

# WEM Procedure: Outages

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0.1		Draft WEM Procedure for consultation.

### IMPORTANT NOTICE – EXPLANATORY NOTES

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# 1. Introduction

## 1.1. Purpose and scope

- 1.1.1. This WEM Procedure: Outages (Procedure) is made in accordance with AEMO's functions under clause 2.1A.2(h) of the Wholesale Electricity Market Rules (WEM Rules).
- 1.1.2. The *Electricity Industry Act 2004* (WA), the WEM Regulations and the WEM Rules prevail over this Procedure to the extent of any inconsistency.
- 1.1.3. In this Procedure, where obligations are conferred on a Rule Participant, that Rule Participant must comply with the relevant obligations in accordance with clause 2.9.7A, 2.9.7D or 2.9.8 of the WEM Rules, as applicable.
- 1.1.4. The purpose of this Procedure is to outline the processes for:
- (a) the submission, evaluation and approval of Outage Plans, including applicable timelines, which must include a requirement for AEMO to notify a Market Participant or Network Operator where AEMO determines that an Outage Plan or Planned Outage is at risk of rejection, or the Outage Facility is recalled to service from a Planned Outage [**Clause 3.18.4(a)**];
  - (b) the circumstances where a Facility has failed to comply with a Dispatch Instruction for the purpose of clause 3.18.3(f), which should also include where the Facility has a delayed response to a Dispatch Instruction [**Clause 3.18.4(b)**];
  - (c) any requirements for Rule Participants to notify or seek consent to commence or complete an Outage, including any relevant processes to be followed where the Facility or item of equipment is being taken out of service, or returned to service [**Clause 3.18.4(c)**];
  - (d) Outage coordination, which must include:
    - (i) for the purposes of clause 3.18C.3, specifying the matters to be considered when determining whether an Impacted Participant has been unduly impacted by the Outage Plan of an Impacting Participant [**Clause 3.18.4(d)(i)**]; and
    - (ii) the processes and any other matters referred to in clause 3.18C.12 [**Clause 3.18.4(d)(ii)**];
  - (e) information requirements for processes relating to Outages, including, but not limited to:
    - (i) minimum information requirements for an Outage Plan [**Clause 3.18.4(e)(i)**]; and
    - (ii) any other supporting information that may be used by AEMO to evaluate or assess an Outage Plan [**Clause 3.18.4(e)(ii)**];
  - (f) forecast assumptions and the methodology to be used for Outage Evaluations, which may differ across evaluation timeframes [**Clause 3.18.4(f)**];
  - (g) the methodology for assessing whether there would be a shortfall of available accredited capacity to provide Essential System Services if an Outage Plan is approved [**Clause 3.18.4(g)**];
  - (h) publication of Outage-related information, which must include the information in clauses 3.22.1, 3.22.1A and 3.22.2 [**Clause 3.18.4(h)**];

- (i) any other matters relating to clauses 3.18 and 3.18A to 3.21 [**Clause 3.18.4(i)**]; and
- (j) reporting Forced Outages, including the determination of Forced Outage quantities pursuant to clause 4.26.1J, in a WEM Procedure [**Clause 3.21.10**].

1.1.5. Appendix A of this Procedure outlines the head of power clauses that this Procedure is made under, as well as other obligations in the WEM Rules covered by this Procedure.

## 1.2. Definitions

1.2.1. Terms defined in the *Electricity Industry Act 2004 (WA)*, the WEM Regulations and the WEM Rules have the same meanings in this Procedure unless the context requires otherwise.

1.2.2. The following definitions apply in this Procedure unless the context requires otherwise.

**Table 1 Definitions**

Term	Definition
AEMO's Outage System	The IT program required to be used by Market Participants and Network Operators to submit Outage information to AEMO and for AEMO to provide Outage notifications as published on the WEM Website and updated from time to time.
Affected Equipment	For Outages relating to Networks, the equipment primarily impacted by the Outage, which typically is the equipment that is being maintained or has failed (in the case of a Forced Outage). For example, a bus-tie transformer.
At Risk	A flag AEMO may put on an approved Outage Plan in accordance with paragraph 3.2, which indicates where there is a risk for that Outage not to proceed as planned.
Impacted Facility	A Market Participant's Outage Facility that is impacted by an Impacting Outage, where this is determined in accordance with paragraph 4.2.
Impacting Outage	A Network Outage that a Market Participant believes will impact their Outage Facility, which is determined in accordance with paragraph 4.
Network Outage	An Outage of equipment for a Network (or part of a Network) that is on the Equipment List or Self-Scheduling Outage Facility List.
Outage Coordination	An AEMO-facilitated process, as outlined in clause 3.18C, to assist a Market Participant coordinate Outages with a Network Operator where the Market Participant's Facility is Unduly Impacted by a Network Outage following previous unsuccessful coordination attempts.
Outage Extension	An Outage, submitted in accordance with clause 3.18B.4(b), that commences immediately following a previous Planned Outage for the purposes of extending the timeframe that the equipment is unavailable, in order to complete the maintenance work that was contemplated under the earlier Planned Outage.
Pause Interval	For Temporary Restoration Outages, the expected time at which the equipment will be restored to service.
Permission to Proceed	A permission required to be sought from AEMO prior to a Network Operator commencing operational activities to take an Outage Facility or associated equipment out of service as part of an Outage.
Permission to Restore	A permission required to be sought from AEMO immediately prior to a Network Operator commencing operational activities to return an Outage Facility or associated equipment to service.
PoE10 Demand	The 10 per cent probability of exceedance of AEMO's electricity demand forecast for the relevant year.
PoE90 Demand	The 90 per cent probability of exceedance of AEMO's electricity demand forecast for the relevant year.
Points of Isolation	For a Network Outage, the equipment that is not actively being worked on as part of the Outage (e.g. being maintained), but is required to be taken out of service to support safe and secure access to the equipment that is being worked on.

Term	Definition
Pre-requisite Activities	Actions required to be undertaken or completed prior to an Outage Plan commencing.
Primary Equipment	Equipment that is connected to a transmission system or distribution system with a voltage level of 22kV and above.
Recall Time	The time required by a Market Participant or Network Operator to return the Outage Facility to service following an Outage Recall Direction from AEMO during a Planned Outage.
Recommence Interval	For Temporary Restoration Outages, the expected time at which the equipment will be taken out of service again, having been temporarily restored to service.
Related Outages	Outage Plans that are identified as a pre-requisite, or have some impact, on another Outage Plan proceeding. For example, a Market Participant Facility Outage that is dependent on a Network Outage being completed first, or a Network Outage that cannot proceed unless a previous Network Outage is completed first.
Secondary Equipment	Equipment that is electrically connected to, or associated with, the operation of a transmission system or distribution system that operates at a voltage level lower than 22kV (e.g. protection or communications equipment).
System Restart Pathways	As defined in the System Restart Standard.
Temporary Restoration Outages	For Network Outages, where the equipment is temporarily returned to service at different times over the duration of the Outage Period in order to mitigate or minimise risk to Power System Security and/or Power System Reliability.
Unduly Impacted	A Facility that AEMO determines has been affected by a significant Constraint (under paragraph 4.2 of this Procedure), and where attempts to coordinate Outages with the Network Operator in accordance with paragraph 4.3 have been unsuccessful.

### 1.3. Interpretation

1.3.1. The following principles of interpretation apply in this Procedure unless the context requires otherwise.

- (a) Clauses 1.3 to 1.5 of the WEM Rules apply in this Procedure.
- (b) References to time are references to Australian Western Standard Time.
- (c) Terms that are capitalised, but not defined in this Procedure, have the meaning given in the WEM Rules.
- (d) A reference to the WEM Rules or WEM Procedures includes any associated forms required or contemplated by the WEM Rules or WEM Procedures.
- (e) Words expressed in the singular include the plural and vice versa.
- (f) A reference to a paragraph refers to a paragraph of this Procedure.
- (g) A reference to an appendix refers to an appendix of this Procedure.
- (h) A reference to a clause refers to a clause or section of the WEM Rules.
- (i) References to WEM Rules in this Procedure in bold and square brackets **[Clause XXX]** are included for convenience only, and do not form part of this Procedure.
- (j) Text located in boxes and headed as **E[X]** in this Procedure is included by way of explanation only and does not form part of this Procedure. The Procedure prevails to the extent of any inconsistency with the explanatory notes contained within it.

- (k) The body of this Procedure prevails to the extent of any inconsistency with the figures, diagrams, appendices, schedules, annexures or attachments contained within this document.

## 1.4. Related documents

- 1.4.1. The documents in Table 2 are associated with this Procedure.

**Table 2 Related documents**

Reference	Title	Location
WEM Procedure	WEM Procedure: Notices and Communications	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Limit Advice Requirements	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Commissioning and Testing	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Facility Dispatch Process	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Short Term PASA	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Medium Term PASA	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Power System Security	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Reliability Standard Implementation	<a href="#">WEM Website</a>
WEM Procedure	WEM Procedure: Certification of Reserve Capacity	<a href="#">WEM Website</a>
	Equipment List	<a href="#">WEM Website</a>
	Self-Scheduling Outage Facilities List	<a href="#">WEM Website</a>
	System Restart Standard	<a href="#">WEM Website</a>

## 1.5. Communication and provision of information

- 1.5.1. In this Procedure, where information is submitted to AEMO or provided to a Market Participant or Network Operator by AEMO, this must be via AEMO's Outage System, unless otherwise set out in this Procedure.
- 1.5.2. Where a Market Participant or Network Operator makes a request or notification using an alternative communication method and this Procedure requires that Market Participant or Network Operator to provide confirmation to AEMO of this request or notification, it must record the confirmation in AEMO's Outage System, as soon as practicable after making the relevant request or notification.
- 1.5.3. When AEMO's Outage System is unavailable, a Market Participant or Network Operator must provide any requests and notifications, required under this Procedure, by an alternative communication method outlined in the WEM Procedure: Communications and Control Systems, or another method approved by AEMO.



- 1.5.4. Where an alternative communication method is used in accordance with paragraph 1.5.3, as soon as practicable after AEMO's Outage System becomes available, the Market Participant or Network Operator must update AEMO's Outage System to include any requests and notifications provided by the alternative communication method.

## 2. Outage planning

### 2.1. General requirements and submission

- 2.1.1. A Market Participant or Network Operator must submit Outages in accordance with clause 3.18B, including where the Outage is for partial de-ratings of the Registered Facility or item of Equipment.

#### **E[A] Intermittent Generation Systems and temperature de-rating**

Outages are generally required for any reduction in Outage Capability, e.g. a reduction in maximum available output. However, there are some situations for which an Outage is not required to be submitted, including:

- for Intermittent Generating Systems, when there is a shortfall of an intermittent energy source, such as a reduction in wind or solar irradiation
- where a facility is de-rated by temperature, consistent with its Standing Data temperature de-rate curves; and
- for certain kinds of Dispatch Non-Compliance, as specified in paragraph 6.3 of this Procedure

**For reference, the above text includes examples and summaries of clauses 3.18.3(c), 3.18.3(d), and 3.18.3(f).**

- 2.1.2. In addition to the requirements of clause 3.18B.8(a) and clause 3.18B.8(b), a Market Participant or Network Operator with an Equipment List Facility or Self-Scheduling Outage Facility may submit an Outage Plan with a duration less than or equal to 24 hours, for evaluation by AEMO no earlier than 3 years prior to the day on which the Outage Commencement Interval falls, and no later than 10:00AM on the day that is two days prior to the day on which the Outage Commencement Interval in the proposed Outage Plan occurs.

#### **E[B] Outage Submission Timeframes and Durations**

Market Participants and Network Operators must submit Outage Plans with a duration *exceeding* 24 hours, for evaluation by AEMO up to three years prior to the day on which the Outage is proposed to commence, but no later than 10:00AM on the day prior to the Scheduling Day for the Trading Day on which the Outage is proposed to commence (two days prior).

Market Participants and Network Operators may also elect to submit Outage Plans that are less than 24 hours in duration no more than three years and at least two days prior to, the day on which the Outage is proposed to commence.

In addition, Opportunistic Maintenance is intended to cover short term, low risk maintenance activities that can be performed within a 24-hour period and these can be submitted by Market Participants and Network Operators at any time between 10:00AM on the day that is two days prior and 120 minutes prior to the Outage Commencement Interval. However, a Facility is not permitted to have multiple Opportunistic Maintenance Outages back-to-back (i.e. the Facility must be returned to service or be on Forced Outage at the end of the Opportunistic Maintenance Outage).

Approval for Opportunistic Maintenance Outages from AEMO is dependent on whether there is sufficient time to evaluate the request. As such, requests for more complex maintenance activities, requests that are submitted very close to the Outage Commencement Interval, and Outages that could result in significant changes to dispatch are less likely to be approved by AEMO.

**For reference, the above text includes a summary of clause 3.18B.8.**

- 2.1.3. In accordance with clause 3.18E.4, AEMO will approve an Outage Plan for a Self-Scheduling Outage Facility where the Outage Plan contains the information required under paragraph 2.2 and clause 3.18B.8.

- 2.1.4. Where a Market Participant or Network Operator is required to notify AEMO in accordance with clause 3.18D.9(c), that notification must be made as soon as practicable via AEMO's Outage System.
- 2.1.5. Market Participants and Network Operators should ensure that they include sufficient time for AEMO to invoke any associated Constraint Equations in the Outage Period of an Outage Plan.

#### Outage Plan First Submission Date

- 2.1.6. Subject to paragraph 2.1.7, AEMO must determine the Outage Plan First Submission Date included in an Outage Plan under clause 3.18B.3(b) as the date and time that all relevant information outlined in paragraph 2.2 and clause 3.18B.8 is provided to AEMO via a successful submission to AEMO's Outage System.
- 2.1.7. For Opportunistic Maintenance, if the Outage Plan is revised, AEMO must use the date and time that the Outage Plan was revised to support its evaluation.

#### Network switching

##### E[C] Network switching

Depending on the physical configuration of the Facility and the type of work being conducted during the Outage, some Market Participants may need the Network Operator to conduct switching activities in order to safely access the equipment. Examples may include:

- where the Network Operator has operational authority over a switching device required for de-energisation and safe isolation of the Market Participant's Facility;
- where the Market Participant requires the Network Operator to configure its Network differently to allow for partial export during the Outage; and
- where the Market Participant requires the Network Operator to switch its equipment in order to support testing being conducted under the Outage.

