

WEM Procedure: Real-Time Market Suspension

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IMPORTANT NOTICE – EXPLANATORY NOTES

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1. Introduction

1.1. Purpose and scope

- 1.1.1. This WEM Procedure: Real-Time Market Suspension (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 2.9.7A, 2.9.7D or 2.9.8 of the WEM Rules, as applicable.
- 1.1.4. The purpose of this Procedure is to outline:
 - (a) the process by which AEMO will determine to suspend the Real-Time Market **[clause 7.11D.4(a)]**;
 - (b) any reasons under clause 7.11D.1(c)(iii) that AEMO may suspend the Real-Time Market **[clause 7.11D.4(b)]**;
 - (c) the processes which Market Participants may be required to follow during the suspension **[clause 7.11D.4(c)]**;
 - (d) the processes AEMO will follow during the suspension and the process to lift the suspension **[clause 7.11D.4(d)]**; and
 - (e) any actions required of AEMO or Market Participants to resume the Real-Time Market **[clause 7.11D.4(e)]**.
- 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*, 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
<u>Manual Dispatch Period</u>	<u>The period during which AEMO will use the Manual Dispatch Schedule to issue directions to Market Participants.</u>
Manual Dispatch Schedule	AEMO’s forecast of how it will use each available Facility to provide energy and Essential System Services in the Manual Dispatch Period, where this forecast may be revised by AEMO over the course of the Manual Dispatch Period as required to maintain Power System Security and Power System Reliability.
WEMDE	Wholesale Electricity Market Dispatch Engine

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 a clause refers to a clause or section of the WEM Rules.
 - (h) 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.
 - (i) Text located in boxes and headed as Explanatory Note 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.
 - (j) 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	Communications and Control Systems	WEM Website

2. Real-Time Market Suspension

2.1. Reasons for Real-Time Market suspension

- 2.1.1. The circumstances in which AEMO may suspend the Real-Time Market are set out in clause 7.11D.1 and in paragraph 2.1.2 of this Procedure.
- 2.1.2. For the purposes of clause 7.11D.1(c)(iii), AEMO may suspend the Real-Time Market if it determines that actions undertaken to maintain Power System Security and Power System Reliability are significantly impacting market settlement in accordance with the WEM Rules due to:
- (a) the perceived or actual threat or occurrence of a cyber attack;
 - (b) circumstances in which AEMO is unable to receive Real-Time Market Submissions from one or more a Market Participants; or
 - (c) any other circumstance in which AEMO's reasonably considers its ability to operate the Real-Time Market is significantly impacted.

2.2. AEMO's process for determining to suspend

- 2.2.1. If there is a system shutdown event, or a major supply disruption, AEMO may suspend the Real-Time Market under clause 7.11D.1(a).
- 2.2.2. If AEMO receives a request from the Minister, AEMO will suspend the Real-Time Market under clause 7.11D.1(b) in accordance with the Minister's request.
- 2.2.3. AEMO may suspend the Real-Time Market under clause 7.11D.1(c) when AEMO determines, in its reasonable opinion, that actions undertaken to maintain Power System Security and Power System Reliability are significantly impacting market settlement from being undertaken in accordance with the provisions of the WEM Rules, due to a matter specified in clause 7.11D.1(c) or paragraph 2.1.2.
- 2.2.4. Within 2 hours of identifying a circumstance set out in clause 7.11D.1 or in paragraph 2.1.2 of this Procedure ~~an event~~ that may require suspension of the Real-Time Market, if the root cause cannot be determined or AEMO does not consider the issue can be resolved within a reasonable timeframe, AEMO will suspend the Real-Time Market. AEMO has provided further details of AEMO's process in Figure 1.

E[A] Defined suspension deadline

AEMO's suspension process includes utilises a 2-hour deadline to identify a root cause and estimated time to resolution, irrespective of the specific scenario or cause of significant impact to market settlement. Under this approach, if no root cause is identified, the default position is to suspend the Real-Time Market.

