

# WEM PROCEDURE: CONGESTION INFORMATION RESOURCE

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DRAFT

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## 1. INTRODUCTION

### 1.1. Purpose and scope

- 1.1.1. This WEM Procedure: Congestion Information Resource (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*, 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 2.9.7, 2.9.7A or 2.9.8 of the WEM Rules, as applicable.
- 1.1.4. The purpose of this WEM Procedure is to document:
- (a) the information to be published in the Congestion Information Resource;
  - (b) the processes to be followed by AEMO in maintaining, publishing and updating the information in the Congestion Information Resource;
  - (c) the processes to be followed by AEMO in preparing the annual congestion report (refer to clause 2.27B.6 of the WEM Rules);
  - (d) the information that AEMO may reasonably require a Network Operator or other Rule Participant to provide to AEMO, including
    - (i) The format, form and manner in which any such information must be provided; and
    - (ii) The data and time by which any such information must be provided.
- 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 and interpretation

- 1.2.1. Terms defined in the *Electricity Industry Act 2004*, 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
NRS	Network Reinforcement Scheme such as a runback scheme or inter-tripping scheme.

### 1.3. Interpretation

- 1.3.1. The following principles of interpretation apply to this Procedure unless the context requires otherwise.
- (a) Clause 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 Procedure 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) Words expressed in the singular include the plural and vice versa.
- (g) A reference to a paragraph refers to a paragraph 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.

## 1.4. Related documents

1.4.1. The documents in Table 2 are referred to in this Procedure:

**Table 2 Related Documents**

Reference	Title	Location
	WEM Rules	Economic Regulation Authority (ERA) website
	Technical Rules	Economic Regulation Authority (ERA) website
TBA	WEM Procedure: Limit Advice Requirements (AEMO)	WEM Web Site
TBA	WEM Procedure: Development of Limit Advice (Western Power)	WEM Web Site
TBA	WEM Procedure: Constraint Formulations (AEMO)	WEM Web Site

## 2. CONGESTION INFORMATION RESOURCE

### 2.1. Overview

- 2.1.1. In order to implement the Congestion Information Resource Objective of providing information in a cost-effective and timely manner to Rule Participants and other interested stakeholders to enable them to understand patterns market impact of Network Congestion, AEMO must develop, maintain and publish a Congestion Information Resource on the WEM Website **[Clauses 2.27B.1 and 2.27B.2]**.
- 2.1.2. For the avoidance of doubt, WEM Website in this Procedure refers to AEMO Public Web site<sup>1</sup>, unless otherwise specified.
- 2.1.3. The Congestion Information Resource must include:
  - (a) Constraints Library, which has the meaning given in the WEM Rules;

<sup>1</sup> TBA

- (b) as soon as practicable after a Dispatch Interval, each Constraint Equation that bound during the Trading Interval, as specified in Clause 2.27B.3(b) of the WEM Rules, and in any case, as follows:
  - (i) for the most recent Dispatch Interval, within 5 minutes of the completion of the dispatch process that produced the associated Dispatch Schedule (refer to clause 7.13.1x3 of the WEM Rules);
  - (ii) for all future Dispatch Intervals in each Scenario of each Dispatch Schedule, within 5 minutes of determining the Dispatch Schedule (refer to clause 7.13.1x2 of the WEM Rules);
  - (iii) for all future Pre-Dispatch Intervals in each Scenario of each Pre-Dispatch Schedule, within 30 minutes of determining the Pre-Dispatch Schedule (refer to clause 7.13.1x2 of the WEM Rules); and
  - (iv) for all future Pre-Dispatch Intervals in each Scenario of each Week-Ahead Schedule, within 30 minutes of determining the Week-Ahead Schedule (refer to clause 7.13.1x2 of the WEM Rules);
- (c) information on any binding Intervention Constraints as follows:
  - (i) for all future Dispatch Intervals in the Dispatch Schedule, within 5 minutes of determining the Dispatch Schedule (refer to clause 7.13.1x1 of the WEM Rules);
  - (ii) for all future Pre-Dispatch Intervals in the Pre-Dispatch Schedule, within 30 minutes of determining the Pre-Dispatch Schedule (refer to clause 7.13.1x1 of the WEM Rules); and
  - (iii) for all future Pre-Dispatch Intervals in the Week-Ahead Schedule, within 30 minutes of determining the Week-Ahead Schedule (refer to clause 7.13.1x1 of the WEM Rules);
- (d) annual congestion report (refer to clauses 2.27B.3(c), 2.27B.6 and 7.2.10(b) of the WEM Rules), including links to previous annual congestion reports;
- (e) information on Constraint Equations within 10% of binding as follows:
  - (i) for the most recent Dispatch Interval, within 5 minutes of the completion of the dispatch process that produced the associated Dispatch Schedule (refer to clause 7.13.1x3 of the WEM Rules);
  - (ii) for all future Dispatch Intervals in each Scenario of each Dispatch Schedule, within 5 minutes of determining the Dispatch Schedule (refer to clause 7.13.1x2 of the WEM Rules);
  - (iii) for all future Pre-Dispatch Intervals in each Scenario of each Pre-Dispatch Schedule, within 30 minutes of determining the Pre-Dispatch Schedule (refer to clause 7.13.1x2 of the WEM Rules); and
  - (iv) for all future Pre-Dispatch Intervals in each Scenario of each Week-Ahead Schedule, within 30 minutes of determining the Week-Ahead Schedule (refer to clause 7.13.1x2 of the WEM Rules);
- (j) Limit Advice provided by Network Operators under clause 2.27A of the WEM Rules, that must be published in Constraints Library:
  - (i) Thermal Network Limit Advice;
  - (ii) Non-thermal Network Limit Advice;

