

**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2007/D3**

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

15 January 2007

Party

Energy Market Company Pte Ltd (“EMC”)

Subject

Failure to determine and release short-term schedule and publish information for period 37 on 9 January 2006

Applicable Rule(s) in the Singapore Electricity Market Rules

1. 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.

2. 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.”

3. 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.”

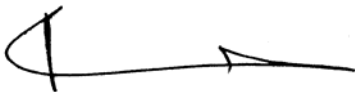
Facts and Circumstances

- 4. The short-term schedule for period 37 on 9 January 2006 was not sent to the PSO and the relevant information was not published on EMC’s Trading Website within the deadline required under the Singapore Electricity Market Rules (the “market rules”).
- 5. According to EMC, the problem was caused by a bug in the “HANDLE_QUEUE_EXCEPTIONS” PL/SQL procedure, a new procedure implemented on 8 January 2006 as part of its operational changes for its database split project. The PL/SQL procedure executes via a UNIX “cron” job at 10 minutes past every hour. The “cron” job checks the Oracle Advanced Queue (AQ) for exceptions and does a “clean up” if they exist. But due to a bug, the “clean up” job could not complete when there were no exception messages to “clean up”. Because the “cron” job executed every hour, more “cron” jobs continued to be started but remained uncompleted and stored in the “cron job queue”. The system limit for open “cron” jobs was 25. Once this limit was reached, no more “cron” jobs could be started. This limit was reached 25 hours after the “cron” job was introduced on 8 January 2006. At the time of the MCE run for the short-term schedule for period 37 on 9 January 2006, the 25 “cron” jobs limit had just been reached. The “cron” job therefore failed to start and resulted in the short-term schedule for period 37 not being determined, released and published on time.

6. The new procedure was tested in the test environment prior to implementation. When this new functionality was tested in the UAT environment, it was able to execute successfully because it was able to find messages that were remnant of other UATs and could therefore carry out a "clean up". However, in the production environment there were no pending messages and no "clean up" was therefore necessary. Hence, the new functionality was not able to complete the job and went into a perpetual state of waiting for a message to come along. The cycle repeated and the system reached its limit of 25 "cron" jobs.
7. As follow up action, EMC developed and tested a permanent fix and the application was released into the production environment on 24 January 2006. EMC's test procedures were also modified. This would ensure that the test environment would more accurately reflect that of production. EMC would continue to investigate the possibility of monitoring the "cron job queue" usage and to prevent the maximum number of "crons" from being reached in the future.
8. EMC made a self-report of the incident on 23 January 2006 to the MSCP.
9. This incident did not have a significant impact on the wholesale electricity markets.

Determination

10. On 29 August 2006, the MSCP issued a letter informing EMC that it considered that EMC had prima facie breached sections 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.
11. The MSCP determined on the basis of the facts referred to above that EMC breached sections 7.4A.1 and 7.7.2A of Chapter 6 when it was unable to determine, release and publish the short-term schedule for period 37 on 9 January 2006 within the deadline required under the market rules.
12. However, the breach was self-reported, inadvertent and without significant impact on the wholesale electricity markets. Remedial action had also been taken.
13. Therefore, the MSCP determined that it would issue a letter of non-compliance to EMC and direct EMC to pay costs, fixed at \$1,000.



Joseph Grimberg
Chair
Market Surveillance and Compliance Panel