**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2006/D8**

Market Surveillance and Compliance Panel ("MSCP")
Mr Joseph Grimberg, Chair
Professor Lim Chin
Mr Lee Keh Sai
Mr TPB Menon
Mr David Wong

Date of Determination
3 May 2006

Party
Energy Market Company Pte Ltd ("EMC")

Subject
Failure to determine, release and publish information on 12 April 2005 for
a.   Real-time schedules for period 37 and
b.   Short-term schedules for periods 37 and 38

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 under 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 under 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.   <u>Section 9.2.3 of Chapter 6</u>

"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.   <u>Section 9.2.4 of Chapter 6</u>

"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 under 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. According to the EMC, it failed to determine and release the following on 12 April 2005:
   1. real-time schedule for period 37; and
    2. short-term schedules for periods 37 and 38
   and to publish information, within the deadlines required under the market rules.

8. According to the EMC, it noticed that the short-term schedule for period 37 which was supposed to be completed by 17:35 hr was instead completed at 17:40 hr, 5 minutes later than was required under the market rules. EMC checked the system and the application for any errors and observed that the processing of the real-time schedule for period 37 and short-term schedule for period 38 were also not started on time and were completed later than the time stipulated in the market rules.

9. EMC reported that during the periods concerned, a scheduled RMAN (Oracle Recovery Manager) disk-to-disk data backup process was being simultaneously carried out starting from 17:30. However, the RMAN process "hanged" and that put a strain on system resources. This slowed down the IT system performance and impacted the performance of the Oracle Database, resulting in the delay in determining and releasing schedules and in publishing information. After EMC stopped the RMAN process, the processing of schedules was completed on time.

10. RMAN is a disk-to-disk data backup system. EMC installed RMAN on 21 Dec 2004 to provide additional data backup to its existing database-to-tape backup system. During any IT system re-boot, it is necessary to manually re-mount the RMAN disks onto a server. The IT system was re-booted on 10 April 2005. However, the RMAN disks were inadvertently mounted on the wrong server emcpapp02 instead of server emcpapp01. When the RMAN disk-to-disk backup on emcpapp01 was started at 17:30 on 12 April 2005, the system could not locate the RMAN disks to perform the disk backup and went into a 'hang' state as it continued to re-try locating the RMAN disks.

11. EMC has since 13 April 2005 implemented in its startup script a process to auto-mount the RMAN disks without any human intervention whenever the IT systems are rebooted.

12. This incident did not have a significant impact on the wholesale electricity markets.

Determinations

13. On 28 September 2005, the MSCP issued a letter informing the EMC that it considered that the 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. No written representations were received by the deadline stipulated.

14. The MSCP determined on the basis of the facts referred to above that the 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.

15. However, the breach was self-reported, rectified quickly and without significant impact on the wholesale electricity markets.

16. Therefore, the MSCP determined that the appropriate action to be taken was to issue a letter of non-compliance to the EMC and to direct the EMC to pay costs, fixed at $1,000.
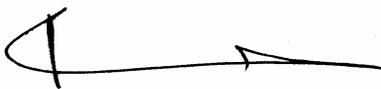
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Chair
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