

**ELECTRICITY INDUSTRY ACT**

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

**WHOLESALE ELECTRICITY MARKET RULES**

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

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## VERSION HISTORY

<u>1 September 2009</u>	<u>Power System Operation Procedure (Market Procedure) for Communications and Control Systems</u>
<u>Balancing Market Commencement Day</u>	<u>Replacement of the Procedure resulting from Procedure Change Proposal PPCL0021</u>

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**RELATIONSHIP WITH MARKET RULES**

1. This Power System Operation Procedure (PSOP): Communications and Control Systems (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 of the Balancing Market Commencement Day. These references are included for convenience only, and are not part of this Procedure.
3. This 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 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.
5. A word or phrase defined in the Electricity Industry Act 2004, or in the Regulations or Market Rules made under that Act, has the same meaning when used in this Procedure. In addition the following defined terms have the given meaning:
  - a. Automatic Governor Control (AGC) means equipment operated by System Management, which sends signals to generating facilities participating in the AGC scheme to automatically adjust its output so as to maintain frequency or restore frequency within the Normal Operating Frequency Band.

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**RELATED DOCUMENTS**

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

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**COMMENCEMENT**

1. This Procedure replacement has effect from the Balancing Market Commencement Day.

## 1 SCOPE

1. This Procedure has been developed in accordance with the Market Rules [MR2.35.4] and documents the communications and control systems required to be in place to enable System Management to dispatch:

- a. Scheduled Generators, Non-Scheduled Generators, Dispatchable Loads and Demand Side Programmes that are controlled directly by a Market Participant; and
- b. Scheduled or Non-Scheduled Generators where System Management, by agreement with the relevant Market Participant, has operational control of that Facility; and
- c. Interruptible Loads whose operation may be triggered by a fall in power system frequency.

2. The Procedure specifies the main features of the speech, data and control systems that must 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 Facilities; and
- c. enabling prompt response to directions of System Management; and
- d. communicating on other matters relating to the operation of the power system.

## 2 OPERATIONAL COMMUNICATIONS AND CONTROL SYSTEMS REQUIREMENTS

Note that the processes for implementing Dispatch Instructions are covered in the PSOP: Dispatch.

### 2.1 Balancing Facilities

1. The communication requirements for Balancing Facilities not having special conditions imposed by the IMO pursuant to the Market Rules [MR 7A.1.11] are that such Facilities:
  - a. be able to receive, and acknowledge Dispatch Instructions, Dispatch Orders and Operating Instructions via System Management's SCADA system and/or System Management's secure business-to-business gateway; and
  - b. have SMS and/or email capability at the location that is able to receive Dispatch Instructions, Dispatch Orders and Operating Instructions from System Management; and
  - c. have duplicated 24x7 telephone services (or other voice communications) in place for communication with System Management, including the receipt and acknowledgement of Dispatch Instructions as a backup

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mechanism for System Management's SCADA system or System Management's secure business-to-business gateway.

unless specifically exempted under step 3.2 below.

2. Until the later of the Trading Day starting on 5 December 2012 or six months after System Management publishes its secure business-to-business gateway specification. System Management will deem internet access via System Management's portal will be deemed as meeting the requirement specified in step 2.1.1(a).

## **2.2 Balancing Facilities with special conditions imposed**

1. The communication requirements for Balancing Facilities which have had special conditions imposed by the IMO pursuant to the Market Rules [MR 7A.1.11] are that such Facilities must have:
    - a. internet access via System Management's portal or System Management's secure business-to-business gateway; and
    - b. telephone services (or other voice communications); and
    - c. either:
      - i. SMS; or
      - ii. e-mail,
- communications in place for the receipt of Dispatch Instructions.

2. A Facility is not required to comply with step 2.2.1 if either:

- a. step 3.2 below applies, or
- b. the Facility has had conditions imposed on it under the Market Rules [MR 7A.1.11] specifically exempting the requirements of step 2.2.1.

*Note that the above Facilities are also required to comply with the PSOP: Operational Data Points for Generating Plant.*

## **2.3 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.
2. System Management must publish the AGC signal protocol on the Market Web Site as part of the Operating Protocol template.

## **2.4 Facilities providing Spinning Reserve**

1. All Facilities providing Spinning Reserve must have duplicated 24x7 monitored voice communications in place for communication with System Management.

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2. All Facilities providing Class A Spinning Reserve as defined in the PSOP: Ancillary Services must be connected to System Management's AGC system.

