

Independent Market Operator



**EXTERNAL MARKET INCIDENT REPORT - DATABASE ISSUE -
28 JANUARY 2007**

06 FEBRUARY 2007

Introduction

Between the evenings of Wednesday January 24 and Sunday January 28 2007 the Wholesale Electricity Market Systems (WEMS) were operating on the Independent Market Operator (IMO) backup systems as part of a scheduled failover exercise.

Prior to the systems reverting back to the production site on Sunday January 28, an issue with the database due to a reporting problem caused the WEMS to shut-down for a short period. As a result, the Resource Plan window could not be opened by the time required under Chapter 6 of the Market Rules. However, the system was subsequently brought back into operation and the Resource Plan window was opened with minimal market disruption.

The purpose of this report is to:

- Explain this issue in detail; and
- Propose recommendations to resolve the underlying causes and to minimise the probability of recurrence.

The Issue

As part of its daily operations, the IMO imports and processes metering data as it is made available by the Western Power Meter Data Agent. Once data is imported into the Meter Data Warehouse (MDW) the IMO operators execute a report (the Meter Control Report) that identifies missing data on a National Metering Identifier (NMI) basis. Due to the large amounts of metering data in the WEMS, this report is database resource intensive and takes some time to complete. It had been previously established by IMO staff that this report should not be run on blocks of data spanning more than 10 consecutive days.

Once the STEM auction had been run and the relevant STEM reports had been published on Sunday January 28, the IMO operator on call attempted to run the Meter Control Report for a 10-day period. This gave rise to an issue in the database with the loss of the Market Operator Interface and the Market Participant Interface.

The systems were brought off-line and IMO staff commenced to process of restarting the WEMS. At 12:00 WDST (11:00 Market Time) a Market Advisory was circulated informing participants that the systems were not operational and that the Resource Plan window would be opened as soon as the WEMS were back on-line. Some queries were raised by participants that were attempting to submit Resource Plans.

At 14:00 WDST (13:00 Market Time) the systems were successfully brought back on-line and the Resource Plan window was opened. The Resource Plan window was closed at 16:00 WDST (15:00 Market Time) after it was confirmed that all Resource Plans had been successfully imported. Note that Market Rule clause 6.5.1(b) the IMO can delay the closing of the Resource

Plan window until 15:00 following WEMS IT issues. The Dispatch Merit Order was forwarded to System Management shortly after the Resource Plan window was closed.

It has been confirmed that this issue did not arise as a result of operation on the backup site.

Commercial Effects

It is believed that there was no commercial effect arising from this incident as all participants were successful in submitting their resource plans. The Dispatch Merit Order was forwarded to System Management with sufficient time for them to plan for the following Trading Day.

Findings and Recommendations

This issue has been, and is being addressed in three different areas:

- First and foremost, the IMO is undertaking analysis of the Meter Control Report to resolve the underlying problem. The IMO will involve the software vendor if and when this is necessary to improve performance and resolve this issue.
- In the interim, a decision has been made to change the operational procedures such that:
 - The Meter Control Report will only be run outside of Market Operational times (i.e. after the Resource Plan window and Dispatch Merit Order are complete).
 - The Meter Control Report will not be run for more than one day at a time.
- It was found that the physical memory assigned to the database server was not fully optimised and only 3.5 GBytes of the available 4 GBytes was being utilised. This was immediately addressed by altering the initialisation file for the server boot up.

The IMO is confident that the steps taken above will sufficiently minimise the probability of this issue recurring.

Conclusions

On January 28 2007 IMO operational staff executed the Meter Control Report for a period of time that resulted in a failure of the WEMS database server. Subsequently, the opening and closing of the Resource Plan window was late. However, all participants were successful in submitting their resource

plans and the Dispatch Merit Order was delivered to System Management with ample time.

The IMO has altered operational practices to reduce the probability that this issue will arise again. We have also made changes to our systems to improve the management of memory on the database server. Investigations are on-going to resolve the underlying issue in relation to the Meter Control Report.