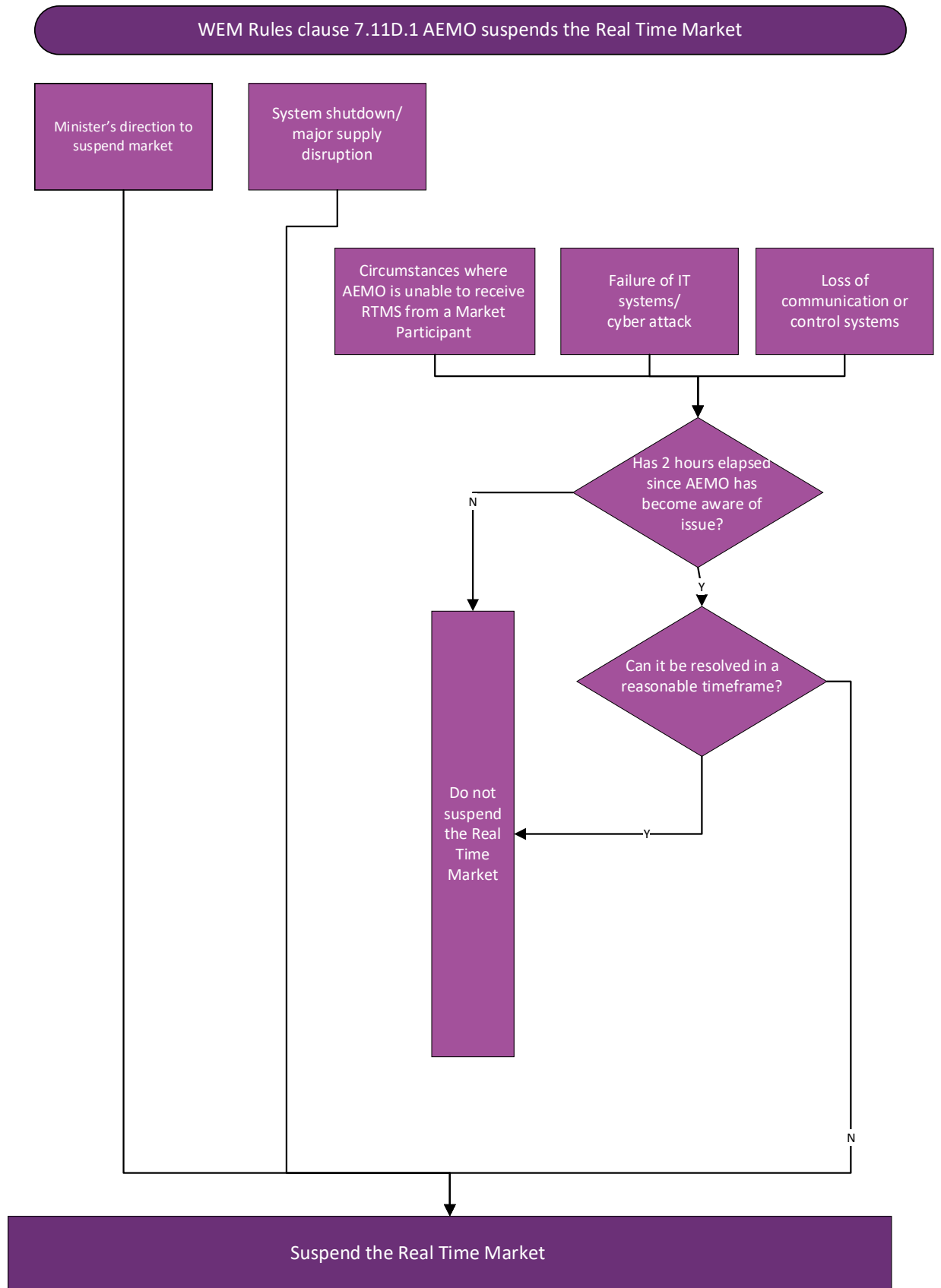
The process allows flexibility and real-time assessment of specific circumstances to avoid premature or unnecessary suspension. For example, consider the following hypothetical sequence of events under this process:

- T0 - 10 minutes: a major market system failure prevents all Market Participants from updating Real-Time Market Submissions.
- T0: AEMO real time operations identifies the nature of the failure and initiates internal escalation. Although first responders may not initially recognise the scale of incident, the 2-hour timer starts at T0 (i.e. may be retrospectively identified at the specific time of escalation).
- T0 + 15 minutes: by this time AEMO will have issued a first Market Advisory. IT first responders are unable to resolve the issue or identify a root cause. Recognising the impending 2-hour suspension deadline, IT support response immediately and independently escalates a priority 1 event and mobilises emergency support. AEMO control room begins preparation for the Manual Dispatch Schedule.
- T0 + 1 hour: IT support response identifies and isolates the system fault but estimates up to four hours before normal service can be restored.
- T0 + 1 hour 30 minutes: the AEMO emergency duty manager, with advice from the AEMO control room that forecast power system conditions are manageable for the next 4 hours, opts **not** to suspend under paragraph 2.2.4 and grant IT response to focus on resolution through the estimated period. AEMO issues an updated Market Advisory of these conditions and the decision.

The intent of this approach is to facilitate clear decision making under emergency scenarios where communications may be disrupted, and responders may face significant uncertainty under time pressure. AEMO's experience in managing emergency circumstances is that:

- Without a default deadline, response times are significantly degraded and miss-focused through uncertainty and hesitation over unnecessary escalation.
- A 2-hour baseline is a reasonable balance between avoiding false-positives, general stability of power system operations under a range of conditions if dispatch processes are disruption, and allowing escalation processes to unfold appropriately.

Figure 1 Suspending the Real-Time Market



3. AEMO's processes during Real-Time Market Suspension

3.1. Declaration of Real-Time Market Suspension

3.1.1. If AEMO determines to suspend the Real-Time Market under clause 7.11D.1, AEMO will issue a Market Advisory in accordance with clause 7.11D.2(a).

3.2. Dispatch during Real-Time Market Suspension

3.2.1. AEMO will use WEMDE and automated Dispatch Instructions if they are available and it is practical to use them (e.g.i.e. if the Real-Time Market is suspended upon request from the Minister for reasons unrelated to WEMDE, a major supply disruption, or when recovering from a system shutdown event).

