of collusion since market start.

We hope the RCP will consider the interest of the gencos to the historical dispatch information and understand our legitimate concerns in requesting the information to be made available.

Conclusions

Transparent price information enables market participants to manage market risks with more insight. We hope that the RCP will support the proposal of CP21.

3A. Response from EMC

Similar to EMC's response to Diamond Energy, we acknowledge that it is possible that the release of such information would benefit gencos. However, in view of the associated risks and potential hazards as discussed in the paper, EMC believes that this data release is nevertheless not justified.

On the point raised regarding Vesting Contracts (VCs), EMC wishes to highlight that VCs are designed to mitigate market power, using economic analysis that assumes no collusion and that each player operates independently²². This implies that when there is collusion, the effectiveness of VCs could be undermined. Therefore, collusion remains a very real concern that cannot be addressed by VCs, and we should not possibly facilitate it by publishing the historical dispatch schedule by generating unit.

²² Review of Vesting Contract Levels and Period Weighting Factors for 2009 and 2010, Appendix C, Page C-1, Energy Market Authority.

Annex 2 – Comments on Rule Change Proposal

1. Comments from Diamond Energy Pte Ltd



1A. Response from EMC

As a general principle, rule changes should not be applied retrospectively. When Market Participants operate at a particular point in time, they have the understanding that they are bound only by the prevailing set of Market Rules. If in the future, rule changes were to be made and applied retrospectively back to this particular point in time, then some Market Participants could be caught out – they may find it unfair that they had acted with the understanding of a given framework of rules, and applying a different, revised framework of rules onto their past actions (e.g. publishing their historical dispatch or identities for rule change proposals during workplan consultation) would be inconsistent and compromise their interests.

2. Comments from Sembcorp Cogen Pte Ltd

For RC 291, we would like to request that the publication be kept as private i.e. circulated to market participants only.

2A. Response from EMC

The arguments to release such data were predicated on it providing greater market transparency to allow both the public (including potential investors) and MPs to better understand the market and make more informed decisions. On top of that, the RCP has decided to make available such data to all instead of a few parties. Hence this publication should be made available to everyone instead of MPs only.

3. Comments from Keppel Merlimau Cogen

“Whilst the intent of publication of historical dispatch schedules is to facilitate market transparency and market competition, considerations need to be made by the Authority in the context of application in the Singapore market where market concentration is high and utilization of such information could aid gencos in exercising market power and lead to ‘counter’ competition effects instead.”

3A Response from EMC

Agree. We have already analysed and explained this in the paper. In this paper, we similarly take the stand that the release of such information could undermine market competitiveness and had hence recommended that this data not to be released.

Annex 3

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
<u>CHAPTER 6</u>	<u>CHAPTER 6</u>	
New	<p><u>10.3A HISTORICAL DISPATCH SCHEDULE</u></p> <p><u>10.3A.1 The EMC shall make available, by 17:00 hours on each day to each market participant and market support services licensee, the real-time dispatch schedule determined pursuant to section 9.2.1.1, in respect of each dispatch period of the previous dispatch day, where the prices in respect of such dispatch period have not been confirmed to be provisional pursuant to section 9.3.2A.</u></p> <p><u>10.3A.2 Where the EMC has, pursuant to section 9.3.2A, confirmed that the prices for a dispatch period of the previous dispatch day are provisional, and:</u></p> <p><u>10.3A.2.1 the market clearing engine is not required to be re-run pursuant to section 10.2 in respect of such dispatch period, then the EMC shall make available to each market</u></p>	<p>New section in Chapter 6 of the market rules, to provide for the publishing of certain historical dispatch data by the EMC.</p> <p>To require the EMC to make available, by 5:00 P.M. on each day to each market participant and market support services licensee, the real-time dispatch schedule determined pursuant to section 9.2.1.1, in respect of each dispatch period of the previous dispatch day if the prices of such dispatch periods were not confirmed to be provisional under section 9.3.2A of Chapter 6 of the market rules.</p> <p>If prices for any dispatch period were confirmed to be provisional under section 9.3.2A of Chapter 6 -- but the market clearing engine</p>

