

Guide to DER Register Installer Portal

1.0 Final
April 2020

Provides information to Account-holders on how to use DER Register Installer Portal to edit DER records, AC Connections, and DER Devices

Important Notice

PURPOSE

This Guide to DER Register Installer Portal (Guide), prepared by AEMO, provides guidance for DERR under Rule 3.7E of the NER (Rules).

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Available to the public.

DOCUMENT IDENTIFICATION

Business custodian: EMS

IT custodian: IT Development

Prepared by: Technology, Technical Writers

VERSION HISTORY

0.1 Created Guide to DER Register Installer Portal.

0.2 Added sections on new DER record, AC connections and DER Devices, and downloading Receipts.

0.3 Added sections on editing existing DER records, adding new AC Connections and DER Devices and resolving exceptions

1.0 Clarified Registration requirements, Issued as Final Version

Last update: Tuesday, 21 April 2020 3:42 PM

DOCUMENTS MADE OBSOLETE

The release of this document changes any previous versions of Guide to DER Register Installer Portal.

FEEDBACK

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's support hub.

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Introduction

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Purpose

This guide explains how Account-holders use the DER Register Portal to:

- Access installation jobs
- Update and add connection and device information to DER records and resolve data exceptions if they occur
- View receipts generated for completed jobs

Audience

This guide is relevant to Account-holders who require an understanding of the DERR Portal. Account holders can be a DER installer or someone acting on behalf of the DER installer.

How to use this guide

- This guide is written in plain language for easy reading.
- Where there is a discrepancy between the National Electricity Rules (NER), and information or a term in this document, the National Electricity Rules (NER) takes precedence.
- Where there is a discrepancy between the Procedures, and information or a term in this document, the Procedures take precedence.
- **Text in this format** indicates there is a resource on AEMO's website, for details, see [References](#).

What's in this guide

1. **Introduction** on page 1 provides an introduction of DERR Portal.
2. **Need to Know** on page 3 lists the prerequisites and provides the entity required for Participant User access.
3. **Accessing the DER Register Portal (Account-holders)** on page 4 provides information about accessing the DERR Portal, DERR actors and DER Record status.
4. **Accessing a Job (DER Record)** on page 10 describes how Account-holders can access existing installation jobs, edit installation data and add or update AC connections and DER devices.
5. **Linking DER Devices to AC Connections** on page 32 describes how to link DER devices under appropriate AC connections.
6. **Downloading Receipts** on page 22 provides information on how to download installation receipts.
7. **Glossary** on page 3 explains the terms and abbreviations used throughout this guide.

Need to Know

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System requirements

The DERR Portal runs on both Windows and UNIX-like operating systems and requires:

- A compatible web browser (Google Chrome recommended).

Related rules and procedures

The following rules and procedures relate to DERR:

[DER Register Information Guidelines](#)

[DER Register Final Report](#)

Glossary

Account-holder

Any person (non-NSP) holding an account with AEMO that allows access to the DER Register. This may be a DER installer or someone acting on behalf of a DER installer.

AEMO

Australian Energy Market Operator

AEST

Australian Eastern Standard Time

CEC

Clean Energy Council

DER

Distributed Energy Resources

DERR

DER Register

DNSP

Distribution Network Service Provider

MSATS

Market Settlement and Transfer Solution for retail electricity

NEM

National Electricity Market

NER

National Electricity Rules

NMI

National Metering Identifier for electricity meters

NSP

Network Service Provider

Accessing the DER Register Portal (Account-holders)

Before you begin

Before accessing the DER Register Portal, you will need to create an account using:

- An active email address (to be used for verification and as the User ID).
- A DER Installation Job number
- A DER Installation NMI

Note: You must have a current installation job in order to access the DERR Portal and create an account.

Accessing the DER Register Portal

On your mobile device browser, go to <https://derr.aemo.com.au>.

The Account Login page displays.

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

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.