Network Operators have their own processes and timeframes for coordinating Network Outages and Market Participants should familiarise with these prior to submitting their own Outage Plans, noting that AEMO may reject an Outage Plan if this coordination has not been conducted in time for the Outage Plan to be evaluated.

- 2.1.8. A Market Participant must contact the Network Operator and arrange for any necessary switching required to support their Outage Plan and the documentation associated with this switching, including the submission of the relevant Network Outage to AEMO by the Network Operator.
- 2.1.9. Where a Market Participant requires switching by a Network Operator to support their Outage Plan proceeding, the Market Participant must notify and coordinate with the Network Operator in accordance with any processes and timeframes specified by that Network Operator, and:
- (a) where the switching involves Network equipment that is on the Equipment List or Self-Scheduling Outage Facility List and is required to be out of service for the duration of the Market Participant's Outage Plan period, the Market Participant must ensure that a Network Outage is submitted to AEMO for evaluation; or
  - (b) where the switching involves Network equipment that is on the Equipment List or Self-Scheduling Outage Facility List, but is only required to be out of service for a short duration to enable the Market Participant's Outage to commence or be returned to service, the Market Participant must include the relevant details of the switching in its Outage Plan.

### Requirements for Impacting Participants

- 2.1.10. Prior to making an Outage Plan submission, Network Operators must ensure that they have considered the impacts of an Outage Plan on other Outage Facilities, and where they become aware that an Outage Plan may impact one or more Market Participant's Outage Facilities, must notify the Impacted Participant and coordinate the Outage, such that a summary of the details of that coordination can be included in the Outage Plan
- 2.1.11. The Network Operator must complete the activities required under paragraph 2.1.10 within the timeframe specified in clause 3.18C.2.

### Specific requirements to review and revise Outage Plans

- 2.1.12. Where a Market Participant or Network Operator submits an Outage Plan with an Outage Period that overlaps with any previously submitted Outage Plans, including Forced Outages, the Market Participant or Network Operator must ensure that the details in the:
- (a) previous Outage Plan are correct and cater for any implications of the new Outage Plan, such as changes to the Outage Contingency Plan; and
  - (b) new Outage Plan cater for any implications of the overlapping Outage Plans, and that the Remaining Available Capacity in the new Outage Plan is lower than or equal to the Remaining Available Capacity in the overlapping Outage Plan(s).
- 2.1.13. Where a Market Participant or Network Operator has submitted overlapping Outage Plans in accordance with paragraph 2.1.12 and the information in one Outage Plan is modified, including where the Market Participant or Network Operator withdraws an Outage Plan, the Market Participant or Network Operator must ensure:
- (a) the details in the other overlapping Outage Plan(s) are updated, where necessary, to reflect any changes to the modified Outage Plan; and
  - (b) the Remaining Available Capacity in the new and updated Outage Plan(s) are lower than or equal to the Remaining Available Capacity in the preceding Outage Plan(s).
- 2.1.14. Where a Market Participant or Network Operator has submitted a Standing Data change that has been approved by AEMO and there are Outage Plans or Forced Outages in place for the Facility that have an Outage Period including a period of time after the Standing Data change is effected, the Market Participant or Network Operator must review the relevant Outage Plans and Forced Outages and amend the Outage Plan as required to ensure that the information is reflective of the Standing Data change, including any Remaining Available Capacity values.
- 2.1.15. Where Market Participant or Network Operator is required to enter information about Related Outages under paragraph 2.2.1(g) but the Related Outage has not yet been submitted to AEMO, the Market Participant or Network Operator must identify in the details of the Outage Plan that there is a Related Outage but the Related Outage identification number assigned by the Network Operator is unknown.
- 2.1.16. Where a Market Participant or Network Operator has identified a Related Outage under paragraph 2.1.15 it must update its Outage Plan with the Outage Identification number assigned to the Network Outage by the Network Operator as soon as practicable after the Outage Plan for the Related Outage has been submitted to AEMO.

## 2.2. Outage Plan information requirements

2.2.1. In addition to the requirements outlined under clause 3.18B.3, A Market Participant or Network Operator must provide the following information to AEMO as part of an Outage Plan:

- (a) for Market Participant Outage Facilities, the Outage Facility affected by the Outage and, where relevant the Facility Technology Type affected by the Outage;
- (b) the Outage type, where this must be either a Planned Outage or Opportunistic Maintenance, representing the good faith intention of the Market Participant or Network Operator that the Outage is for the purpose of Outage Facility Maintenance;
- (c) the Outage Period, which must separately specify the:
  - (i) first Dispatch Interval (Outage Commencement Interval) and last Dispatch Interval (Outage Completion Interval) during which the equipment will be wholly or partially unavailable for dispatch; and
  - (ii) must include Dispatch Intervals during which any Pre-requisite Activities are to be performed;

### E[D] Outage duration and pre-requisite activities

The actual Outage Period is derived from the *start time* of the Outage Commencement Interval and the *end time* of Outage Completion Interval, given a Dispatch Interval pertains to a 5-minute period. For example, where an Outage Plan has an Outage Commencement Interval of 01/01/2023 8:00 AM and an Outage Completion Interval of 02/01/2023 8:00 AM, the Outage duration would be from 01/01/2023 8:00 AM to 02/01/2023 8:04:59 AM (i.e. 1 day and 5 minutes).

Market Participants or a Network Operator should enter the closest Dispatch Intervals in their Outage Plan that achieves the required Outage duration including any Pre-requisite Activities.

Examples of Pre-requisite Activities include, but are not limited to:

- switching activities, including isolation of equipment and other supporting switching such as open points;
- protection scheme changes;
- generator/Energy Producing System mode changes; and
- SCADA/communication system changes.

Normally, a Facility must be considered to be available for dispatch before an Outage Plan can be submitted and approved. However, for Opportunistic Maintenance a Market Participant can submit an Outage Plan for Opportunistic Maintenance inside a Facilities synchronisation window, which allows maintenance activities to commence on a de-synchronised Facility before it otherwise would have been available for dispatch.

**For Reference, the above text includes a summary of clause 3.18B.5.**

- (d) a description of the purpose of the Outage as required by clause 3.18B.3(a)(iii), which must include:
  - (i) details of the work being conducted, including wording to convey the scale of the work; and
  - (ii) where a Market Participant requires switching by a Network Operator to support the Outage, but there is not a related Network Outage, details of the switching to be conducted including the names of the equipment and the proposed timing;

**E[E] Work description**

The description, provided under paragraph 2.2.1(d), helps AEMO estimate the relative risk associated with an Outage proceeding. This helps inform operational decisions in the case of unplanned events such as inclement weather, Forced Outages occurring and delays in other Outages returning to service.

Example descriptions for both Market Participant and Network Outages include, but are not limited to:

- testing with equipment intact;
- testing requiring disassembly;
- minor maintenance requiring no commissioning;
- major maintenance requiring a certain amount of commissioning hours;
- communication visibility loss; and
- communication outage impacting control system operation.

Example descriptions for Network Outages:

- repair of specific equipment
- extensive asset replacement requiring access coordination with local communities; and
- no works (i.e. de-energised for access only or at a customer's request).

- (e) In accordance with clause 3.18B.3(a)(vi) and 3.18B.3(a)(vii), for an Outage Facility registered to a Market Participant, the availability of each Outage Capability for that Outage Facility for each Dispatch Interval within the Outage Period:
- (i) for Scheduled Facilities, Semi-Scheduled Facilities and Non-Scheduled Facilities:
    - (A) for each Facility Technology Type, the Remaining Available Capacity quantities for each Dispatch Interval in the Outage Period as detailed in Table 3; and
    - (B) the Remaining Available Capacity for the Facility as a whole, in MW, for each Dispatch Interval in the Outage Period;

**Table 3 Facility Technology Type requirements**

Facility Technology Type	Remaining Available Capacity Requirement
<b>Non-Intermittent Generating System</b>	MW quantity available for the Dispatch Interval, as measured at the Facility sent-out point
<b>Intermittent Generating System</b>	MW quantity available for the Dispatch Interval, as measured at the Facility sent-out point
<b>Electric Storage Resource</b>	MW quantity available for the Dispatch Interval, as measured at the Facility sent-out point <b>and</b> MW quantity available over the Electric Storage Resource Obligation Duration, as measured at the Facility sent-out point

- (ii) for Demand Side Programmes, whether the Facility is available or not available to reduce demand during the Outage Period;
- (iii) for Interruptible Loads, the Remaining Available Capacity in the Outage Period for any relevant Essential System Service(s);
- (iv) for Intermittent Loads:
  - (A) the Remaining Available Capacity of the Energy Producing System serving the Intermittent Load, in MW, for each Dispatch Interval in the Outage Period; and
  - (B) a description of the Market Participant's expectation of changes to normal levels of Injection or Withdrawal over the Outage Period;
- (v) for Outage Facilities accredited to provide Essential System Services:
  - (A) the Remaining Available Capacity of the service in MW where the Outage Capability affected by the Outage is;
    - (1) Regulation Raise or Regulation Lower;

- (2) Contingency Reserve Raise or Contingency Reserve Lower; or
- (3) Rate of Change of Frequency Control Service;
- (B) whether the service is available or not available where the Outage Capability affected by the Outage is:
  - (1) a System Restart Service; and
  - (2) a Non-Co-optimised Essential System Service, in addition to any notification requirements in the relevant contract for that service;
- (f) for Network Outages, information about:
  - (i) the Outage Facility, consisting of a list of Affected Equipment, based on the Network Operator's equipment identifiers, that will be out of service or otherwise affected by the Outage;
  - (ii) the availability of the Outage Capability for the Affected Equipment, which requires indicating whether the equipment is either in service or out of service;
  - (iii) whether the Affected Equipment is Secondary Equipment;

#### **E[F] Affected Equipment**

Where Secondary Equipment is not selected, the Outage will be taken to be for Primary Equipment.

- (iv) any Points of Isolation, including the Network Operator's equipment identifiers;
- (v) where relevant or requested by AEMO, the work permit types being used by the Market Participant or Network Operator to conduct the work;
- (vi) for Temporary Restoration Outages:
  - (A) a statement that the equipment will be restored to service periodically;
  - (B) the Pause Interval for temporarily returning the equipment to service, and Recommence Interval for resumption of the Outage;
  - (C) details of any restrictions or limitations once the equipment is returned to service; and
  - (D) details of any Pre-requisite Activities required to return the equipment to service;
- (vii) additional operational information, including but not limited to:
  - (A) any resulting restrictions on equipment operation or functionality of other Network equipment resulting from the Outage that does not constitute a Limit Advice, but that the Network Operator considers AEMO should be aware of in order to support the Outage proceeding;
  - (B) a list and description of any necessary Pre-requisite Activities prior to, or during, the Outage to support the Outage proceeding, including any switching required outside of the Points of Isolation or dependencies on the availability of other Facilities;
  - (C) where the Outage Plan includes commissioning activities, a summary of the commissioning sequence and timeframes;
  - (D) for Outages of Secondary Equipment, identification of any visibility or control limitations that may impact AEMO, or any impacts to protection scheme operation as a result of the Outage;
  - (E) for Outages of Equipment List Facilities only, whether the Network Operator has considered the impacts of the Outage Plan, and, if so:

- (1) information supporting the Network Operator's assessment of the impact of the Outage on Power System Security and Power System Reliability;
  - (2) a description of any identified impacts on Power System Security and/or Power System Reliability, together with any actions required to ensure Power System Security and Power System Reliability are maintained throughout the duration of the Outage; and
  - (3) information on any temporary or special arrangements required to support the Outage proceeding, including, where relevant, references to operating instructions or other documents;
- (viii) the following Limit Advice information:
- (A) whether Limit Advice is required to support the Outage; and
  - (B) where Limit Advice is required:
    - (1) a description of the Limit Advice; and
    - (2) whether the Limit Advice has previously been submitted to AEMO, and is up to date;
- (ix) where clause 3.18C.2 applies to an Outage:
- (A) an indicator that the Outage Plan is an Impacting Outage;
  - (B) a list of Impacted Facilities; and
  - (C) a summary of communications with Impacted Participants and outcomes of those communications, including:
    - (1) the dates of the communications;
    - (2) any options for re-scheduling or other modifications to the Outage Plan that were discussed; and
    - (3) whether the options were agreed or not;
- (g) information about any Related Outages for an Outage Plan, which must include:
- (i) subject to paragraph 2.1.16, the identification number assigned to the Network Outage by the Network Operator of the Related Outage (as soon as it is known); and
  - (ii) a description of the relationship of the Outages (i.e. that they are related and the relevant circumstances of this relationship) ;

#### **E[G] Related Outages**

It is not essential that the reference to a Related Outage is entered on both Outage Plans. However, it is important that if a second Outage (Outage Plan 2) is dependent in some way on the first Outage (Outage Plan 1) proceeding or completing, that Outage Plan 2 references Outage Plan 1 as a Related Outage with the appropriate details.

- (h) contact details for the person submitting the Outage Plan;
- (i) any additional contact details that may be required during the Outage to support operational coordination with AEMO, including:
  - (i) relevant telephone numbers and email addresses;
  - (ii) details of the role that the contact person has in relation to the Outage; and

- (iii) when AEMO may need to contact the person during the Outage and for what purpose;
- (j) an Outage Contingency Plan, which must include:
  - (i) an assessment of the risk to the Outage Facility's expected return to service, which must be specified as either high, medium or low;

#### E[H] Risk of extension assessment

This is an assessment by the Market Participant or Network Operator of the risk of the Planned Outage being extended beyond the expected return to service time specified in the Outage Plan, reflecting their reasonable expectation, given the information at hand at the time of submission.

The following describe the three risk levels:

- **High**, reflecting circumstances where an extension of the Outage beyond the Dispatch Interval identified as the return to service date and time is reasonably likely, for example, where the Facility has suffered a fault or failure, the Rule Participant is unsure of the level of maintenance required or is conducting investigative work to understand extent of maintenance, where access to parts or people may be restricted, or the work is reliant on third parties.
- **Medium**, meaning an extension of the Outage beyond the Dispatch Interval identified as the return to service date and time may be required, for example, where the work required to be undertaken is generally understood, but the scale of the work is significant (such as requiring dismantling of equipment), access to parts or people may be difficult, or the work is reliant on third parties.
- **Low**, meaning an extension of the Outage beyond the Dispatch Interval identified as the return to service date and time is not expected, for example, where the work is known and well understood, with a low risk of unforeseen issues occurring.