- (k) Limit Advice provided by Network Operators under clause 4.1B of the WEM Rules, for the purpose of Reserve Capacity Mechanism (RCM);
- (l) Constraint Equations for the purpose of RCM, as specified in clause 4.1B of the WEM Rules.

2.1.4. The contents of Congestion Information Resource may also include or include links to the following information to enable Rule Participants and other interested stakeholders to understand patterns and market impact of Network congestion:

- (a) other outputs of the Dispatch process;
- (b) Outage information;
- (c) Identification of changes to the Constraints Library (e.g. new or updated Constraint Equations, or retirement of Constraint Equations) and an archive of historical Constraint Equations;
- (d) other relevant reports, including but not limited to reports relating to stop-gap Constraint Equations;
- (e) relevant WEM Procedures and publications which, may include:
  - (i) Confidentiality Status Publication<sup>2</sup>;
  - (ii) WEM Procedure: Limit Advice development;
  - (iii) WEM Procedure: Limit Advice Requirement; and
  - (iv) WEM Procedure: Constraint Formulation;
- (f) Network capability and status information to be provided by Network Operators, as set out in paragraph 3 of this Procedure.
- (g) education material, such as references to training resources.

2.1.5. In order to enable interested stakeholders to understand the contents of the Congestion Information Resource, AEMO may provide explanatory notes for any parts of the contents of the Congestion Information Resource that it deems is required. This may include:

- (a) what AEMO uses the information for;
- (b) how the information is prepared;
- (c) how often the information is updated;
- (d) any required disclaimers<sup>3</sup>; and
- (e) any required privacy and legal notices.

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<sup>2</sup> AEMO's published [Information Confidentiality Status](#).

<sup>3</sup> Examples of disclaimers include but not limited to use of the published information

2.1.6. Where information is provided by Network Operators for the purpose of the Congestion Information Resource, AEMO must publish the information in accordance with Table 3 of this Procedure.

## **2.2. Publishing, maintaining and updating Congestion Information Resource**

2.2.1. AEMO must keep up to date information in the Congestion Information Resource in accordance with Table 3.

2.2.2. Where information is prepared by AEMO for the content of the Congestion Information Resource, AEMO must publish the following as soon as it forms the view that there have been material changes to any of the content currently published on the WEM Website:

- (a) The proposed date and time when the up-to-date information relevant to the material changes will be published;
- (b) possible impacts to any parts of the contents of the Congestion Information Resource due to such material changes; and
- (c) any relevant disclaimers<sup>4</sup> on the WEM Website.

2.2.3. Where information is provided by a Network Operator for AEMO to prepare the content of Congestion Information Resource, relevant Network Operator and AEMO must follow the process specified in paragraph 3 of this Procedure.

2.2.4. AEMO must provide notifications to Rules Participants when updates to the contents of Congestion Information Resource are available<sup>5</sup>.

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<sup>4</sup> Relevant disclaimers such as those related to the use of the published information.

<sup>5</sup> Note that technology implementation of Congestion Information Resource is underway as of November 2020. Details will be further provided in March 2021.