Email Address

Password

[Forgot your password?](#)

Sign in

[Don't have an account? Sign up now](#)

Using this page, you can:

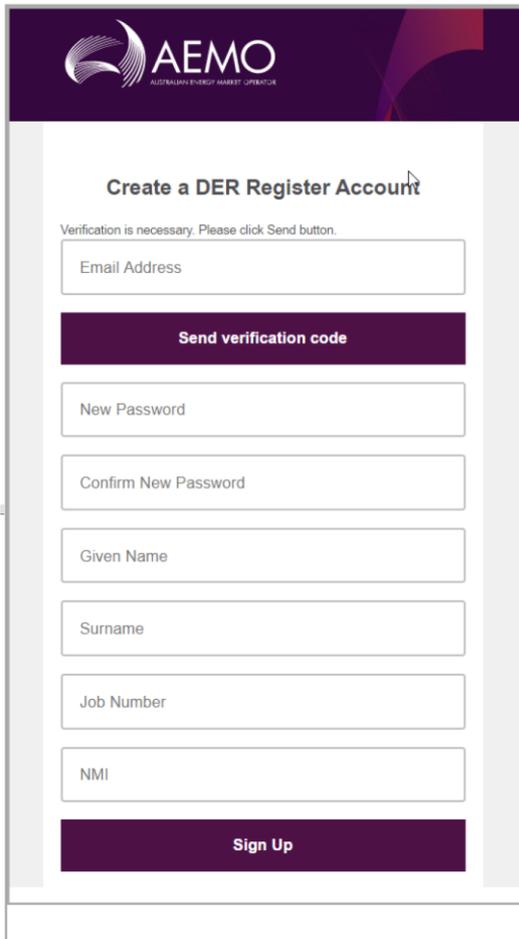
- Sign up for an account if you do not have an existing account. For more information, refer to [Signing up for an account](#) on page 5.
- Log in using your account details. For more information, refer to [Logging in using your account details](#) on page 6.

Signing up for an account

When you access the DER Register Portal for the first time, you can sign up and create a new account using the Account Login page.

To sign up for an account

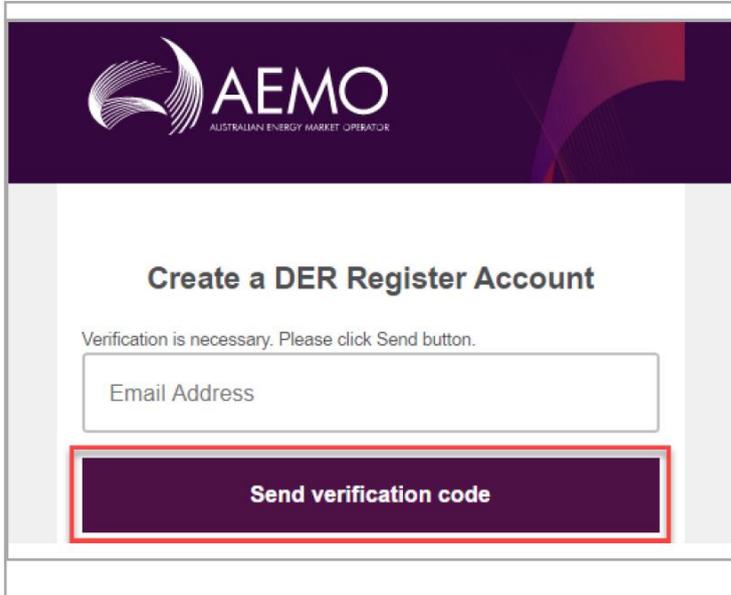
1. On the Account Login page, click **Sign up now**. The **Create a DER Register Account** page displays.



The screenshot shows the 'Create a DER Register Account' page. At the top left is the AEMO logo (Australian Energy Market Operator). The page title is 'Create a DER Register Account'. Below the title, a message states: 'Verification is necessary. Please click Send button.' The form contains the following fields and buttons:

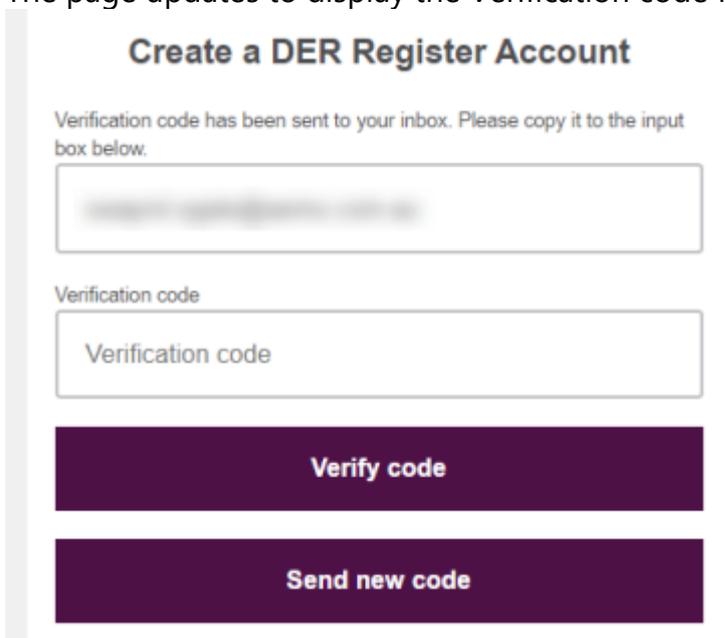
- Email Address (text input)
- Send verification code (purple button)
- New Password (text input)
- Confirm New Password (text input)
- Given Name (text input)
- Surname (text input)
- Job Number (text input)
- NMI (text input)
- Sign Up (purple button)

