

**DETERMINATION OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL
MSCP/2012/D2**

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

31 May 2012

Party

Sembcorp Cogen Pte Ltd (“Sembcorp”)

Subject

Failure to comply with dispatch instructions and reflect the true plant capabilities in the offers on 15 August 2011

Applicable Rule(s) in the Singapore Electricity Market Rules

1. Section 9.6.1 of Chapter 5

Each dispatch coordinator shall ensure that each of its registered facilities complies with the dispatch instructions issued in respect of such registered facility, except as may otherwise be permitted under these market rules.

2. Section 5.1.6 of Chapter 6

Subject to section 10.4.1, for each dispatch period that a registered facility is not synchronised and until the earliest dispatch period in which it would be possible for that registered facility to be synchronised, its dispatch coordinator shall:

- 5.1.6.1 submit offer variations where there are existing offer variations; or
- 5.1.6.2 submit revised standing offers where there are no offer variations,

so that all the offered quantities are zero.

Applicable Rule(s) in the System Operation Manual

3. Section 10.2.2

A generation registered facility or commissioning generation facility is deemed unable to synchronise (i.e. non-compliance with PSO's direction or dispatch instruction) to the PSO controlled grid if it is not synchronised within the approved or instructed dispatch period. Similarly, the affected generating registered facility or commissioning generation facility would not be able to meet its scheduled/instructed target MW value, scheduled Reserves and Regulation.

Facts and Circumstances

4. On 15 August 2011, SKRA G2 and SKRA G1, two combined cycle gas turbine (CCGT) generation registered facilities belonging to SembCorp Cogen Pte Ltd ("Sembcorp"), suffered forced outages at 09:55hr and 10:06 hrs respectively. Following the forced outages, SKRA G1 and SKRA G2 were unable to synchronise despite attempts from Sembcorp.
5. The Power System Operator ("PSO") submitted a referral on 9 September 2011 alleging that the delay in the start-ups of SKRA G1 and SKRA G2 had resulted in the failure of these two units to comply with dispatch instructions to provide the scheduled quantities of energy for periods 20 to 24 on 15 August 2011, thereby imposing tremendous stress on the power system.
6. The PSO added that in response to the shortfalls in energy and reserves, most of the other online generating sets responded with higher than scheduled loading near to their maximum capacities. The power system could suffer widespread blackout if another generator had tripped.
7. Explaining the incident, Sembcorp said that following the shutdown of the Gas Onshore Receiving Facility operated by an external party at around 09:51hrs on 15 August 2011, it initiated an online fuel changeover for SKRA G1 and SKRA G2, but faced problems in the course of doing so.
8. SKRA G2's gas turbine tripped on high exhaust temperature spread at 09:55hrs (towards the end of period 20). Two attempts to restart on diesel then failed. Sembcorp then lowered its offer to 120MW for periods 22 to 24. In period 24, Sembcorp spotted diesel traces from the combustion cans and in consideration for safety, it offered zero MW for SKRA G2 from period 25 onwards.
9. The fuel changeover for SKRA G1 was successful at 09:59hrs but it tripped at 10:06hrs (period 21) due to high exhaust temperature spread. Sembcorp lowered its offer to 120MW for periods 22 to 24. SKRA G1 was restarted on diesel at 10:41hrs but was forced to shut down at 11:03hrs upon discovery of a ruptured water injection purge tube. Sembcorp offered zero MW for SKRA G1 from period 24 onwards to replace the ruptured tube.

10. On 15 December 2011, the MSCP wrote to SembCorp informing it that the MSCP was prima facie of the view that SembCorp had breached section 9.6.1 of Chapter 5 of the Singapore Electricity Market Rules (the "Market Rules") and section 10.2.2 of the System Operation Manual ("SOM") for non-compliance with dispatch instructions and being unable to synchronise as well as section 5.1.6 of Chapter 6 of the market rules for not revising its offer to zero MW immediately when SKRA G1 and G2 were not able to synchronise.
11. The MSCP invited Sembcorp to make written representations to the MSCP before the MSCP makes its final determination and if so, the enforcement action to be taken. Sembcorp was also reminded of its right to request for a hearing before the MSCP. Sembcorp submitted a written representation on 27 December 2011 and furnished further information (system logs) to the written representation on 9 January 2012.