- (ii) the expected Recall Time in hours and minutes, which must reflect the longest estimated time (in a worst-case scenario) it may require to return the Facility or equipment to service, including any relevant start up and synchronisation times as required; and
- (iii) a description of the Outage Contingency Plan, which must indicate clearly whether or not the equipment can be returned to service before the Outage Completion Interval, and:
  - (A) for a Network Outage, this must include the steps and timeframes required to return the equipment to service, including any temporary arrangements and associated limitations to doing so, or where no temporary steps or limitations are needed, clear wording that indicates this is not required; and
  - (B) for all other Outage Facilities, this must include the quantity of energy or Essential System Services, where relevant, that can be made available for dispatch before the Outage Completion Interval, and any steps that would need to be taken to do so; and



## E[1] Content of a Contingency Plan

Outage Contingency Plans are used for recalling an Outage Facility to service, when required. While all Outage Plans require Outage Contingency Plans, specific details are needed under different scenarios.

An Outage Contingency Plan should typically include details such as:

- Whether the Facility can be returned to service before the Outage Completion Interval. If the Facility cannot be returned to service due to the work being undertaken or other limitations such as resourcing, this should be detailed in the Outage Contingency Plan and will be taken into consideration by AEMO when evaluating the Outage.
- If the Facility can be returned to service before the Outage Completion Interval, scenarios for returning partial or full capacity should be detailed. Each scenario should describe:
  - the quantity of capacity that can be made available;
  - any steps required to make that capacity available;
  - any critical points during the Outage that will impact the return of capacity; and
  - the expected Recall Time and margin for error.

*Note: it is important to identify where there are multiple steps in a Contingency Plan that can enable restoration of different quantities at different times. However, the overall longest estimated Recall Time (worst case scenario) must still be recorded in the Outage Plan*

- For Network Outages, an Outage Contingency Plan should also typically include details such as:
  - whether additional spare equipment has been provisioned to support a shorter Recall Time;
  - whether additional crews have been made available to support a shorter Recall Time;
  - temporary arrangements that may be put in place such as equipment by-passes;
  - whether the dispatch of a Non-Co-optimised Essential System Service contract is required;
  - a summary of any risk assessments conducted for returning the equipment to service early; and
  - any prerequisite steps required or limitations associated with returning the equipment to service early.

Where the Outage Contingency Plan is simply to return the equipment to service and there are no other particular supporting elements or steps required, the Outage Contingency Plan should still confirm that this is the case, e.g. "Return to service, no additional supporting elements and no additional steps required".

For Self-Scheduling Outage Facilities, the Outage Contingency Plan may be less descriptive than for an Equipment List Facility. This reflects that AEMO would not typically need to recall these Outages on the basis of impact to Power System Security and Power System Reliability. For example, the description of an Outage Contingency Plan for a Self-Scheduling Outage Facility may just describe whether the Facility is capable of being recalled prior to the Outage Completion Interval or not (with the minimum timeframe required for recall specified in the Recall Time).

For a Self-Scheduling Outage Facility, the following information should be provided, where relevant:

- "Facility recallable" with the expected Recall Time covering the expected time it would take to recall the equipment during the Outage
- "Facility not recallable" with the expected Recall Time covering the full Outage duration

(k) a statement that:

- (i) the Outage Facility would otherwise be available for dispatch;
- (ii) or where the Outage Facility would not otherwise be available, an Availability Declaration Exemption in accordance with clause 3.18B.4, and
  - (A) where clause 3.18B.4(a) is applicable, the Rule Participant must also provide, or refer to previously provided evidence of the required maintenance; or
  - (B) the Facility will be under an Outage Extension, in which case the Rule Participant must also reference the original Outage Plan and provide reasons for the extension.

2.2.2. Where a Market Participant or Network Operator has previously provided information under paragraph 2.2.1(f)(v), or 2.2.1(k)(A) and that information is still current and relevant, the Market Participant or Network Operator may instead refer to the information previously provided to AEMO in their Outage Plan.

## 2.3. Additional Limit Advice requirements

- 2.3.1. Where a Network Operator has identified in an Outage Plan that Limit Advice is required to support an Outage, and that Limit Advice is not current, the Network Operator must follow the processes outlined in the WEM Procedure: Limit Advice Requirements to ensure that the required Limit Advice is provided to AEMO in sufficient time to enable AEMO to develop any associated Constraint Equations before the commencement of the Outage.
- 2.3.2. Where a Network Operator has identified in an Outage Plan that Limit Advice is required to support an Outage, and that Limit Advice is based on a revised Thermal Network Limit (e.g. network thermal limit re-rating) in accordance with the WEM Procedure: Limit Advice Requirements, the Network Operator must provide details of the revised Thermal Network Limit in the Outage Plan including:
- the equipment to which a revised Thermal Network Limit value will apply during the Outage Period;
  - the applicable revised Thermal Network Limit values;
  - the timeframe during which the revised Thermal Network Limit values will apply within the Outage Period; and
  - any other applicable information, such as variations to and conditions for the Thermal Network Limit values that may apply for different timeframes or ambient temperatures throughout the Outage Period.

## 2.4. AEMO's initial assessment

- 2.4.1. Once AEMO has received an Outage Plan under this Procedure or information in the Outage Plan has been revised, it will conduct an initial assessment of the information in the Outage Plan as soon as practicable to determine whether the Outage Plan is able to be evaluated, taking into account:
- whether the Outage Plan is for an Equipment List Facility;
  - whether the Outage Plan arises from a need to carry out urgent and unforeseen maintenance on the Outage Facility; and
  - if the Outage Plan has been submitted within six weeks of the Outage Commencement Interval.

### **E[J] Outage submissions within 6 weeks of commencement**

Outage Plans can be complex and time consuming to evaluate, particularly where there are Constraints or the Outage Plan overlaps with other Outage Plans. For this reason, in accordance with clause 3.18E.7(c), AEMO may reject an Outage Plan if it is submitted within six weeks of the relevant Outage Commencement Interval and where AEMO considers there is insufficient time to evaluate the Outage Plan.

**For reference, the above text includes a summary of clause 3.18E.7(c).**

- 2.4.2. In assessing whether an Outage Plan is for an Equipment List Facility under paragraph 2.4.1(a):
- AEMO may:
    - review Outage Plans identified by the Market Participant or Network Operator as being Self-Scheduling Outage Facilities and, where AEMO considers that the Outage Facility or equipment identified in the Outage Plan is on the Equipment List, AEMO will assess the Outage Plan as if it had been identified as being for an

- Equipment List Facility and may require the Market Participant or Network Operator to provide additional information before evaluating the Outage Plan; or
- (ii) review Outage Plans identified by the Market Participant or Network Operator as being Equipment List Facilities and, where AEMO considers that the Outage Facility; or
- (b) where equipment identified in an Outage Plan is on the Self-Scheduling Outage Facility List, AEMO will take this into consideration when evaluating the Outage Plan and notifying the Market Participant or Network Operator under paragraph 3.1.15.
- 2.4.3. AEMO may decide that it cannot evaluate an Outage Plan where the Outage Plan does not contain all relevant information required by paragraphs 2.2 and 2.3.
- 2.4.4. Where AEMO decides it cannot evaluate an Outage Plan in accordance with paragraph 2.4.3 or 2.4.6, AEMO will notify the Market Participant or Network Operator that the Outage Plan is not able to be evaluated and identify the additional information required in accordance with paragraph 2.5.
- 2.4.5. AEMO will evaluate an Outage Plan in accordance with paragraph 3 of this Procedure where the Outage Plan contains all relevant information required by paragraph 2.2 and 2.3 and the Outage Plan First Submission Date is more than six weeks before the Outage Commencement Interval.
- 2.4.6. AEMO may, but is not required to, evaluate an Outage Plan in accordance with paragraph 3, where it contains all relevant information outlined in paragraphs 2.2 and 2.3 and the Outage Plan First Submission Date is less than six weeks from the Outage Commencement Interval.
- 2.4.7. Where an Outage Plan is not for Opportunistic Maintenance, AEMO will use reasonable endeavours to provide any notification under paragraph 2.4.4 within 10 Business Days of the Outage Plan being received.
- 2.4.8. AEMO will reject an Outage Plan where it considers it cannot be evaluated under paragraph 2.4.3 and clause 3.18E.7(c) also applies, and will inform the Market Participant or Network Operator of the reason for rejection.

## 2.5. Additional information

- 2.5.1. Where AEMO considers more information is required to undertake an assessment of an Outage Plan, it may require the Market Participant or Network Operator to provide additional information or to clarify any aspect of an Outage Plan.
- 2.5.2. Where AEMO requires additional information in accordance with paragraph 2.5.1, it may specify a timeframe within which the additional information must be provided, which must be a minimum of two Business Days and may be amended in agreement with AEMO.
- 2.5.3. Where AEMO does not specify a timeframe under paragraph 2.5.2, it may reject the Outage Plan in accordance with paragraph 2.4.8 if the requested information is not received in a reasonable timeframe.
- 2.5.4. Situations where AEMO may require a Market Participant or Network Operator to provide additional information or clarification to support the assessment of an Outage Plan include, but are not limited to:

- (a) where AEMO considers that information in the Outage Plan may be inaccurate or incomplete;
- (b) where there is insufficient detail or clarity included for AEMO to make an assessment;
- (c) where additional information, clarity or supporting documentation is required by AEMO to assess an Availability Declaration;
- (d) where AEMO considers the details provided in an Outage Contingency Plan are insufficient or unclear;
- (e) where coordination with another Rule Participant is required for an Outage to proceed;
- (f) where a Network Operator has identified an Outage as not requiring a Limit Advice, or identified that a Limit Advice exists and is up to date, but AEMO considers new or updated Limit Advice is required; and
- (g) where AEMO requires additional or clarifying information in relation to supporting documentation that was submitted with the Outage Plan.

#### **E[K] Examples of additional information to be provided to AEMO**

Some specific examples of the circumstances and information that AEMO may require under paragraph 2.5.4 are:

- If the description of the Outage does not provide enough detail, e.g. "Maintenance", additional details will need to be included in the description
- If the Outage Contingency Plan does not provide enough detail, e.g. "N/A" or "Nil", the steps to be taken to return to the equipment to service will need to be described, as will the quantity that can be returned to service (where relevant)
- If coordination is required, additional information on specific timing or provisions to support the Outage proceeding will be requested.
- If a reference to a supporting document was provided, but that reference or supporting document contains wording that requires additional clarification, e.g. "see document x", specific relevant sections of that supporting document will need to be identified or clarified in terms of how it supports the Outage assessment

- 2.5.5. Where additional information is required to be provided to AEMO under paragraph 2.5.1, the Market Participant or Network Operator must provide the required information as soon as practicable and within the timeframe specified by AEMO under paragraph 2.5.1, unless otherwise agreed by AEMO under paragraph 2.5.8.
- 2.5.6. Where AEMO has requested additional information under paragraph 2.5.1 and the Market Participant or Network Operator has provided the requested information, AEMO will provide any necessary response as soon as practicable.
- 2.5.7. Where a Market Participant or Network Operator provides additional information under paragraph 2.5.1, AEMO must consider this information as part of the Outage Plan for the purposes of the evaluation under paragraph 3 of this Procedure.
- 2.5.8. Where a Market Participant or Network Operator is not able to provide the required information within the time specified in paragraph 2.5.2, AEMO may:
  - (a) in consultation with the Market Participant or Network Operator, extend the timeframe for the provision of that information; or
  - (b) reject the Outage Plan.

## 2.6. Changes to an Outage Plan prior to evaluation

- 2.6.1. AEMO may, at any point after a Market Participant or Network Operator has submitted an Outage Plan:
- (a) Determine the Outage Plan is at risk of rejection and flag this Outage as At Risk.
  - (b) Notify the Market Participant or Network Operator that the Outage Plan is at risk of rejection (i.e. has an At Risk status) and that it may withdraw the Outage Plan and reschedule the Outage to a time where AEMO considers the Outage will have a higher likelihood of proceeding.
  - (c) Notify the Market Participant or Network Operator that it must adjust details in the Outage Plan.
  - (d) Notify the Market Participant or Network Operator the Outage requires Permission to Proceed (PTP) and/or Permission to Restore (PTR).
  - (e) Reject the Outage Plan.
- 2.6.2. As soon as practicable after AEMO takes any action under paragraph 2.6.1, it must notify the relevant Market Participant or Network Operator and provide reasons in writing.
- 2.6.3. If a Market Participant or Network Operator makes changes to an Outage Plan before AEMO has evaluated the Outage Plan under paragraph 3.1, AEMO may conduct a re-assessment under paragraph 2.4 before determining it will evaluate the Outage Plan.

## 3. Outage Evaluation

### 3.1. Evaluating and re-evaluating Outage Plans

- 3.1.1. When evaluating or re-evaluating an Outage Plan, AEMO must undertake an Outage Evaluation and decide whether to approve or reject the Outage Plan in accordance with clause 3.18E.1.
- 3.1.2. The Outage Evaluation must occur:
- (a) where an Outage Plan has been approved, as soon as practicable after receiving a notification by a Market Participant or Network Operator under clause 3.18D.9(c); and
  - (b) where an Outage Plan has not been approved and the Outage Facility has suffered a Forced Outage, only after the Outage Facility has been returned to service in accordance with clause 3.18E.2(d) or 3.18E.2(e); or
  - (c) otherwise:
    - (i) using reasonable endeavours, within 10 Business Days of determining that the Outage Plan is able to be evaluated under paragraph 2.4 of this Procedure, where the Outage Plan is not for Opportunistic Maintenance; and
    - (ii) as soon as practicable where the Outage Plan is for Opportunistic Maintenance in accordance with paragraph 3.5 of this Procedure.

