

# AEMO Procedure Change Working Group (APCWG)

8 November 2023

This meeting is being recorded for note taking purposes



We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

**We pay respect to Elders past and present.**

# Agenda

1. Welcome
2. Discussion Item: *WEM Procedure: Dispatch Algorithm Formulation Updates*
3. Next Steps and Other Business

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# Discussion Item

WEM Procedure: Dispatch Algorithm Formulation

Chris Wilson

# Background

- Under WEM Rule 7.2.3:

7.2.3. Where AEMO reasonably determines that an urgent change to the Dispatch Algorithm is required to maintain Power System Security and Power System Reliability in accordance with Chapter 3, AEMO may implement the change. Where AEMO makes a change to the Dispatch Algorithm in accordance with this clause 7.2.3, AEMO must:

- (a) publish the change on the WEM Website, and the reasons the change was required in order for AEMO to maintain Power System Security and Power System Reliability in accordance with Chapter 3; and
- (b) if the Power System Security and Power System Reliability issue that is being addressed by the change is not temporary, AEMO must as soon as practicable, submit a Procedure Change Proposal for revisions to the WEM Procedure referred to in clause 7.2.5.

# Formulation and Implementation Changes

- AEMO has determined that several changes are required to the WEMDE implementation and Dispatch Algorithm Formulation:
  - Issue 1: Allowances on ESS Trapezia
  - Issue 2: Removal of lower bound on Contingency variables
  - Issue 3: Addition of CVQ to Constraint 2.4.17
- Additionally, AEMO has made some minor clarifications to other areas of the formulation, which will be indicated as part of its publication

# Consultation

- These changes were implemented on 12 October 2023 to address system issues and improve market outcomes.
- AEMO has published this [Procedure Change Proposal](#) in accordance with the Procedure Change Process.
- AEMO indicative timeline for the consultation is outlined below. Dates may be adjusted depending on the number and complexity of issues raised in submissions and any meetings with stakeholders.

Process Stage	Indicative Date
Publication of Procedure Change Proposal	26 October 2023
Closing date for submissions on Procedure Change Proposal	23 November 2023
Publication of Procedure Change Report	12 December 2023
Proposed commencement of amended WEM Procedure version 2.0	12 December 2023

# Issue 1: Allowances on ESS Trapezia

- Because of mandatory droop response, AEMO has observed multiple Facilities were becoming unavailable for ESS when they dipped below their Enablement Minimum.
  - In some cases, this meant the inadvertent decommitment of the Facility in question.
- To account for both errors in SCADA measurement, and potential drift due to droop response, AEMO has modified the ESS Pre-Processing calculations in paragraph 2.5 of the Dispatch Algorithm Formulation



# Issue 1: Allowances on ESS Trapezia

2.5.3. For the purpose of paragraph 2.5.4:

*IF EnablementMin<sub>f,m</sub> ≥ 0*

$$EnablementMinPreProcessing_{f,m} = EnablementMin_{f,m} - MAX(0.06 * EnablementMin_{f,m}, 3)$$

*ELSE*

$$EnablementMinPreProcessing_{f,m} = EnablementMin_{f,m} + MIN(0.06 * EnablementMin_{f,m}, -3)$$

and,

*IF EnablementMax<sub>f,m</sub> ≥ 0*

$$EnablementMaxPreProcessing_{f,m} = EnablementMax_{f,m} + MAX(0.06 * EnablementMax_{f,m}, 3)$$

*ELSE*

$$EnablementMaxPreProcessing_{f,m} = EnablementMax_{f,m} - MIN(0.06 * EnablementMax_{f,m}, -3)$$

