

AEMO Procedure Change Working Group (APCWG)

06 March 2024

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: Supplementary Capacity*
3. Discussion Item: *WEM Procedure: Facility Dispatch Process*
4. Discussion Item: *WEM Procedure: Dispatch Algorithm Formulation*
5. Discussion Item: *WEM Procedure: Market Schedules*
6. Next Steps and Other Business

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Discussion Item

WEM Procedure: Supplementary Capacity

James McIntosh

Contents

- Background
- Summary of updates and proposed changes to Procedure
- Consultation Timelines

Background

- AEMO is amending the **WEM Procedure: Supplementary Capacity** to reflect amendments the WEM Rules gazetted in July 2023.
- The changes came out of Stage 2 of the Coordinator’s SRC Review into potential improvements to processes for the activation and deployment of SRC.
- Amending Rules and updated Procedure are scheduled to commence on 1 April 2024.
- There will be another SRC review later this year, so further changes expected.

Procedure Update (1):

4.24.18. AEMO must document in a WEM Procedure:

(a) the process AEMO follows in:

(i) acquiring Eligible Services;

(ii) entering into Supplementary Capacity Contracts;

(iii) determining the Maximum Contract Value per hour of availability for any Supplementary Capacity Contract;

(iv) determining how a payment in relation to a Supplementary Capacity Contract is to be made to the party identified in clause 4.29.3(e)(ii) if that party is not a Market Participant; and

(v) determining under clause 4.24.8(d) that a provider of an Eligible Service has access to the network;

Draft Changes – 4.24.18(a)

Rule	Intent of Change	How is it addressed?
4.24.18(a)iv	Determining process for paying non-Market Participant	Payment is determined in accordance with Supplementary Capacity Contract. (paragraph 8.1.3) <i>Already captured in V5.0</i>
4.24.18(a)v	Ensuring that Potential Provider has access to Network (as required under clause 4.24.8(d))	AEMO must consider Western Power's response in determining that Potential Provider will have access. Tender assessment – <i>already captured in V5.0 (paragraph 3.2.9)</i> Direct Negotiation – new provision (paragraph 4.1.4)

Procedure Update (2):

4.24.18. AEMO must document in a WEM Procedure:

[...]

(b) requirements regarding the information and assistance AEMO may require from Western Power to support: ~~an expression of interest process or a procurement process for supplementary capacity under this section 4.24;~~

i. ~~an expression of interest process or a procurement process for supplementary capacity under this section 4.24;~~

ii. performance measurement of the Eligible Services subject to a Supplementary Capacity Contract;

Draft Changes – Measuring Performance

Rule	Intent of Change	How is it addressed?
4.24.18(b)(ii)	Determining processes for AEMO to obtain information or assistance from Western Power (WP) to measure activated services against contract terms.	<p>New Section 7 with general provisions, similar to other AEMO/WP information request provisions:</p> <ul style="list-style-type: none">• AEMO may request WP’s information and assistance• AEMO will provide relevant information to enable WP to respond to the request• Due date will be reasonable for type of info being requested.• AEMO will provide relevant information to enable WP to respond to the request• WP to provide information by specified time unless otherwise agreed by AEMO/WP.

Procedure Update (3):

4.24.18. AEMO must document in a WEM Procedure:

[...]

(c) requirements, developed in consultation with Western Power, regarding the information that must be provided by those ~~applying to provide Eligible Services~~ intending to respond to a call for expressions of interest under clause 4.24.1B or intending to provide supplementary capacity in response to a call for tender or direct negotiation under clause 4.24.2, who request assistance or an assessment from Western Power in accordance with clause 4.24.18B;

Draft Changes – Requests WP Assistance

Rule	Intent of Change / Background	How is it addressed?
4.24.18(b)(ii)	<p>Expanding the points in the process where parties can request assistance or an assessment from Western Power.</p> <p>Previously: Parties applying = Tender participants only.</p> <p>Updated: Those intending to respond to EOI or intending to provide capacity through Tender / Direct Negotiation</p> <p>= Pre-EOI -> EOI -> Tender -> Direct Negotiation.</p>	<p>Moved <i>Requests for assistance from WP</i> section out of Tender section (section 3). And moved to a new section 5.</p> <p><i>No changes to Table 3.</i> ie. expanded set of parties who can request assistance from WP will have to provide same technical information (unless otherwise agreed with WP).</p> <p>New defined term – <i>Potential Provider</i> to capture those who can request assistance from WP, which is used in section 5.</p>

Summary of other Draft Changes

Change	Rationale
Updated defined term <i>Proposed Service</i>	To align with new term <i>Potential Provider</i>
Changed 2.2. heading	EOI Assessment extends beyond consultation with WP
Paragraph 2.2.4 updated	To capture amendment to 4.24.1C(c) and incorporate feedback provided by Western Power
Changes to version history and heads of power etc.	Required changes

Consultation Timeline:

- Consultation on the WEM Procedure: Supplementary Capacity commenced on 19 February 2024.
- Consultation information is available at - https://www.aemo.com.au/consultations/current-and-closed-consultations/aepc_2024_01
- More information on the consultation is available by emailing wa.capacity@aemo.com.au

Process Stage	Date
Publication of Procedure Change Proposal	19 February 2024
APCWG forum	6 March 2024
Closing date for submissions on Procedure Change Proposal	19 March 2023
Proposed commencement of amended WEM Procedure	1 April 2024

Discussion Item

WEM Procedure: Facility Dispatch Process

Chris Wilson

Background

- This Procedure covers:
 - Issuance and response to Dispatch Instructions.
 - Includes behaviour where AEMO fails to run the Dispatch Algorithm
 - Invocation and revocation of Network Constraints
 - Conversion of sent-out targets to as-generated (where requested).