### E[L] Timeframes for Outage Evaluation

- The submission deadline for Outage Plans that are not for Opportunistic Maintenance is 10:00AM on the day prior to the Scheduling Day for which the Outage Plan is planned to commence.
- AEMO will respond to requests for Opportunistic Maintenance as soon as practicable in accordance with paragraph 3.1.2(c)(ii), but may reject the request if there is insufficient time to evaluate. Market Participants and Network Operators may contact AEMO to discuss the details of an Opportunistic Maintenance request and possible response times prior to making their submission.
- Where a Market Participant or Network Operator has submitted an Outage Plan and their equipment subsequently suffers a Forced Outage that may impact the Outage Plan:
  - If the Outage Plan has been submitted but not approved, the Market Participant or Network Operator is required to revise or withdraw the Outage Plan, and if the Outage Plan is revised, AEMO is required to delay the Outage Evaluation until after the equipment has been returned to service or evidence is provided demonstrating that it will be returned to service prior to the Outage Plan commencing.
  - if the Outage Plan has already been approved, the Market Participant or Network Operator is required to notify AEMO and revise the Outage Plan to include the relevant details (notification is via AEMO's Outage System). This information will be relevant for AEMO when assessing any requests for further Outage extensions (extensions following a Forced Outage are not a valid Availability Declaration Exemption).

**For reference, the above text includes examples and summaries of clause 3.18B.8(a), 3.18B.4(b), 3.18D.9 and 3.18E.2.**

- 3.1.3. AEMO may reject an Outage Plan where it considers that there is insufficient time to conduct an Outage Evaluation, including:
- (a) where the initial submission is made within 10 business days of the submission deadline for Outage Plans that are not for Opportunistic Maintenance; and
  - (b) where AEMO requires additional information and the Participant provides that information within 10 business days of the submission deadline for Outage Plans that are not for Opportunistic Maintenance.

### E[M] Outage Evaluation Criteria

The Outage Evaluation Criteria is defined in clause 3.18E.8 and is a broad requirement to ensure that the Outage does not create a risk to Power System Security and Power System Reliability.

In practice, AEMO uses a combination of different methods for ensuring Power System Security and Power System Reliability can be maintained during a Planned Outage, depending on the type of relevant Outage (Network, non-Network, or Opportunistic), and the timeframes involved. While the broad criteria remain the same for each assessment, that is, the ability to maintain Power System Security and Power System Reliability, some of the methodologies and assumptions may vary. For example:

- forecast demand;
- forecast intermittent generation;
- Credible Contingencies;
- generation/Energy Producing System patterns;
- Network configuration.

The assessment may also require investigation of different parameters, such as:

- capacity margins;
- forecast unserved energy;
- Essential System Service shortages; and
- voltage and other limit violations.

- 3.1.4. Subject to paragraph 3.1.5, AEMO may, in making its decision under paragraph 3.1.1 of this Procedure, use any or all of the following methods to evaluate an Outage Plan:
- (a) conducting Short Term PASA and Medium Term PASA assessments that include consideration of the Outage Plan and identification of:
    - (i) any potential Low Reserve Conditions that may arise; and
    - (ii) any significant increase in forecast unserved energy or shortages of one or more Essential System Services;
 as a result of the Outage Plan proceeding;

- (b) conducting power system simulation studies that consider the impacts of the Outage Plan to identify potential breaches of the Technical Envelope; and
  - (c) interrogating Market Schedules, including the Reference Scenario and any other scenario AEMO considers relevant to evaluating an Outage Plan to identify:
    - (i) any potential Low Reserve Conditions that may arise; and
    - (ii) any significant increase in forecast unserved energy or shortages of one or more Essential System Services;as a result of the Outage Plan proceeding.
- 3.1.5. AEMO may use alternative methods to evaluate an Outage Plan where AEMO identifies that equipment in an Outage Plan is on the Self-Scheduling Outage Facility List under paragraph 2.4.2(b).
- 3.1.6. In addition to the methods listed in paragraph 3.1.4, to support its evaluation of an Outage Plan, AEMO may:
- (a) consider other information, and use any other tools or models available to AEMO that it considers are relevant to the evaluation of an Outage Plan, including information that AEMO has received via telephone in relation to the Outage Plan;
  - (b) evaluate multiple Outage Plans concurrently where they are related or overlap with one another; and
  - (c) prioritise Outage Plans in accordance with the principles in paragraph 3.1.9.
- 3.1.7. In making its decision under paragraph 3.1.1 of this Procedure, AEMO must, in the first instance, ensure that Power System Security and Power System Reliability can be maintained during the Outage Period in accordance with the requirements in the WEM Procedure: Power System Security and WEM Procedure: Reliability Standard Implementation, as referred to in clause 3.18E.8, applying, to the extent relevant, the methods specified in paragraph 3.1.4, considering:
- (a) the potential impact of Credible Contingency Events during the Outage Period, where for future Outage Plans AEMO may:
    - (i) consider historical Contingency Events that were previously reclassified as Credible Contingency Events during similar conditions; or
    - (ii) consider whether a Credible Contingency Event reclassification is likely during the Outage Period as a result of other information that AEMO has available to it, such as weather forecasts;
  - (b) demand forecast scenarios, which may include:
    - (i) for evaluations further than one week from the Outage Commencement Interval, consideration of a PoE10 Demand, PoE90 Demand and historical demand during similar conditions;
    - (ii) for evaluations within one week of the Outage Commencement Interval, consideration of high, low and expected demand scenarios; and
    - (iii) historical demand during similar conditions;

- (c) Network configuration scenarios allowing for other overlapping Network Outages (including Forced Outages), and AEMO's determination of anticipated or likely open points, demand profiles, status of reactive power equipment and voltage profiles;
- (d) possible or likely dispatch scenarios, which may include outputs from Market Schedules (including both the Reference Scenario and any other relevant scenarios), Short Term PASA and Medium Term PASA, and historical dispatch scenarios during similar conditions;
- (e) anticipated available Demand Side Programme capacity;
- (f) any potential risks if the Outage Facility needs to be recalled, giving consideration to the Contingency Plan and other information in the Outage Plan;
- (g) overlapping or dependent Outages, including where Forced Outages have occurred, and the impact on other Outages should the Outage Facility not return to service as expected, taking into account the information about the risk of extension outlined in the Outage Plan; and
- (h) the availability of adequate Essential System Services, including System Restart Services in accordance with the System Restart Standard and availability of Facilities required to support any Non-Co-optimised Essential System Service contracts.

3.1.8. In making its decision under paragraph 3.1.1 of this Procedure, AEMO may also consider where relevant:

- (a) whether supporting documentation is adequate;
- (b) the sequence of work to be undertaken within the Outage Period;
- (c) where Commissioning Tests or other commissioning activities are occurring during the Outage Period, an assessment of risks to Power System Security and Power System Reliability, taking into account commissioning sequences and the nature of the testing being conducted;
- (d) where Outages require one or more changes to AEMO's operating models or systems, whether AEMO:
  - (i) has sufficient information to make the necessary changes; and
  - (ii) has sufficient time to make the necessary changes;
- (e) where new or updated Limit Advice or Constraint Equations are required, whether these are complete;
- (f) where an Outage Plan has been flagged as 'At Risk', whether the associated conditions have been met;
- (g) where an Outage Plan has identified Pre-requisite Activities, whether those are complete;
- (h) for Related Outages, whether adequate coordination has been undertaken, including AEMO-facilitated Outage Coordination under paragraph 4 of this Procedure (where relevant);
- (i) for Outages of Secondary Equipment, the loss of any visibility, control or protection arrangements are adequately mitigated;
- (j) where a Network Outage requires a Facility to be available to maintain Power System Security and/or Power System Reliability, whether that Facility is reasonably expected to be available over the Outage Period;



- (k) where the Facility is associated with an Intermittent Load, any associated change in Injection or Withdrawal;
  - (l) whether the Outage Plan requires a PTP or PTR;
  - (m) the impact of multiple Contingency Events during the Outage Period;
  - (n) any risks associated with concurrent Outages of equipment on System Restart Pathways; and
  - (o) any other information that AEMO considers relevant.
- 3.1.9. For the purposes of clause 3.18E.10, AEMO must, in prioritising the approval of Outage Plans where there are two or more conflicting Outage Plans in any Dispatch Interval:
- (a) evaluate or re-evaluate each conflicting Outage Plan in accordance with paragraph 3.1.1;
  - (b) apply the principles outlined in paragraph 3.1.10 to the conflicting Outage Plans;
  - (c) determine which Outage Plan takes priority in accordance with the actions taken under paragraphs 3.1.9(a) and 3.1.9(b); and
  - (d) notify the Market Participant or Network Operator of the outcome of AEMO's assessment.
- 3.1.10. Where there are two or more conflicting Outage Plans in any Dispatch Interval, AEMO will prioritise the approval of Outage Plans in consideration of the following principles **[clause 3.18E.10]**:
- (a) AEMO will give priority to approved Outage Plans over unapproved Outage Plans;
  - (b) AEMO will give priority to rescheduled Outage Plans that were approved and subsequently recalled or rejected by AEMO over other unapproved Outage Plans;
  - (c) AEMO will give priority to any Outage Plans that are not Opportunistic Maintenance;
  - (d) AEMO will give priority to Outage Plans with an Outage Plan First Submission Date more than one month prior to the start of the Outage Commencement Interval;
  - (e) AEMO will give priority to Outage Plans in the order of the Outage Plan First Submission Date under clause 3.18E.5(a), taking into consideration:
    - (i) any subsequent changes to the Outage Period and the circumstances of the change;
    - (ii) if a Market Participant or Network Operator has been required to submit an Outage Plan by alternative means before entering it into AEMO's Outage System; and
    - (iii) any subsequent revisions to a request for Opportunistic Maintenance after the Outage Plan First Submission Date;
  - (f) AEMO will give priority to what it considers are more urgent Outages, based on its assessment of:
    - (i) the technical reasons for the Outage Facility Maintenance;
    - (ii) the technical implications for the relevant equipment if the Outage Facility Maintenance is not carried out; and
    - (iii) the ability to reschedule other Outage Plans, including considering the quantities of Remaining Available Capacity for the relevant Outage Capability during the Outage Period; and

- (g) AEMO will give priority to Outage Plans with associated approved Commissioning Test Plans.
- 3.1.11. AEMO may request additional information that it considers necessary to inform its decision under paragraph 3.1.1 from a Market Participant or Network Operator.
- 3.1.12. AEMO's request under paragraph 3.1.11 will specify the reason for the request and the timeframe by which the additional information must be provided.

#### **E[N] Notification of additional information**

Examples of additional information that AEMO may request from a Market Participant or Network Operator in order to make a decision with regards to approving or rejecting an Outage Plan are:

- What are the risks around the Facility/Network equipment not returning to service at the specified time? For example:
  - Risks around contractors that may delay the return to service;
  - Procurement risks;
  - Any post Commissioning Test requirements that may delay the return to service; or
- If the Outage were not to go ahead, would there be a risk that the Facility/Network equipment would go on Forced Outage due to end of life/exceeding maintenance thresholds?
- Are there going to be changes to the way the Facility operates as a result of or during the Outage, e.g. changes to control systems, etc?
- Are there going to be changes to the way the Network equipment operates that will impact AEMO's internal processes, such as control room instructions, etc?
- How does the work affect Constraint Equations and has the AEMO congestion modelling team been informed?
- Submission of a Limit Advice or other mitigation steps to cover Network Outages that create a new network configuration for which AEMO does not have an existing Limit Advice, or where there is a specific multiple contingency risk that needs to be mitigated.

- 3.1.13. A Market Participant or Network Operator must provide information requested under paragraph 3.1.11 by the time and date specified by AEMO, unless otherwise agreed by AEMO.
- 3.1.14. Following AEMO's evaluation, or re-evaluation, of an Outage Plan, or group of Outage Plans, for Outages other than Opportunistic Maintenance (see paragraph 3.5) under clause 3.18E.7, AEMO:
- (a) must reject an Outage Plan for an Equipment List Facility or Self-Scheduling Outage Facility if it is aware that any of the requirements for an Outage Plan in clause 3.18B.8 have not been met or complied with **[clause 3.18E.3]**;
  - (b) in accordance with clause 3.18E.7(d), will approve Outage Plans where AEMO considers that the Outage Evaluation Criteria has been met and the Outage Plan First Submission Date is more than six weeks prior to the Outage Commencement Interval;
  - (c) in accordance with clause 3.18E.7(d), will approve Outage Plans where the Outage Plan First Submission Date is less than six weeks prior the Outage Commencement Interval, and following an Outage Evaluation, AEMO considers that the Outage Evaluation Criteria has been met;
  - (d) in accordance with clause 3.18E.7(e), may approve Outage Plans where AEMO does not consider that the Outage Evaluation Criteria has been met, but AEMO reasonably considers that if the Outage were not to proceed, this would pose a greater threat to Power System Security or Power System Reliability. Examples of circumstances where this situation may arise, include but are not limited to:
    - (i) where the Outage Plan is required to address ongoing equipment or Facility unreliability that may affect, or has affected, AEMO's ability to ensure that Power System Security and Power System Reliability are maintained; and

- (ii) where an Outage Facility was issued with an Outage Recall Direction prior to the Outage Completion Interval in its Outage Plan and the equipment or Facility requires a further Outage to complete the planned work so that, on return to service of the equipment or Facility, it is able to be operated in a secure and reliable manner;
  - (e) may reject an Outage Plan where the Outage Plan First Submission Date was less than six weeks before the Outage Commencement Interval without evaluation if, in its opinion, the submitting party has not allowed adequate time for the Outage Plan to be assessed **[clause 3.18E.7(c)]**;
  - (f) may reject Outage Plans where AEMO considers they do not meet the Outage Evaluation Criteria;
  - (g) may reject Outage Plans where AEMO considers that a revision to the Outage Plan is significant enough that it impacts other Planned Outages or AEMO's ability to manage Power System Security and/or Power System Reliability during the Outage Period, and AEMO considers that it should be re-scheduled;
  - (h) is deemed to have rejected the Outage Plan at 2:00 PM on the Trading Day two days prior to the Outage Commencement Interval, if the Outage Evaluation has not been completed and the relevant Market Participant or Network Operator has not been notified of the Outage Evaluation outcome **[clause 3.18E.7(f)]**; and
  - (i) following a re-evaluation, may decide to leave the Outage Plan in its current status.
- 3.1.15. AEMO must notify the Market Participant or Network Operator of its decision to approve or reject an Outage Plan, or group of Outage Plans, under paragraph 3.1.14 as soon as practicable after the evaluation has been completed.
- 3.1.16. Upon receipt of AEMO's notification of its decision to reject an Outage Plan under paragraph 3.1.15, the relevant Market Participant or Network Operator may submit a new Outage Plan for a different time, which may incorporate suggested changes from AEMO, and may reference the rejected Outage Plan in the new Outage Plan submission. However, the new Outage Plan will also have a new Outage Plan First Submission Date
- 3.1.17. AEMO may re-evaluate an Outage Plan at any point in time to confirm that it continues to meet the Outage Evaluation Criteria and may reject the Outage Plan where it no longer meets the Outage Evaluation Criteria.

