

# AEPC\_2022\_02

Changes to the WEM  
Procedure: DER Register  
Information Procedure

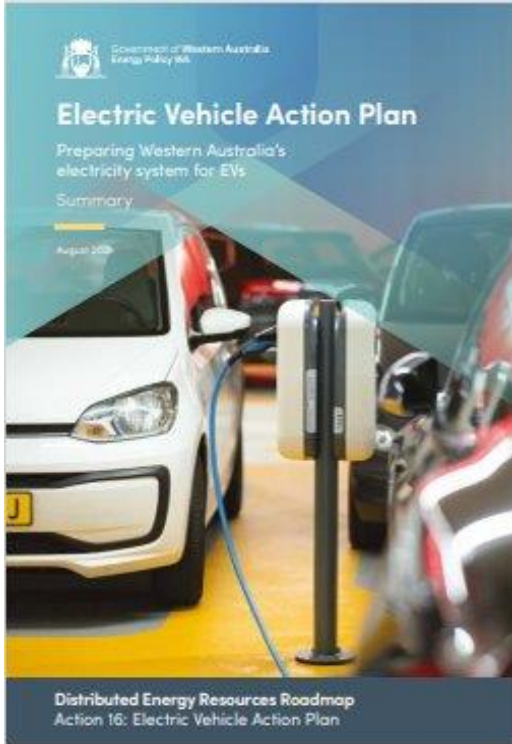
APCWG -17.01.2023



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

**We pay respect to their Elders past, present and emerging.**

# Procedure Change Proposal



## AEMO has initiated a Procedure Change Proposal to amend the WEM Procedure: DER Register Information to:

- incorporate EV/EVSEs data in accordance with action 12 of the Electric Vehicle Action Plan: Preparing Western Australia's electricity system for EVs as developed by Energy Policy WA;
- integrate changes following amendments to the Australian Standard AS/NZS 4777.2:2015 which has been superseded by AS/NZS 4777.2:2020;
- implement minor changes that better reflect the changed operational expectations of DER in the WEM and SWIS (e.g., implementation of Emergency Solar Management);
- improve the completeness and quality of data exchanged between the Network Operator and AEMO.
- move the Procedure to AEMO's new WEM Procedure template and make editorial and typographical changes.



# Consultation Timeline:

- AEMO has [published this Procedure Change Proposal](#) in accordance with the Procedure Change Process.
- AEMO's indicative timeline for this 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	12 December 2022
APCWG forum	17 January 2022
Closing date for submissions on Procedure Change Proposal	24 January 2023
Publication of Procedure Change Report	3 March 2023
Proposed commencement of amended WEM DER Register Information Procedure	2 October 2023

