



System Management

Procedure Change Report
Ref: PPCL0017
Title: Facility Outages Power
System Operation Procedure

Date: 21 June 2011

System Management Contact Details
Grace Tan
GPO Box L921, Perth, WA 6842
08 9427 5942
Grace.tan@westernpower.com.au

CONTENTS

INTRODUCTION	1
THE MARKET ADVISORY COMMITTEE.....	3
SUBMISSIONS	3
IMPLEMENTATION	9

DOCUMENT DETAILS

DMS No.:	8285956v1
SM Notice No.:	PPCL0017
Report Title:	Facility Outages
Author:	Grace Tan
Release Status:	Public
Confidentiality Status:	Public domain
Prepared in accordance with Market Rule 2.10.10	

INTRODUCTION

This document is the Procedure Change Report for System Management proposed amendments to the Power System Operating Procedure: Facility Outages

- This proposal was first published on the IMO website on 13 December 2010.
- A request for submissions to the proposal was published on 14 December 2010 with a deadline of 13 January 2011.
- This Procedure Change Report is submitted to the IMO for publication on 21 June 2011.
- This proposed amended procedure is to commence at 8 am on 1 August 2011.
- Commencement is pending approval by the IMO. Market Rule 2.10.14 requires the IMO to make its decision within 10 Business days of this Report being published.

THE WORDING OF THE AMENDMENT TO THE POWER SYSTEM OPERATING PROCEDURE

The amended procedure is attached to this Report.

THE REASON FOR THE AMENDMENT TO THE POWER SYSTEM OPERATING PROCEDURE

In pursuit of continuously improving the accuracy of the PSOP's System Management facilitated the process of integrating commenced rule changes, namely 'RC_2009_05 Confidentiality of Accepted Outages' and 'RC_2009_37 Equipment Tests', into the relevant Facility Outage PSOP.' These rule changes commenced on August 2009 and February 2011 respectively.

In order to understand the derivation of the proposed calculation formula of the Planned outage, Forced outage and Equipment Test outage rates in new Appendix 1, System Management has included benchmark formulae used by the North American Electricity Reliability Council below.

1. NERC Forced Outage rate formulae:

The Forced Outage rate included in the Facility Outage PSOP is based on the Equivalent Forced Outage Factor used by the North American Electricity Reliability Council (NERC).

The "Equivalent Forced Outage Factor" definition is a suitable benchmark as it accounts for both partial Forced Outages and full Forced Outages. The definitions are given in the document "*Generating Availability Data System Data Reporting Instructions*", which is available on the NERC website.

NERC Forced Outage rate Formulae	Definitions
<p>Equivalent Forced Outage Factor:</p> $\frac{(\text{FOH} + \text{EFDH})}{\text{PH}} \times 100\%$	<p>FOH (Forced Outage Hours) = Sum of all hours experienced during Forced Outages (U1, U2, U3) + Startup Failures (SF).</p> <p>EFDH (Equivalent Forced Each individual Forced Derated Hours) = Derating (D1, D2, D3) is transformed (D1, D2, D3) into equivalent full outage hour(s). This is calculated by multiplying the actual duration of the derating (hours) by the size of the reduction (MW) and dividing by the Net Maximum Capacity (NMC). These equivalent hour(s) are then summed:</p> $\frac{\text{Derating Hours} \times \text{Size of Reduction}}{\text{NMC}}$ <p>PH (Period Hours) = Number of hours in the period being reported that the unit was in the active state.</p>

2. NERC Planned Outage rate formulae:

The Planned Outage Rate included in the Facility Outage PSOP is based on the Equivalent Planned Outage Factor used by the North American Electricity Reliability Council (NERC).

The “Equivalent Planned Outage Factor” definition is a suitable benchmark as it accounts for both partial outages and full outages. The definitions are given in the document “*Generating Availability Data System Data Reporting Instructions*”, which is available on the NERC website.

