

**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2007/D14**

Market Surveillance and Compliance Panel (“MSCP”)

Mr Joseph Grimberg, Chair
Professor Lim Chin
Mr Lee Keh Sai
Mr TPB Menon

Date of Determination

31 August 07

Party

Energy Market Company Pte Ltd (“EMC”)

Subject

Failure to determine and release the real-time schedules for periods 10 and 11 and short-term schedules for periods 11 and 12 and to publish relevant information on 2 March 2007

Applicable Rule(s) in the Singapore Electricity Market Rules

1. Section 9.2.1 of Chapter 6

“The EMC shall, prior to the commencement of each dispatch period and in accordance with the market operations timetable, use the market clearing engine to determine for that dispatch period:

9.2.1.1 a real-time dispatch schedule, containing schedules of energy, reserve and regulation for registered facilities, to be released to the PSO, 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 dispatch instructions are issued by the PSO to a given dispatch coordinator pursuant to section 9.1.3 of Chapter 5; and

9.2.1.2 a real-time pricing schedule determined by the market clearing engine...including:

- a. energy prices for each market network node;
- b. the uniform Singapore electricity price;
- c. reserve prices for each reserve class and for each reserve provider group; and
- d. regulation prices.”

The market operations timetable in Appendix 6A of Chapter 6 provides for the EMC to begin computing a real-time dispatch schedule using the market clearing engine 5 minutes prior to the beginning of the dispatch period.

The market operations timetable in Appendix 6A of Chapter 6 provides for the EMC to release the real-time dispatch schedule to the PSO prior to 30 seconds before the beginning of the dispatch period.

2. Section 9.2.3 of Chapter 6

“The EMC shall, in accordance with the market operations timetable, release to the dispatch coordinator for each registered facility a real-time dispatch schedule comprising that portion of the real-time dispatch schedule referred to in section 9.2.1.1 that describes the quantities of energy, reserve by reserve class and regulation scheduled in respect of that registered facility.”

The market operations timetable under Appendix 6A of Chapter 6 provides for the EMC to release the real-time dispatch schedule and real-time pricing schedule prior to 30 seconds before the beginning of the dispatch period.

3. Section 9.2.4 of Chapter 6

“The EMC shall, in accordance with the market operations timetable, publish the following information as it pertains to each dispatch period:

- 9.2.4.1 total load;
- 9.2.4.2 total transmission losses;
- 9.2.4.3 total reserve requirements by reserve class;
- 9.2.4.4 total regulation requirements;
- 9.2.4.5 energy prices associated with each market network node at which a generation registered facility or generation settlement facility is located...;
- 9.2.4.6 the uniform Singapore energy price...;
- 9.2.4.7 reserve prices for each reserve class and reserve provider group...;
- 9.2.4.8 regulation prices...;
- 9.2.4.9 any system energy shortfalls reported by the market clearing engine;
- 9.2.4.10 any system reserve shortfalls, by reserve class, reported by the market clearing engine;
- 9.2.4.11 any system regulation shortfalls reported by the market clearing engine; and
- 9.2.4.12 a list of security constraints and generation fixing constraints applied.”

The market operations timetable in Appendix 6A of Chapter 6 provides that the EMC must publish the market information set out in section 9.2.4 of Chapter 6 prior to 30 seconds before the beginning of the dispatch period.

4. Section 7.4A.1 of Chapter 6

“The EMC shall, in accordance with section 7.6 and Appendix 6A, determine a short-term schedule corresponding to the nodal load forecast described in section 7.2.1.1.”

According to the market operations timetable, the EMC is required to commence computing the short-term schedule 4 minutes prior to the beginning of the dispatch period.

5. Section 7.7.2A of Chapter 6

“Not later than 25 minutes prior to the commencement of the first dispatch period of the short-term schedule referred to in section 7.4A, the EMC shall, for each dispatch period included in the short-term schedule:

7.7.2A.1 release to the dispatch coordinator for each registered facility the projected schedules for energy, regulation and reserve, by reserve class, for that registered facility;

7.7.2A.2 publish the information described in section 7.7.3; and

7.7.2A.3 communicate to the PSO the projected schedules for energy, regulation and reserve, by reserve class, for each registered facility, together with the information described in section 7.7.3, in accordance with the system operation manual and any applicable market manual.”

