

DER Register overview & ACT DNSP implementation

ACT installers seminars | 19 November 2019

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

We pay our respects to their Elders past, present and emerging.

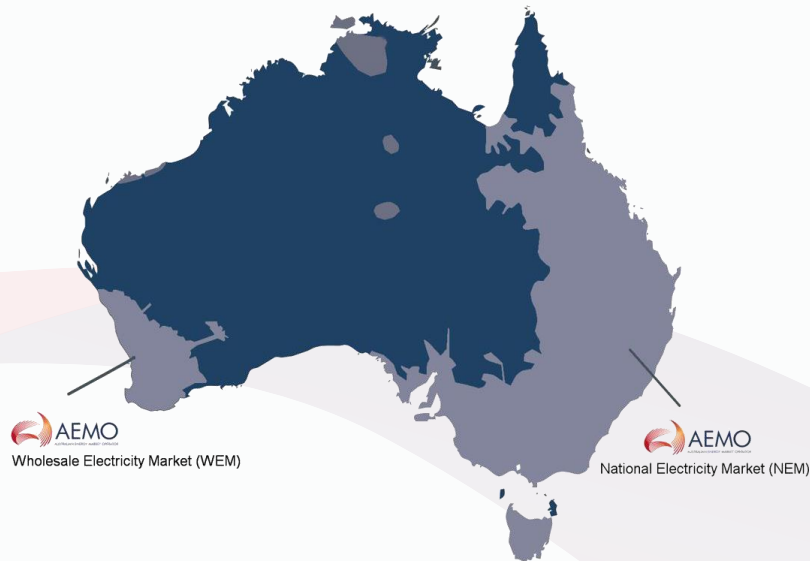
Agenda

Chair: Tom Butler, AEMO

| Timing | Topic | Speaker |
|--------|-------------------------------|-----------------------------------|
| 5:00pm | Welcome and introductions | NECA |
| 5:05pm | AEMO DER Register overview | Australian Energy Market Operator |
| 5:20pm | Distribution Network overview | Evoenergy |
| 5.30pm | Panel Q&A session | All |
| 6:00pm | Networking | All |
| 6:30pm | Close | |

About AEMO

Shaping a better energy future for all Australians



We operate Australia's National Electricity Market and power grid in Australia's eastern and south-eastern seaboard, and the Wholesale Electricity Market and power grid in south-west WA.



Both markets supply more than 220 terawatt hours of electricity each year.



We also operate retail and wholesale gas markets across south-eastern Australia and Victoria's gas pipeline grid.



Collectively traded more than A\$20 billion in the last financial year.