*Facilities providing Class B and Class C Spinning Reserve may also be connected to System Management's AGC system by agreement between System Management and the Market Participant.*

### 2.5 Facilities providing Load Rejection Reserve

1. All Facilities providing Load Rejection Reserve must have the communications requirements outlined in the PSOP: Ancillary Services

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

1. The communications and control system requirements for:

- a. a Facility providing Network Control Service, System Restart or Dispatch Support Service; or
- b. an Interruptible Load,

shall be in accordance with the contract under which the service is provided.

### 2.7 Demand Side Programmes

1. A Market Customer who operates a Demand Side Programme must provide duplicated monitored telephone contacts from 7 am until 7 pm on Business Days that will allow System Management to communicate Dispatch Instructions to the Market Customer.

## 3 GENERATORS OPERATED BY SYSTEM MANAGEMENT

### 3.1 Application

1. This section 3 applies to Market Participants with Facilities operated by System Management pursuant to the Market Rules [MR 7.8].
2. Except for the Verve Energy with respect to the Verve Energy Balancing Portfolio, System Management may only operate Facilities for which a formal Operating Protocol detailing the mechanism and limitations of control has been executed between System Management and the relevant Market Participant.
3. The Operating Protocol referred to in step 3.1.2 must include a definition of the protocols and electronic interfaces to be used by System Management in carrying out the remote operation and control functions (SCADA technical specification).
4. System Management must publish an Operating Protocol template on the Market Web site.

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### 3.2 Exemption of Facilities under System Management control from communications requirements

1. System Management may exempt a Balancing Facility from meeting one or more of the requirements of, as applicable, step 2.1 or step 2.2 if that Facility is operated by System Management pursuant to the Market Rules [MR 7.8].

### 3.3 Automatic execution of Dispatch Instructions and Dispatch Orders through AGC

1. If so permitted under the Operating Protocol referred to in step 3.1.2, System Management may execute one or more Dispatch Instructions or Dispatch Orders relating to that Facility through AGC.

## 4 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 2 of this Procedure may become unavailable. Where a Facility continues to operate after major loss of communications, the Market Participants and System Management must revert to speech communications, including the use of back up voice communications 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, telephone contact with System Management must be made via a series of emergency telephone numbers ("the emergency contact list").

Under such circumstances, an Emergency Operating State is likely to exist.

3. System Management must provide Market Participants with the emergency contact list, and advise Market Participants as soon as, and by whatever means, practicable when the emergency contact list is to be used.
4. Market Participants must provide System Management with emergency telephone contact details.
5. Where a Market Participant can no longer adhere to the communications requirements outlined in section 2 of this Procedure due to a major loss of communications as outlined in step 5.1, the relevant Market Participant must advise System Management as soon as, and by whatever means, practicable that the emergency contact details are to be used for the purposes of communicating with the relevant Facilities.

It is the Market Participant's responsibility at all times to maintain the integrity of its communications facilities. A communications failure does not relieve the Market Participant's obligation to follow all Dispatch Instructions and other directions from System Management. Note that the provisions under step 4.5 are only intended to apply as a short term measure (i.e. hours rather than days).

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<#>Scheduled and Non-Scheduled Generators may have their Dispatch Instructions or Dispatch Orders executed electronically by System Management via System Management's AGC system. ¶

<#>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.¶

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

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*Due to the higher volume of Dispatch Instructions required in a competitive balancing environment, any loss of communications that resulted in System Management relying on voice communications would be likely to result in the system being placed in a High Risk Operating State.*

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6. Procedure details System Management's requirements for the Communications and Control Systems

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a. in the event of a High Risk Operating State or Emergency Operating State

### ASSOCIATED PROCEDURES AND STANDARDS

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:

Power System Operation Procedure - Dispatch

Power System Operation Procedure - Operational Data Points for Generating Plant

**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)."**

**excluded from Balancing Facility Requirements**

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market participant interface

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market participant interface

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mechanism to System Management's market participant interface

d.

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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

e.

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5. System Management		
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6. System Management		
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7. clause		
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8. clause		
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<b>excluded from Balancing Facility Requirements</b>		
1.2		
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1. having		
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2. having		
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3. Subject to clause 2.2.2, the requirements applicable under clauses 2.1 and 2.2 of the Market Procedure: Balancing Facility Requirements to		
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4. special conditions imposed pursuant to Market Rule 7A.1.8		
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3.1.1 of the Market Procedure: Balancing Facility Requirements pursuant to its inability to comply with

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Have an operational control agreement with System Management

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include

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include

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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.

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*

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, a Facility providing Network Control Service, a Facility providing System Restart Service or a Facility providing Dispatch Support Service

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Scheduled or Non-Scheduled Generators remotely

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under an operational control agreement between the Market Participant and System Management

2.

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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.

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.

documents defining the operating agreement for remote operation and control must also