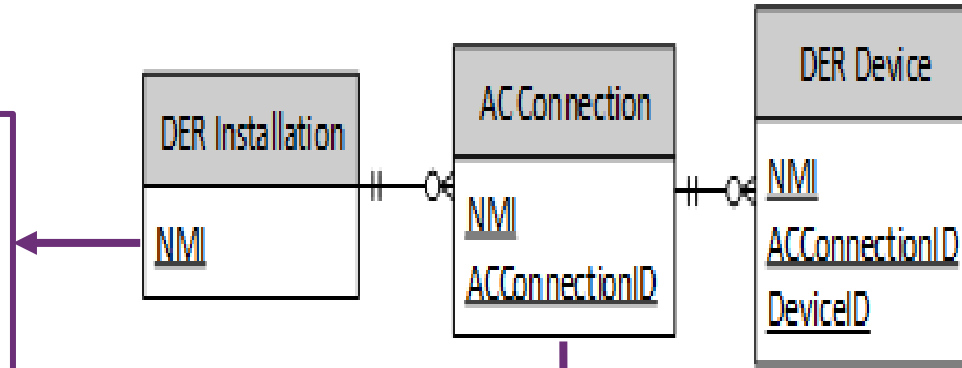
# Context

- This Procedure Change Proposal was prompted by the [Electric Vehicle Action Plan: Preparing Western Australia's electricity system for EVs](#) and the [Distributed Energy Resources Roadmap](#) as developed by Energy Policy WA. Action 12 of the Electric Vehicle Action Plan outlines the present limited visibility of Electric Vehicles (EV's) and the need to ensure Electric Vehicle charging points are captured within the DER Register to assist with improving forecasting around the impacts of EV's on the grid.
- To be taken as a step toward improving visibility of EV's and charging devices in the power system AEMO has been assigned as part of the Electric Vehicle Action Plan with updating the DER Register to receive and incorporate EV/EVSE information received from the Network Operator.
- AEMO is aiming to complete amendments to the WEM DER Register Information Procedure by the end of the first quarter of 2023 with system updates to be completed mid-year 2023 and testing of data exchanges between AEMO and Western Power to be completed subsequently.

# Overview - DER Register Data Model

## DER Installation

- NMI
- TNI
- NMI Status
- Zone Substation
- Postcode
- Approved **Generation Capacity**
- **DER Load Capacity**
- Export Limit
- **Import Limit**
- Job Number
- Installer details
- Number of Phases Available
- Number of Phases Installed
- Islandable Installation
- Central Protection & Control & Sub-Categories (**modified to include Other**)
- Comments



## AC Connection

- AC Connection ID
- Network Operator Identifier
- Equipment Type (**modified types**)
- **Equipment Unit Count** ~~Number of AC Connections~~
- **Equipment Inverter** ~~Manufacturer/Series/Model/Serial No~~
- Commissioning date
- **Equipment Status**
- **Equipment Injection** ~~Inverter Device Capacity~~
- **Equipment Withdrawal Capacity**
- **EVSE ownership Status (public/private/fleet)**
- **Authorised Agent**
- **DER Management Method**
- Standards which apply to the **inverter equipment**
- **Region Setting (Aus. B for SWIS) AS/NZS.4777.2.2020**
- **Additional Network Operator Requirements**
- AS/NZS.4777.2.2015 settings (**modified, no longer required if Aus. B**)
- **Rotating Machine** ~~non-inverter settings~~
- Additional protection settings

## Device

- Device Identifiers
- Device Type (**modified type**)
- **Device Comments** ~~Device Sub Type~~
- Number of devices
- Manufacturer/Model
- Device Status
- Nominal Rated **Generation Capacity**
- **Nominal Rated Load Capacity**
- Nominal Rated Storage Capacity

## 9 New/Proposed Data Fields

- \*\* Blue = New/Proposed Data Fields
- \*\* Green = Existing Field – modified naming
- \*\* Purple = modified value (equipment/device type)
- \*\* Red = modified, no longer required if Region Setting = Australia B
- \*\* Black = Existing Data Field

# Adapting to include other DER technologies

- The DER Register was developed to accommodate Small Generation Units and Storage Works, being uniformly defined by their ability to inject energy into the SWIS. As a result, references to equipment capacities generally only referred to generation (Storage Works were assumed to inject and withdraw electricity symmetrically). The introduction of electric vehicles as a form of Storage Works, and EVSE as a ‘charge only’ technology has led to a revised approach to DER Generation Information.
- The amended Procedure considers that DER can be characterised with three different operating modes, that could all be provided from a single Small Generating Unit or Storage Works:
  - Injection of electricity (i.e. generation or export)
  - Withdrawal of electricity (i.e. load, consumption or import) and
  - Storage of electricity (i.e. potential energy stored as electrical energy)

# Adapting to include other DER technologies

## Installation

Data Category 'Approved Capacity' has been modified to capture both generation and load capacity:

- Approved **DER Generation** Capacity. (renamed)
- **DER Load Capacity** (new - to capture loads).