Ownership

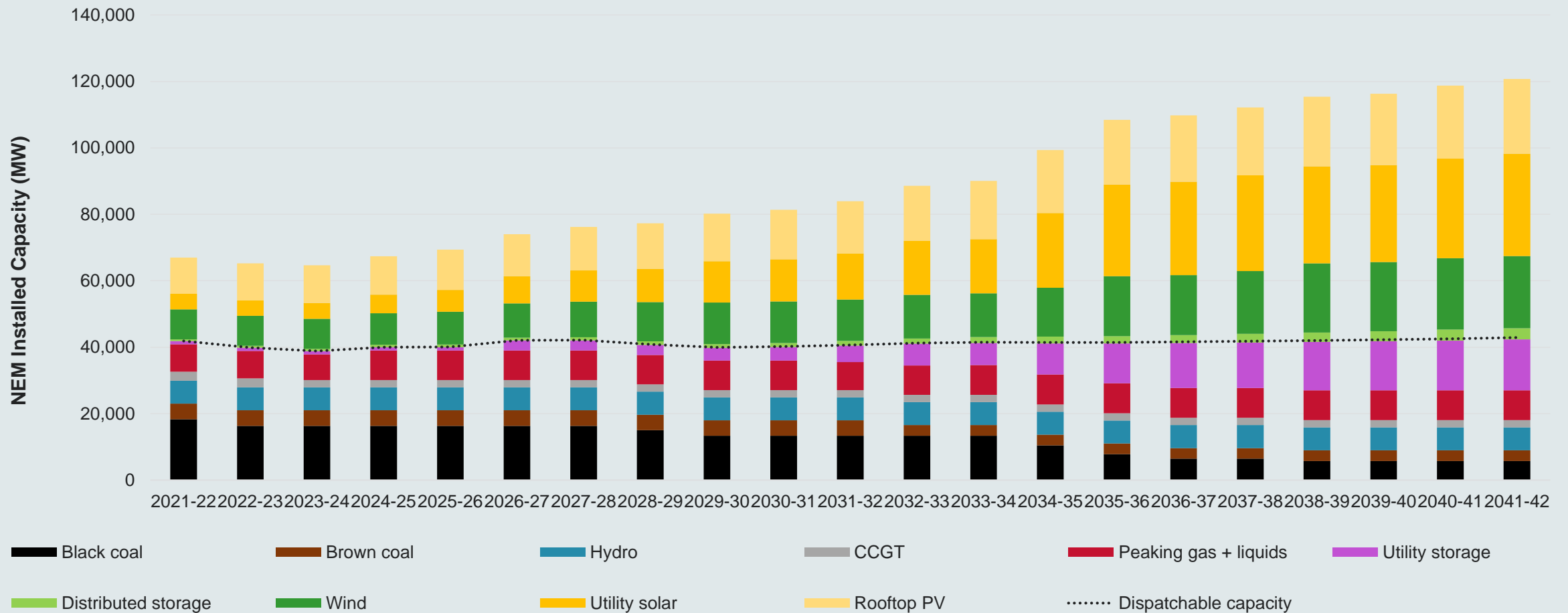
40%

Market participants

60%

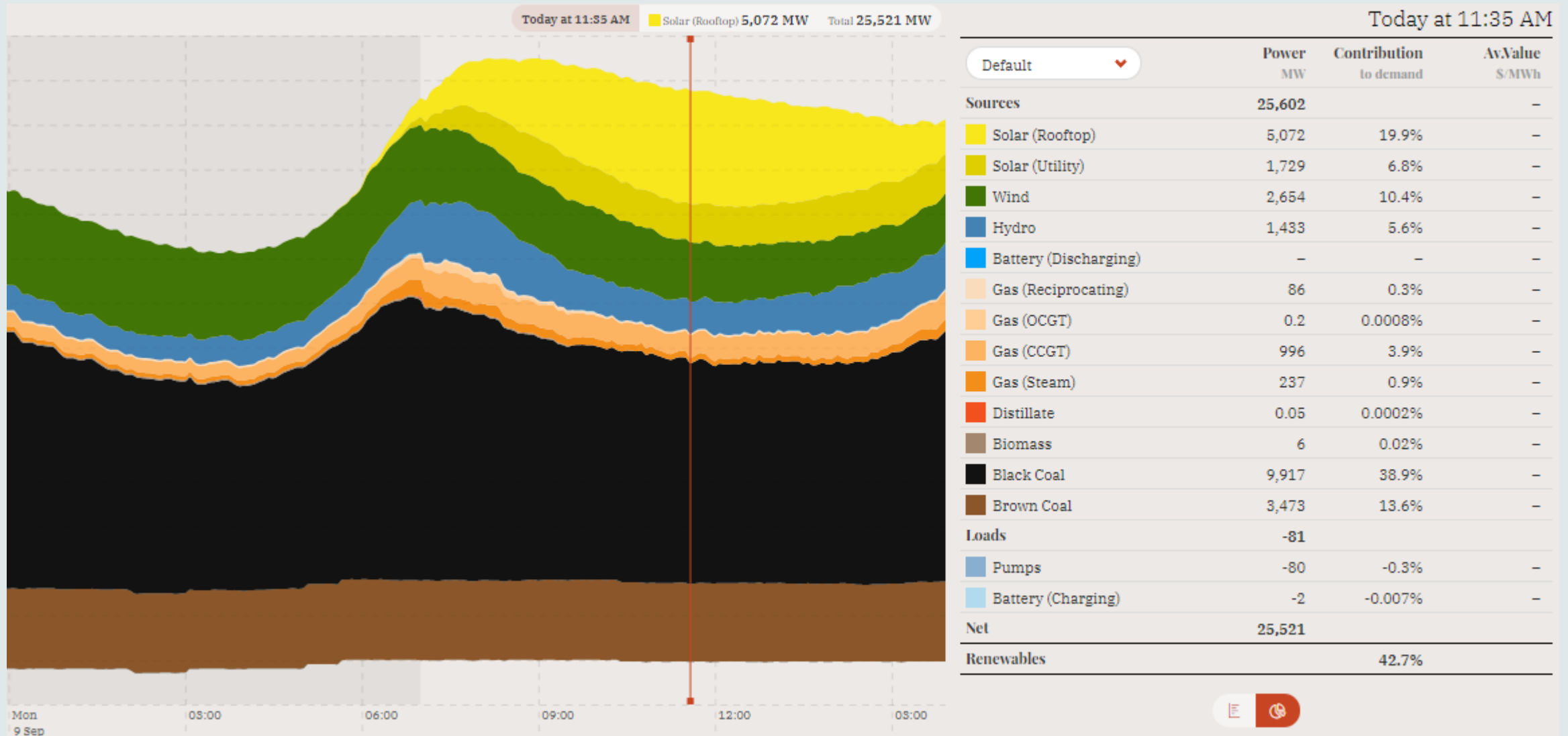
Governments of Australia