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
	<p><u>participant and market support services licensee, the real-time dispatch schedule determined pursuant to section 9.2.1.1 for such dispatch period; or</u></p>	<p>(“MCE”) was not required to be re-run pursuant to section 10.2 of Chapter 6 -- then the EMC is to be required to make available to each market participant and market support services licensee, the real-time dispatch schedule determined pursuant to section 9.2.1.1, in respect of such dispatch period. Such real-time dispatch schedule is to be made available by the EMC, at least 1 business day before the time when the preliminary settlement statement for the dispatch day to which that dispatch period belongs is required to be issued.</p>
	<p><u>10.3A.2.2 the market clearing engine is required to be re-run pursuant to section 10.2 in respect of such dispatch period, and:</u></p> <p>a. <u>the market clearing engine has accordingly been re-run pursuant to section 10.2, then the EMC shall make available to each market participant and market support services licensee, the real-time dispatch schedule finally determined upon completing all required re-run(s) of the market clearing engine under section 10.2</u></p>	<p>If prices for any dispatch period were confirmed to be provisional under section 9.3.2A of Chapter 6, and the MCE -- being required to be re-run pursuant to section 10.2 of Chapter 6, has accordingly been re-run successfully -- then the EMC is to be required to make available to each market participant and market support services licensee, the real-time dispatch schedule determined upon completing the re-run(s) of the MCE for such dispatch period. Such real-time dispatch</p>

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
	<p style="text-align: center;">for such <i>dispatch period</i>; or</p> <p style="text-align: center;">b. it has not been possible to complete all required re-run(s) of the <i>market clearing engine</i> pursuant to section 10.2 for such <i>dispatch period</i>, then the <i>EMC</i> shall make available to each <i>market participant and market support services licensee</i>, the <i>PSO's final dispatch instructions</i> for such <i>dispatch period</i>;</p> <p style="text-align: center;"><u>as soon as possible but no later than 1 <i>business day</i> prior to the time at which the <i>preliminary settlement statements</i> for such <i>dispatch day</i> must be issued in accordance with section 5.2.1 of Chapter 7.</u></p>	<p>schedule is to be made available by the EMC, at least 1 business day before the time when the preliminary settlement statement for the dispatch day to which that dispatch period belongs is required to be issued. To make clear that if more than one re-run of the MCE is required, under section 10.2 of Chapter 6, only the final real-time dispatch schedule derived from the completion of all the required re-runs need be made available.</p> <p>If prices for any of the dispatch period were confirmed to be provisional under section 9.3.2A of Chapter 6 -- and it is not possible to complete all the required re-run(s) of the MCE pursuant to section 10.2 of Chapter 6 -- then the EMC is to be required to make available to each market participant and market support services licensee, the PSO's dispatch instructions for that dispatch period. Such dispatch instructions are to be made available by EMC at least 1 business day before the time when the preliminary settlement statement for the dispatch day to which such dispatch period belongs</p>

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
		<p>is required to be issued. To make clear that if more than one set of dispatch instructions has been issued by the PSO in respect of such dispatch period, only the final dispatch instructions need be made available.</p>
	<p><u>10.3A.3</u> <u>If any real-time dispatch schedule or PSO's dispatch instructions had been made available by the EMC to any market participant or market support services licensee pursuant to section 10.3A.1 or 10.3A.2, the EMC may, upon request by any person who is not a market participant, make available such real-time dispatch schedule or PSO's dispatch instructions to such person.</u></p>	<p>To make clear that the EMC may make available upon request of any person who is not a market participant, the real-time dispatch schedule or PSO's dispatch instructions that have previously been made available by the EMC to any market participant or market support services licensee pursuant to section 10.3A.1 or 10.3A.2.</p>