NERC Planned Outage rate Formulae	Definitions
<p>Equivalent Planned Outage Factor:</p> $\frac{\text{POH} + \text{EPDH}}{\text{PH}} \times 100\%$	<p>POH (Planned Outage Hours) = Sum of all hours experienced during Planned Outages (U1, U2, U3) + Startup Failures (SF).</p> <p>EPDH (Equivalent Planned Each individual Planned Derated Hours) = Derating (D1, D2, D3) is transformed (D1, D2, D3) into equivalent full outage hour(s). This is calculated by multiplying the actual duration of the derating (hours) by the size of the reduction (MW) and dividing by the Net Maximum Capacity (NMC). These equivalent hour(s) are then summed:</p> $\frac{\text{Derating Hours} \times \text{Size of Reduction}}{\text{NMC}}$ <p>PH (Period Hours) = Number of hours in the period being reported that the unit was in the active state.</p>

2. NERC Equipment Test outage rate formulae:

There is no equivalent NERC definition for the Equipment Test outage rate. The definition included in Facility Outages PSOP is equivalent to the Planned Outage rate. It is noted that a partial Equipment Test is not contemplated and so the equivalent definition is not required.

Proposed amendments reflecting the commencement of the abovementioned rule changes have been subject to public consultation, consultation within the System Management Power System Operation Procedures Working Group (constituted under the auspices of the MAC) and with the Independent Market Operator,

THE MARKET ADVISORY COMMITTEE

The Market Advisory Committee (MAC) did not meet regarding this procedure change proposal.

However, these proposed amendments have been subject to formal public consultation which concluded on 13 January 2011.

SUBMISSIONS

System Management received two submissions regarding this procedure, from Landfill Gas and Power and the Independent Market Operator.

Landfill Gas and Power submitted:

"LGP is a member of System Managements Procedure Review Committee and supports the general thrust of the proposed changes.

We offer the following comments:

- i) Throughout the document there are several references in separate contexts to System Management being required to communicate with Market Participants in a particular manner or "or as otherwise directed". An example is clause 11.2. Presumably SM is the party that would be issuing the direction, in which case this phrase would seem to be redundant.*
- ii) Throughout the document there are several references to System Management advising its contact details from time to time. Examples include clauses 6.2, 12.2, 14.2 and 15.2. We suggest specifying how this notification is to be made as otherwise it is unclear how a Market Participant may initiate contact.*
- iii) Clause 5.1.2 is ambiguous; it is unclear as to whether it is the equipment list that is to be maintained from time to time or whether equipment is eligible to be included on the list only if it is in need of maintenance from time to time.*

- iv) *Clause 11.1. Suggest delete the first sentence and generally review the grammar and sense of the remaining paragraph.”*

System Management supports Landfill Gas and Power’s view indicated in its submission above, and has adopted all suggestions accordingly.

The Independent Market Operator submitted:

“The proposed amended PSOP specifies the methodology for calculating the Planned Outage rate, Forced Outage rate and Equipment Test rate (section 18 and Appendix 1) to be taken into account by the IMO when determining whether to assign Certified Reserve Capacity (CRC) to a Facility in accordance with clause 4.11.1(h) of the Market Rules. The IMO considers that, as currently drafted, both section 18 and Appendix 1 are unclear and contain a number of unnecessary specifications. Specific details of the IMO’s concerns with the proposed amendments are outlined below along with the IMO’s recommended amendments (shown as: new text, ~~deleted text~~) where appropriate:

- **Section 18** fails to clarify the relationship between the IMO and System Management with regard to decisions by the IMO to assign CRC to a Facility. The IMO considers that to improve the clarity of this section System Management could include the following sub-step:

“In deciding whether or not to refuse to grant Certified Reserve Capacity under clause 4.11.1(h) of the Market Rules, the IMO may consult with System Management.”

- **Sub-step 18.2** places an obligation on the IMO to the extent that it must take into account the Planned Outage, Forced Outage and Equipment Test rates determined by System Management. The IMO considers that this requirement is currently unclear and creates a new obligation on the IMO that does not exist in the Market Rules. Clause 4.11.1(h) of the Market Rules states that the IMO may decide to not assign CRC to a Facility based on the Forced Outage, Planned Outage and Equipment Test rates. The IMO also recommends minor amendments to clarify that System Management will determine the required rates; to ensure consistency with the wording of clause 4.11.1(h) of the Market Rules; and to remove the nonspecific and redundant reference to “the Reserve Capacity Cycle”. The IMO considers that substep 18.2 could be updated as follows:

“In considering ~~setting~~ assigning a quantity of Certified Reserve Capacity to a Facility ~~for the Reserve Capacity Cycle~~, the IMO ~~must~~ may take into account the Planned Outage, Forced Outage and Equipment Test rates determined by System Management in accordance with Appendix 1.”

