

Electronic Certificates of Compliance

Certifying a Distributed Energy Resource (DER)

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1. ABOUT THIS DOCUMENT

This document will assist you in certifying Distributed Energy Resources on electrical certificates of compliance.

Before using this guide, ensure you have registered at least one licence on eCoC.

For a general guide to using eCoC, please see www.sa.gov.au/otr/ecoc and navigate to the Training and Support section.

For eCoC support contact the OTR via email at otr.ecoc@sa.gov.au or by phone on 08 8226 5500 during business hours.

2. WHAT IS A DER?

The Australian Energy Market Operator (AEMO) provides the following definition for DER:

Distributed Energy Resources – or DERs – are consumer-owned devices that, as individual units, can generate or store electricity or have the 'smarts' to actively manage energy demand.

DERs include many devices such as solar PV, inverters, home batteries and backup generators.

3. THE DER REGISTER

From 1 December 2019, AEMO are required to collect detailed information about DER from distribution network operators (such as SA Power Networks), and those network operators are required to collect this information. This means that from 1 December 2019, installers will need to collect a few new details about an installation.

Further detail on the DER Register can be found on AEMOs DER Register Implementation page:

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

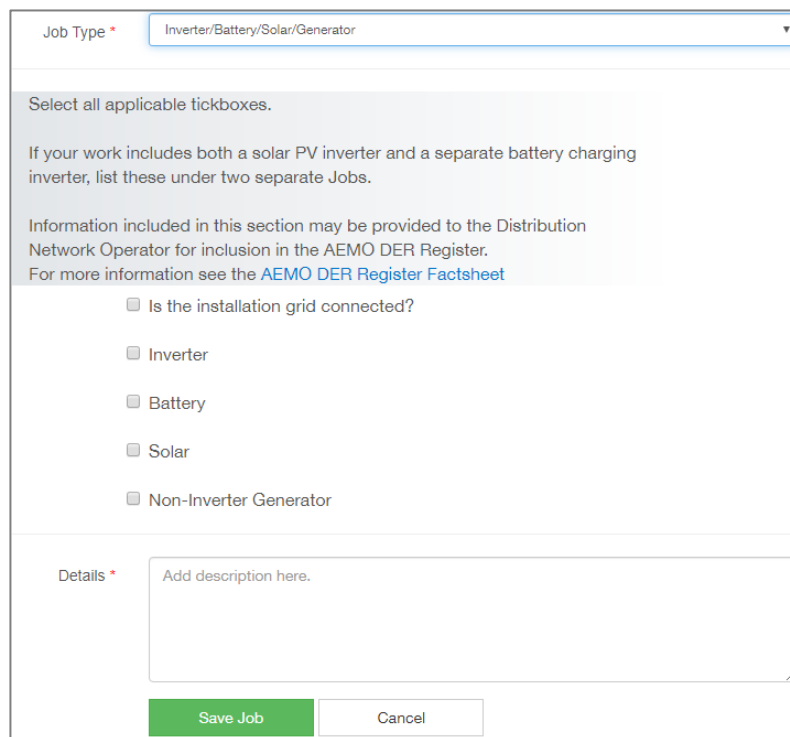
In South Australia to make the process simple, installers can make their contribution to the DER register via eCoC. Where grid connected, this information will then be provided to SA Power Networks, and subsequently to AEMO. DER that are not connected to the grid are not required to be added to the DER Register.

4. CERTIFYING A DER VIA ECOC

The process of certifying a DER via eCoC is simple, just follow through the normal process of submitting your eCoC and the system will ask for extra information where required.

4.1 The Inverter/Battery/Solar/Generator Job Type

Information about DER are entered via the Inverter/Battery/Solar/Generator job type on eCoC. Opening this will display five tickboxes, start by ticking all that are relevant to your work on this installation.



The screenshot shows a web form for selecting a job type. At the top, a dropdown menu is set to 'Inverter/Battery/Solar/Generator'. Below this, a section titled 'Select all applicable tickboxes.' contains instructions: 'If your work includes both a solar PV inverter and a separate battery charging inverter, list these under two separate Jobs.' and 'Information included in this section may be provided to the Distribution Network Operator for inclusion in the AEMO DER Register. For more information see the [AEMO DER Register Factsheet](#)'. There are five checkboxes: 'Is the installation grid connected?', 'Inverter', 'Battery', 'Solar', and 'Non-Inverter Generator'. Below these is a 'Details' section with a text area labeled 'Add description here.' and two buttons at the bottom: 'Save Job' (green) and 'Cancel' (white).

