

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

30 March 2007

Party

Energy Market Company Pte Ltd (“EMC”)

Subject

Failure to determine, release and publish information on 24 October 2006 for

- a. Real-time schedules for periods 4, 5, 6, 7, 8 and 9;
 - b. Short-term schedules for periods 4, 5, 6, 7, 8, 9 and 10; and
 - c. Pre-dispatch schedules for periods 9 and 13
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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 7.4.1 of Chapter 6

“The EMC shall, in accordance with section 7.6 and Appendix 6A, determine three pre-dispatch schedule scenarios corresponding to the nodal load forecast described in section 7.2.1 adjusted where applicable under section 7.2.3.”

5. 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.

6. Section 7.7.2 of Chapter 6

“Not later than 15 minutes prior to the commencement of the first dispatch period of each of the three pre-dispatch schedule scenarios referred to in section 7.4.1, the EMC shall, for each dispatch period included in each of those three pre-dispatch schedule scenarios:

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

7.7.2.2 publish the information described in section 7.7.3; and

7.7.2.3 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.”

7. 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.”

8. 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

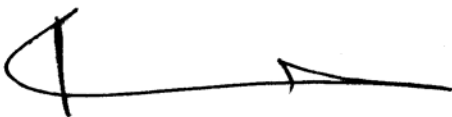
- 9. EMC reported that on 24 October 2006, it first noticed the incident began at 0105 hrs when the Oracle database was in a hung state and was unable to access the File systems with the error message “aio_results_np” which was associated with storage systems problems. EMC then re-started the Oracle database system but without success because the Oracle database processes were in an “uninterruptible state” and could not be shutdown. EMC next rebooted the Primary node server but the server clusters hung due to the inconsistent state of two of the Oracle File systems in the server cluster. EMC then performed a “hardstart” (i.e. power re-cycle) of the system at approximately 0300 hrs. The system subsequently was started up but with the exception of the two Oracle File systems. EMC checked the affected storage controller and found that the LUN (Logical Unit Number) hard-disk array was in an inconsistent state, affecting the two Oracle File systems. This prevented the disk from being mounted after the system “hardstart”. The EMC and its vendor then recreated the LUN without initialization. The purpose of this action was to repair the disks in the LUN hard disk array while preserving the existing data.
- 10. After the LUN hard disk array was recreated, a full systems reboot was performed at 0345 hrs, and the systems were started successfully and all the File systems were mounted without damage to the data. All the applications and the Oracle database were restarted successfully.
- 11. During the incident, (a) real-time schedules for periods 4, 5, 6, 7, 8 and 9, (b) short-term schedules for periods 4, 5, 6, 7, 8, 9, 10 and (c) pre-dispatch schedules for periods 9 and 13 for 24 October 2006 were not determined, released and published. The NEMS Trading Website was not accessible and market participant interfaces were also down.

IMPACT

12. This incident did not have a significant impact on the wholesale electricity markets in terms of dispatch quantity or price. For the purposes of dispatch, the PSO, in the absence of the real-time schedule, used the relevant short-term schedule in accordance with the system operation manual. Price was determined by EMC re-running the market clearing engine in accordance with the market rules.

Determinations

13. On 22 January 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, 7.7.2A, 7.4.1 and 7.7.2 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 EMC breached sections 9.2.1, 9.2.3, 9.2.4, 7.4A.1, 7.7.2A, 7.4.1 and 7.7.2 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 EMC and to direct EMC to pay costs, fixed at \$1,000.



Joseph Grimberg
Chair
Market Surveillance and Compliance Panel