The growing level of consumer choice



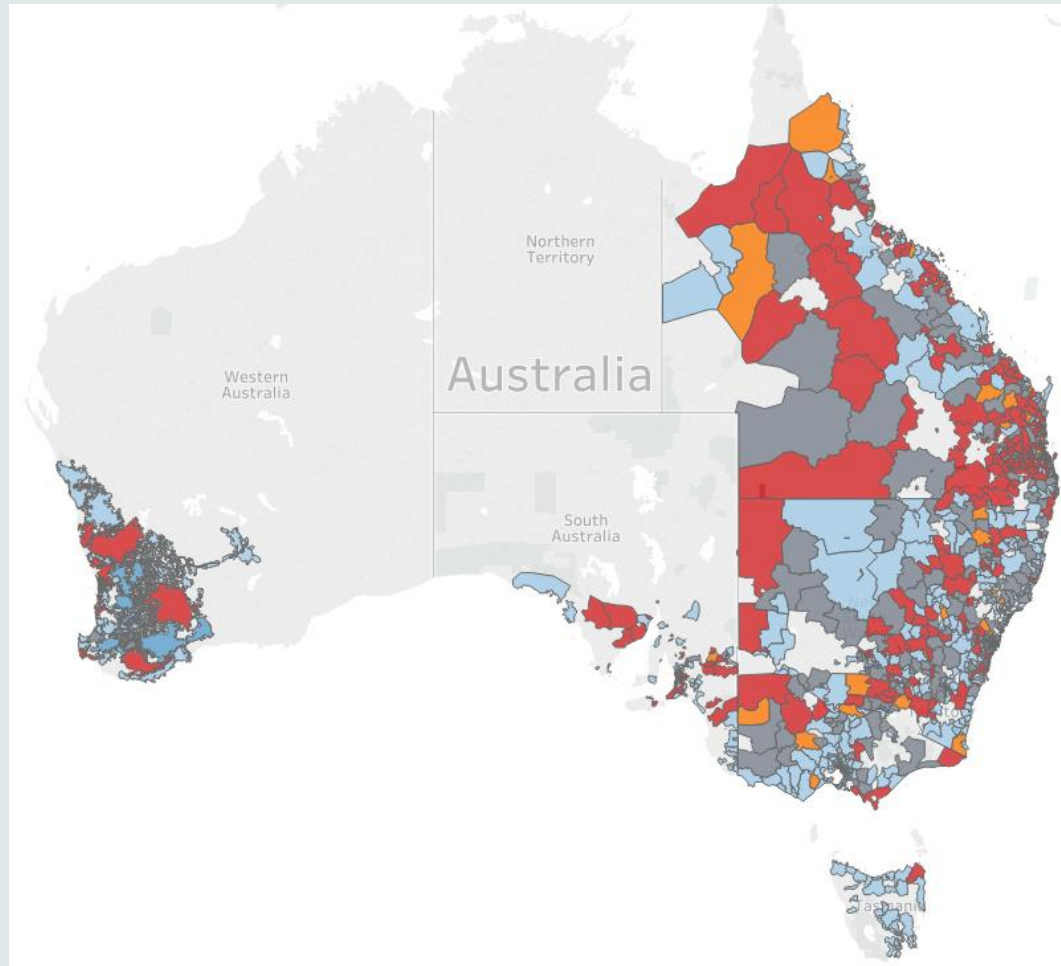
Source: AEMO 2019 ISP Insights, neutral scenario