6. Section 7.7.3 of Chapter 6

“In accordance with sections 7.7.1, 7.7.2 and 7.7.2A, the EMC shall publish the following information for each dispatch period and for each market outlook scenario, pre-dispatch schedule scenario and short-term schedule:

- 7.7.3.1 the projected total load;
- 7.7.3.2 the projected transmission losses;
- 7.7.3.3 total reserve requirements by reserve class;
- 7.7.3.4 total regulation requirements;
- 7.7.3.5 projected energy prices associated with each market network node at which a generation registered facility or generation settlement facility is located....;
- 7.7.3.6 the projected uniform Singapore energy price....;
- 7.7.3.7 projected reserve prices for each reserve class and reserve provider group....;
- 7.7.3.8 projected regulation prices....;
- 7.7.3.9 any predicted system energy shortfalls;
- 7.7.3.10 any predicted system reserve shortfalls, by reserve class;
- 7.7.3.11 any predicted system regulation shortfalls; and
- 7.7.3.12 a list of security constraints and generation fixing constraints applied.”

Facts and Circumstances

- 7. Energy Market Company (“EMC”) made a self-report on 20 March 2007 that the real time schedules for periods 10 and 11 and short-term schedules for periods 11 and 12 on 2 March 2007 were not processed and published according to the Singapore Electricity Market Rules (the “market rules”).
- 8. According to EMC, the real-time schedule was not activated by the automatic scheduler on 2 March 2007 at 4:25 am.
- 9. EMC said that it was due to an excessive number of Market Clearing Engine (“MCE”) database connections being opened in the database thus preventing further connections when the database exceeded its maximum allowable connections. As it was not possible to log into the database to identify the cause of the excessive database open sessions, EMC terminated all connections to the database. When this was done, the NEMS applications were able to reconnect to the database and the MCE was able to process successfully. The issue was resolved at 5:00:07 am.

10. EMC explained that the excessive connections were initiated during MCE processing as a result of a connectivity error. The connectivity error caused the MCE to continuously attempt to re-establish a connection to the database, resulting in the database exceeding its maximum allowable connections. When the problem was identified, EMC immediately rectified it so that the MCE could resume connection with the database.
11. To prevent future excessive connections, EMC implemented on 20 March 2007 a change in the MCE control service to limit the number of retries to access the database.
12. As a result of the above incident, EMC failed to determine, release and publish the relevant information on 2 March 2007 for:
 - (1) the real-time schedules for periods 10 and 11; and
 - (2) the short-term schedules for periods 11 and 12,within the deadlines required under the market rules.
13. This incident was self-reported, inadvertent, rectified quickly and did not have a significant impact on the wholesale electricity markets.

Determinations

14. On 29 May 2007, the MSCP issued a letter informing EMC that it considered that EMC had prima facie breached sections 9.2.1, 9.2.3, 9.2.4, 7.4A.1, and 7.7.2A of Chapter 6 of the Singapore Electricity Market Rules (the 'market rules') and invited EMC to make written representations.
15. On 13 June 2007, EMC submitted written representations to the MSCP. The written representations stated that EMC had expedited the resolution of the system outages as soon as it became aware of the event and there was minimal impact on market participants as a result of the breach. EMC said that it recognized the severity of the circumstances leading to every breach occurring and that steps were taken to ensure that there was no recurrence. EMC said it trusted the MSCP would take into consideration EMC's diligence in the matter and its commitment to ensuring the smooth and reliable operation of the NEMS system.
16. The MSCP determined on the basis of the facts referred to above that EMC breached sections 9.2.1, 9.2.3, 9.2.4, 7.4A.1 and 7.7.2A of Chapter 6 of the market rules.
17. However, the breach was self-reported, inadvertent, rectified quickly and did not have a significant impact on the wholesale electricity markets.
18. Therefore, the MSCP determined that the appropriate action to be taken was to issue a letter of non-compliance to EMC and to direct EMC to pay costs, fixed at \$1,000.00.



Lim Chin
for Chair, Market Surveillance and Compliance Panel