2. In the Email Address field, enter your email address and click **Send verification code**. An email is sent to your nominated address with a verification code.
Note: It may take a few minutes to receive the verification code email.



The screenshot shows the AEMO logo at the top left. Below it, the heading 'Create a DER Register Account' is centered. Underneath, a message reads 'Verification is necessary. Please click Send button.' Below this message is an input field labeled 'Email Address'. At the bottom of the form, a dark purple button with the text 'Send verification code' is highlighted with a red rectangular border.

The page updates to display the Verification code fields and additional options.



The screenshot shows the same heading 'Create a DER Register Account'. The message now reads 'Verification code has been sent to your inbox. Please copy it to the input box below.' Below this is a blurred input field. Underneath is another input field labeled 'Verification code'. At the bottom, there are two dark purple buttons: 'Verify code' and 'Send new code'.

3. Once you have received the verification code, enter it in the Verification code field, and click **Verify code**.
Note: The code expires after 45 mins. If the code expires, click **Send new code** to regenerate a new verification code.
4. Once the verification code is accepted, enter your password (twice to reconfirm), given name, surname, job number and NMI.

Ensure that your passwords match the following conditions:

- Must be between 8–64 characters,
- Contain 3 out of 4 of the following:
 - Lowercase characters,
 - Uppercase characters,
 - Digits (0–9), and
 - One or more of the following symbols: @ # \$ % ^ & * - _ + = [] { } | \ : ' , ? / ` ~ " () ;

Note: Passwords are validated as you enter them on the login screen. If the password does not meet these conditions, a warning message is displayed on the login screen.

All the fields on the sign-up page are mandatory.

The NMI and Job Number must be for an 'active job' and should be provided by the NSP. IF the NMI and Job Number are incorrect you should contact the NSP to obtain the correct details.

5. Click **Sign Up** to complete the sign up process.
 - a. If the sign up process is successful, you are logged in and the DER Register home page displays.
 - b. If the sign up process is unsuccessful, a relevant error message displays on the login screen. Resolve the error and try again.
If repeated attempts fail, contact AEMO SupportHub for troubleshooting the error.

Logging in using your account details

Once you have created an account, log in using your email address & password and click **Sign In**. The DER Register Installer Portal home page displays:

- **Access Jobs** - Allows you to access and update an existing Job (DER Record). You can also edit AC Connections and DER Devices information.

- **Receipts** - Once a DER device has been installed and recorded in the DER Register, Account-holders can view and download a receipt for the installation.

The screenshot shows the 'Access Job' page. At the top left is the AEMO logo. In the top right, there are navigation links for 'Access Job', 'Receipts', and a 'LOGOUT' button. The main heading is 'Access Job'. Below it, a message reads: 'Please input your NMI and Job Number details to access the job details. If you don't have these details, please contact the NSP'. There are three input fields: 'NMI', 'Job Number', and an 'ACCESS' button.

The screenshot shows the 'Download Receipt' page. At the top left is the AEMO logo. In the top right, there are navigation links for 'Access Job', 'Receipts', and a 'LOGOUT' button. The main heading is 'Download Receipt'. Below it, a message reads: 'Please input your NMI, Job Number, Installer ID details to access the Receipt details. If you don't have these details, please contact the NSP'. There are three input fields: 'NMI', 'Job Number', 'Installer ID', and a 'Get Receipt' button.

Accessing a Job (DER Record)

Account-holders can access a specific Job by entering the correct combination of the NMI and Job number, as recorded in the DER Register.

You may access a DER Record using a job number for 365 days from the date of submitting the job number for the first time.