High rooftop PV in the operational domain

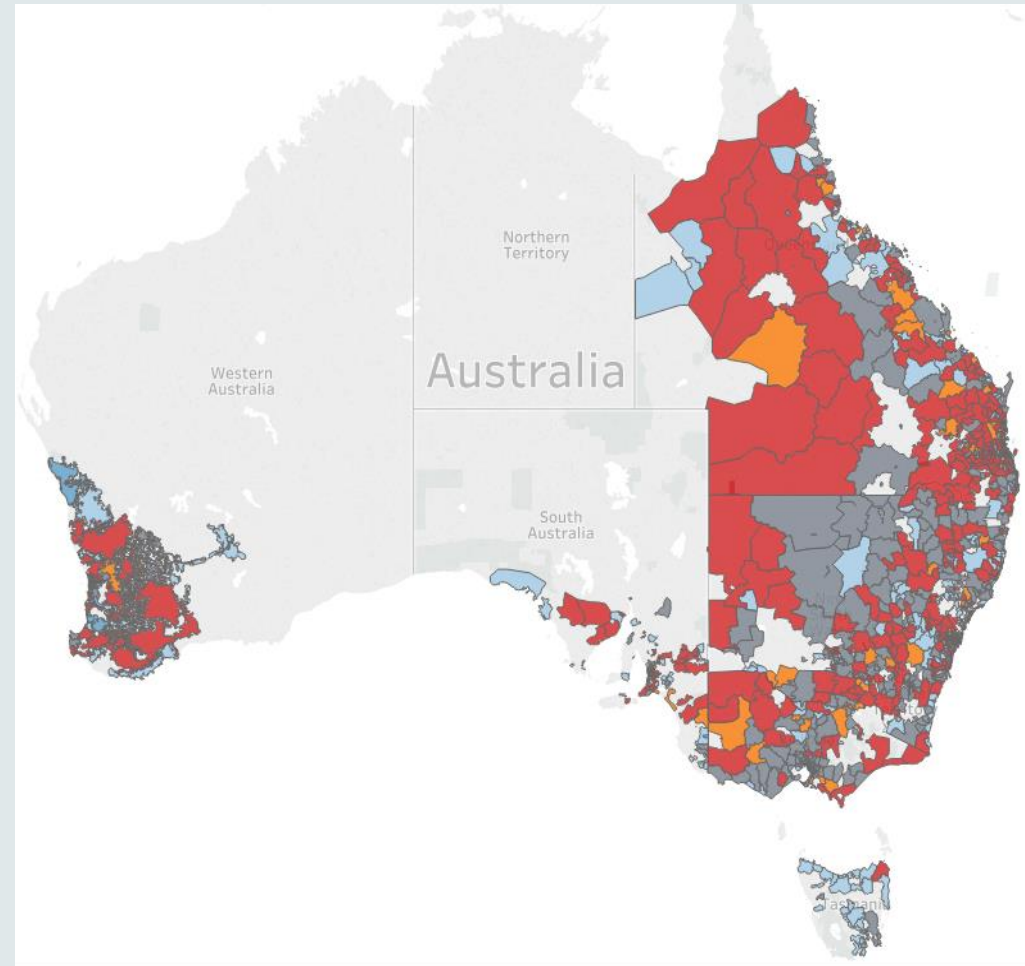


Reversing the distribution network

Forecast 'reverse electricity flows' across Australia's distribution networks



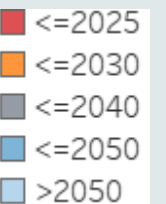
Slow DER
scenario



Fast DER
scenario

Source: CSIRO 2019

Years



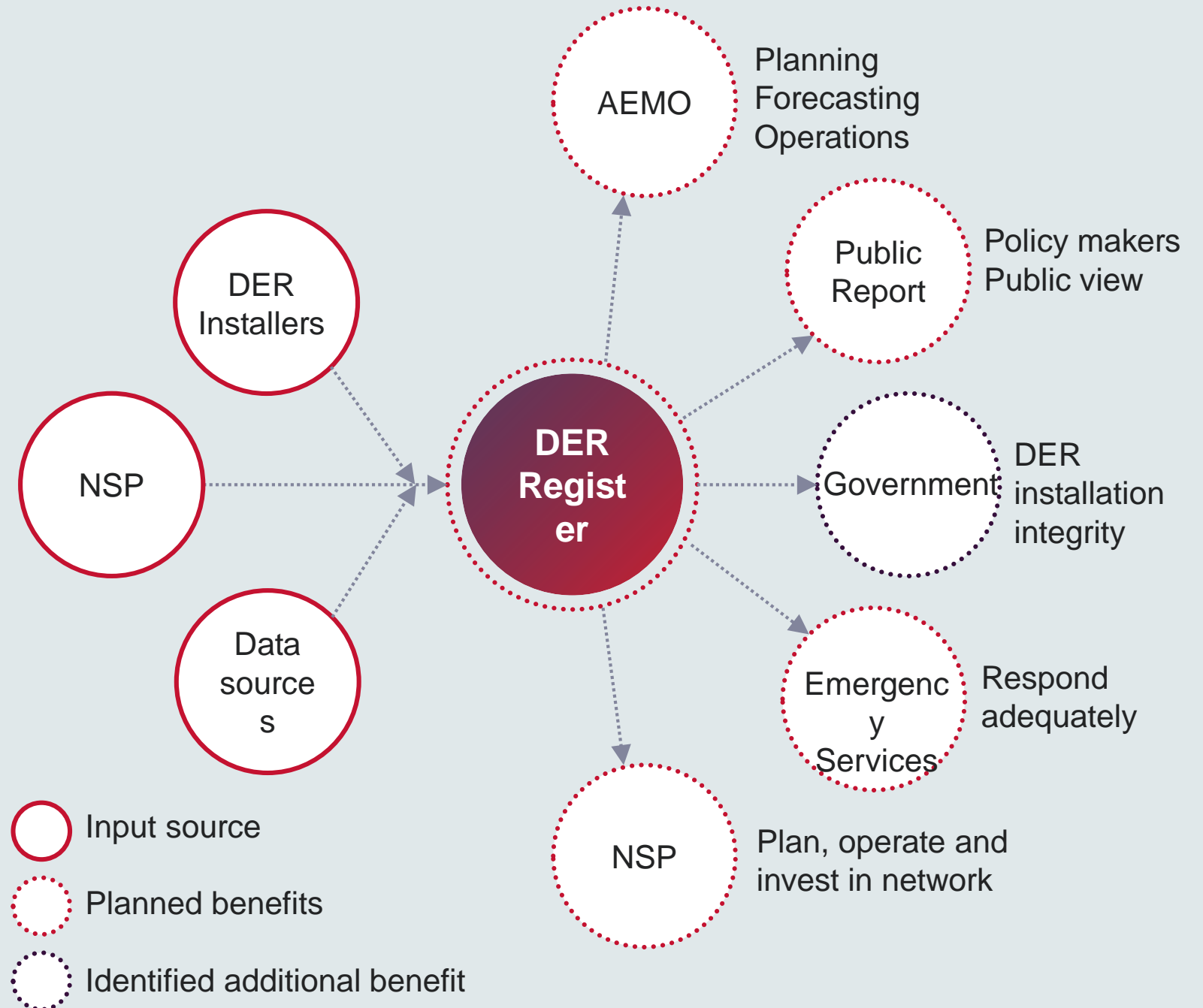
AEMO's DER Register

DER Register








*Required to be implemented
by the National Electricity
Rules*

*A national database of DER
assets to enable the
realisation of consumer value
and enhance power system
reliability via DER installed in
homes and businesses across
Australia*

*Implemented and operational
from 1 December 2019*



What kinds of data?

| Level | Data types | Expected source of data | |
|--------------|---|---|---|
| | | Network | Installer |
| Installation | Approved capacities, technologies and central control/protection (e.g. export limits) | ✓ |  |
| | Installer licence number / ID |  | ✓ |
| AC interface | Inverter or generator manufacturer, model, serial number and capacities, and numbers of installed units |  | ✓ |
| | Inverter control modes and settings (e.g. volt-watt etc) | ✓ |  |
| | Non-inverter generation control modes, settings and protection | ✓ |  |
| | Date of commissioning | ✓ |  |
| Device | Device (e.g. solar PV panels or battery) manufacturer, model and capacities, and numbers of installed units |  | ✓ |