**Table 3 Publishing, maintaining and updating contents of Congestion Information Resource**

Type of Information	Timeline to Update	Comments
Constraints Library	Refer to relevant contents within the Constraints Library	Constraints Library has the meaning given in the WEM Rules
Updates/changes to contents within Constraints Library	As soon as practically possible after changes are available, where historical changes are also available	Highlighting deltas to the Constraint Library
Binding Constraint Equations	Within 5 minutes or 30 minutes of completion of the Dispatch Schedule	Refer to clauses 7.13.1x1, 7.13.1x2 and 7.13.1x3 of the WEM Rules
Constraint Equations within 10% of binding	Within 5 minutes or 30 minutes of completion of the Dispatch Schedule	Refer to clauses 7.13.1x1, 7.13.1x2 and 7.13.1x3 of the WEM Rules
Outage schedule	Every half hour starting at midnight	References to Outage related data to be provided
Annual congestion report	31 <sup>st</sup> March each year	Refer to paragraph 4 of this Procedure
Reports related to stop-gap constraint equations	As required	Refer to WEM Procedure: Constraint Formulation
Thermal Network Limit Advice	Weekly updates	Refer to WEM Procedure: Limit Advice Requirements
Non-thermal Network Limit Advice	Weekly updates after finalisation	Refer to WEM Procedure: Limit Advice Requirements
Limit Advice for the purpose of the RCM	Last Business Day falling on or before 20 May annually	Refer to clause 4.1B.5 of the WEM Rules
Preliminary RCM Constraint Equations	Last Business Day falling on or before 20 May annually	Refer to clause 4.1B.5 of the WEM Rules
RCM Constraint Equations used in the Network Quantity Access models	Last Business Day falling on or before 30 September	Refer to clause 4.1.16A of the WEM Rules
Transmission Network map	As determined by relevant Network Operator	References (e.g. hyperlink) to relevant Network Operator's website
Network Operator annual planning report	As determined by relevant Network Operator	References (e.g. hyperlink) to relevant Network Operator's website

### **3. INFORMATION TO BE PROVIDED BY NETWORK OPERATORS**

#### **3.1. Scope**

3.1.1. For the avoidance of doubt, this paragraph 3 of this Procedure applies to information to be provided by Network Operators for the purpose of the Congestion Information Resource.

#### **3.2. Limit Advice**

3.2.1. Network Operators must provide all Limit Advice to AEMO in accordance with the format, form and manner, as well as by the date and time specified in the WEM Procedure: Limit Advice Requirements.

3.2.2. AEMO must publish the Limit Advice in accordance with Table 3 in paragraph 2 of this Procedure.

#### **3.3. Other Network capability and status information**

3.3.1. AEMO may provide references on to the information available on a Network Operator's Website, on the WEM Website, for ease of access to Network information:

- (a) Transmission Network map; and
- (b) Network Operator annual planning report.

3.3.2. Where references to information available on a Network Operator's website are made on the WEM Website, AEMO is not responsible for the completeness, currency and accuracy of the information located on the Network Operator's website.

### **4. ANNUAL CONGESTION REPORT**

4.1.1. AEMO must prepare and publish an annual congestion report by 31<sup>st</sup> March each year in accordance with clause 2.27B.6 of the WEM Rules.

4.1.2. The annual congestion report must include the information set out in clauses 2.27B.6(a) and 2.27B.6(b) of the WEM Rules as follows:

- (a) information on Network congestion for at least the period of 12 months commencing 1<sup>st</sup> October (at the start of the Trading Day) and, ending on 1<sup>st</sup> October (at the end of the Trading Day) of the following calendar year immediately preceding the due date of the annual congestion report;
- (b) analysis of the Constraint Equations that bound during a Dispatch Interval including duration and frequency for at least the period specified in paragraph 4.1.2(a) of this Procedure, which includes but not limited to:
  - (i) the Constraint Equations that bound most frequently and insights (such as parts of the SWIS where, and power system conditions when, the binding Constraint Equations bound) ;
  - (ii) comparisons to previous years and trends where data is available;
- (c) assessment of market impact of Network congestion for at least the period specified in paragraph 4.1.2(a) of this Procedure, which includes but not limited to
  - (i) comparisons to previous years and trends where data is available;

