

**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL  
MSCP/2010/D1**

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**Market Surveillance and Compliance Panel (“MSCP”)**

Mr Thean Lip Ping, Chair  
Professor Lim Chin  
Mr Lee Keh Sai  
Mr TPB Menon  
Mr Philip Chua

**Date of Determination**

10 March 2010

**Party**

Power System Operator (“PSO”)

**Subject**

Failure to send Very Short-Term Load Forecast and Network Status files to the Market Clearing Engine on 14 December 2009 during trading periods 11 to 13

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**Applicable Rule(s) in the Singapore Electricity Market Rules**

1. Section 8.1.1 of Chapter 6

“The PSO shall, prior to each dispatch period and in accordance with the market operations timetable, take the following actions so as to keep dispatch related data current and available for the EMC:

- 8.1.1.1 conduct such studies as may be necessary to determine the appropriate parameters to be used as inputs to the market clearing engine for the upcoming dispatch period;
- 8.1.1.2 determine or update, as the case may be, the dispatch related data referred to in Appendix 6G for the dispatch period; and
- 8.1.1.3 communicate the dispatch related data referred to in section 8.1.1.2 to the EMC.”

2. Appendix 6A.2 of Chapter 6

According to the Market Operations timetable in Appendix 6A.2 of Chapter 6, for real-time dispatch, the latest time to complete updating of dispatch-related data to be provided by PSO to EMC for use in real-time dispatch schedule is 5 minutes before the beginning of a dispatch period, or T-5 minutes.

3. Appendix 6G1.1.1 of Chapter 6

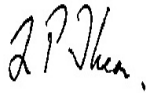
“The information listed in sections G.2 to G.7 of this Appendix describes the dispatch related data referred to in sections 6.1 and 8.1 of this Chapter which the PSO must produce, revised as required, and communicate to the EMC in accordance with those sections and the applicable market manuals. Except as otherwise specified in these market rules, the EMC shall utilize the latest dispatch related data received from the PSO. In the event that such latest dispatch related data is not uploaded in time for the imminent market clearing engine run, the EMC shall utilize the latest available and uploaded dispatch related data for the market clearing engine run.”

**Facts and Circumstances**

4. According to PSO, on 14 December 2009 at 0420 hrs, BUFI and BULS, the programs responsible for transferring the VSTLF and NWSTAT files to the Market Clearing Engine (MCE) overflowed. While the files were generated in the COM server, they were not sent to the File Transfer Protocol (FTP) servers that communicate with the MCE for three trading periods from 0500 hrs to 0630 hrs. As a result, the VSTLF and NWSTAT files were not sent to the MCE for three trading periods from period 11 to period 13.
5. PSO said that at 0451 hrs, the CPU of the COM server generating the VSTLF and NWSTAT files showed high CPU loading. Investigation by PSO showed that due to intermittent network connection problem in the LAN communication port of the COM server, the COM server would try repetitively to establish communication. The numerous retries caused BUFI and BULS to overflow and the CPU to overload.
6. PSO explained that the online server did not failover to its backup server as the fault was intermittent and was not deemed fatal. PSO stressed that all servers in PSO undergo half-yearly preventive maintenance. The COM server was last maintained on 8 December 2009.
7. PSO explained that during the trading periods affected, there was no major network switching, scheduled or unscheduled, thus there was no significant difference in the connectivity of the network between the actual network conditions and that produced by the outage schedule. In addition, as there was no network constraint during the time of the incident, there were no significance differences in using the network loading of the last NWSTAT file.
8. Based on the facts of the incident, it would appear that PSO had breached section 8.1.1, Chapter 6 of the market rules when it failed to send the NWSTAT and VSTLF files to the MCE on 14 December 2009.
9. On 10 February 2010, the MSCP wrote to the PSO inviting written representations on allegations of potential rule breach of section 8.1.1, Chapter 6 of the market rules by the PSO.
10. On 22 February 2010, PSO submitted a letter of written representations. In its written representations, PSO reiterated that they had taken the following steps to mitigate the overflow problem:
  - a) PSO has doubled the buffer size of the softbus addresses of the programs that transfer the files to the FTP servers. This was completed on 19 January 2010.
  - b) PSO has also replaced the COM server that had the faulty LAN port with a new server on 22 January 2010 to rectify the intermittent network connection problem.

PSO also said that the failure was not deliberate or caused by negligence and occurred notwithstanding that the COM server was serviced and maintained on a regular basis. PSO also stressed that the incident had negligible impact on the wholesale electricity market and that it had promptly implemented remedial action to minimize the re-occurrence of such incidents.

11. The MSCP determined on the basis of the facts referred to above that PSO breached section 8.1.1, Chapter 6 of the market rules.
12. However, the breach was self-reported, inadvertent and had no significant impact on the wholesale electricity markets.
13. Therefore, the MSCP determined that the appropriate enforcement action to be taken was to issue a letter of non-compliance to PSO and to direct PSO to pay costs, fixed at \$1,300.
14. Following the issue of a report by the MSCP recording the facts and circumstances of the breach, section 7.2.17 of the market rules also requires the PSO to provide a report to the MSCP setting out its explanation of the breach, and a plan detailing how it intends to reduce the likelihood of, or prevent, such breaches in the future. We note that in this case, the PSO has already done so.



Thean Lip Ping  
Chair  
Market Surveillance and Compliance Panel