Data source



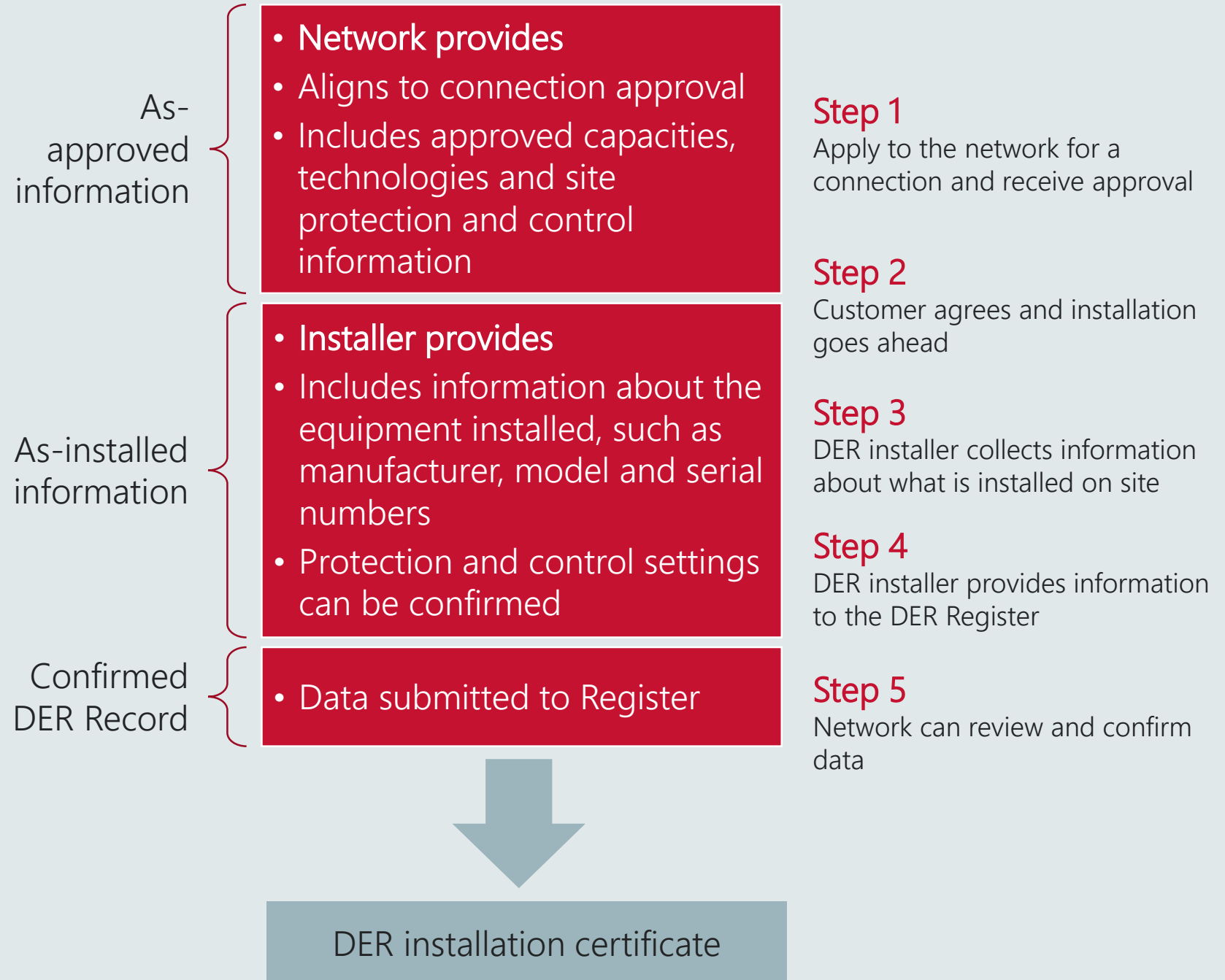
Review



What changes?

Workflow


From 1 December 2019 a condition of the connection of all small generator and battery installations to the network will require DER installers and electrical contractors to provide information for the DER Register



Providing information

1. Create account
2. Access records
3. Provide data

Step 1: Create an account with AEMO



Create a DER Register Account


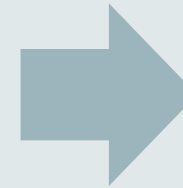
Sign Up

DER Information Collection Notice

When you create an account with Australian Energy Market Operator Limited (AEMO)'s Distributed Energy Resources Register (DER Register), AEMO will be collecting your name, email address and licence number for the purposes of enabling, and authorising, your use of the DER Register. If AEMO does not collect this information, you will be unable to access the DER Register. Unless required by law, AEMO will not disclose your account details to any third parties (including to any overseas recipient).

AEMO is committed to protecting the confidentiality of the personal information it collects. If you need to access or correct your personal information or wish to complain about a potential breach of the Australian Privacy Principles, please see AEMO's privacy policy at https://aemo.com.au/Privacy_and_Legal_Notices/Privacy-Policy

If you have any questions please contact SupportHub@aemo.com.au



Account Login

Welcome to the Australian Energy Market Operator's Distributed Energy Register

The DER Register is a national database of Distributed Energy Resources or DER. It contains information about small generation assets like rooftop solar, grid-connected batteries and other small generators.

AEMO's role is always to manage the power grid for all Australians. The massive growth in DER in Australia means that at times the power grid is now more reliant than ever on these energy sources, so we need to understand them. We will use this information to support the effective and efficient operation of the electricity system.

Thank you for your contribution to this database. DER is emerging as a critical to the ongoing integrity of the grid. Providing accurate data here will enable AEMO to consider DER to the full extent possible. You can log into your account below.