Annex 4

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
<u>CHAPTER 5</u>	<u>CHAPTER 5</u>	
<p>9.7 DISPATCH ERRORS</p> <p>...</p> <p>9.7.2 A <i>dispatch error</i> shall not invalidate the <i>market prices</i> determined contemporaneously with the <i>real-time dispatch schedule</i> that was deemed to constitute the <i>dispatch instructions</i> that contained the <i>dispatch error</i>.</p> <p>...</p>	<p>9.7 DISPATCH ERRORS</p> <p>...</p> <p>9.7.2 A <i>dispatch error</i> shall not invalidate the <i>market prices</i> determined contemporaneously with the <i>real-time dispatch schedule</i> that was referred to in section 9.2.1.1 of chapter 6 <u>(the extracts of which were deemed to constitute the dispatch instructions under section 9.1.2</u> that contained the <i>dispatch error</i>).</p> <p>...</p>	<p>Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in chapter 8.</p>
<u>CHAPTER 6</u>	<u>CHAPTER 6</u>	
<p>9.2 THE REAL-TIME SCHEDULING PROCESS</p> <p>9.2.1 The <i>EMC</i> shall, prior to the commencement of each <i>dispatch period</i> and in accordance with the <i>market operations timetable</i>, use the <i>market clearing engine</i> to determine for that <i>dispatch period</i>:</p> <p>9.2.1.1 a <i>real-time dispatch schedule</i>, containing schedules of <i>energy</i>, <i>reserve</i> and <i>regulation</i> for <i>registered facilities</i>, to be released</p>	<p>9.2 THE REAL-TIME SCHEDULING PROCESS</p> <p>9.2.1 The <i>EMC</i> shall, prior to the commencement of each <i>dispatch period</i> and in accordance with the <i>market operations timetable</i>, use the <i>market clearing engine</i> to determine for that <i>dispatch period</i>:</p> <p>9.2.1.1 a <i>real-time dispatch schedule</i>, containing schedules of energy, reserve and regulation for registered facilities, to be released to the <i>PSO</i>; which in accordance with section 9.1.2 of Chapter 5 shall be deemed to constitute the dispatch instructions issued by the PSO to the applicable dispatch coordinators unless and until further</p>	<p>Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in chapter 8.</p> <p>To remove the references to section 9.1.2 of Chapter 5, as that section only applies to the extract referred to in the revised Section 9.2.3.</p>

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
<p>to the <i>PSO</i>, which in accordance with section 9.1.2 of Chapter 5 shall be deemed to constitute the <i>dispatch instructions</i> issued by the <i>PSO</i> to the applicable <i>dispatch coordinators</i> unless and until further <i>dispatch instructions</i> are issued by the <i>PSO</i> to a given <i>dispatch coordinator</i> pursuant to section 9.1.3 of Chapter 5; and</p> <p>...</p>	<p><i>dispatch instructions</i> are issued by the <i>PSO</i> to a given <i>dispatch coordinator</i> pursuant to section 9.1.3 of Chapter 5; and</p> <p>...</p>	
<p>9.2.3 The <i>EMC</i> shall, in accordance with the <i>market operations timetable</i>, release to the <i>dispatch coordinator</i> for each <i>registered facility</i> a <i>real-time dispatch schedule</i> comprising that portion of the <i>real-time dispatch schedule</i> referred to in section 9.2.1.1 that describes the quantities of <i>energy</i>, <i>reserve</i> by <i>reserve class</i> and <i>regulation</i> scheduled in respect of that <i>registered facility</i>.</p>	<p>9.2.3 The <i>EMC</i> shall, in accordance with the <i>market operations timetable</i>, release to the <i>dispatch coordinator</i> for each <i>registered facility</i> a <i>real-time dispatch schedule</i> <u>comprising that portion an extract of the <i>real-time dispatch schedule</i> referred to in section 9.2.1.1</u> that describes <u>containing</u> the quantities of <i>energy</i>, <i>reserve</i> by <i>reserve class</i> and <i>regulation</i> <u>in respect of that <i>registered facility</i> scheduled</u>, <u>which extract shall itself be regarded as a <i>real-time dispatch schedule</i> referred to in section 1.1.203.2 of Chapter 8 to which section 9.1.2 of Chapter 5 applies</u>, in respect of that <i>registered facility</i>.</p>	<p>Consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in chapter 8.</p> <p>To clarify that section 9.1.2 of Chapter 5 applies to the extract referred to in this revised Section 9.2.3.</p>
<p style="text-align: center;"><u>CHAPTER 8</u></p>	<p style="text-align: center;"><u>CHAPTER 8</u></p>	
<p>1.1.203 <i>real-time dispatch schedule</i> means a schedule determined by the <i>market clearing engine</i> that contains the quantities of <i>energy</i>, <i>reserve</i> and <i>regulation</i> scheduled in respect of a</p>	<p>1.1.203 <i>real time dispatch schedule</i> means a schedule determined by the <i>market clearing engine</i> that contains the quantities of <i>energy</i>, <i>reserve</i> and <i>regulation</i> scheduled in respect of a <i>registered facility</i>;</p>	<p>To clarify that the term “real-time dispatch schedule” has two different meanings when used in the market rules, and to specify in the definition which meaning is</p>

