

ELECTRICITY INDUSTRY ACT

**ELECTRICITY INDUSTRY (WHOLESALE ELECTRICITY
MARKET) REGULATIONS 2004**

WHOLESALE ELECTRICITY MARKET RULES

**Power System Operation Procedure:
Communications and control systems**

Version history

1 September 2009	Power System Operation Procedure (Market Procedure) for Communications and Control Systems
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RELATIONSHIP WITH MARKET RULES

1. This Procedure has been developed in accordance with, and should be read in conjunction with, the Wholesale Electricity Market Rules (Market Rules).
2. References to particular Market Rules within the Procedure in bold and square brackets **[MR XX]** are current as 5 December 2011. These references are included for convenience only, and are not part of this procedure.
3. This Power System Operating Procedure is subservient to the Market Rules. In the event of conflict between this Procedure and the Market Rules or any other document, the order of precedence is as set out in the Market Rules **[MR 1.5.2]**
4. This Power System Operating Procedure may include explanatory text, including quotations from the Market Rules. Such explanatory text is for information only, does not form part of the Procedure, and is italicised and contained in a rectangular box.

RELATED DOCUMENTS

1. This document is related to, and should be read in conjunction with, the following documents:
 - a. Power System Operation Procedure – Dispatch
 - b. Power System Operation Procedure – Operational Data Points for Generating Facilities
 - c. Power System Operation Procedure – Commissioning and testing
 - d. Power System Operation Procedure – Power system security
 - e. Market Procedure – Balancing Facility Requirements

COMMENCEMENT

1. This market procedure replacement has effect from the date of commencement of Rules Change Proposal RC_2011_10.

1 SCOPE

1. The Communications and Control Systems Procedure details System Management's requirements for the Communications and Control Systems needed to support the dispatch process.
2. This Procedure sets out the communications and control systems required to be in place to enable System Management to dispatch:
 - a. Scheduled Generators, Non-Scheduled Generators, Dispatchable and Curtailable Loads that are controlled directly by the Market Participant; and
 - b. Scheduled or Non-Scheduled Generators where System Management, by agreement with the Market Participant, has operational control of that Facility; and
 - c. Interruptible Loads whose operation may be triggered by a fall in power system frequency.
3. The Procedure specifies the main features of the speech, data and control systems that need to be in place between the Market Participant and System Management for the purpose of:
 - a. issuing, acknowledging and responding to Dispatch Instructions, Dispatch Orders, Operating Instructions and directions; and
 - b. monitoring the MW output and connection status of the Market Participant's Facility or Facilities; and
 - c. enabling prompt response to directions of System Management in the event of a High Risk Operating State or Emergency Operating State.

2 ASSOCIATED PROCEDURES AND STANDARDS

1. The following Power System Operation Procedures have direct connection with and are to be complied with in conjunction with this Communications and Control Systems Procedure:
 - a. Power System Operation Procedure - Dispatch
 - b. Power System Operation Procedure - Operational Data Points for Generating Plant

3 OPERATIONAL COMMUNICATIONS AND CONTROL SYSTEMS REQUIREMENTS FOR FACILITIES

Generators must adhere to the Technical Rules and any applicable PSOP on the provision of data and communication systems. PSOP operational data points for generating plant states "...specifies System Management's requirements for the real time operational data points to be transmitted through the SCADA Operational Interface between a Market Participants generating plant connected to the South West Interconnected System (**SWIS**), the Western Power Networks (**WPN**) , and the East Perth Control Centre (**EPCC**)."

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3.1 Balancing Facilities not excluded from Balancing Facility Requirements

1. All Balancing Facilities not excluded from the Balancing Facility Requirements pursuant to Market Rule 7A.1.8 must:
 - a. Be able to receive, and acknowledge Dispatch Instructions, Dispatch Orders and Operating Instructions via System Management's market participant interface, as published by System Management from time to time; and
 - b. Have both voice and e-mail communications in place for the receipt of Dispatch Instructions if the interface to System Management's market system is not available

Comment [WPU3-1]: Requires further SM consideration

3.2 Balancing Facilities excluded from Balancing Facility Requirements

1. All Balancing Facilities excluded from the Balancing Facility Requirements pursuant to Market Rule 7A.1.8 must either:
 - a. Have both voice, SMS and e-mail communications in place for the receipt of Dispatch Instructions; or
 - b. Have an operational control agreement with System Management

Note that the above Facilities are also required to comply with the Power System Operating Procedure: Operational Data Points for Generating Plant

3.3 Facilities providing Load Following Ancillary Service

1. All Facilities providing Load Following Ancillary Service must be connected to System Management's Automatic Generation Control (AGC) system with all signals required for handshaking as per System Management's AGC interface signal protocol fully operational.