- To pre-register for an alert when the account system is open email DERRegister@aemo.com.au

Providing information

1. Create account
2. **Access records**
3. Provide data

Step 2: Access a DER Record

[Access Job](#) [Receipts](#) [LOGOUT](#)

Access Job

Please input your NMI and Job Number details to access the job details.
If you don't have these details, please contact the NSP

[ACCESS](#)

Or, register your AEMO account with your smartphone application provider to access DER records and provide the data

Providing information

1. Create account
2. Access records
3. Provide data

Step 3: Provide DER data

Connection Agreement

DER Installation Details Connections & Devices 1

DER Installation

NMI (National Metering Identifier)

BK00000004

Connection Agreement 'Job Number'

Evoenergyjob1

Installer identification

Installer ID

Approved Capacity (KVA)

15

Number of phases available

3 ▼

Number of phases with DER connected

3 ▼

Islandable installation

No ▼

Central protection and control

No ▼

Providing information

1. Create account
2. Access records
3. Provide data

Step 3: Provide DER data

Connection Agreement

DER Installation Details Connections & Devices 1

Connections & Devices 1 + Add AC Connection + Add DER Device

| | | | |
|---------------------------------------|---|--------------------|--|
| AC Connection-1 ID:100000000002867 | <input type="radio"/> Validation status:Initial Type: Inverter | Connection status: | Edit Remove |
| DER Device ID:100000900005912 | <input type="radio"/> Validation status: Type: Solar PV | Device status: | Parent AC Connection 1 Edit Remove |

Readiness

Readiness

- Installers and electrical contractors should progress DER connection approvals with their local network as per current processes
- AEMO high level Fact Sheets are high level
- Your local distribution network will provide information on steps that are needed within their connection processes

What is AEMO's DER Register? Fact Sheet

New Rules require a register to be created

The Australian Energy Market Operator (AEMO) is on track to launch Australia's first database of distributed energy resources (DER) at the start of December 2019.

AEMO is responsible for operating Australia's energy market and power system, including the delivery of affordable, secure and reliable energy to consumers, whilst pursuing new data-driven solutions to help shape a better energy future for all Australians.

In late 2018, the Australian Energy Market Commission (AEMC) amended the National Electricity Rules enabling AEMO to establish a DER Register to improve visibility and access to essential device information across Australia.

AEMO has worked with stakeholders across the electricity sector to design the DER Register, agree on DER data sets and data collection processes into the register.

The comprehensive DER data held securely in the DER Register database will enable AEMO to:

- Forecast, plan and operate the grid more efficiently, ensuring the system and market can deliver energy at an efficient price for all customers.
- Be more prepared for major disruptions to the system with a greater understanding of how DER assets will behave during these events.
- Prepare the grid for major innovations with DER such as virtual power plants, and enabling customers to consider and participate in new markets with their DER, and
- Allow networks to make better informed decisions about network investment options in the future as demand charges and DER increases.

From 1 December 2019 the new rules mandate HGFs to provide information on every small generating or battery system within 20 days of the system commissioning or activation, which will feed into AEMO's DER Register.

Why Distributed Energy Resources?

Australian homes and businesses are global leaders in exercising choice by installing generation, such as rooftop solar, and battery storage and electric vehicles that can act as generators are also emerging.

While there isn't much of this generation capacity on the grid to date, but DER is on track to be the largest installed capacity of any generation technology by 2032. The AEMC made their rule to give AEMO better visibility of this capacity so we can run the grid well for the benefit of all Australians.

The DER Register will provide this visibility as it will include all forms of small grid-connected generation and storage¹.

Although the DER Register holds technical rather than personal information, some information is held on electrical contractors and DER installers when they provide the information. This information will be collected in line with appropriate privacy policies².

A critical requirement for a quality data set is that it captures information on the equipment installed on site. This information can be provided through existing processes or straight into AEMO's portal. AEMO's systems are also enabling mobile applications DER installers already use to support data provision. The systems AEMO has developed are designed to minimise the effort from DER installers and electrical contractors.

The new system and approach represent a change to the way small-scale solar, batteries and other forms of DER are deployed in Australia, but the benefits for all Australians will be large.

¹ Generation or batteries that are only used as standby or back-up power, and generation or storage that registers with AEMO for market participation are exempt.

² <https://www.aemo.com.au/About-us/Privacy-and-Legal-Details>

© AEMO 2019 | What is AEMO's DER Register?

What is AEMO's DER Register? Fact Sheet

The DER Register system is designed to draw information from available data sets, such as the Clean Energy Council's approved product databases, to streamline data provision. Installers will be mostly be asked to confirm information, rather than enter it.

With better knowledge and visibility of DER, AEMO can better manage the grid and ensure that consumer-led energy investments can deliver their expected value to consumers and the energy system.

What is happening in the lead up to and after 1 December?

| OCT | NOV | DEC |
|---|---|--|
| System implementation: Present → 31 October System build | 4 November → 29 November System testing | 1 December onwards Go live Operate and refine |
| Key dates for Networks: Present → 29 November Prepare systems and processes for implementation | 4 November → 29 November Industry testing available Real data for existing DER to be uploaded to AEMO systems 17 November User guides available | 1 December onwards New rules to provide information to networks apply |
| Key dates for DER Installers: | 18 November onwards DER Register account system and training material available | 1 December onwards New rules to provide information to networks apply |

Want more information?

For more information and resources, visit [AEMO's website](https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-Register-Implementation) (<https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-Register-Implementation>)

Email questions to: DERRegister@aemo.com.au

DER Register: Information for Installers in Australian Capital Territory and New South Wales Fact Sheet

How can DER installers access information about the new requirements?