- **Appendix 1** contains details of the how the Equivalent Forced Outage Factor used by the North American Electricity Reliability Council (NERC) is determined. While the IMO agrees that this information is valuable to interested stakeholders in assessing the proposed calculations for the Forced Outage, Planned Outage and Equipment Test rates in the Wholesale Electricity Market (WEM), the IMO considers that this information is only relevant to the creation of the calculations and should not be contained in the PSOP: Facility Outages. The IMO considers that this information would have been better presented in System

Management's Procedure Change Proposal as background information to the proposed changes.

The IMO considers that the PSOP: Facility Outages should be a stand alone document and notes that the inclusion of details of the NERC calculations are unnecessary and are likely to impact on the integrity of the PSOP at a later date. For example, as currently drafted, it would be unclear in the PSOP where a copy of the document "Generating Availability Data System Reporting Instructions" could be found for the purposes of reviewing the definitions. Additionally the IMO notes that a substantial change to the NERC's document would impact on the integrity of the PSOP: Facility Outages. As such the IMO recommends removing the references to the NERC and including full details of any relevant definitions for the WEM in the PSOP: Facility Outages.

- The Forced Outage, Planned Outage and Equipment Test rate calculations in **Appendix 1** are proposed to be multiplied by 100 percent. The IMO notes that this is the same as multiplying by 1. To improve the integrity of the calculations the IMO recommends multiplying by 100 and stating that the rate is expressed as a percentage. For example:

Forced Outage Rate (%):

$$\frac{(FOH + EFDH)}{PH} \times 100\%$$

- The period hours variable (PH) used in each of the calculations contained in **Appendix 1** references the number of hours "as required under clause 4.11.1(h)". Clause 4.11.1(h) makes no reference to a number of hours, so the IMO considers that there would be benefit in clarifying that the period hours would be either:
 - Where the Facility has been operating over the preceding 36 months, the number of Trading Intervals that occurred within the last 36 months;
 - or
 - Where the Facility has been operating for less than 36 months, the number of Trading Intervals that occurred since the Facility commenced operation,

The IMO considers that by amending the PSOP in this regard Market Participants would be provided with greater clarity as to how the rates will be calculated for their Facility. The IMO considers that this would provide additional explanatory information to that presented in the clause 4.11.1(h) and therefore improve the clarity of the proposed calculations.

Additionally, the IMO notes System Management's comment at the 28 October 2010 System Management Procedure Change and Development Working Group to improve the integrity of each of its PSOP's. The IMO therefore recommends the following minor and typographical amendments for System Management's consideration:

- Page 1: The commencement details should refer to the date at which the PSOP first commenced with any subsequent revisions contained in a separate table in the PSOP. The IMO also suggests the following amendment:

“... which this Procedure is made in accordance with, commences. [~~Isn't this retrospective with subsequent revisions?~~]

- *Page 4, Step 2.2: The reference for the Market Rules should be updated from 7 October 2008 to the most recent version of the Market Rules. Additionally, System Management should ensure that any changes from the 7 October 2008 version to the most recent version of the Market Rules are reflected in the PSOP.*
- *Page 4, Step 5: The drafting should be updated as follows to also refer to the requirement for items of equipment that form part of that Facility to be subject to the PSOP and to refer to the correct heads of power for the PSOP's development.*

*“The requirements for Market Participant or Network Operator Facilities, or an item of equipment forming part of a Facility, to be subject to the Facility Outage Procedure set out in this document are specified in the Market Rules ~~MR3.18.2(f)~~ **MR3.18.21**”*

- *Page 5, Step 5.1.2: As currently drafted the IMO considers that this step appears unclear. The IMO recommends that System Management review this step to improve the clarity of the requirements for it to review the Equipment List from time to time.*
- *Page 5, Step 5.1.3: The following minor amendment should be made to clarify that the IMO will publish the list:*

“System Management will provide the list for publication to the IMO in accordance...”

- *Page 5, Step 5.2.1: The IMO considers that this step is expanding on the list in clause 3.18.2(c) of the Market Rules by inclusion in the PSOP. The IMO considers that if the list in the rules needs to be expanded, then this should be done via the Rule Change Process.*
- *Page 5, Steps 5.4.1 and 5.4.3: The Market Rules neither require nor preclude a Market Participant or Network Operator contacting System Management before utilising the process set out in clause 3.18.3 of the Market Rules. The IMO considers that as currently drafted the requirements would preclude a Market Participant or Network Operator from coming to the IMO with a request unless they have previously discussed with System Management. The IMO considers that if System Management wishes to include an extra step in the process, such as this, then this should be done via the Rule Change Process.*
- *Page 7, Step 9.3.1: The following minor amendment should be made for consistency with the Market Rules:*

“... confirm or revise plans to remove from service or de-rate a Facility or ~~an~~ item of equipment...”