What's new?

- AEMO has determined that changes are required to the WEM Procedure: Facility Dispatch Process:
 - Change 1: Updates to Appendix B to correct error in Dispatch Cap implementation that was not properly accounting for Available Capacity in forecast intervals;
 - Change 2: Inclusion of Heads of Power clauses 7.10.21(b)-(e) to address applications for fixed ramp rates;
- Additionally, AEMO has made some minor clarifications to other areas, as highlighted in the published tracked changes version of the Procedure.

Change 1:

Appendix B. Calculation of Dispatch Caps

This appendix documents the logic implemented in AEMO's systems to calculate Dispatch Caps for Semi-Scheduled Facilities for a Dispatch Interval or Pre-Dispatch Interval.

For a Semi-Scheduled Facility, let:

DISPATCH_Q be the Dispatch Forecast value as determined by the Dispatch Algorithm.

DISPATCH_CAP_Q be the quantity of the Dispatch Cap to be set for the Semi-Scheduled Facility

RTMS_INJECTION_SUM be:

- (a) For a Primary Dispatch Interval, the sum of the quantities from all offered In-Service energy Price-Quantity Pairs for Injection; or
- (b) For a Dispatch Interval other than the Primary Dispatch Interval, or for a Pre-Dispatch Interval, the sum of the quantities from all offered In-Service energy Price-Quantity Pairs for Injection plus the quantities of any offered Available energy Price-Quantity Pairs for Injection where these are within their Start Decision Cutoff time.

RTMS_WITHDRAWAL_SUM be:

- (a) For a Primary Dispatch Interval, the sum of the quantities from all offered In-Service energy Price-Quantity Pairs for Withdrawal; or
- (b) For a Dispatch Interval other than the Primary Dispatch Interval, or for a Pre-Dispatch IntervalFor a Pre-Dispatch Interval, the sum of the quantities from all offered In-Service energy Price-Quantity Pairs for Withdrawal plus the quantities of any offered Available energy Price-Quantity Pairs for Withdrawal where these are within their Start Decision Cutoff time.

Change 2

- Inclusion of a missing reference in paragraph 1 to the head of power under clause 7.10.21.
- Changes to paragraph 2.5 of the procedure to ensure the process for applying to ramp at a fixed rate (required under clause 7.10.21) is appropriately documented.

2.5.10. If a Market Participant for a Registered Facility is granted permission to ramp at a fixed rate under clause 7.10.14 of the WEM Rules, the Market Participant must ramp the Registered Facility using the fixed rate as per the permission provided by AEMO under paragraph 2.5.5.

2.5.11. A Market Participant must immediately submitting any notification to AEMO, ~~made~~ required under clause 7.10.16, in writing via email.

2.5.12. In response to a notification under clause 7.10.16, where AEMO~~it~~ determines to do so under clause 7.10.17, it will revoke the permission granted under clause 7.10.14 at a time determined in consultation with the relevant Market Participant by issuing a written notice via email.

Consultation

- Consultation on the WEM Procedure: Facility Dispatch Process began on 22 February 2024. Submissions close on 14 March 2024.
- Consultation information is available at [AEMO’s revised WEM Procedures \(www.wa.gov.au\)](http://www.wa.gov.au).
- If you have further questions on the consultation, please contact WA.MarketDevelopment@aemo.com.au.

Process Stage	Indicative Date
Publication of consultation	22 February 2024
Closing date for submissions on Procedure Change Proposal	14 March 2024
Publication of Final Procedure	28 March 2024
Proposed commencement of amended WEM Procedure	28 March 2024

Discussion Item

WEM Procedure: Dispatch Algorithm Formulation

Chris Wilson

Background

- This Procedure covers the formulation of the Dispatch Algorithm.

What's new?

- AEMO has determined that changes are required to WEM Procedure: Dispatch Algorithm Formulation:
 - Change 1: Addition of CVQ to Constraint 2.4.17;
 - Change 2: Changes to paragraph 3.2 to allow for projection of Fast Start status into forecast intervals in the Dispatch Schedule;
 - Change 3: Change to Energy Storage Constraints to allow projection of charge level to forecast Dispatch Intervals. Also changes to better align these constraints to operational measurements available to AEMO.
- Additionally, AEMO has made some minor clarifications to other areas, are highlighted in the tracked changes published version of the Procedure.

Change 1

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 the *ESSEnablementSurplus* allows AEMO to allocate quantities of ESS to a Facility that is not otherwise enabled for a service in emergency situations.

