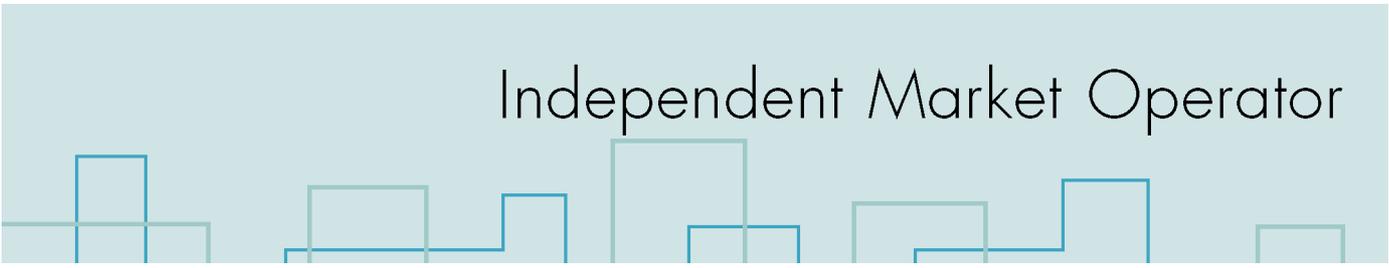


# Independent Market Operator



**EXTERNAL MARKET INCIDENT REPORT - STEM  
SUSPENSION 11 FEBRUARY 2007**

**13 MARCH 2007**

## Introduction

At 10:20 am on Scheduling Day Saturday February 10, the Short Term Energy Market (STEM) was suspended for the Trading Day of Sunday 11 February 2007. Issues with the Wholesale Electricity Market Systems (WEMS) led to a delay in the opening of the STEM window leaving participants only twelve minutes to make their STEM submissions. Subsequently, at least one participant was unable to make their STEM submission. As defined in the *Operations Contingency Procedures*<sup>1</sup> this then gives rise to an invalid STEM result under clause 6.10 of the Market Rules.

The purpose of this report is to:

- Describe the event leading up to the suspension of the STEM on this day, including the actions taken by IMO staff;
- Discuss changes that have been implemented to prevent this type of issue from recurring; and
- Make further recommendations that will assist in preventing recurrence.

All times in this report are given in Western Standard Time.

## The Issue

The initial part of the Scheduling Day of Saturday February 10 progressed without incident. Files detailing demand forecasts, facility outages and ancillary services for the following Trading Day were received from System Management and processed by the WEMS Application Server and stored on the WEMS Database Server. Bilateral submission windows events also completed without incident.

The IMO triggers the participant and facility limit calculations at 08:30 am, or earlier if available, on each Scheduling Day. This is then followed by an automated event that publishes the limit calculation results at 08:52 am. On February 10, the first indication that the systems were not operating correctly was that the limit calculations had completed successfully, but the systems could not publish the limit reports.

When the WEMS attempted to run the automated STEM window opening event, this process failed. The operator on-call attempted to rerun this manually, but the event continued to fail.

Participants started to contact the Operations help desk from approximately 09.15 am to seek advice as they had not been able to make STEM submissions. They were informed of an issue with the WEMS and that they would be advised when the STEM window was opened.

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<sup>1</sup> [http://www.imowa.com.au/market\\_ops\\_procedures.htm](http://www.imowa.com.au/market_ops_procedures.htm)

IMO staff restarted a number of applications within the WEMS at 09:30 am in an attempt to resolve the underlying issue. The operator then opened the STEM window at 09:38 am. Part of the STEM submission window opening event is a process that attempts to convert participant standing STEM submissions into valid STEM submissions. Although the event completed correctly on this occasion, several of the standing bids failed the conversion process. Note that this is a normal outcome that indicates a change in facility limit between the submission of the standing submission and the opening of the STEM submission window. This does not indicate that the system or process has failed.

Participants were then advised by phone to attempt to make their STEM submissions once again. Two participants were able to make their submissions successfully, although one of these participants was having trouble querying the submission after making it. However, another two participants whose standing data had failed to convert subsequently advised they had not been able to make their STEM submissions by 09:50 am.

Market Rule 6.3B only permits participants to make STEM submissions between 09:00 am and 09:50 am. On 10 February there was insufficient time for all market participants to make valid STEM submissions for the Trading Day of 11 February. This being the case the STEM was suspended with participants being notified through market advisory at 10:20 am.

Note that IMO staff also noticed that the database was still experiencing problems in relation to Oracle and memory allocation. Restarting the database would normally take around forty minutes. Rule 6.4.3 requires that the auction be run by 10:30 am and a restart of the database would not allow the auction to be run by this time. This supported the need to suspend the STEM at this point.

A complete restart of the WEMS was executed at 10:20 am, ahead of the resource window opening. Participants were informed when the systems were back on-line.

Having suspended the STEM, participants Net Contract Positions (NCPs) remained set equal to their Net Bilateral Position. As the STEM Auction was not run at any point, the STEM report on price and clearing quantities was published with no data. (Note that in the case where the auction is run, but is still suspended, the report indicates that the market had been suspended and inserts 0's in the Cleared Quantity and Price columns.)

The remainder of the February 10 Scheduling Day was conducted without further incident.

## **Commercial Effects**

The commercial effect of this incident was that energy that would have traded through the STEM was now exposed to the balancing market. When the STEM is suspended there is no energy cleared through this market. All energy produced or consumed in deviation to the net bilateral position is settled through the balancing market.

Under normal processes the balancing price is determined as:

1. The STEM price if the operational load is within a tolerance band of the net contract position; or
2. A price determined by reconstructing the bid offer clearing process where the operational load is outside of the tolerance band.

However, in cases where the STEM is suspended and is not subsequently run, Market Rule 6.14.2 requires that the balancing prices be set equal to those for a previous day. In the case of this suspension, the balancing prices were set equal to those for Sunday February 4.

As the IMO has not been able to run the STEM auction for this day, it is impossible to quantify exactly the commercial effects of this suspension. However, given that the amounts cleared in the STEM on neighbouring days, and on the previous Sunday, were quite small it is reasonable to assume that similar small quantities may have cleared on this day. As such, it is reasonable to assume the commercial effects were limited.

## **Findings, Actions and Recommendations**

The following dot points outline the findings, actions and recommendations arising from this incident:

- It has been agreed that the WEMS should be routinely totally restarted to minimise the possibility of database issues arising. A scheduled time-slot of 17:00 pm to 20:00 pm has been set aside on all days to perform this task (along with other database maintenance and updating tasks).
- IMO staff have undertaken to increase their monitoring of WEMS performance and co-ordinate with other IMO staff all database activity. Note that Web Service interactions with the database will also be monitored under this process.
- IMO Hardware and Software Vendors have been requested to resolve the underlying database performance issues. Some progress has been made in this area.

- The IMO has changed procedures to stream-line the total restart of the WEMS. However, it should be acknowledged that even under ideal conditions, this process will take at best approximately 20 minutes.
- A recently proposed Rule Change that is currently being implemented in the systems will improved the likelihood that Standing STEM submissions will be successfully translated to actual STEM submissions. Under the *Operations Contingency Procedures* the market will not be suspended if all participants that are trying to make STEM submissions are successful. As this includes standing STEM submissions, this should reduce the likelihood that the STEM will be suspended through incidents such as this.
- The IMO is continuing negotiations with Software Vendors to ensure that all reports handle data in a consistent manner.