The options are as follows:

- Is the installation grid connected?
 - o Choose this option if the installation is to be connected to an electricity distribution network
 - o You will be asked details that relate to the connection such as the NMI
- Inverter
 - o Choose this option if you have completed any work involving a Solar PV inverter, hybrid or battery charging inverter.
 - o You will be asked details about the inverter itself (manufacturer, model) and the commissioning process.
 - o If the inverter is commissioned to either AS/NZS 4777.2 or an SA Power Networks Technical Standard (eg. TS129, TS130, TS131) then the required settings for this standard will be displayed.
 - o If the inverter is configured with alternative settings, this section will expand to collect those details.
 - o Note that serial numbers for inverters are a requirement of the DER Register, so ensure these are collected before the eCoC is submitted.
 - o If you have installed a Solar PV inverter and a Battery Charging Inverter rather than a hybrid inverter, group the Solar PV inverter with the solar modules in one **Job** and create a second **Job** on the eCoC for the Battery and its inverter. See section 5.3 for more details.

- Battery
 - o Choose this option for battery systems
 - o Note that if you have also installed a battery charging or hybrid inverter you should also tick the Inverter box
- Solar
 - o Choose this option to certify the installation of Solar PV modules
 - o Note that if you have also installed a Solar PV or hybrid inverter you should also tick the Inverter box
- Non-Inverter Generator
 - o This section can be used to describe a variety of non-inverter connected generators such as diesel backup generators, or small wind turbines.

In each case you will be asked a series of questions about the devices and settings enabled during commissioning. You must also describe your work in the **Details** free-text box at the end of the **Job**.

Note you can add any number of **Jobs** at the same site under a single eCoC if required.

Transmission of this information to SA Power Networks for upload to the AEMO DER Register is automatic and will occur on the same day as eCoC submission.

5. DETAILS REQUIRED

5.1 Grid Connection

☒ Is the installation grid connected?

National Meter Identifier (NMI) *

1234567890

Connection Agreement Job Number

Is the installation Islandable? *

Number of Phases Available *

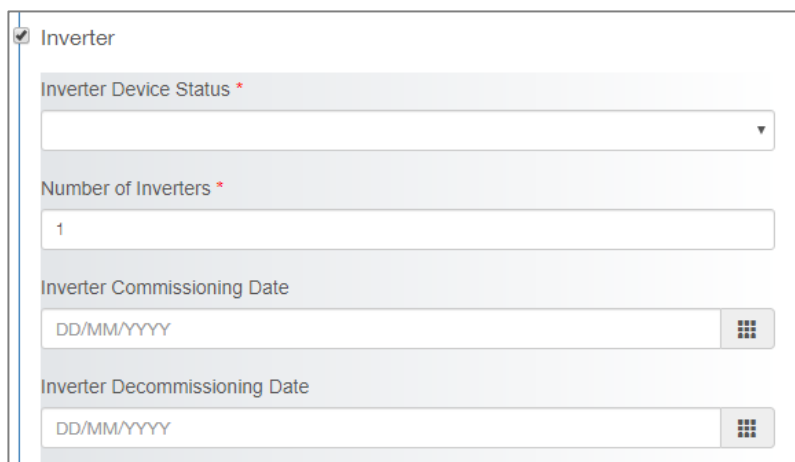
Number of Phases DER is connected to *

If an installation is grid connected, you will need to enter:

- The NMI
- The Connection Agreement Job Number (SEG Approval Number)
 - o Note that this is optional if it is yet to be provided by the SA Power Networks SEG process
- Whether the installation is designed to be islandable
- The number of phases available on site
- The number of phases to which the devices described on this eCoC are connected

5.2 Inverter


The inverter is potentially the most complex of the DER devices you may describe on the eCoC, and so requires the most information.



The screenshot shows a form titled 'Inverter' with a checked checkbox. It contains four input fields: 'Inverter Device Status *' (a dropdown menu), 'Number of Inverters *' (a text box with '1' entered), 'Inverter Commissioning Date' (a date picker showing 'DD/MM/YYYY'), and 'Inverter Decommissioning Date' (a date picker showing 'DD/MM/YYYY').

Initially you will be asked to enter:

- Inverter Device Status
 - This represents the status of the device, for example if you are installing a new inverter you would select Active. If you are replacing an existing inverter, create a Job for the decommissioning work and another for the inverter replacement work. This will allow you to describe both the decommissioned inverter and the new replacement.
- Number of Inverters
 - Enter the number of inverters which you have worked on
 - The Serial Number section will expand to allow entry of a serial number for each inverter counted in this number
- Inverter Commissioning/Decommissioning Dates
 - These are optional, and should only be completed if your work includes commissioning/decommissioning



The screenshot shows a form titled 'Inverter *' with four input fields: 'Manufacturer' (a dropdown menu), 'Model' (a dropdown menu), 'Serial Number 1 *' (a text box), and 'Export Limited *' (a dropdown menu).

Following this you will be asked to describe the inverter itself:

- Inverter Manufacturer and Model
 - These are dropdowns for CEC Approved Inverters allowing you to easily find your inverter
 - If you need to describe an inverter which is not currently CEC Approved, select Other

- Serial Number(s)
 - o Serial Numbers of inverters are required for the AEMO DER Register, you will be asked to enter a serial number for each inverter you have worked on
- Export Limited and Export Limit (kVA)
 - o If your DER are export limited either by the inverter or a separate device you will be asked to also enter the export limit in kVA

Inverters must be commissioned to meet Australian Standards.
If connecting to SA Power Networks network, must also comply with SA Power Networks standards.