- *Page 8, Step 10.2.1: The following minor amendment should be made for consistency with the definition in the Market Rules:*

“... specified in the Power System ~~Operating~~ Operation Procedure... “

- *Page 11, Step 14.2 & 15.2: System Management should incorporate details of how it will advise its contact details from time to time. The IMO considers that this would be valuable information for Market Participants and Network Operators.*
- *Page 11, Step 14.8: System Management should incorporate details of with whom the Market Participant or Network Operator may confirm the approval or rejection via telephone.*
- *Page 12, Step 15.6: The following minor amendment should be made to improve the wording of this step:*

“... shall log an approval and ~~note a written notation reflecting~~ document the outcome.”
- *Page 13, Step 19.2: The clause reference should be to clause 3.21.4 and not clause 3.21.7. The IMO notes that clause 3.21.7 relates to the timing requirements for notification of Forced or Consequential Outages.”*

System Management notes the views expressed by the Independent Market Operator. Although majority of the suggestions submitted above have been adopted by System Management, we also provide reasons why particular items have not been included at this stage below.

- Section 18: System Management has adopted this suggested amendment.
- Sub-step 18.2: System Management has substantively adopted the suggested amendment.
- Appendix 1 Bullet point 1, 2, 3: System Management has substantively adopted these suggested amendments.
- Page 1: System Management has adopted this suggested amendment and included a version history in the beginning of the PSOP.
- Page 4, Step 2.2: System Management has adopted this suggested amendment whereby the reference to the Market Rules reflects the date the formal Procedure Change Process commenced.
- Page 4, Step 5: System Management has substantively adopted the suggested amendment, however the reference to MR3.18.2(f) remains correct.
- Page 5, Step 5.1.2: Regular engagements between System Management, Market Participants and the Network Operator makes sufficiently transparent System Management's obligations to review the equipment list on a periodic basis. However, given there is an evolutionary change towards a competitive balancing market, System Management considers future amendments to this clause may be facilitated in tandem with the Market Evolution Project's development of the Market Rules.
- Page 5, step 5.1.3: System Management has adopted this suggested amendment.
- Page 5, step 5.2.1: Notably MR 3.18.2(c)(iv) allows System Management to include 'any other equipment that System

Management determines must be subject to outage scheduling to maintain Power System Security and Power System Reliability', which may include where applicable the items in section 5.2.1 of the Facility Outages PSOP. However, albeit, there are several potential enhancements to the Market Rules and the respective PSOPs regarding Equipment Lists, System Management considers these amendments are better addressed in tandem with the Market Evolution Project's development of the Market Rules.

- Page 5, step 5.4.1 and 5.4.3: System Management has addressed this concern with amendments to section 5.4.1 to 5.4.3 of the Facility Outages PSOP.
- Page 7 step 9.3.1: System Management has adopted this suggested amendment.
- Page 8, step 10.2.1: System Management has adopted this suggested amendment.
- Page 11, step 14.2 and 15.2: System Management has addressed this concern by providing the method contact details will be advised from time to time.
- Page 11, step 14.8: Regular engagements between System Management, Market Participants and the Network Operator make sufficiently transparent the relevant sections where confirmation may be obtained. As the current process has been satisfactory, System Management does not consider further elaborations in the PSOP are required.
- Page 12, step 15.6: System Management has adopted this suggested amendment.
- Page 13, step 19.2: System Management has adopted this suggested amendment.

AMENDMENT TO THE POWER SYSTEM OPERATION PROCEDURE FOLLOWING PUBLIC CONSULTATION

System Management has not implemented any substantive amendments to the Facility Outages Power System Operation Procedure, other than to enhance consistency within the document by integrating minor and typographical amendments.

For convenience, System Management has appended a tracked changed version of the Facility Outages PSOP illustrating amendments since the most recent commenced version of 1 April 2009.

IMPLEMENTATION

System Management recommends this amended procedure commence at 8 am 1 August 2011.

The above date, in System Management's opinion, allows sufficient time after the date of publication of the IMO's approval of the Procedure Change Proposal under clause 2.10.14, for Rule Participants to implement changes required by this Proposal.

Commencement is pending approval by the IMO. Market Rule 2.10.14 requires the IMO to make its decision within 10 Business days of this Report being published. This decision will include the final commencement date.