Before 1 December 2019, AEMO is liaising with stakeholders and will have information available on the AEMO website to ensure a seamless transition to the new requirements. Networks will be able link their DER connection webpages to the AEMO information. AEMO will also make training material available in advance.

How does the new system change the DER connection process from 1 December?

The connection process will remain unchanged for customers, and the local network service provider should always be the first place to go to get connected. But the local network will be required to provide information into the DER Register and AEMO's systems will enable qualified electrical contractors and/or DER installers to provide information about what is installed on site into the DER Register.

AEMO will generate a confirmation receipt once the DER installation is registered in the DER Register. This confirmation receipt will be issued to the account holder that provided AEMO with the information within 20 business days of the installation being turned on.

Want more information?

Ask your local network service provider, or check the [AEMO website](https://www.aemo.com.au) for more information. You can also email us at: DERRegister@aemo.com.au

AEMO DER Register launching in December

Small generators, like rooftop solar, have been so successful that AEMO needs visibility of these devices to operate the grid securely for all Australians.

Consultation and information sessions are ongoing with networks, installers and other key stakeholders across Australia.

Electrical contractors and solar installers should ask their local network operator for details of changes required to provide data to the DER Register.

The world's first DER Register will launch on 1 December 2019, giving AEMO visibility over small-scale solar, storage and other energy generation across Australia.

Stakeholders can also check out AEMO's project site for FAQs and more information <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-Register-Implementation>

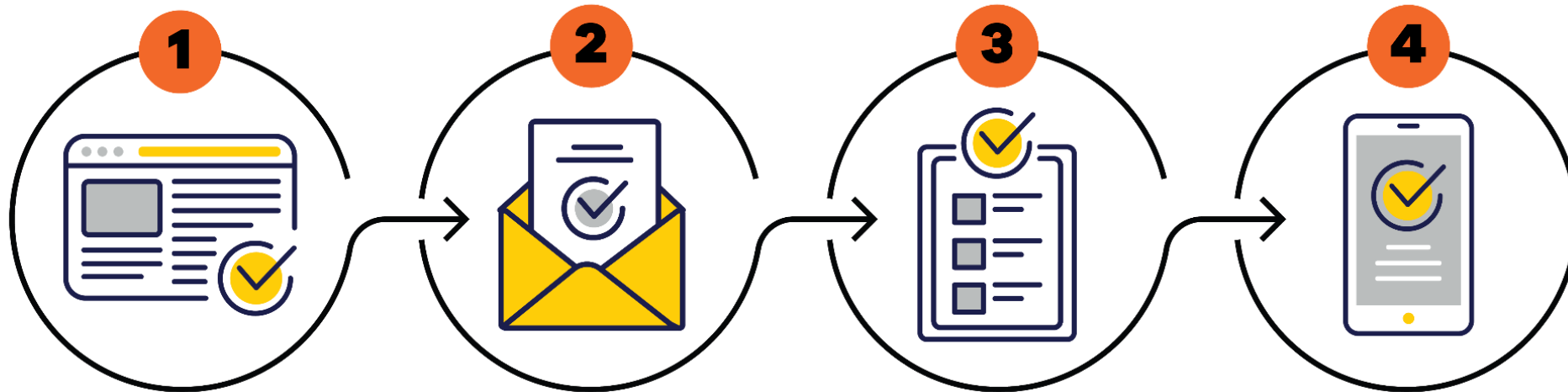
Where can I find more information? Check the [AEMO website](https://www.aemo.com.au) for more background on the DER Register or email your query to: DERRegister@aemo.com.au

- <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-program/DER-Register-Implementation>

ACT DNSP overview

Introducing coming changes to implement the DER Register and changes to inverter requirements

Evoenergy process for installers



Complete SCR
Form on Evoenergy
website

Receive email with
form submission and
unique job reference
number

Complete Evoenergy
RFS Form to connect
to the network

NEW STEP: You must
now record equipment
commissioned data
by logging into AEMO
Portal **or** mobile apps:



Important: To enter commissioned data
via the Portal or available apps, you need
to be a Registered Installer and have the:

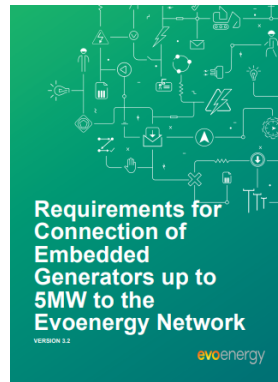
- **NMI** and
- **Job Reference Number**
issued by Evoenergy

- Form Bay
- Kickstart Agile
- Solar Scope

Guideline Changes

Embedded generation guidelines update

Current State



EG Guidelines
(SM3201)