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
<i>registered facility;</i>	<p>1.1.203 <u><i>real-time dispatch schedule:</i></u></p> <p><u>1.1.203.1</u> where used in the following provisions of the <u>market rules:</u></p> <ul style="list-style-type: none"> a. <u>section 9.7.2</u> of Chapter 5; b. <u>sections 7.5, 9.2.1.1, 9.2.2, 10.2, 10.3.3 and 10.3A</u> of Chapter 6; c. <u>section B.9.1</u> of Appendix 6B; d. <u>sections D.6.5, D.6.6, D.8.3, D.12.1 D.12.2 and D.22.5.1</u> of Appendix 6D; <u>and</u> e. <u>section 1.1.205</u> of chapter 8. <p><u>means a consolidated schedule determined by the market clearing engine that contains the quantities of energy, reserve by reserve class and regulation in respect of registered facilities; and</u></p> <p><u>1.1.203.2</u> where used in any other provision of the <u>market rules, and unless the context otherwise requires, means an extract of the schedule referred to in section 1.1.203.1 above containing only the quantities of energy, reserve by reserve class and regulation in respect of a given registered</u></p>	intended in the relevant instance of its use in the market rules.

Existing Market Rules	Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)	Reasons for Rule Change
	<u>facility.</u>	

Appendix 6AExisting Market Rules**A.2 THE MARKET OPERATIONS TIMETABLE**

...

Real-Time Dispatch						
Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
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, 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. Real-time dispatch schedules</i> to <i>PSO</i> .	T + 30 minutes, or until revised.	Every 30 minutes

Proposed Rule Changes (Deletions represented by strikethrough text and additions represented by double-underlined text)

A.2 THE MARKET OPERATIONS TIMETABLE

...						
Day	Time of Day	Event	Provided By/ Who does it	Provided To	Period Covered	Frequency
D	T - 5 <u>minutes</u>	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 <u>minutes</u>	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 <u>6</u> .	<i>EMC</i>	Some just to <i>market participants</i> , some <i>published</i> . <i>Real-time dispatch schedules</i> <u>referred to in section 9.2.1.1 to PSO</u> . <i>Real-time dispatch schedules</i> <u>referred to in section 9.2.3 to the relevant dispatch coordinators</u> .	T + 30 minutes, or until revised.	Every 30 minutes
...						

*

(1)

(2)

(3)

*** – Reasons for Rule Change**

(1) and (2) – for clarity that the time intended is T-5 minutes.

(3)

(a) for drafting consistency;

(b) consequential amendment for consistency with the amended definition of ‘real-time dispatch schedule’ in chapter 8; and

(c) to clearly identify which real-time dispatch schedule is to be provided to the PSO, and which ones are to the dispatch coordinators.

Annex 5

A sample of the format of release for historical dispatch schedule in a csv file for download:

Date	Period	Registered Facility	Energy	Regulation	Primary Reserve	Secondary Reserve	Contingency Reserve
19-Nov-09	1	Gen A	100	4	5	6	9
19-Nov-09	1	Gen B	100	4	5	6	9
19-Nov-09	1	Gen C	200	4	5	6	9
19-Nov-09	2	Gen A	100	4	5	6	9
19-Nov-09	2	Gen B	120	4	5	6	9
19-Nov-09	2	Gen C	100	4	5	6	9
19-Nov-09	3	Gen A	100	4	5	6	9
19-Nov-09	3	Gen B	100	4	5	6	9
19-Nov-09	3	Gen C	200	4	5	6	9
...