3.4 Facilities providing Spinning Reserve

1. All Facilities providing Class A Spinning Reserve as defined in the Power System Operating Procedure: Ancillary Services must be connected to System Management's Automatic Generation Control (AGC) system.

3.5 Demand-side programs

1. A Market Customer who operates a Demand-side program must provide a telephone contact that allows System Management to communicate Dispatch Instructions to the Market Customer.
2. A Market Customer who operates a Demand-side program exceeding 10MW capacity must be able to receive, acknowledge and respond to Dispatch Instructions and Operating Instructions via System Management's market participant interfaces, as published by System Management from time to time.

Note that Market Customers referred to in Paragraph 3.5.2 above are not required to respond immediately to electronic Dispatch Instructions. Timing in relation to Dispatch Instructions is discussed in the Power System Operating Procedure: Dispatch

3.6 Facilities providing Interruptible Load, Network Control Service, System Restart Service or Dispatch Support Service

1. The communications and control system requirements an Interruptible Load, a Facility providing Network Control Service, a Facility providing System Restart Service or a Facility providing Dispatch Support Service shall be in accordance with the contract under which the service is provided.

4 GENERATORS OPERATED BY SYSTEM MANAGEMENT

1. This section applies to Participants with Scheduled or Non-Scheduled Generators remotely operated by System Management under an operational control agreement between the Market Participant and System Management [MR 7.8].
2. Under the operational control agreement referenced in Paragraph 4.1, System Management may execute a number of Dispatch Instructions or Dispatch Orders relating to that facility through remote control facilities located in System Management's premises.
3. Before an operational control agreement for remote operation and control is entered into, the Market Participant must acknowledge that System Management bears no liability or responsibility for failure of the Market Participant's Generation Facility to obey a Dispatch Instruction, or to comply with the Market Participant's Resource Plan.
4. The documents defining the operating agreement for remote operation and control must also include a definition of the protocols and electronic interfaces to be used by System Management in carrying out the remote operation and control functions.

4.1 Automatic execution of Dispatch Instructions and Dispatch Orders through AGC

1. Automatic Generation Control (AGC) refers to equipment operated by System Management, which sends signals to Generating facilities participating in the AGC scheme to automatically adjust their output so as to maintain frequency or restore frequency within the Normal Operating Frequency Band.
2. Scheduled and Non-Scheduled Generators may have their Dispatch Instructions or Dispatch Orders executed electronically by System Management via System Management's AGC system.
3. A Generation Facility participating in System Management's AGC system may from time to time, but no more frequently than at 4 second intervals, receive from the AGC an electronic control signal transmitted directly to the generator unit(s) output control or governing system. This signal sets the

amount of required increase or decrease, or absolute value in generator MW output. The generating unit(s) must react to this signal within a timeframe and ramping rate consistent with the Dispatch Instruction to which the control signal relates.

4. Connection of a Generation Facility to the AGC system must be through mutual agreement between the relevant Market Participant and System Management.

5 LOSS OF COMMUNICATION FACILITIES

1. Where a major loss of communications occurs, the electronic data/control systems and some of the voice communication circuits referred to in Section 3 of this Procedure may become unavailable. Where a Facility continues to operate after major loss of communications, the Market Participants and System Management must then revert to speech communications, including the use of back up speech facilities for the transfer of all Dispatch Instructions, Dispatch Orders and other operational information.
2. Where System Management's Control Centre has been evacuated and dispatch services shift to System Management's emergency control centre, an Emergency Operating State must exist. Contact with System Management must be via a series of emergency telephone numbers.
3. System Management must provide Market Participants with an emergency contact list to be used in these circumstances.
4. Market Participants must provide System Management with an emergency contact list to be used in these circumstances.