### **E[O] Outage Re-evaluation**

AEMO may, but is not required to, re-evaluate an Outage Plan as outlined in clause 3.18D.3.

Examples of when AEMO is likely to re-evaluate an Outage Plan:

- where the conditions applicable to that Outage Plan have changed since it was last assessed;
- where the Outage Plan has been revised;
- the day before the Outage is intended to commence and just prior to when the Outage is intended to commence;
- at any time after it becomes aware of any information that it considers could put the Outage into an At Risk status;
- where the demand forecast for the Outage period has changed;
- where a Forced Outage or another unplanned event occurs with the potential to conflict with the Outage Plan;
- where information about expected generation/Energy Producing System or Network conditions has changed;
- where a new or updated security or reliability risk is identified; and
- for Outage Plans that have been flagged as 'At Risk':
  - one week prior to the commencement of the Outage; and
  - where a timeframe is specified in the Outage Plan for resolution of the At Risk status.

## 3.2. 'At Risk' Outages

3.2.1. In addition to any flag made under paragraph 2.6, AEMO may flag an Outage Plan as 'At Risk' at the time of approval, or any time after it has been approved, including immediately after approval.

### E[P] At Risk Outages

Examples of where AEMO may flag an Outage Plan as 'At Risk' include:

- Where AEMO considers there is a risk of an Outage Plan being unable to proceed for any reason.
- Where AEMO identifies that the Outage Plan is more likely to remain approved, or is only able to remain approved, if specific changes are made.
- Where a Forced Outage of another Facility or equipment that is impacting Power System Security or Power System Reliability, the relevant Outage Plan may have some overlapping risks and AEMO is awaiting clarification on whether the Facility or equipment suffering the Forced Outage will be able to return to service
- Where AEMO has received a request for Outage Coordination.
- Where the Outage is dependent on another Outage proceeding or being completed.
- Where the Outage is dependent on a Limit Advice or Constraint Equation being submitted or developed.
- Where AEMO's ability to maintain Power System Security and Reliability depends on system demand being below or above a particular point.
- Where AEMO subsequently requires additional or clarifying information following initial approval.
- Where AEMO's ability to maintain Power System Security and Power System Reliability during the Outage depends on the output of another Facility.

3.2.2. Where AEMO flags an Outage Plan as At Risk, it must notify the relevant Market Participant or Network Operator as soon as practicable, providing reasons and any conditions or suggested changes that AEMO considers would make the Outage Plan more likely to be able to proceed.

3.2.3. Upon notification of AEMO's decision to flag an Outage Plan as At Risk under paragraph 3.2.2, the relevant Market Participant or Network Operator may:

- (a) withdraw the Outage Plan;
- (b) withdraw the Outage Plan and submit a new Outage Plan;
- (c) adjust the Outage Plan in-line with any suggested changes from AEMO; or
- (d) do nothing.

3.2.4. Where an Outage Plan has been flagged as At Risk and the Market Participant or Network Operator has not taken any action under paragraph 3.2.3(a) to 3.2.3(c), AEMO will consider whether the Outage can proceed as planned and may re-evaluate the Outage Plan at any time to determine this, including the following:

- (a) at least one week prior to the commencement of the Outage;
- (b) where a timeframe is specified in the Outage Plan for resolution of the At Risk flag;
- (c) just prior to the commencement of the Outage Plan;
- (d) at any other point where a re-evaluation is triggered under paragraph 3.1.

## 3.3. Network Outage permissions

3.3.1. After evaluating an Outage Plan, or following a Forced Outage or Outage Recall Direction, AEMO may determine that a Network Outage requires PTP prior to the Outage commencing, or PTR at the conclusion of the Outage.

- 3.3.2. Where AEMO decides under paragraph 3.3.1 that one or more permissions are required, AEMO will notify the Network Operator as a result of the Outage Evaluation, or in the case of a Forced Outage, notify the Network Operator via telephone.
- 3.3.3. Unless AEMO notifies the Network Operator otherwise, a Forced Outage or Outage Recall Direction is deemed not to require a PTR.
- 3.3.4. Where AEMO determines that a Network Operator requires a PTP or a PTR, the Network Operator must follow the processes outlined in paragraph 5.1 prior to commencing the Outage and prior to commencing restoration of the equipment after the Outage is completed.

### 3.4. Evaluation of Outages for Self-Scheduling Outage Facilities

- 3.4.1. Where AEMO identifies during a re-evaluation of an Outage Plan that a Planned Outage of a Self-Scheduling Outage Facility is likely to put Power System Security or Power System Reliability at risk, AEMO may:
  - (a) reject the Outage in accordance with clause 3.18E.11(b)(ii);
  - (b) issue an Outage Recall Direction for the Outage; or
  - (c) coordinate with the relevant Rule Participant to alter the details of the Outage Plan to reduce or mitigate the identified risk.

#### **E[Q] Self-Scheduling Facility Outage Re-Evaluation**

Outage Plans for Self-Scheduling Outage Facilities will be approved as per paragraph 2.1.3. However AEMO may need to reject, recall or seek changes to the Outage where there is a risk to Power System Security or Power System Reliability.

An example of where AEMO may reject, recall or seek modification of a Self-Scheduling Outage Facility Outage Plan is where a Forced Outage has occurred concurrent with an Outage of a SCADA/communications circuit that was submitted as a Self-Scheduling Outage Facility Outage Plan, resulting in a critical loss of visibility or control to the impacted area.

- 3.4.2. Where AEMO rejects an Outage Plan under paragraph 3.4.1, AEMO must inform the Market Participant or Network Operator in accordance with clauses 3.18E.12 and 3.18E.13.

### 3.5. Evaluation of Outage Plans for Opportunistic Maintenance

- 3.5.1. AEMO will evaluate a request for approval of an Outage Plan for Opportunistic Maintenance as soon as practicable after determining that the information in the Outage Plan for the Opportunistic Maintenance is sufficient to support an evaluation.
- 3.5.2. A Market Participant or Network Operator may contact AEMO prior to submitting an Outage Plan for Opportunistic Maintenance to discuss the details of the Outage Plan, AEMO's anticipated capability to evaluate the Outage Plan and the anticipated evaluation timeframes.
- 3.5.3. Where AEMO evaluates an Outage Plan for Opportunistic Maintenance, it must do so:
  - (a) in accordance with paragraph 3.1;
  - (b) considering all relevant Market Schedule information available; and
  - (c) with the objective of mitigating any potential shortages of capacity or risks to Power System Security or Power System Reliability.

- 3.5.4. AEMO may reject an Outage Plan for Opportunistic Maintenance where AEMO considers that there is insufficient time to evaluate the Outage Plan.
- 3.5.5. AEMO is deemed to have rejected any Outage Plan for Opportunistic Maintenance that is still awaiting approval 120 minutes prior to the start of the proposed Outage Commencement Interval.

## 4. Outage Coordination for Network Outages

### E[R] Outage Coordination

Where there is an impact on a Market Participant's Facility and there has been unsuccessful coordination between the Network Operator and the relevant Market Participant(s), the Impacted Participant may make a request for Outage Coordination by AEMO in accordance with clause 3.18C.3.

The process for determining "impacts" and "impacted" (as per clause 3.18C.1) is outlined in this paragraph 4. Network Operators can use this information when identifying whether they need to notify and coordinate with one or more Market Participants when they are planning an Outage.

In accordance with clause 3.18C.1(a), a Network Operator that submits an Outage Plan that impacts an Outage Facility (other than a Load) of a Market Participant is an "Impacting Participant". **As such, Network Operator has been used throughout paragraph 4 (where applicable) to represent an Impacting Participant.**

### 4.1. Request for Outage Coordination

- 4.1.1. A complete request for Outage Coordination submitted by a Market Participant under clause 3.18C.3 must be in writing, and must:
- (a) show evidence of:
    - (i) the potential for being Unduly Impacted by a Network Operator's Outage Plan;
    - (ii) relevant correspondence from the Network Operator to the Impacted Participant in relation to the Impacting Outage, where available; and
    - (iii) relevant correspondence from the Impacted Participant to the Network Operator requesting the Network Operator to vary the Impacting Outage, and the result of that request, where available;
  - (b) identify the:
    - (i) Impacted Facility; and
    - (ii) Identification number assigned to the Network Outage by the Network Operator that the Market Participant believes may cause their Facility to be Unduly Impacted ("Impacting Outage"); and
  - (c) be submitted:
    - (i) at least 20 Business Days before the proposed Outage Commencement Interval, where the Network Operator has submitted an Outage Plan for the Impacting Outage more than 30 Business Days before the proposed Outage Commencement Interval; or
    - (ii) as soon as practicable, where the Network Operator has submitted the Outage Plan for the Impacting Outage within 30 Business Days of the Outage Commencement Interval.
- 4.1.2. Where AEMO receives an incomplete request for Outage Coordination, it may:
- (a) request further information from the Impacted Participant; or
  - (b) may request supporting information from the relevant Network Operator to confirm or clarify details in the request.

- 4.1.3. Where an Impacted Participant is unable to provide sufficient information to facilitate AEMO's assessment of any required Outage Coordination, AEMO may:
- (a) conduct its analysis on the information available to facilitate consideration of the request; or
  - (b) reject the request.
- 4.1.4. Where AEMO determines that the request for Outage Coordination under paragraph 4.1.1 has all the necessary information, it will determine whether the Impacted Participant has been Unduly Impacted by considering the following:
- (a) the potential extent to which the Facility could be impacted as a result of the Impacting Outage in accordance with paragraph 4.2; and
  - (b) attempts, if any, of coordination between the Impacted Participant and the Network Operator in relation to the Impacting Outage in accordance with paragraph 4.3.

## 4.2. Determining whether a Facility is impacted

- 4.2.1. Where a Market Participant has requested Outage Coordination and provided all the necessary information in accordance with paragraphs 4.1.1 and 4.1.2, AEMO must determine whether a Facility is an Impacted Facility.

### E[S] Impact Significance

In a constrained network, Market Participant Facilities can often be constrained (impacted) under normal circumstances, and the level of Constraint can vary depending on factors such as market prices and demand.

In order to determine an "impact" from a Outage Coordination point of view in relation to Network Outages, there must be a measure of significance around the level of Constraint, and whether that change is attributable to the Network Outage.

The percentage levels specified in paragraph 4.2.2 are a method for AEMO to determine significance. Where Constraint Equations are available for a Network Outage, these can be used to support estimations of the potential level of Constraint for a Facility.

Some examples are shown in **Appendix C**.

- 4.2.2. AEMO may determine that a Facility is an Impacted Facility where that Facility is constrained by a Network Outage, and the:
- (a) extent to which the Facility will potentially be constrained is able to be estimated prior to the Network Outage occurring and whether Constraint Equations can be utilised to support the estimation;
  - (b) the estimated level at which the Facility will potentially be constrained is more than the estimated level without the Network Outage occurring, and is as a result of the Network Outage occurring; and
  - (c) estimated level at which the Facility will potentially be constrained in any Dispatch Interval during the Outage Period for the Network Outage is:
    - (i) at least 50 percent more than the estimated level if the Network Outage did not proceed; and
    - (ii) at least 50 percent of the normal unconstrained sent-out capacity of the Market Participant's Facility.
- 4.2.3. AEMO may determine that a Facility is not an Impacted Facility where any one or more of the criteria in paragraph 4.2.2 are not met.

4.2.4. Where AEMO determines that a Facility is an Impacted Facility in response to a request for Outage Coordination under paragraph 4.1, it must also determine whether the Impacted Facility is Unduly Impacted in accordance with paragraph 4.3.

### 4.3. Determining whether a Facility has been Unduly Impacted

4.3.1. Subject to paragraph 4.3.2, AEMO will consider a Facility to be Unduly Impacted where:

- (a) AEMO has determined a Facility is an Impacted Facility under paragraph 4.2.2; and
- (b) a Market Participant provides evidence of unsuccessful attempts to coordinate with the Network Operator.

4.3.2. AEMO will not consider a Facility to be Unduly Impacted where:

- (a) both the Impacted Participant and the Network Operator have overlapping Outage Plans that are the subject of the request for Outage Coordination;
- (b) the Impacted Participant and Network Operator have previously coordinated successfully on the Impacting Outage; and
- (c) the Impacted Participant has subsequently adjusted the timing of their overlapping Outage Plan without further consultation and agreement with the Network Operator.

4.3.3. AEMO may seek additional or clarifying information from the Impacted Participant or the Network Operator in relation to the evidence provided under paragraph 4.3.1(b) and, where requested by AEMO, the Impacted Participant or Network Operator must provide that information within a reasonable timeframe approved by AEMO.

4.3.4. Where AEMO considers a Facility has been Unduly Impacted by a Network Outage, it will accept the request and undertake Outage Coordination in accordance with paragraph 4.4.

### 4.4. Undertaking Outage Coordination

4.4.1. In conducting the process of Outage Coordination, AEMO must:

- (a) review the request for Outage Coordination submitted under paragraph 4.1; and
- (b) make a determination as to whether the Facility has been Unduly Impacted by reviewing the information in the Outage Plan for the Network Outage provided in the request, determining if the Facility is Impacted under paragraph 4.2 and then subsequently determining if the Facility is Unduly Impacted under paragraph 4.3; and
- (c) take into consideration any additional information provided to AEMO under paragraph 4.4.5; and then
- (d) having determined that the Facility is Unduly Impacted under paragraph 4.3, consider the implications of changes to the Impacting Outage and, where relevant, the Impacted Participant's Outage Plan, taking into account the principles outlined in clause 3.18C.5 and factors under paragraph 4.4.2, where AEMO's:
  - (i) primary focus must be on the Impacted Participant's Planned Outages, requested Outage Plans, or Outage Plans foreshadowed in the Outage Intention Plan in accordance with **[clause 3.18C.12(c)(i)]**; and
  - (ii) secondary focus must be on all other factors, such as the time of year **[clause 3.18C.12(c)(ii)]**; and



- (e) make a determination under paragraph 4.4.7.
- 4.4.2. In determining the outcome of Outage Coordination, AEMO may also consider the following factors:
- (a) whether there are other timing options available for the Impacting Outage;
  - (b) whether other options are available to mitigate the impact, including but not limited to:
    - (i) Temporary Restoration Outages; and
    - (ii) other operational measures that AEMO considers are reasonably available following consultation with the Network Operator, such as temporary protection settings;
  - (c) historical frequency of similar impacts on the Impacted Facility; and
  - (d) whether subsequent changes have been made to one or more Outage Plans following initial agreement between the Network Operator and the Impacted Participant.

