DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2007/D7

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 and release short-term schedules for periods 25 and 29 and to publish relevant information on 17 August 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.   EMC reported that on 17 August 2006 the short-term schedules for periods 25 and 29 were sent late to the PSO and were published late. Based on our investigation, there was a failure to determine and release short-terms schedules on 17 August 2006 for periods 25 and 29 and to publish relevant information within the deadlines required under the market rules.

5.   EMC said that on 17 August 2006, during its settlement run in the morning, the process "hung" and was manually terminated. EMC then carried out a "memory dump", a standard procedure recommended by its vendor, Oracle Corporation, in order for its vendor to analyse the root cause of the problem.

6.   The "memory dump" of the Oracle process began at 1120 hrs and was still running when the market clearing engine commenced processing the short-term schedule for period 25 at 1126 hrs. When EMC noticed that the processing of the short-term schedule was far slower than normal, EMC attempted to terminate the "memory dump" so as to prevent the late publication of the short-term schedule files. However, the termination process took too long to complete and caused the short-term schedule for period 25 to be completed late. This short-term schedule for period 25 was therefore sent to the PSO late and published late. Only when the "memory dump" was completed that the NEMS systems improved.

7.   During the MCE run for the short-term schedule for period 29, there was another NEMS systems performance issue resulting in the late publication of the information in relation to the short-term schedule for period 29.

8.	EMC said the cause of the poor systems performance was due to issues regarding system memory and swap area utilization, which occurred after the earlier "memory dump" at 1120 hrs. Although the "memory dump" process had been terminated, the systems resources that were held by this process had not been fully released back to the systems. In such cases, the servers would require rebooting in order to refresh the system memory.

9.	EMC had a process of proactively monitoring the systems performance by monitoring the "swap utilization" for a threshold of 20%. However, in this incident, the systems performance was affected even though the monitoring threshold was not reached.

10.	To alleviate load on the systems and minimise the risk of further performance issues, EMC stopped all non-critical processes until a reboot of the servers could be performed. As there was coincidentally a scheduled monthly maintenance of the NEMS systems at 1646 hrs on 17 August 2006, the servers were rebooted during the maintenance period so as not to cause any unplanned disruptions. With the reboot, systems performance returned to its normal level.

11.	As remedial action, EMC modified its procedures so that any memory dump action would be carried out during the scheduled monthly maintenance. EMC also lowered the monitoring threshold so as to allow more timely detection of any swap area issue.

IMPACT

12.	This incident was self-reported, inadvertent, rectified quickly and did not have a significant impact on the wholesale electricity markets.

Determinations

13.	On 22 January 2007, 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.

14.	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 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.
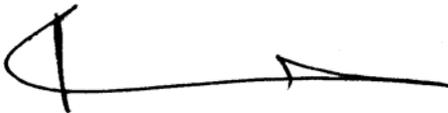
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