## AC Connection

**Equipment Types** have been modified (from Inverter & Other) to capture other types of technology equipment:

1. Battery Storage
2. Controllable Load (e.g., hot water tanks, pool pumps, heating ventilation and air-conditioning)
3. Hybrid Inverter (e.g., DC-Coupled, Solar PV & Battery Storage/EV)
4. Electric Vehicle V2G (Vehicle to grid enabled)
5. Electric Vehicle (no V2G capability)
6. Rotating Machine
7. Solar PV

Data Categories have been renamed to not limit applicability to 'inverters' and to apply to '**equipment**'

Manufacturer, Series, Model Number, Serial Number, Status

'Inverter Device Capacity' has been renamed to capture both the injection and withdrawal capacity.

- **Equipment Withdrawal Capacity.**
- **Equipment Injection Capacity.**

New Data Category has been incorporated '**Electric Vehicle Supply Equipment Ownership Status**' (private, public, fleet).

## Device – Level 3 Data

**Device Types** has extended to include Controlled Load.

**Device Sub Type** has been removed to simplify data provision (not being provided in WA) and renamed as optional comments field to provide details of other types of devices if not listed.

Data Category 'Nominal Rated Capacity' has been amended to capture both the generation and load nominal rated capacities.

- Nominal Rated **Generation** Capacity (renamed to apply to generation).
- **Nominal Rated Load Capacity** (new - not currently captured).
- Nominal Storage Capacity (existing)



# Adapting to operational changes

New technical requirements that significantly influence the operational characteristics of DER have been introduced in the SWIS since the implementation of the DER Register. These requirements are not always visible to AEMO.

For example, Network Operators applying limitations on the export of solar PV from customer connection points to the Network, and the Emergency Solar Management scheme introduced new operational capabilities which are not visible to AEMO.

The amended Procedure seeks to increase AEMO's visibility by including additional information for these operational characteristics in the DER Generation Information where they are enabled/required by the Network Operator.

## Installation

Modified to capture both Import and Export Limits:

- **Import Limit** (new - not currently captured).
- Export Limit (existing)

## AC Connection

New Data Category '**Authorised Agent**' has been incorporated, where enabled, the name of the entity facilitating the control of the DER equipment. This is as defined in the Network Operator's connection and DER management requirements.

New Data Category '**DER Management Method**' has been incorporated (where required by the Network Operator) the method of control of the DER Equipment used by the Authorised Agent (e.g., where installed, meter-based isolation, internet based).

# Adapting to changing standards

The Australian Standard **AS/NSZ.4777.2.2020** came into effect from 18 December 2021.

- Introduced regional settings for inverter-based resources, with a requirement that all new inverter-based resources connected to the SWIS apply region ‘Australia B’ settings.
- The DER Register has been updated to capture the ‘[Region Setting](#)’.
- Where the Network Operator provides the ‘Region Setting’ as Australia B, AEMO will interpret the Australia B settings as set and published in the Australian Standard AS/NZS.4777 which will significantly reduce the DER Generation Information to be provided to AEMO.
- To support this approach, AEMO expects that the Network Operator notifies AEMO by exception, where additional requirements may be imposed on the equipment or in alteration of those prescribed by the Standard, within 20 Business Days of the requirements being applied.
- A new Data Sub-Category has been updated ‘[Additional Network Operator Requirements](#)’ for the Network Operator to provide details of the alteration/addition.

# Adapting to changing standards

**The Australian Standard AS/NZS.4777.2:2015** has been superseded by AS/NZ.4777.2:2020.

- Related DER Generation Information in Appendix A (AC Connection Level) has been retained for historic purposes to be retained for DER Generation Information for DER installed prior the December 2021.
- Existing DER Generation Information has been amended to outline applicable ‘Data Categories’ and ‘Data Sub-Categories’ are to be provided where this Standard still applies.
- Is not required to be provided where the superseded AS/NZS.4777.2:2020 Standard applies (Region Setting B). This will significantly reduce the data to be provided at the AC Connection Data 2 Level.