#### **E[T] Outage Coordination Considerations**

Some examples of considerations AEMO may take into account when making a determination are:

- Could the impact actually be greater if the Impacting Outage was conducted at another time?
- Would the risk of failure be higher if the Impacting Outage was delayed?
- Could the impact of the Impacting Outage be reduced by employing measures such as Temporary Restoration Outages, without significantly risking the Impacting Outage itself?
- Are there limitations to the times during which the Impacting Outage could be conducted (e.g. physical access limitations or heightened risk periods)?
- In terms of attempts at Outage Coordination, were notification times very late?

- 4.4.3. As part of undertaking Outage Coordination, AEMO:
- (a) must consult with each Impacted Participant in accordance with clause 3.18C.8; and
  - (b) may consult with any other Rule Participant,
- to facilitate its determination under paragraphs 4.4.1 and 4.4.2.
- 4.4.4. AEMO will use reasonable endeavours to provide notice of expected consultation related to Outage Coordination at least two Business Days after accepting a request for Outage Coordination from an Impacted Participant under clause 3.18C.3 and paragraph 4.1.
- 4.4.5. Where AEMO requires additional information or supporting evidence from a Rule Participant to support its determination under paragraph 4.4.1, the Rule Participant must provide the additional information or supporting evidence within two Business Days, unless otherwise agreed by AEMO.
- 4.4.6. AEMO may decide to flag the Impacting Outage as 'At Risk', as described in section 3.2, while it is assessing and undertaking Outage Coordination.
- 4.4.7. Following assessment of the Impacting Outage under paragraph 4.4.1, AEMO must determine in accordance with clause 3.18C.4 and clause 3.18C.12(b):
- (a) whether the Impacting Outage:
    - (i) may proceed as planned;
    - (ii) must be withdrawn; or
    - (iii) must be adjusted; and

- (b) where the Impacted Participant has an Outage Plan overlapping with the Impacting Outage, whether the Impacted Participant's Outage Plan:
- (iv) may proceed as planned;
  - (v) must be withdrawn; or
  - (vi) must be adjusted.

### **E[U] Adjustments to Outage Plans**

Adjustments to Outage Plans required by AEMO may include changes such as:

- Outages commencing earlier or later.
- Outages completing earlier or later.
- Temporary Restoration Outages.
- Including additional mitigation steps to reduce the impact.

- 4.4.8. In accordance with clause 3.18C.6, AEMO must notify both the Network Operator and the Impacted Participant(s) of its determination under paragraph 4.4.7 and this notification will include reason(s) for its determination, and any required changes as soon as practicable.
- 4.4.9. A Market Participant and Network Operator must make any changes required under clause 3.18C.9 (identified in AEMO's notification provided under paragraph 4.4.8) as soon as practicable.

## **5. Outage execution**

### **5.1. Outage permissions**

- 5.1.1. Where AEMO has determined that a PTP is required for a Network Outage under paragraph 3.3, or a Market Participant has identified in their Outage Plan that temporary switching is required by a Network Operator, the Network Operator must:
- (a) contact AEMO to request PTP prior to conducting any switching or other Pre-requisite Activities associated with commencement of the Outage; and
  - (b) not conduct any switching or other Pre-requisite Activities associated with the Outage until AEMO has given permission under paragraph 5.1.2(a) or until the timeframe specified in paragraph 5.1.2(b) has elapsed.
- 5.1.2. Where a Network Operator has requested PTP under paragraph 5.1.1(a), AEMO may:
- (a) allow the Network Operator to conduct the switching or other pre-requisite activities associated with the Outage commencing;
  - (b) provide a timeframe for commencement of the switching or other pre-requisite activities associated with the Outage; or
  - (c) require that the Network Operator refrains from conducting the switching or other pre-requisite activities associated with the Outage until further advised by AEMO.
- 5.1.3. Where AEMO has determined that a PTR is required for a Network Outage, including a Forced Outage, a Market Participant has identified in their Outage Plan that temporary switching is required by a Network Operator, or following an Outage Recall Direction, the Network Operator must:

- (a) contact AEMO to request PTR prior to conducting any switching or other activities associated with returning the equipment to service or otherwise completing the Outage; and
- (b) not conduct any switching or other activities associated with returning the equipment to service or otherwise completing the Outage until AEMO has given permission under paragraph 5.1.4(a) or until the timeframe specified in paragraph 5.1.4(b) has elapsed.

5.1.4. Where a Network Operator has requested PTR under paragraph 5.1.3, AEMO may:

- (a) give permission to the Network Operator to conduct the switching or other activities associated with returning the equipment to service or otherwise completing the Outage;
- (b) provide a timeframe after which the Network Operator may conduct the switching or other activities associated with returning the equipment to service or otherwise completing the Outage; or
- (c) require that the Network Operator refrains from conducting the switching or other activities associated with returning the equipment to service or otherwise completing the Outage until further advised by AEMO.

### **E[V] Examples of an Outage requiring permissions**

Common Network Outages requiring permissions include:

- For in-service work:
  - involving Planned Outages of items on the Equipment List, unless otherwise stated in the Outage approval provided by AEMO, PTP is required to commence operational switching; and
  - unless otherwise requested by AEMO, PTR from AEMO is not required to commence operational switching. However, the Network Operator will advise the AEMO control room that return to service of the equipment has been completed as soon as practicable after the event.
- For out-of-service work:
  - A PTP must be requested and received immediately prior to the switching that will reduce or remove the load-carrying capability of the equipment.
  - The Network Operator must request and receive PTR prior to the switching that will restore the load-carrying capability of the equipment.

For clarity, subject to the identification of any risks to Power System Security or Power System Reliability, PTP/PTR is not typically required for routine operational switching that is not associated with Planned Outages of Equipment List items.

## **5.2. Changes to approved Outages**

5.2.1. Market Participants and Network Operators must not make any of the following changes to an Outage Plan once it has been approved:

- (a) the type of Outage (Planned Outage or Opportunistic Outage);
- (b) the details of an Availability Declaration Exemption;
- (c) reduce any Remaining Available Capacity figures;
- (d) make the Outage Commencement Interval earlier;
- (e) make the Outage Completion Interval later;
- (f) for a Network Outage, change the Affected Equipment;
- (g) for a Network Outage, change the Points of Isolation;
- (h) for a Network Outage, change the Pause Interval or Recommence Interval;
- (i) for a Network Outage, change whether a Limit Advice is required or not; and

- (j) for an Outage of a Market Participant's Outage Facility, change the Outage Facility to a different Market Participant.
- 5.2.2. Where a Market Participant or Network Operator requires any of the changes listed in paragraph 5.2.1 to its Outage Plan, the Rule Participant must withdraw the Outage Plan and submit a new Outage Plan with the relevant changes for approval by AEMO.
- 5.2.3. A Market Participant or Network Operator may make other changes to an Outage Plan that are not listed in paragraph 5.2.1.
- 5.2.4. If a Market Participant or Network Operator makes changes to an Outage Plan under paragraph 5.2.3, AEMO may re-evaluate the Outage Plan under paragraph 3.1.
- 5.2.5. Where changes have been made to an approved Outage Plan under paragraph 5.2.3, AEMO may reject the Outage Plan following re-evaluation where AEMO considers that this is required, as described under paragraph 3.1.17.

#### **E[W] Examples of a significant change to an Outage Plan**

Once an Outage Plan is approved, AEMO typically will coordinate with the Market Participant or Network Operator to accommodate small changes, where necessary. However, there may be circumstances where significant changes to the Outage Plan impact AEMO's ability to manage Power System Security or Power System Reliability, or create a subsequent risk to other Outage Plans.

Examples of significant changes to Outage Plans include:

- Significant extensions to Recall Time where:
  - Outage Plans may have been approved on the basis that they are able to be returned to service within a specified timeframe.
- Additions or significant changes to Pre-requisite Activities where:
  - AEMO's ability to support the Outage Plan proceeding may be impacted because the number or complexity of Pre-requisite Activities increases significantly and/or there is insufficient time to adequately review and action the changes.

Changes to the Outage Plan after the fact to show actual completion times as required by clause 3.18D.8 support timely notification and transparency of Outage information to all Rule Participants. Original planned completion times will be retained within AEMO's Outage System in previous versions of the Outage Plan.

- 5.2.6. Where a Rule Participant completes a Planned Outage earlier than the Outage Completion Interval that is specified in the Outage Plan, the Rule Participant must, as soon as practicable, update the information in the Outage Plan to reflect the actual completion time in accordance with clause 3.18D.8.
- 5.2.7. A Market Participant or Network Operator must notify AEMO as soon practicable, by telephone, of the following events in relation to an Equipment List Facility Outage:
- (a) if within 24 hours before the Outage Commencement Interval or Recommence Interval, a Rule Participant becomes aware that the Outage is likely to commence or resume later than the Outage Commencement Interval or Recommence Interval reported in the Outage Plan;
  - (b) if within 24 hours of the scheduled Outage Completion Interval or Pause Interval, a Rule Participant becomes aware that the Outage is likely to be completed or temporarily returned to service earlier than the Outage Completion Interval or Pause Interval reported in the Outage Plan;
  - (c) if within 24 hours of the Outage Commencement Interval, the Rule Participant becomes aware that they need to withdraw the Outage Plan; or
  - (d) after the Outage Commencement Interval, following any other change that the Rule Participant considers may significantly increase the risk of extending the Outage.

- 5.2.8. Where a Market Participant or Network Operator notifies AEMO of any of the events under paragraph 5.2.7, the Market Participant or Network Operator must:
- (a) provide confirmation of the event by modifying the Outage Plan in AEMO's Outage System as soon as practicable, and in any case by the end of the following Business Day; and
  - (b) update any relevant Real-Time Market Submissions to reflect the changes to the Outage Plan.
- 5.2.9. Where a Market Participant or Network Operator is unable to make the Outage Capacity of the Outage Facility available for service by the scheduled Outage Completion Interval but meets the Availability Declaration Exemption requirements in the WEM Rules for extending the Outage, the Market Participant or Network Operator must submit a new Outage Plan to cover the remaining time required to make the equipment available for service.
- 5.2.10. Where AEMO is unable to approve an Outage Plan submitted under paragraph 5.2.9 the Market Participant or Network Operator must follow the processes outlined in paragraph 6.1, including submitting a Forced Outage for the set of Dispatch Intervals beyond the Outage Completion Interval in the original Outage Plan that represent the additional time required to return the Outage Capacity of the Outage Facility to service.

### 5.3. Outage Recall

- 5.3.1. AEMO may issue an Outage Recall Direction to an Outage Facility that has commenced a Planned Outage in accordance with clause 3.20.1.
- 5.3.2. AEMO will notify the Market Participant or Network Operator of an Outage Recall Direction under paragraph 5.3.1 by telephone.
- 5.3.3. Where a Market Participant or Network Operator that is subject to an Outage Recall Direction under paragraph 5.3.1 is unable to return the Outage Facility to service in accordance with the relevant Outage Contingency Plan, the Market Participant or Network Operator must:
- (a) promptly notify AEMO by telephone, in accordance with clause 3.20.4 and advise any revised restoration details; and
  - (b) as soon as practicable, submit a Forced Outage in accordance with the processes outlined in clause 3.21 and section 6.1 and covering any Dispatch Intervals that the Outage Facility remained unavailable for service beyond the Recall Time in the relevant Outage Contingency Plan.

## 6. Forced Outages

### 6.1. Notification and provision of information for Forced Outages

- 6.1.1. A Market Participant or Network Operator must notify AEMO's control room in accordance with clause 3.21.2, by telephone, of a Forced Outage that has occurred or is expected to occur, unless:
- (a) the Outage Facility is a Self-Scheduling Outage Facility and AEMO has visibility of the status of that Facility via SCADA, in which case AEMO will deem its visibility as notification under clause 3.21.2(a); or

- (b) the Forced Outage has already been submitted to AEMO more than 24 hours in advance of its anticipated occurrence.
- 6.1.2. In relation to the notification requirement under paragraph 6.1.1 and clause 3.21.2, where a Market Participant or Network Operator is attending to an emergency or urgent actions are required to address the Forced Outage, the Market Participant or Network Operator may notify AEMO as soon as practicable once these actions are complete (noting this may be after the equipment has been returned to service).
- 6.1.3. Notification of a Forced Outage under paragraph 6.1.1 must include the information required under clause 3.21.2, where it is available, as well as any other significant information that may assist AEMO to determine the actions it needs to take to manage the Outage and to maintain Power System Security and Power System Reliability.

### **E[X] Forced Outage notification**

When a Forced Outage occurs, often AEMO will take actions in real time to ensure Power System Security and Power System Reliability are maintained, such as applying a Constraint to the dispatch engine to modify dispatch outcomes or issuing a direction to another Rule Participant. To ensure the appropriate actions are taken, it is important that AEMO has some information about what has occurred (to the extent known), and for it to have an opportunity to discuss and coordinate with the relevant Market Participant or Network Operator.

At the time the Forced Outage occurs it is possible, or likely, that Participants will not know full details. It is important that AEMO understand the details that are known or estimated, and also where things are unknown (e.g. cause). This will support AEMO in determining the next course of action and coordinating with other Rule Participants. Examples of significant information that AEMO should be provided with include:

- Whether the Forced Outage is only temporary or is likely to be extended
- For a Market Participant Facility, whether Real-Time Market Submissions will be updated immediately or whether there may be a lag. Where this is the case, AEMO may need to apply temporary Constraints to the dispatch engine to ensure correct dispatch outcomes

Where equipment is designed to have an auto-reclose scheme associated with it, a successful temporary disconnection and reclose is in-line with the intended operation of the equipment (much like a capacitor that is switched on and off), and so this would not require a Forced Outage notification/submission. However, an unsuccessful reclose (e.g. lock-out) would require a Forced Outage notification/submission.