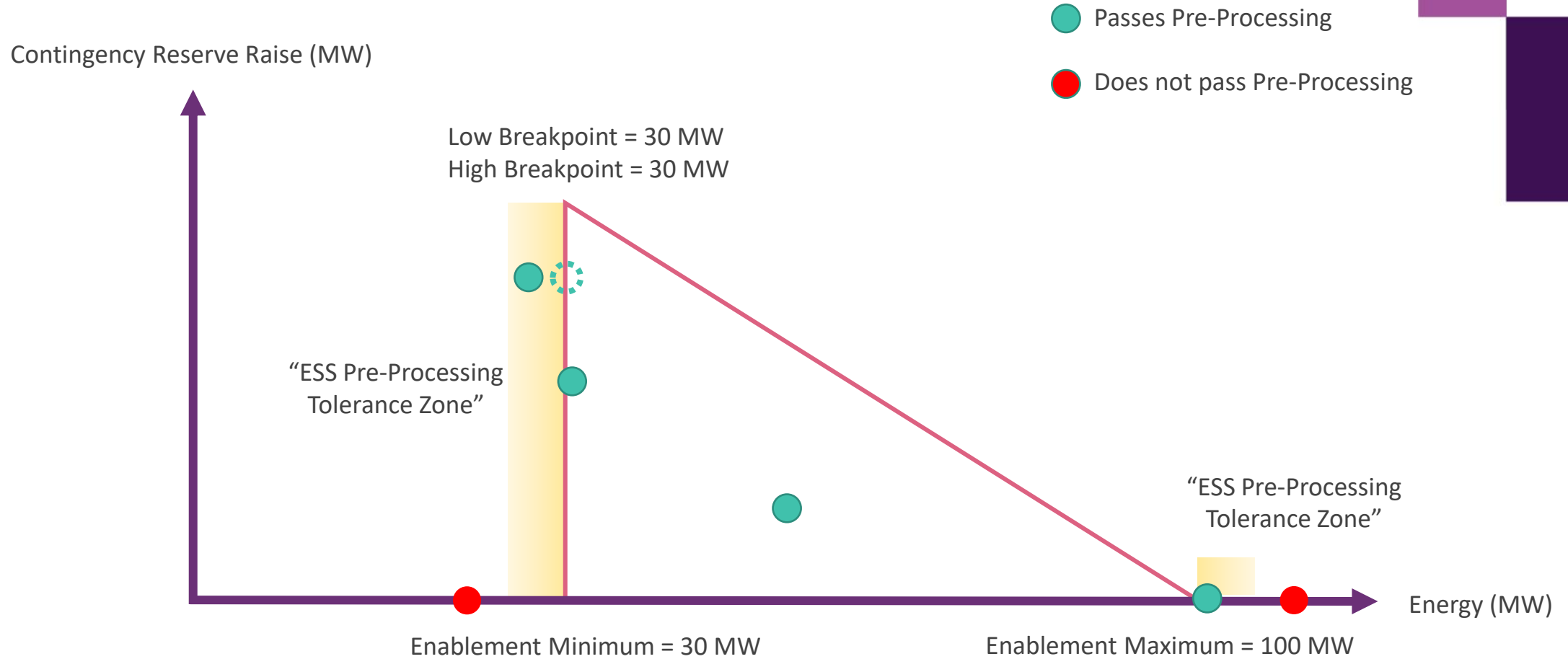
*for f in F, for m in M where m ≠ energy*

2.5.4. ESS Flag Condition 1:

$$EnablementMinPreProcessing_{f,m} \leq EnergyInitialMW_f \leq EnablementMaxPreProcessing_{f,m}$$

*for f in F, for m in M where m ≠ energy*

# Issue 1: Allowances on ESS Trapezia



# Issue 2: Removal of Lower Bound on Contingency Variable

- Certain Network Contingencies can become negative when large loads occur (e.g. the Contingency is non-existent). To avoid violations, we are removing the lower bound on the Contingency variable.
- The Largest Contingency variable retains a  $\geq 0$  bound, meaning no impact on actual dispatch or settlements.

2.3.5. **Contingency:** A variable representing each Credible Contingency Event for Injection in megawatts.

*Contingency<sub>c</sub> for c in C*

where Contingency<sub>c</sub>  $\in \mathbb{R}, \geq 0$

# Issue 3: Addition of CVQ to Constraint 2.4.17

## 2.4.17. Essential System Service Enablement Constraint:

*IF*  $ESSFlag_{f,m} = True$

*SKIP CONSTRAINT*

*ELSE*

$TrancheSum_{f,m} - ESSEnablementSurplus = 0$

*for*  $f$  in  $F$ , *for*  $m$  in  $M$  where  $m \neq energy$

- The addition of *ESSEnablementSurplus* to this constraint allows AEMO to force MW (or MWs) onto Facilities that would otherwise fail ESS Pre-Processing.
- Would typically only be used as a last resort. Other constraints and directions to offer would be the preferred method.

# Feedback Process



- AEMO invites stakeholders to suggest alternative options for drafting, where they consider these would improve the proposed Procedure or better meet the Wholesale Market Objectives in section 122(2) of the *Electricity Industry Act 2004* (and clause 1.2.1 of the WEM Rules).
- Should any stakeholder want to discuss the impact of the proposed changes with AEMO, please contact [wa.rtm@aemo.com.au](mailto:wa.rtm@aemo.com.au)
- Stakeholders are invited to submit written responses on the proposed amended Procedure to [wa.marketdevelopment@aemo.com.au](mailto:wa.marketdevelopment@aemo.com.au), by 5:00 PM (Australian Western Standard Time) on 23 November 2023 in accordance with the call for submissions published with this Procedure Change Proposal.

# Questions?

- Any feedback or further questions can be sent to [wa.rtm@aemo.com.au](mailto:wa.rtm@aemo.com.au)



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