

## FINDINGS OF THE MARKET SURVEILLANCE AND COMPLIANCE PANEL MSCP/2006/F1

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

Mr Joseph Grimberg, Chair  
Professor Lim Chin  
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### **Date**

31 March 2006

### **Subject**

Investigation into Alleged Market Abnormalities Occurring from Late September to Early October 2005

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### **Introduction**

1. In November 2005, the Market Surveillance and Compliance Panel (MSCP) received a request for investigation into market abnormalities from a market participant. The market participant raised concerns over price spikes in wholesale electricity prices observed during the maintenance period for one of their units during the late September to early October period.
2. Given the level of total installed capacity, the market participant stated that it had reason to believe that there were sufficient reserves to provide for the shortfall arising from the displacement of its unit which was under maintenance. Hence, it was inconceivable to that market participant that the withdrawal of its unit could result in such a significant impact on wholesale electricity prices. Such prices had caused the market participant to suffer an adverse financial impact.
3. The market participant believed that the market observations were not reflective of a fair and efficient outcome and unduly penalized a generation company during its maintenance period.

## **Investigation Powers**

4. Section 4.6.1 of Chapter 3 of the Singapore Electricity Market Rules provides that the MSCP may in accordance with section 4.8 initiate an investigation into any activities in the wholesale electricity markets or the conduct of a market participant, market support services licensee, the EMC or the PSO that is brought to the attention of the MSCP by way of referral or complaint from any source. Section 4.8 of Chapter 3 also provides that the MSCP may report any findings to the EMC, the PSO or the Authority. Accordingly, the MSCP decided to initiate an investigation into the matter, through the Market Assessment Unit (MAU). This report sets out the findings of the MSCP.

## **Financial Loss**

5. In the course of the investigation, the market participant explained that it had suffered financial loss during the relevant period due to the following reasons:
  - As its unit was under maintenance, its generation output was insufficient to cover its exposure under its vesting contract;
  - As its unit was under maintenance, its generation output was insufficient to cover its exposure under its retail contracts; and
  - Although the market participant had ramped up an active unit to minimize its exposure and to support the system demand of the market, reserve prices had spiked to extremely high levels and resulted in the active unit incurring phenomenal reserve costs.

## **Allegations**

6. As part of its investigation, the MSCP also considered the following allegations:
  - that market outcomes were not efficient because the bigger players had seized the opportunity during the relevant period to influence energy and reserve prices for their own advantage; and
  - that market outcomes were not fair because the bigger players had a pool of backup units and had the ability and flexibility to ensure that energy and reserve prices remained stable when their units were scheduled for maintenance works.

## Investigation methodology

7. Our investigation into the issue of market efficiency has involved a review of the demand and supply situation, especially offer prices and capacity availability by other market participants during the relevant period. The MSCP has relied mainly on behavioral indicators by measuring the capacity offered. In particular, the MSCP has looked for evidence of deliberate withholding of capacity by other market participants with the intention of raising market prices.
8. The MSCP has also reviewed the relevant market rules and design features to assess the issue of fairness in the market.

## Investigation Findings

### Market Efficiency

9. The MSCP found that the higher price trend during the relevant period was the result of:
  - lower combined cycle gas turbine (CCGT) availability due to the maintenance of up to three CCGT units;
  - higher offer prices which coincided with surging fuel oil prices and higher dependency on the more costly steam turbines (ST) to meet demand; and
  - a tighter supply cushion as a result of strengthening demand (peak demand reached a new high in October 2005) and lower CCGT availability, with the supply cushion at a historical low of less than 10% on two separate occasions in September 2005.
10. Although the revenue for other market participants had increased during the relevant period, this was in response to the tighter supply cushion, rather than a direct consequence of market manipulation through capacity withholding. There is no evidence to suggest that the bigger players had withheld capacity with the intention of driving market prices up.
11. Since market start, it has been common to observe the high availability of CCGT compared to ST units. Since the STs are costlier to run and have a relatively shorter running time, they are only made available during the peak demand period, where prices tend to be more favorable (ie STs are peaking units).
12. Although the percentage of zero offers had been rising since July 2005 as a result of the commissioning of units, the proportion of zero offers actually dropped during the relevant period, as more ST capacity was injected to meet rising demand and also replace the CCGT capacity on maintenance.

13. The vesting contract regime, which was implemented in 2003 to manage generator market power and protect consumers against price spikes, has also lowered the potential benefit of withholding capacity. In relation to the amount vested (ie on average 65% of total demand), any potential revenue from high prices is reversed out as a result of the vesting contracts. It is also in the interest of generators to bid competitively so that they have adequate capacity scheduled as they may otherwise have to meet any shortfall in their vested quantities from the open market at high prices. In addition, we understand that many generators have high levels of bilateral contract positions with their respective retailers. Vesting contracts, coupled with this situation, provide little incentive for generators to hold prices high for a prolonged period.

#### Fairness

14. The MSCP also considered the issue of fairness raised by the market participant, taking into consideration the current market rules and design features.
15. With regard to vesting contracts, the MSCP has noted that vesting quantities are allocated to the four largest generators in proportion to their installed capacity. The same approach is applied with respect to each of these four generators.
16. Exposure to retail contracts is a matter of risk management for each retailer.
17. Every market participant is also subjected to the same market rules and a consistent methodology in energy and reserve payment calculation. The reserve effectiveness and standing probability of failure, which depend heavily on the reliability record of a generating plant, affect the amount of reserve costs paid by each generator.
18. In view of the above, the MSCP has found no basis to question the fairness of market practices and outcomes, or to conclude that a generator may be unduly penalized during its maintenance period.

#### Further Observations

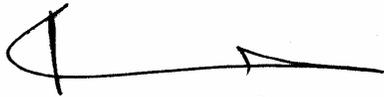
19. In addition, the MSCP notes the following characteristics of the National Electricity Market of Singapore (NEMS):
  - In a well-functioning market, prices constantly respond to changes in supply and demand conditions. The price signal is an important element in stimulating demand response and correct investment decisions in the long run. It is also an important element in ensuring efficient resource allocation. During the maintenance period of the market participant, spot prices rose mainly due to a tighter supply cushion and higher offer prices caused by rising oil prices and increased reliance on ST units to meet demand;

- A special characteristic of an electricity market is that the demand curve is highly inelastic. This gives rise to price spikes as prices rise dramatically higher during periods of scarcity. Although prices and demand are linearly correlated, prices tended to become more volatile at higher demand levels. This is consistent with observations during the investigation period; and
- In a liberalised market, competition will drive utilisation of more efficient generation technologies. Over time, the availability and running of the less efficient plants will decline. In NEMS, CCGTs have replaced STs as the dominant source of electricity generation with over 75% of market share in 2005. During the investigation period, all available CCGT generation capacity was running at maximum generation capacity while the availability of the less efficient STs also increased in response to higher CCGT maintenance.

## Conclusion

20. In conclusion, the MSCP finds that:

- there was no evidence of inefficient or unfair behaviour on the part of the NEMS during the relevant period, in relation to the observations raised by the market participant; and
- there was no evidence of manipulation by the bigger players during the relevant period.



Joseph Grimberg  
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Market Surveillance and Compliance Panel