Findings

12. In view of Sembcorp's submissions and the evidence available as established above, the MSCP determined that Sembcorp was in breach of section 9.6.1 of Chapter 5 and section 5.1.6 of Chapter 6 of the Market Rules on 15 August 2011. In this determination, the MSCP considered obligations under section 10.2.2 of the SOM to be the same obligations under section 9.6.1 of Chapter 5 of the Market Rules. Hence, no separate action was considered on the former.

Enforcement Action

13. On 13 February 2012, the MSCP informed Sembcorp in writing that the MSCP has found it in breach of the Market Rules, and invited Sembcorp to submit representations before the MSCP decided on the question of penalty and costs.
14. Sembcorp responded to the MSCP in a letter dated 20 February 2012, the relevant parts of which are in these terms:
 - a. "Circumstances in which the incident occurred - Beyond Sembcorp's control

The chain of events was triggered by unforeseen circumstances which were beyond Sembcorp's control, and all our actions that followed were in response to rectifying the situation.
 - b. "Our follow-up action reasonable based on the technical data available to us

We had acted reasonably given the technical data available to us through the relevant alarm logs, however the fault turned out to be much more complex than initially assessed, and as such, the dispatch was maintained at 120MW for periods 22-24... However, once it became clear to us that we would not be able to rectify the problem in time, we changed the bid to zero for period 25.

c. Actions not deliberate or negligent

The actions in questions emanated from our desire to expeditiously re-start the CCPs after they had tripped, so as to adhere to the dispatch instructions issued to us. We reasonably believed that we could comply with the dispatch instructions, as well as stabilise the market supply shortage by resuming generation expeditiously since the market clearing price of \$4,500/MWh did not bring forth any other available standby units from the market to alleviate the market supply shortage."

15. Sembcorp also reiterated that it has the necessary procedures in place to quickly react to any unforeseen downtimes and have the affected GTs synchronised in accordance to the dispatch schedule. However, difficulties do occur when reacting to unforeseen circumstances and it is difficult to predetermine the precise amount of time necessary to resolve such difficulties. In this instance, based on the technical data available, Sembcorp formed the view that the difficulties faced could have been overcome such that the affected GTs were synchronised in accordance to the dispatch schedule.
16. The MSCP noted that the market prices for periods 22 to 32 hit the price cap of \$4,500/MWh following the forced outages of three CCGTs (two from Sembcorp and one from PowerSeraya). At that time, all online generating units were run up to the maximum capacities.
17. Sembcorp's subsequent actions did not and could not have caused further impact on the market. No other generating unit could be ready to come up during that time. Thus, even if Sembcorp had revised its offers to zero MW, there would not have been other available offer for the MCE to schedule from. Prices would have remained at the price cap of \$4,500/MWh.
18. The MSCP has carefully considered, and has taken into account the factors raised by SembCorp in mitigation of the breaches. The MSCP recognises that the sudden cut-off of gas supply to SembCorp's was caused by an external party. However, the subsequent forced outages of SKRA G1 and SKRA G2 were caused by technical problems. It remained Sembcorp's obligation to ensure that its machines were in proper operating states when offers from them were made into the market. SembCorp is also obliged to ensure that its offers reflect the true generating capabilities of its machines. In addition, the MSCP considers that Sembcorp's non-compliance with dispatch instructions had imposed significant risk on system security.
19. In deciding on the imposition of financial penalty, the MSCP referred to the market outcomes for periods 21 to 24 on 15 August 2011 presented in Table 1 below.

Table 1: Market Outcomes 15 August 2011

Period	USEP (\$/MWh)	Demand (MW)	Supply (MW)	Supply Cushion (%)
21	253.37	5921.76	5954.17	0.54
22	753.62	5992.52	6023.67	0.52
23	4500.00	6018.86	5668.25	-6.19
24	4500.00	6007.73	5529.60	-8.65

At the minimum, the MSCP considered that SembCorp's non-compliance with dispatch instructions (conservatively at 120MW per CCGT for 2 periods), would have been worth \$180,868.80 when conservatively priced at the prevailing market price in period 22 (USEP = \$753.62/MWh).

20. Taking into account all the relevant circumstances in this case, including the mitigating factors described above, the MSCP determines that a financial penalty should be imposed on Sembcorp for breaching section 9.6.1 of Chapter 5 and section 5.1.6 of Chapter 6 of the Market Rules and assesses the penalty in the sum of \$40,000. The MSCP hereby directs that Sembcorp pay the sum of \$40,000 as the financial penalty and also the costs of investigation fixed at \$7,000. The total sum of \$47,000 is to be paid forthwith.

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