Transient failures of SCADA devices or protection schemes (e.g. as a result of a transient communication systems failure) do not require Forced Outage notifications/submissions, unless the failure is longer than a 5-minute period (i.e. a Dispatch Interval), and only if that RTU or scheme is on the Equipment List or Self-Scheduling Outage Facility List.

- 6.1.4. Following the initial notification under paragraph 6.1.1, a Market Participant or Network Operator must submit a Forced Outage in AEMO's Outage System as soon as practicable, but no later than the end of the next Business Day following the Business Day on which the Forced Outage commenced.
- 6.1.5. Where a Forced Outage is expected to occur in the future, a Market Participant or Network Operator must submit a Forced Outage in AEMO's Outage System as soon as practicable.
- 6.1.6. The Forced Outage submitted under paragraph 6.1.4 and 6.1.5 must contain the information specified in paragraph 6.1.1 and clause 3.21.2 where it is reasonably available, as well as:
- (a) the time and day on which AEMO was first notified about the Forced Outage, where this is:
- (i) the time and day on which AEMO was notified under paragraph 6.1.1;
  - (ii) for Forced Outages submitted to AEMO in advance, the time of submission; or
  - (iii) for Self-Scheduling Outage Facilities for which AEMO has SCADA visibility, the first Dispatch Interval affected by the Forced Outage;
- (b) for Forced Outages that have an expected restoration time more than 24 hours beyond when the Forced Outage was originally submitted, any information regarding the possible

impacts of the Forced Outage on Power System Security or Power System Reliability that the Market Participant or Network Operator is aware of, including where the Market Participant or Network Operator is aware that the Forced Outage may be further extended; and

- (c) where a Market Participant or Network Operator is submitting a future Forced Outage, the information specified in paragraph 6.1.1 and clause 3.21.2 should include the Market Participant or Network Operator's expected Outage Commencement Interval for the Forced Outage.

6.1.7. Where a Market Participant or Network Operator does not have complete details of the information required under paragraph 6.1.1 and clause 3.21.2, the Market Participant or Network Operator:

- (a) may provide estimates of required date and time values as part of the original notification and in the Forced Outage submission;
- (b) may provide estimates of required Remaining Available Capacity values as part of the original notification and in the Forced Outage submission; and
- (c) where the cause of the Outage is unknown, may specify this as part of the original notification, however the Forced Outage submission must also include a description of any actions being taken to investigate the cause.

6.1.8. Where, in accordance with paragraph 6.1.7(c), the cause of the Outage is unknown, a Market Participant or Network Operator must update the Forced Outage with the relevant details once the cause is known.

### **E[Y] Forced Outage Information Submission**

It is possible that some information may be unknown at the time of submission of Forced Outages into AEMO's Outage System. Therefore, estimates are permitted for items such as expected end times. If the cause is still unknown, then this should be stated along with any actions being taken to investigate the cause.

The cause, if known, should be relatively descriptive and Market Participants or Network Operators should not use general terms like "Failure" or "Forced Outage". Some examples of description of causes are below:

- "Lightning strike on conductor"
- "Bushfire related flashover"
- "Protection scheme 'xxx' operation"
- "Pole failure"
- "Step-up transformer failure"

Information supporting a Market Participant or Network Operator's Forced Outage, submitted under paragraph 6.1.6(b) may include, for example:

- Whether the Forced Outage will likely impact the ability of other Outages to proceed as planned.
- Whether there is a need for the Market Participant or Network Operator to take any action as a result of the Forced Outage, and a description of what those actions may be. This includes temporary arrangements needed to support Power System Security and/or Power System Reliability.
- Whether there is a need for AEMO to take any action as a result of the Forced Outage, and a description of what those actions may be.
- A description of any general known risks to Power System Security and/or Power System Reliability resulting from the circumstances of the Forced Outage.
- Any other information that AEMO may need to be aware of during the Forced Outage.

6.1.9. Where a Market Participant or Network Operator has been unable to provide full details of all information required under paragraph 6.1.7, the Market Participant or Network Operator must identify the information that is unknown at the time of submission and update the relevant information in AEMO's Outage System as soon as practicable, but not later than the end of the day that is 15 days after the Outage Completion Interval of the relevant Outage Plan.

- 6.1.10. Where information in a Forced Outage submission has materially changed, the Market Participant or Network Operator must update the information in AEMO's Outage System as soon as practicable after becoming aware of the change.

### **E[Z] Forced Outage information updates**

Examples of updates to Outage information that may be material:

- Where the expected Outage Completion Interval has changed, or the actual Outage Completion Interval is now known.
- Where new risks have come to light or a previously identified risk has changed.
- Revisions to Remaining Available Capacity figures.
- Where the cause of the Forced Outage has become known.

- 6.1.11. Where AEMO considers more information is required to be included in a Forced Outage submission in order for it to be complete, it may require the Market Participant or Network Operator to provide additional information or to clarify any aspect of the Forced Outage Submission.
- 6.1.12. Where AEMO requires additional information in accordance with paragraph 6.1.11, it may specify a timeframe within which the additional information must be provided, which must be a minimum of two Business Days and may be amended in agreement with AEMO.

## **6.2. Updates to Forced Outages after 15 Business Days**

- 6.2.1. A request to AEMO for permission to submit or update a Forced Outage under clause 3.21.3 must include supporting evidence that the Market Participant or Network Operator considers demonstrates the need to submit or update the Forced Outage.
- 6.2.2. Where AEMO receives a request under clause 3.21.3 and evidence under paragraph 6.2.1, AEMO will review the evidence provided by the Market Participant or Network Operator, determine whether that evidence is sufficient to demonstrate the need submit or update the Forced Outage and determine whether it will grant permission for a Market Participant or Network Operator to submit or update the Forced Outage.
- 6.2.3. AEMO will notify the relevant Rule Participant in writing of its decision under paragraph 6.2.2 as soon as practicable.
- 6.2.4. A Rule Participant must not submit or update a Forced Outage that commenced more than 15 days earlier unless AEMO has given permission under paragraph 6.2.3.
- 6.2.5. If a Forced Outage is submitted or updated in accordance with paragraph 6.2.4, the Market Participant or Network Operator must notify AEMO as soon as practicable after it has been submitted or updated.



### 6.3. Forced Outage quantities related to non-compliance with a Dispatch Target or Dispatch Cap

#### E[AA] Forced Outages for non-compliance with a Dispatch Target or Dispatch Cap

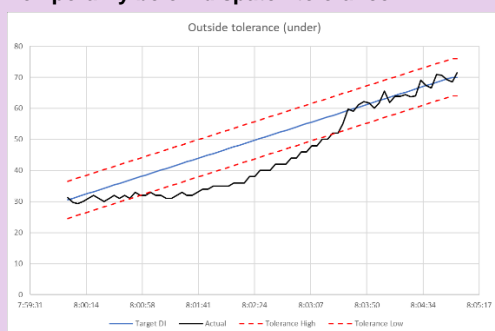
This paragraph describes the dispatch non-compliance circumstances that do not require a Forced Outage submission and what the Remaining Available Capacity quantity must represent where a Forced Outage submission is required.

Some examples where a dispatch non-compliance would not require the submission of a Forced Outage are provided below.

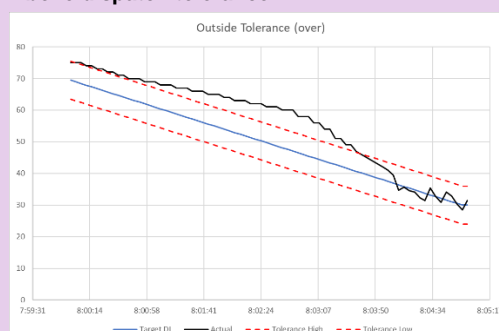
It is noted that not all Dispatch Target or Dispatch Cap non-compliance necessarily relates to an inability to provide an Outage Capability.

Note that although submission of a Forced Outage may not be required, the Facility may still have a reportable non-compliance.

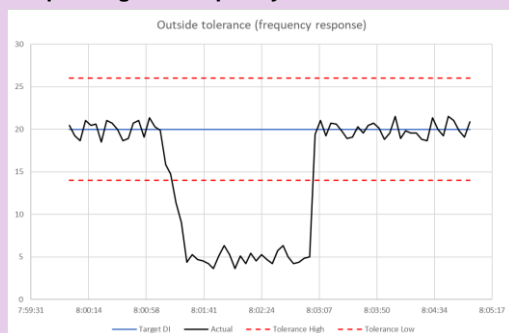
#### Temporarily below dispatch tolerance



#### Above dispatch tolerance



#### Responding to a frequency event



6.3.1. Subject to paragraph 6.3.2, a Market Participant is not required to submit Forced Outages under clause 4.26.1J for circumstances surrounding dispatch non-compliance under clause 7.10.1, where the Facility was:

- (a) in relation to a Dispatch Target, temporarily operating below its Tolerance Range or Facility Tolerance Range, as applicable, during a Dispatch Interval but the Facility was within the relevant Tolerance Range by the end of the Dispatch Interval;
- (b) in relation to a Dispatch Target, temporarily operating below its Tolerance Range or Facility Tolerance Range, as applicable, during a Dispatch Interval but the Facility was providing a mandatory frequency response or providing an Essential System Service;
- (c) in relation to a Dispatch Target, temporarily operating below its Tolerance Range or Facility Tolerance Range, as applicable, during a Dispatch Interval but the Facility was operating under an approved Commissioning Test Plan;

- (d) in relation to a Dispatch Target or a Dispatch Cap, operating above its Tolerance Range or Facility Tolerance Range, as applicable, during a Dispatch Interval; or
  - (e) in relation to a Dispatch Cap, operating below the level of the Dispatch Cap at the end of a Dispatch Interval, except where, for that Dispatch Interval, the Semi-Scheduled Facility:
    - (i) had a non-zero Reserve Capacity Obligation Quantity;
    - (ii) had a Dispatch Cap for Injection that was higher than its Reserve Capacity Obligation Quantity; and
    - (iii) was not Injecting at a quantity that was greater than its Reserve Capacity Obligation Quantity at the end of the Dispatch Interval.
- 6.3.2. Despite the existence of any of the circumstances in paragraph 6.3.1, a Market Participant must submit Forced Outages for circumstances surrounding dispatch non-compliance with a Dispatch Target or Dispatch Cap or non-compliance with clause 4.26.1J where there was a physical issue that would have otherwise prevented the Facility from providing an Outage Capability.
- 6.3.3. Where a Market Participant or Network Operator is required to submit a Forced Outage as a result of a dispatch non-compliance as required by clause 4.26.1J, the Remaining Available Capacity quantities included in the Forced Outage submission must account for any other physical issues that the Facility was experiencing that would have prevented it from providing the relevant Outage Capacity and must be at least be:
- (a) where the Facility was issued with a Dispatch Target, the expected Remaining Available Capacity quantity prior to the Forced Outage submission, less the quantity that was not able to be provided towards the Dispatch Target or Dispatch Cap at the end of the Dispatch Interval, entered for the Outage Facility and for each Facility Technology Type of the Outage Facility; and
  - (b) where a Semi-Scheduled Facility was issued with a Dispatch Cap and had a non-zero Reserve Capacity Obligation Quantity in the Dispatch Interval, the expected Remaining Available Capacity quantity prior to the Forced Outage submission, less the quantity that was not able to be provided towards the Reserve Capacity Obligation Quantity at the end of that Dispatch Interval, entered for the Outage Facility and for each Facility Technology Type of the Outage Facility.

## E[BB] Dispatch Non-Compliance Forced Outage Quantities

Some examples of calculations of Remaining Available Capacity quantities for Forced Outages relating to dispatch non-compliance are show below:

### 100MW Facility, no prior Outages

- Dispatch Target for the interval = 50MW
- Tolerance Range = +/- 6MW
- Output achieved at the end of the Dispatch Interval = 40MW
- Outside of Tolerance Range at the end of the Dispatch Interval and, therefore, must submit a Forced Outage
- Quantity not able to be provided towards meeting the Dispatch Target = 10MW
- Forced Outage Remaining Available Capacity = 100MW – 10MW = 90MW

### 100MW Facility, prior Outage with Remaining Available Capacity of 80MW

- Dispatch Target for the interval = 70MW
- Tolerance Range = +/- 6MW
- Output achieved at the end of the Dispatch Interval = 25MW
- Outside of Tolerance Range at the end of the Dispatch Interval and, therefore, must submit a Forced Outage
- Quantity not able to be provided towards meeting the Dispatch Target = 45MW
- Forced Outage Remaining Available Capacity = 80MW – 45MW = 35MW

### 100MW Facility, physical issue at the end of the Dispatch Interval

- Dispatch Target for the interval = 80MW
- Tolerance Range = +/- 6MW
- Output achieved at the end of the Dispatch Interval = 60MW
- Outside of Tolerance Range at the end of the Dispatch Interval and, therefore, must submit a Forced Outage
- Facility physically incapable of providing any more response
- Forced Outage Remaining Available Capacity = 60MW

## 7. Outage publication

### 7.1. Outage Plan Publication

- 7.1.1. AEMO will publish the information in the fields of an Outage Plan identified as “Published” in Table 4 and Table 5 on the WEM Website as soon as practicable in accordance with clause 3.22.1 and clause 3.22.2 after it is entered in AEMO’s Outage System.
- 7.1.2. Where AEMO rejects an Outage Plan or issues an Outage Recall Direction, AEMO will publish information in accordance with clause 3.22.1A on the WEM Website as soon as practicable.

