**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2007/D4**

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 10 on 27 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.   According to EMC, the short-term schedule for period 10 on 27 January 2006 was sent late to the PSO and was not published on the EMC's Trading Website within the deadlines required under the market rules.   Based on our investigation, there had been a failure to determine the short term schedule for period 10 on 27 January 2006, release the schedule to dispatch coordinators and the PSO, and publish relevant information within the deadlines required under the market rules.

5.   EMC found that the central processing unit (CPU) utilization of a software known as Patrol Agent was very high (ie CPU hogging) on the 8 production market clearing engine (MCE) servers. This prolonged the processing time of the short-term schedule for period 10 and caused it to be sent out late.

6.   When EMC restarted one of the production MCE servers, the CPU hogging was resolved.

7.   EMC said that the CPU hogging was due to the reporting knowledge module of software known as BMC patrol on the MCE servers. It said that an application known as SR_EVENTRET.km (part of BMC patrol) on the MCE servers was demanding high CPU resource usage for its processes. This SR_EVENTRET.km process sends event information from the Patrol Agent on the MCE Servers to the Patrol Agent of a Service Reporting Server for the generation of reports on past events (e.g. number of alarms, warnings etc).

8.	During the incident, the SR_EVENTRET.km process did not release the CPU resource after each process and hence caused the CPU resource to run out over time, affecting other critical processes of the MCEs.

9.	EMC also said that there was a licence renewal on 25 January 2006 at about 1545 hrs. A script was used to update the licence information at 1545 hrs and thereafter another script was used to restart the Patrol Agent between 1555 to 1605 hrs. The Service Reporting Server was the last item on the list in the script for the restart, but the Patrol Agent of the Service Reporting Server failed to restart. This caused the MCE's SR_EVENTRET.km process to fail to communicate with the Service Reporting Server. Repeated attempts to connect caused the CPU utilization to accumulate.

10.	The failure of the Patrol Agent of the Service Reporting Server to restart pursuant to the script was due to an inherent bug in the software. To mitigate this risk, EMC said it would amend the process of Patrol Agent restart to verify that each server completes the restart successfully. EMC also reported that it had put in place other detailed steps to prevent a recurrence of this incident.

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

Determination

12.	On 3 October 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.

13.	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 10 on 27 January 2006 within the deadlines required under the market rules.

14.	However, the breach was self-reported, inadvertent and without significant impact on the wholesale electricity markets. Remedial action had also been taken.

15.	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