S&I Rules

ENA National DER Guidelines

Framework and Principles

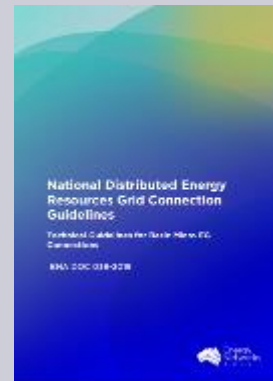


05/2018

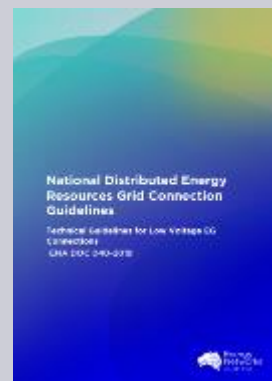
Basic Micro

LV

MV/HV



03/2019



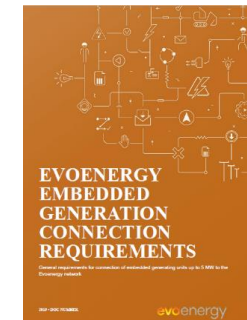
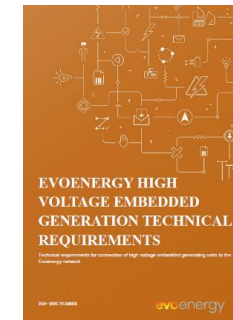
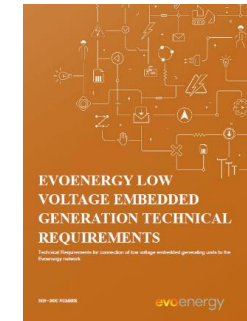
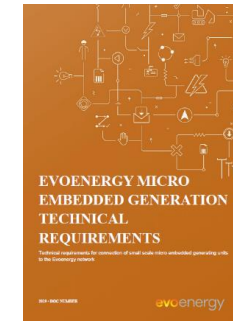
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10/2019

Future State 12/2019

New Documents



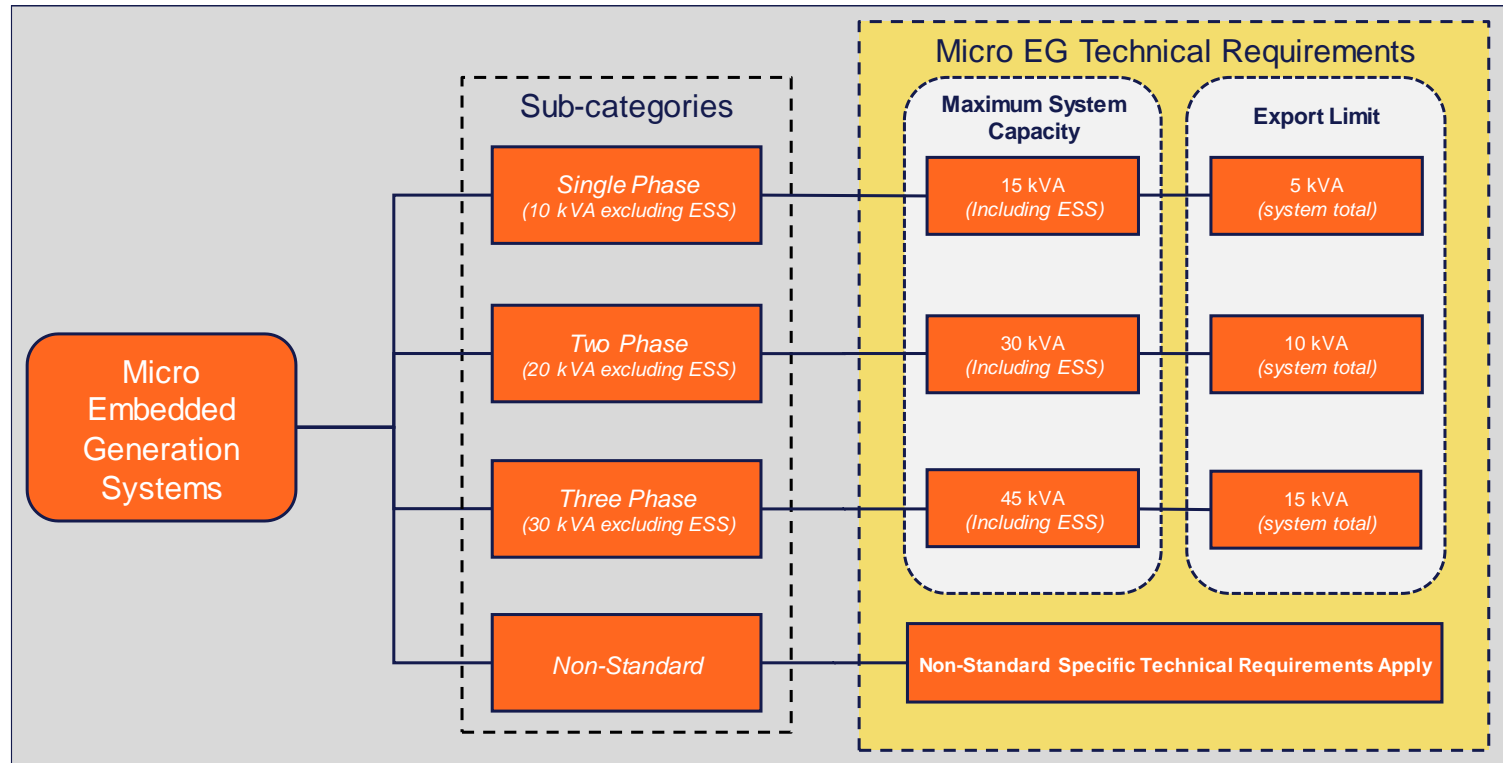
Relevant Sections Revised



evoenergy

Major changes

- Document Splitting
- Changes in allowable residential limit
- Protection changes and classes changes for systems over 30 kW
- Fees unchanged



Contact points

For more information regarding the DER Register or MSO changes:

| ACT DNSP | Contact |
|--|---|
| Evoenergy | Phone: 13 23 86 Email: embeddedgeneration@evoenergy.com.au |
| Australian Energy Market Operator (AEMO) | Email: DERRegister@aemo.com.au www.aemo.com.au/Electricity/National-Electricity-Market-NEM/DER-program/DER-Register-Implementation |