**Table 4 Network Outage publication fields**

Data Item	Published
<b>Outage details</b>	
Outage type	Yes
Outage description/cause	Yes
Date / time of notification	Yes
<b>Outage duration</b>	
Outage commencement interval	Yes
Outage completion interval	Yes
<b>Temporary restoration</b>	
Temporary restoration flag	Yes
<b>Stop and return intervals</b>	
Pause interval	Yes
Recommence interval	Yes
<b>Equipment</b>	
Secondary equipment outage	Yes
Equipment list flag	Yes
<b>Equipment list</b>	
Equipment ID	Yes
<b>Points of isolation</b>	
Point of isolation	Yes
<b>Contingency plan information</b>	
Risk of extension	Yes
Estimated recovery time (hours)	Yes
Estimated recovery time (minutes)	Yes
Contingency plan	Yes
<b>Availability declaration</b>	
Availability declaration exemption applies	Yes
<b>Exemption reasons</b>	
Availability declaration exemption reason	No
<b>Associated outage info</b>	
<b>Related outages</b>	
Outage ID	Yes
Relationship details	Yes

Data Item	Published
<b>Impacts</b>	
Operational impact	No
Impacts 3rd party	No
3rd party / facility impacted	No
3rd party notified	No
SCADA change flag	No
System alteration flag	No
<b>Permits</b>	
Permit types	No
<b>Limit advice</b>	
Limit advice required	Yes
Limit advice description	Yes
<b>Additional contact information</b>	
Originator email address	No
<b>Notifications</b>	
Contact email	No
Additional contact details	No
<b>Outage details</b>	
Outage number	Yes
Outage version number	Yes
First submission date	Yes
Status	Yes
Outage source	Yes
Modified date/time	Yes
Modified user ID	No
Originator user ID	No
PTP and PTR required	Yes
Response to participant	No
At risk flag	Yes
<b>Associated constraint sets</b>	
Constraint set ID	Yes

Table 5 Market Participant Outage publication fields

Data Item	Published
<b>Outage details</b>	
Outage type	Yes
Outage description/cause	Yes
Date / time of notification	Yes
<b>Outage duration</b>	
Outage commencement interval	Yes
Outage completion interval	Yes
<b>Contingency plan information</b>	
Risk of extension	Yes
Estimated recovery time (hours)	Yes

Data Item	Published
Estimated recovery time (minutes)	Yes
Contingency plan	Yes
<b>Availability declaration</b>	
Availability declaration exemption applies	Yes
<b>Exemption reasons</b>	
Availability declaration exemption reason	No
<b>Associated outage info</b>	
Switching required	Yes
<b>Related outages</b>	
Outage ID	Yes
Relationship details	Yes
<b>Outage details</b>	
Outage number	Yes
Outage version number	Yes
First submission date	Yes
Status	Yes
Outage source	Yes
Modified date/time	Yes
Modified user ID	No
Originator user ID	No
<b>Service reduction</b>	
Facility RAC	Yes
<b>Energy</b>	
Technology type	Yes
Technology type RAC	Yes
<b>Essential System Services</b>	
Service type	Yes
Service availability	Yes
Service RAC	Yes
Response to participant	No
At risk flag	Yes

## 7.2. Publication of Refund Exempt Outage Counts and Capacity Adjusted Outage Quantities

### CAPO and CAFO Reporting

- 7.2.1. AEMO will publish Capacity Adjusted Planned Outage Quantities (CAPO) and Capacity Adjusted Forced Outage Quantities (CAFO) in a report on the WEM Website in the format specified in Table 6.

**Table 6 Information published**

Data Item	Published
Trading date	Yes
Participant name	Yes
Facility code	Yes
Outage type	Yes
Trading interval/dispatch interval	Yes
Separately certified component	Yes
Technology type	Yes
Capacity adjusted quantity	Yes
Extract date / time	Yes

### E[CC] CAPO and CAFO Reporting

These are published under clause 6.3A.5 to support Market Participants when making STEM Submissions.

Note that AEMO separately determines Planned Outage rates and Forced Outage rates to support Capacity Credit Certification under clause 4.11.1(h), for more information on this please see WEM Procedure: Certification of Reserve Capacity.

- 7.2.2. The report specified in paragraph 7.2.1 must contain CAPO and CAFO quantities for each Trading Interval and Dispatch Interval of each day of the STEM Submission Information Window.
- 7.2.3. AEMO will publish the report specified in paragraph 7.2.1 by 8:30 AM on each day following a determination of the Reserve Capacity Obligation Quantity for each Facility that has been assigned Certified Reserve Capacity.
- 7.2.4. For the purposes of the report specified in paragraph 7.2.1, where a Facility has not been assigned Certified Reserve Capacity or has a Reserve Capacity Obligation Quantity of zero, AEMO will determine that the relevant CAPO and CAFO quantities are zero.
- 7.2.5. Where AEMO is unable to determine up to date Reserve Capacity Obligation Quantities by the time in paragraph 7.2.3, AEMO must publish the previous day's CAPO and CAFO quantities by this deadline and must publish a revised report to the WEM Website with corrected quantities as soon as practicable.

### REPOC Reporting

- 7.2.6. AEMO will, as soon as practicable and in accordance with clause 3.22.3, publish Refund Exempt Planned Outage Count (REPOC) quantities on the WEM Website and in the format specified in Table 7.

**Table 7 Information published**

Data Item	Published
Rule Participant name	Yes
Technology type	Yes
Refund Exempt Planned Outage Count	Yes
Extract date / time	Yes
Trading Day	Yes
Facility code	Yes

#### **E[DD] REPOC Reporting**

This is used by AEMO to determine if a Facility exceeds the limit for Planned Outages over the previous 1000 Trading Days and may be required to pay Reserve Capacity refunds as a result.

- 7.2.7. AEMO will publish the report specified in paragraph 7.2.6 that includes REPOC quantities for each Facility that has a non-zero Reserve Capacity Obligation Quantity, based on the most recently determined CAPO and CAFO quantities for that Facility.
- 7.2.8. Where AEMO is unable to determine up to date CAPO and CAFO quantities by the time the report in paragraph 7.2.6 is published, the most recently available data will be used and AEMO will publish a revised report to the WEM Website with updated quantities as soon as practicable after the data becomes available.



## Appendix A. Relevant clauses of the WEM Rules

Table 8 details:

- (a) the head of power clauses in the WEM Rules under which the Procedure has been developed; and
- (b) each clause in the WEM Rules requiring an obligation, process or requirement be documented in a WEM Procedure, where the obligation, process or requirement has been documented in this Procedure.

**Table 8 Relevant clauses of the WEM Rules**

Clause
3.18.4
3.18C.1
3.18E.10
3.21.10

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## Appendix B. Outage Information Summary

Table 9 is intended to summarise of the different types of information required for both Network and Market Participant Outage Facilities when submitting an Outage Plan. This is intended as a guide only to support Rule Participants, Rule Participants must follow the requirements described in paragraph 2.2 when submitting Outage Plans.

Entries in Table 9 that are marked as “**Yes**” indicate that the information is required for that type of Outage Plan. Entries marked as “**Yes\***” indicate that the information is only required where relevant.

**Table 9 Summary of information requirements for submission of Outage Plans**

Information Requirement	Paragraph	Equipment List Facility		Self-Scheduling Outage Facility	
		Network Outage Facility	Market Participant Outage Facility	Network Outage Facility	Market Participant Outage Facility
Outage Facility and Facility Technology Types	2.2.1(a)		Yes		Yes
Outage Type (Planned Outage/Opportunistic Maintenance)	2.2.1(b)	Yes	Yes	Yes	Yes
Outage Period: - Outage Commencement Interval - Outage Completion Interval	2.2.1(c)	Yes	Yes	Yes	Yes
Description	2.2.1(d)	Yes	Yes	Yes	Yes
Remaining Available Capacity: - For the Facility (energy and ESS) - For each Facility Technology Type (energy)	2.2.1(e)		Yes		Yes
List of Affected Equipment	2.2.1(f)(i)	Yes		Yes	
Affected Equipment availability	2.2.1(f)(ii)	Yes		Yes	
Secondary Equipment flag	2.2.1(f)(iii)	Yes		Yes	
Points of Isolation	2.2.1(f)(iv)	Yes*		Yes*	
Work permits	2.2.1(f)(v)	Yes*		Yes*	
Temporary Restoration details - Pause Interval/Recommence Interval - other details	2.2.1(f)(vi)	Yes*		Yes*	
Additional operational information	2.2.1(f)(vii) (A)-(D)	Yes		Yes*	
Assessment of Power System Security and Power System Reliability	2.2.1(f)(vii) (E)	Yes			
Limit Advice information	2.2.1(f)(viii)	Yes		Yes	
Impacted Facilities	2.2.1(f)(ix)	Yes*		Yes*	
Information on Related Outages	2.2.1(g)	Yes*	Yes*	Yes*	Yes*
Contact details	2.2.1(h)	Yes	Yes	Yes	Yes
Additional contact details	2.2.1(i)	Yes*	Yes*	Yes*	Yes*
Contingency Plan	2.2.1(j)	Yes	Yes	Yes	Yes
Availability Declaration	2.2.1(k)	Yes	Yes	Yes	Yes

## Appendix C. Examples of Determining Impact Significance for the purposes of Outage Coordination

Appendix C contains examples of determining whether an Outage significantly impacts a Facility for the purposes of supporting Outage Coordination under paragraph 4.2.2.

The examples below show where a Network Outage would be considered significant (example 1), and not significant (example 2).

### Example 1 – two Facilities behind a Network Constraint

- Facility1 = 100MW
- Facility2 = 200MW
- Demand = 2000MW

The Facilities are covered by the following *System Normal Constraint Equation*:

$$0.9 \times \text{Facility1} + 0.8 \times \text{Facility2} \leq 0.01 \times \text{Demand} + 200$$

For Facility1:

- with Facility2 at max output, Facility1 must do less than 66.7MW
- 33.3MW of potential “normal” Constraint

For Facility2:

- with Facility1 at max output, Facility2 must do less than 162.5MW
- 37.5MW of potential “normal” Constraint

The Impacting Outage has the following *Network Outage Constraint Equation*:

$$0.85 \times \text{Facility1} + 0.9 \times \text{Facility2} \leq 0.01 \times \text{Demand} + 120$$

For Facility1:

- with Facility2 at max output, Facility1 must be fully constrained to 0MW
- 100MW of potential “Outage” Constraint (66.7MW more than “normal” levels)

- *note that in this case Facility2 also must be further reduced to less than 133.3MW to satisfy the Constraint*

For Facility2:

- with Facility1 at max output, Facility2 must do less than 61.1MW
- 138.9MW of potential “Outage” Constraint (101.4MW more than “normal” levels)

#### Outcomes:

For Facility1:

- overall level of Outage Constraint = 100MW (100% of un-constrained capacity)
- additional level of potential Constraint = 66.7MW (200% increase from “normal” levels)
- **Facility1 would therefore be considered Impacted**

For Facility2:

- overall level of Outage Constraint = 61.1MW (69.4% of un-constrained capacity)
- additional level of potential Constraint for Facility2 = 101.4MW (270% increase from normal levels)
- **Facility2 would therefore be considered Impacted**

#### **Example 2 – two Facilities behind a network Constraint, high level of System Normal Constraint**

- Facility1 = 100MW
- Facility2 = 200MW
- Demand = 2000MW

The Facilities are covered by the following *System Normal Constraint Equation*:

$$0.9 \times \text{Facility1} + 0.8 \times \text{Facility2} \leq 0.01 \times \text{Demand} + 150$$

For Facility1:

- with Facility2 at max output, Facility1 must do less than 11.1MW
- 88.9MW of potential “normal” Constraint

For Facility2:

- with Facility1 at max output, Facility2 must do less than 100MW
- 100MW of potential “normal” Constraint

The Impacting Outage has the following *Network Outage Constraint Equation*:

$$0.85 \times \text{Facility1} + 0.9 \times \text{Facility2} \leq 0.01 \times \text{Demand} + 120$$

For Facility1:

- with Facility2 at max output, Facility1 must be fully constrained to 0MW
- 100MW of potential “Outage” Constraint (11.1MW more than “normal” levels)
- note that in this case Facility2 also must be further reduced to less than 133.3MW to satisfy the Constraint

For Facility2:

- with Facility1 at max output, Facility2 must do less than 61.1MW
- 138.9MW of potential “Outage” Constraint (38.9MW more than “normal” levels)

#### Outcomes:

For Facility1:

- overall level of Outage Constraint = 100MW (100% of un-constrained capacity)
- additional level of potential Constraint = 11.1MW (13% increase from “normal” levels)
- in this case, **Facility1 would, therefore, not be considered Impacted**

For Facility2:

- overall level of Outage Constraint = 61.1MW (69.4% of un-constrained capacity)
- additional level of potential Constraint for Facility2 = 38.9MW (39% increase from normal levels)
- in this case, **Facility2 would therefore not be considered Impacted**

## Appendix D. Outage scheduling process

### E[EE] Outage Facilities and the Equipment List

In order to specify what equipment needs to be subject to Outage processing (i.e. what is an Outage Facility), AEMO will publish two lists (Equipment List (specifying Equipment List Facilities: see clause 3.18A.3) and Self-Scheduling Outage Facility List (specifying Self-Scheduling Outage Facilities: see clause 3.18A.8)) on the WEM Website. The Equipment List contains the equipment for which approval is required to be obtained from AEMO before going on Outage (Equipment List Facilities) and the Self-Scheduling Outage Facility List contains equipment for which the Market Participant or Network Operator is required to notify AEMO prior to going on outage (Self-Scheduling Outage Facilities).

AEMO may include additional items on either list where required to support the maintenance of Power System Security and Power System Reliability.

Typically, equipment is specified on the Equipment List where an Outage of the equipment:

- has the potential to result in a shortage of a service (energy or ESS);
- has the potential to result in a limitation on the SWIS;
- may require coordination across multiple Rule Participants;
- impacts the obligations of a Facility that has been certified for Reserve Capacity;
- where the Facility is the subject of a service contract (e.g. System Restart Services or NCESS); or
- in the case of Network equipment, has the potential to impact Market Participants (e.g. via Constraints)

Typically, equipment is specified on the Self-Scheduling Outage Facility List where an Outage of the equipment:

- may impact operational activities or coordination (e.g. SCADA/communications); or
- has the potential to impact the assessment of other Outages (e.g. large load Outages).

Both the Equipment List and the Self-Scheduling Outage Facility List may be prescriptive or descriptive in the way that the equipment is described. For example, a specific Facility may be included by registered name (prescriptive) or a group of Network equipment may be specified collectively (descriptive), e.g. “all 330kV equipment” and may specify specific equipment that is excluded or included e.g. “all 132kV equipment except for **ABC**”.

The lists may also specify certain timeframes or conditions for which the equipment must be scheduled, e.g. when on Outage in Spring or Summer, or when on Outage between the hours of 4:00 PM and 8:00 PM.

**For reference, the above text includes a summary of clauses 3.18A.3 and 3.18A.8.**