Change 2

- Changes to paragraph 3.2, which govern algorithm logic for all Dispatch Intervals in the Dispatch Schedule except the Primary Dispatch Interval.
- Matches wording with that of paragraph 3.1 for consistency.
- Allows AEMO to project Fast Start Modes into forecast intervals to obtain a better near-term forecast of Facility dispatch.
- At present, AEMO does not use Fast Start logic in forecast Dispatch Schedules, which can lead to inaccurate schedules by not accounting for FSIP that will actually apply in that interval.
- This also requires changes to the WEMP: Market Schedules.

Change 3

- Separation of existing Energy Storage Constraint in 2.4.26 into two new constraints (2.4.26 and 2.4.44).
- This was done for several reasons:
 - Allows AEMO to prevent dispatch for lower services where insufficient headroom exists.
 - Aligns with SCADA measurements received from storage Facilities.
- Propagation of charge levels in forecast Market Schedules covered in WEMP: Market Schedules.

Change 3:

2.4.26. Pure Storage Discharge Constraint:

IF FacilityStorageConstraintFlag_f = True

$$\frac{IntervalLength}{60} \cdot TrancheSum_{f,energy} + \frac{5}{60} TrancheSum_{f,regulation_raise} + \frac{15}{60} TrancheSum_{f,contingency_raise} - StorageSurplus \leq FacilityDischargeMWh_f$$

ELSE

SKIP CONSTRAINT

for f in F

2.4.44. Pure Storage Charge Constraint:

IF FacilityStorageConstraintFlag_f = True

$$\frac{IntervalLength}{60} \cdot TrancheSum_{f,energy} - \frac{5}{60} TrancheSum_{f,regulation_lower} - \frac{15}{60} TrancheSum_{f,contingency_lower} + StorageDeficit \geq FacilityChargeMWh_f$$

ELSE

SKIP CONSTRAINT

for f in F

- Note that by convention:
 - $FacilityDischargeMWh_f \geq 0$
 - $FacilityChargeMWh_f \leq 0$

Consultation

- Consultation on the WEM Procedure: Facility Dispatch Process began on 22 February 2024. Submissions close 14 March 2024.
- Consultation information is available at [AEMO’s revised WEM Procedures \(www.wa.gov.au\)](https://www.wa.gov.au).
- If you have further questions on the consultation, please contact WA.MarketDevelopment@aemo.com.au.

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Discussion Item

WEM Procedure: Market Schedules

Chris Wilson

Background

- This Procedure covers:
 - The creation of Market Schedules.
 - Which data is used as inputs to the Dispatch Algorithm for a given Market Schedule or Scenario.

What's new?

- AEMO has determined that changes are required to WEM Procedure: Market Schedules:
 - Change 1: New paragraph 3.14 to allow for projection of Fast Start status into forecast intervals in the Dispatch Schedule;
 - Change 2: New paragraph 3.15 to allow for projection of Facility Charge Level into forecast Market Schedules
- Additionally, AEMO has made some minor clarifications to other areas, which are highlighted in the published tracked changes version of the Procedure.

Change 1:

- As covered in Change 2 in the WEMP: Dispatch Algorithm.
- The changes in this procedure add a new paragraph 3.14, which allows AEMO to assume that a Facility's Fast Start Mode follows its Fast Start Inflexibility Profile in forecast Dispatch Intervals.

Change 2

- As covered in Change 3 in the WEMP: Dispatch Algorithm.
- The changes in the WEMP: Market Schedules allow AEMO to create and publish a methodology for assuming the state of charge and discharge of a Facility opting into Energy Storage Constraints.
- Proposed equations on next slide do not form part of the Procedure, but will be published by AEMO on the WEM Website.

Change 2: Intended Equations

- $$\text{projectedChargeLevel} = \text{facilityChargeLevel} + \frac{\text{initialMW} + \text{facilityEnergySchedule}}{2} * \frac{\text{intervalLength}}{60} +$$

$$(\text{regulationRaiseEnablementQuantity} - \text{regulationLowerEnablementQuantity}) * \text{regulationStorageLevelFactor} * \frac{\text{intervalLength}}{60}$$
- $$\text{projectedDischargeLevel} = \text{facilityDischargeLevel} - \frac{\text{initialMW} + \text{facilityEnergySchedule}}{2} * \frac{\text{intervalLength}}{60} -$$

$$(\text{regulationRaiseEnablementQuantity} - \text{regulationLowerEnablementQuantity}) * \text{regulationStorageLevelFactor} * \frac{\text{intervalLength}}{60}$$

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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 the relevant team via their inbox.



Supplementary Capacity	Submissions close 19 March 2024
Facility Dispatch Process	Submissions close 14 March 2024
Dispatch Algorithm Formulation	Submissions close 14 March 2024
Market Schedules	Submissions close 14 March 2024

- Stakeholders are invited to submit written responses to these consultations via wa.marketdevelopment@aemo.com.au by 5pm WST on the closing date.

Questions?

- Any feedback or further questions can be sent to WA.MarketDevelopment@aemo.com.au



For more information visit

aemo.com.au