3.2.2. If, in AEMO's reasonable opinion, WEMDE and automated Dispatch Instructions are unavailable or it is impractical to use them, AEMO will determine a Manual Dispatch Schedule for use over the Manual Dispatch Period (e.g.i.e. if there is a failure of the dispatch process, a failure of WEMDE, or loss of communications or control systems).

3.2.3. AEMO may also deviate from Real-Time Market Submissions for the initial Manual Dispatch Schedule if required to maintain stable operations.

3.2.4. AEMO may determine a Manual Dispatch Schedule using Real-Time Market Submissions and market service requirement forecasts.

3.2.5. AEMO may make periodic updates to the Manual Dispatch Schedule based on Real-Time Market Submissions.

3.2.6. AEMO may also deviate from Real-Time Market Submissions when updating the Manual Dispatch Schedule if required to maintain stable operations.

3.2.7. AEMO will issue a Market Advisory when the initial or updated Manual Dispatch Schedule is published on the WEM Website. AEMO will use the Manual Dispatch Schedule to issue directions.

3.2.8. If there is a significant deviation from a Market Participant's Real-Time Market Submissions in the Manual Dispatch Schedule, AEMO will communicate this to the relevant Market Participant directly, either verbally or electronically.

3.2.9. AEMO will endeavour to provide forecast dispatch information to a Market Participant during a Real-Time Market suspension to allow them to make Real-Time Market Submissions.

3.3. Pricing during Real-Time Market Suspension

3.3.1. If AEMO suspends the Real-Time Market under cause 7.11D.1, AEMO must determine Market Clearing Prices in accordance with section 7.11E.

4. Market Participant obligations during Real-Time Market Suspension

- 4.1.1. If AEMO has suspended the Real-Time Market under clause 7.11D.1, a Market Participant must comply with any directions given by AEMO in accordance with clauses 2.44.4 and 7.11D.2A.
- 4.1.2. In the event of Real-Time Market suspension where WEMDE and automated Dispatch Instructions are not available, each Market Participant must:
- (a) remain at the most recently issued Dispatch Instruction or direction, until a new Dispatch Instruction is issued or they are otherwise directed by AEMO;
 - (b) undertake validation ahead of time to ensure a Facility will maintain its current set point, if not receiving Dispatch Instructions;
 - (c) continue to make and keep accurate Real-Time Market Submissions, to ensure valid data is available to the WEMDE for when it is able to resume operation;
 - (d) submit information to AEMO using the processes prescribed by AEMO in a Market Advisory, if the Market Participant is unable to provide a Real-Time Market Submission;
 - (e) actively review Market Advisories to ensure key information is received; and
 - (f) follow all directions from AEMO, including any Outage Recall Directions or a direction to operate in a particular mode or configuration.
- 4.1.3. If a Market Participant identifies that forecast dispatch quantities are not achievable and AEMO has not already directed otherwise, the Market Participant must notify AEMO and provide details of available quantities and continue to maintain accurate Real-Time Market Submissions.

5. Resuming the Real-Time Market

5.1. Actions required of AEMO

- 5.1.1. If AEMO determines it is practicable to resume the operation of the Real-Time Market, AEMO must issue a Market Advisory and resume the use of the Dispatch Algorithm (where applicable) in accordance with clause 7.11D.3.
- 5.1.2. AEMO will only determine it is practicable to resume the Real-Time Market if the following conditions are satisfied:
- (a) none of the conditions under clause 7.11D.1 are applicable;
 - (b) AEMO's IT systems are stable and online;
 - (c) the Dispatch Algorithm in the Central Dispatch Process is operational and can be resumed; and
 - (d) AEMO considers that there is minimal possibility of issues that may lead to a subsequent suspension of the Real-Time Market within the next 24 hours.
- 5.1.3. AEMO may engage directly with a Market Participant to ensure Facilities are ready to receive automated Dispatch Instructions.
- 5.1.4. If AEMO has suspended the Real-Time Market under clause 7.11D.1(b), and has received a request from the Minister to lift the suspension, AEMO will use best endeavours to resume the Real-Time Market:
- (a) at the time specified in the Minister's request; or
 - (b) as soon as reasonably practicable if there is no time specified in the Minister's request.
- 5.1.5. AEMO will set the RTM Suspension Flag in accordance with clause 7.11D.6.

5.2. Actions required of Market Participants

- 5.2.1. On resumption of the Real-Time Market, a Market Participant must:
- (a) provide valid data to update their intentions in the Real-Time Market Submissions; and
 - (b) comply with any directions from AEMO.

Appendix A. Relevant clauses of the WEM Rules

Table 3 details: the head of power clauses in the WEM Rules under which the Procedure has been developed; and 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 3 Relevant clauses of the WEM Rules

Clause
7.11D.1.
7.11D.3.(a)i.
7.11D.4.(a)
7.11D.4.(b)
7.11D.4.(c)
7.11D.4.(d)
7.11D.4.(e)