- (d) other Network changes that resulted in Network congestion during the period specified in paragraph 4.1.2 (a) of this Procedure, including significant new Network connections to the SWIS, major augmentations<sup>6</sup> to the SWIS; decommissioning of a Generating System, Load or major Network infrastructure; and changes to the configuration of Network elements (refer to Table 4 for examples of changes to Network elements);
  - (e) expected major Network augmentations that are likely to affect or could result in Network congestion in the next 5 years or any other period as agreed with AEMO, that are known to AEMO at the time of preparing the annual congestion report;
  - (f) Changes in load profile, including where this is impacted by embedded generation, that significantly impacted Network congestion.
- 4.1.3. The contents of annual congestion report may also include the following information in order to implement the Congestion Information Resource Objective:
- (a) Constraint Equation changes and insights (such as inclusions and retirements of Constraint Equations and, reasons for the changes);
  - (b) major transmission Outages or augmentations during the period specified in paragraph 4.1.2 (a) of this Procedure, including trends and insights (such as Outage duration, types of Outages, time of submission of the Outages versus the start time of the Outages, and impact on Constraint Equations or congestion of these Outages);
  - (c) major Network Outages or augmentations in the next 5 years or any other period as agreed with AEMO (such as Outage duration, types of Outages, time of submission of the Outages versus the start time of the Outages, and impact on Constraint Equations or congestion of these Outages )<sup>7</sup>;
- 4.1.4. In preparing the annual congestion report, AEMO must:
- (a) not publish anything that does not have class confidentiality status of Public assigned under clause 10.5.1, 10.5.2 or 10.5.3 of the WEM Rules;
  - (b) update the content of annual congestion report as required according to Table 3 of this Procedure.
- 4.1.5. In preparing the annual congestion report, Network Operators must confirm and, provide to AEMO, if not already provided, the information required by Table 4, relevant to the period specified in paragraph 4.1.2 of this Procedure, by the 30<sup>th</sup> of November of the calendar year immediately preceding the due date of the annual congestion report.
- 4.1.6. In providing the information specified in paragraph 4.1.5 of this procedure, Network Operators may provide indicative timeframes based on information known at the time of preparing the information, and may provide information based on the relative certainty of the changes proceeding.

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<sup>6</sup> Augmentation has the meaning given in Technical Rules

<sup>7</sup> In this assessment AEMO will consider information already available from Network Operators through Outage submissions or the Outage Intention Plan

4.1.7. In addition to paragraph 4.1.5 of this Procedure, AEMO may request and Network Operators must also provide AEMO with any other information that AEMO, in its reasonable opinion, considers relevant to implement the Congestion Information Resource Objective, as specified in AEMO's request.

**Table 4 Information to be provided by Network Operators to AEMO**

Information <sup>8</sup>	Detail
New connection to SWIS – Generating System	<ol style="list-style-type: none"> <li>I. Location;</li> <li>II. General network connection arrangements;</li> <li>III. General details of the Generating System;</li> <li>IV. Generating System commissioning status;</li> <li>V. Forecast in-service date.</li> </ol>
New connection to SWIS – Load	<ol style="list-style-type: none"> <li>I. Location;</li> <li>II. General network connection arrangements;</li> <li>III. Maximum size of the load;</li> <li>IV. Load uptake status<sup>9</sup>;</li> <li>V. Forecast in-service date.</li> </ol>
Augmentation to SWIS, including any NRS	<ol style="list-style-type: none"> <li>I. Background;</li> <li>II. Augmentation in-service date;</li> <li>III. Details of impact on the network<sup>10</sup>;</li> </ol>
Decommissioning of a Generating System, Load, or any Network elements	<ol style="list-style-type: none"> <li>I. Location;</li> <li>II. Details of Generating System/load being decommissioned;</li> <li>III. Date/time of decommissioning.</li> </ol>
Changes to network elements or operation including: <ul style="list-style-type: none"> <li>• primary equipment (e.g. new substation/line)</li> <li>• secondary equipment (e.g. new special protection scheme)</li> <li>• operating arrangements (e.g. new/modified open points)</li> <li>• contractual arrangements (e.g. new Network Control Service)</li> </ul>	<ol style="list-style-type: none"> <li>I. Background and general details;</li> <li>II. Change effective date;</li> <li>III. Details of impact on the Network.</li> </ol>

<sup>8</sup> Information relevant to material changes that have resulted in, are likely to result in or could result in Network congestion.

<sup>9</sup> Load uptake status in relation to how the load will increase over time, e.g. load increase over a number of stages.

<sup>10</sup> Impact on the Network includes but is not limited to details of Outages and changes to power system operation.

## APPENDIX A. RELEVANT CLAUSES OF THE WEM RULES

Table 5 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 5 Relevant clauses of the WEM Rules**

Clause
1.33.1
10.5.1
10.5.2
10.5.3
2.27A
2.27B.1
2.27B.2
2.27B.3(a)
2.27B.3(b)
2.27B.3(c)
2.27B.6
2.27B.6(a)
2.27B.6(b)
2.27B.8
4.1.16A
4.1B
4.1B.5
7.13.1x2
7.13.1x3
7.2.10(b)