# Other Amendments

In undertaking the proposed amendments AEMO has also taken the opportunity to revise aspects of the Procedure where revisions were identified that would reinforce the completeness and quality of the DER Generation Information received by AEMO. For example, where AEMO has identified areas of ambiguity or where changes are needed to align to AEMO's current Procedures.

These amendments are generally minor as they are either proposed to enact other changes subject to this consultation, or they are consistent with, and clarify the current DER Generation Information Procedure.

## **Amendments to definitions:**

- Amendments to Table 1. (Definitions) to incorporate new definitions (inclusive of Connection Agreement, Electric Vehicle, Electric Vehicle Supply Equipment, Standards, Vehicle to Grid) and minor modifications to existing definitions (Connection Point, NMI and Application Programming Interface).

# Other Amendments

## Amendments to the Procedure paragraphs and body:

- Amendments to paragraph 1.1.4 (Purpose and Scope) to align with obligations as specified in clause 3.24.8 of the WEM Rules.
- Amendments to paragraph 2.1 (DER Register) to outline that AEMO will publish the WEM DER Register Technical Specification on the WEM Website.
- Amendments to paragraph 4.4 (Assessing the Accuracy of Information) to clarify an exception management process for communication between AEMO and Network Operators.
- Amendments to paragraphs 4.1, 4.3 and Appendix B (Existing DER Generation Information) which describes the DER Generation Information which was required to be provided by 30 September 2020 to make wording throughout retrospective.

# Other Amendments

## Amendments to Appendix A DER Register Data Model:

- Amendments to data model descriptions.
- Amendments to the descriptions in the 'Data Category', 'Data Sub Type Category', 'Applies to Category' and 'Other Comments' columns have been updated.
- Addition of a new column (mandatory/optional) to outline data fields which are categorised as mandatory or optional to align to the category in which it applies to ('Applies to Category' column). The current Procedure advises 'all fields are mandatory, where relevant', the purpose of this additional column and modifications to the existing column 'Applies to Category' is to ensure the details of the DER Generation Information and when it is to be exchanged is certain (e.g., applies to certain Equipment Types)
- Amendments to further describe the information in the different information levels and the general rules to support the interpretation of the data model.

# Other Amendments

## Amendments to other Appendices:

- Minor amendments to Appendix C. DER Register Report to replace AC Connection Type with newly proposed ‘DER Equipment Type’ naming convention.
- A measurements abbreviations table has been created as part of Appendix D and measurement abbreviations have been removed from Definitions Table 1.
- Appendix E has been incorporated in alignment with AEMO’s revised Procedure Template to outline the relevant clauses of the WEM Rules under which the Procedure has been developed.

Subsequently paragraphs within the Procedure which are an exact copy of the current WEM Rule clauses have been removed and or amended within the Procedure and captured in Appendix E to minimise the need to amend the Procedure if changes occur to the WEM Rules in the future (e.g. paragraphs 3.1.1, 3.1. 2, 6.1.1, 7.2.1, 7.1.5,).

# Other Amendments



AEMO has also taken the opportunity to propose the following minor and administrative changes:

- Move the Procedure to AEMO's new WEM Procedure template.
- Make editorial and typographical changes.



# What are we seeking feedback on:



- whether the proposed amendments to the DER Generation Information achieve the appropriate level of visibility to support Energy Policy WA's Electric Vehicle Action Plan;
- whether there is any other information that AEMO should collect as part of the DER Generation Information;
- whether stakeholders believe there are any other relevant issues that have not been considered; and

Additionally, AEMO seeks feedback on the proposed Procedure amendment commencement date of 2 October 2023, which AEMO considers would allow sufficient time after the publication of the Procedure Change Report to implement the changes required by the amended Procedure.

# 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 WA DER Team at [WADERProgram@aemo.com.au](mailto:WADERProgram@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 24 January 2023 in accordance with the call for submissions published with this Procedure Change Proposal.



## Key Indicative Dates

- **24 January 2023: Submissions Close**
- **3 March 2023 : Final Change Report**
- **2 October 2023: Proposed commencement**

For more information visit

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