TS129 applies to inverters no greater than 30kW
TS130 applies to inverters greater than 30kW but no greater than 200kW
TS131 applies to inverters greater than 200kW

For more information see [SA Power Networks' Solar and Other Generators information](#).

Inverter Commissioned to: *

The next section relates to commissioning of a new inverter. Select to which Standard or Technical Standard the inverter has been commissioned to. The required settings will be displayed once you select a Standard. If for some reason the inverter has been commissioned to different settings, select Other and a new section will open for you to enter these details.

☐ Does the inverter interact with a demand response enabling device (DRED)? *

Volt-Watt Response *

Volt-Var Response *

The final section allows you to describe whether the inverter interacts with a demand response enabling device and if the Volt-Watt and Volt-Var modes are enabled.

Note that both Volt-Var and Volt-Watt must be enabled for the installation to be compliant with SA Power Networks Technical Standards

5.3 Battery

☒ Battery

Battery Device Status *

Device Type *

Number of Batteries *

1

Commissioning Date

DD/MM/YYYY

Decommissioning Date

DD/MM/YYYY

Battery *

Manufacturer

Battery Manufacturer

Battery *

Model

Battery Model

Nominal Storage Capacity (kWh) *

If your work relates to a battery installation you will need to provide:

- Device Status
- Device Type
 - o This describes the type of battery such as Lithium-Ion
 - o Electric Vehicles connected in a Vehicle-To-Grid arrangement could be described in this section when they become available
- Commissioning/Decommissioning dates
- Manufacturer and Model of the Battery
- Nominal Storage Capacity in kWh

5.4 Solar

☒ Solar

Solar Device Status *

Total Capacity (kW) *

Number of Modules *

Commissioning Date

DD/MM/YYYY

Decommissioning Date

DD/MM/YYYY

Module *

Manufacturer

Module *

Model

Module Type *

Solar PV modules are described in this section. You will be asked to enter:

- Device Status
- Total Capacity of the Solar Array
- Number of modules
- Commissioning/Decommissioning Dates
- Manufacturer and Model for the modules
 - o These are dropdowns which list modules approved by the CEC
 - o If the work relates to a module which is not CEC approved, select Other to describe the devices
- Module Type
 - o This describes the technology of the panel, eg. monocrystalline or polycrystalline

5.5 Non-Inverter Generator

☒ Non-Inverter Generator

Non Inverter Generator Device Status *

Device Type *

Number of Generators *

1

Commissioning Date

DD/MM/YYYY

Decommissioning Date

DD/MM/YYYY

Manufacturer *

Model *

The Non-Inverter Generator section can be used to describe a range of devices such as:

- Backup Generators
- Non-Battery Storage
- Small Hydroelectric or Wind Generation

You will be asked to enter:

- Device Status
- Device Type, eg. Fossil or Wind
- Number of Generators that you have worked on
- Commissioning/Decommissioning Dates
- Manufacturer and Model of the Generators

Serial Number(s) *

Capacity (kVA) *

Voltage/Reactive Power Regulation *

Not Enabled

Generator Ramp Rate *

Not Enabled

Frequency Response Mode *

Not Enabled

- Serial Number(s), separate these with a comma (,) if declaring multiple generators

- Generator Modes, if enabled
 - Voltage/Reactive Power Regulation
 - Ramp Rate
 - Frequency Response

5.6 Details

Finally you are required to provide a description of your work in free-text. This will also print on the certificate so can be a good place to include any additional information relevant or required by your customer.

6. EXAMPLES

6.1 Solar PV + Inverter

A new Solar PV Installation including a Solar PV inverter which is grid connected would require the following options to be selected:

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Solar

6.2 Solar PV + Battery + Hybrid Inverter

A new Solar PV and Battery Installation including a Hybrid PV and battery charging inverter which is grid connected would require the following options to be selected:

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Battery
- Solar

6.3 Solar PV + Solar Inverter + Battery + Battery Charging Inverter

A new Solar PV and Battery Installation including separate PV and battery charging inverters which is grid connected requires the following.

Create 2 jobs on the eCoC – one regarding the battery and its inverter and the other in relation to the PV, for example:

Job 1 (Solar PV)

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Solar

Job 2 (Battery)

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Battery

6.4 Battery with Integrated Inverter

Batteries with an integrated inverter are described in the same manner as those with an external battery charging or hybrid inverter:

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Battery

6.5 Inverter Replacement Only

Where replacing an inverter, you are required to detail both the decommissioning of the existing inverter as well as the installation of the replacement.

Job 1 (Decommissioning)

Job Category: Decommission

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter

Job 2 (Replacement)

Job Category: Replacement

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter

6.6 Solar PV + Microinverters

Microinverter systems can be described under a single job, simply enter the number of inverters. For this work select the same options as you would for a Solar PV installation with a single inverter:

Job Category: New Installation

Job Type: Inverter/Battery/Solar/Generator

- Is the installation grid connected?
- Inverter
- Solar