When the Account-holder accesses a DER Record using the correct combination of a NMI and the Job number, and a receipt is generated for that job number, this access is blocked until the NSP grants access. Granting access for a job number will reset the allowed time for accessing the DER Record.

Using the DER Register B2C Portal, Account-holders can:

- Retrieve existing DER record connection application parameters for Initial and Idle records and edit these details,
- Retrieve currently Confirmed and Conditional DER installation data for an NMI and edit them, if required,
- View the NSP's contact details if provided by NSP (Email, Role and Phone number), and,
- Save modified installation data, without submitting. The system will retain all changes made when the Account-holder logs back in.

DER record statuses are described at [DER Record Status](#)

Account-holders cannot view Confirmed and Conditional AC Connections and DER Devices with the Decommissioned status.

Who can access Job (DER record)

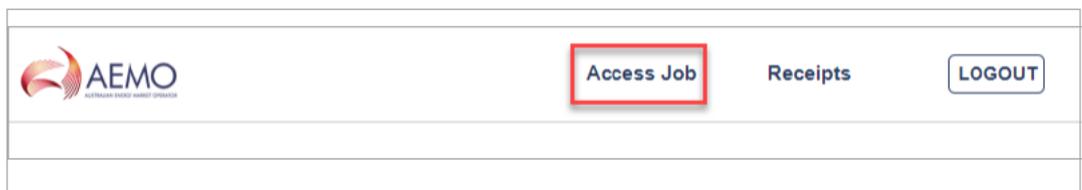
Account holders with access to the DER Register Portal.

Before you begin

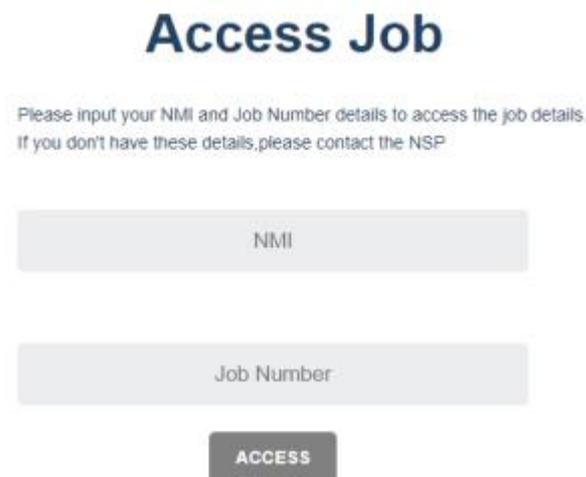
Ensure that you have the NMI and Job Number to access the DER record.

To access the DER record

1. From the DER Register Installer Portal top menu, click **Access Job**.



The Access Job page displays.

A screenshot of the 'Access Job' page. The page has a large blue heading 'Access Job'. Below the heading, there is a text prompt: 'Please input your NMI and Job Number details to access the job details. If you don't have these details, please contact the NSP'. There are two light gray input fields, one labeled 'NMI' and one labeled 'Job Number'. Below these fields is a dark gray button labeled 'ACCESS'.

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Using the DER Register B2C Portal, Account-holders can perform the following actions:

- **Reviewing and Editing DER Installation Data (Existing DER Record)** and save the modified data, without submitting the changes.
Note: The system retains all changes made when the Account-holder logs back in.
- Edit existing AC Connections and DER Devices information.

Reviewing and Editing DER Installation Data (Existing DER Record)

Account-holders can review and edit installation data for an existing DER record, as long as it does not alter the connection agreement in any way.

Who can edit installation data (existing DER record)

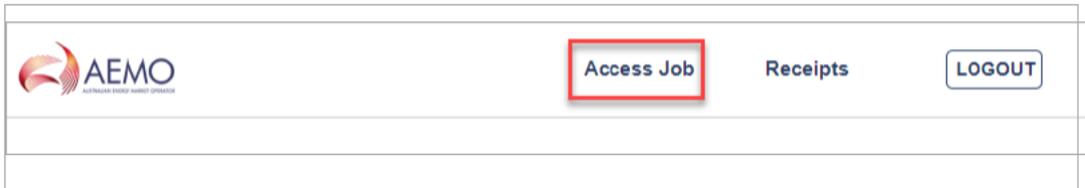
All Account-holders can edit installation data for an existing DER record for their organisation.

Before you begin

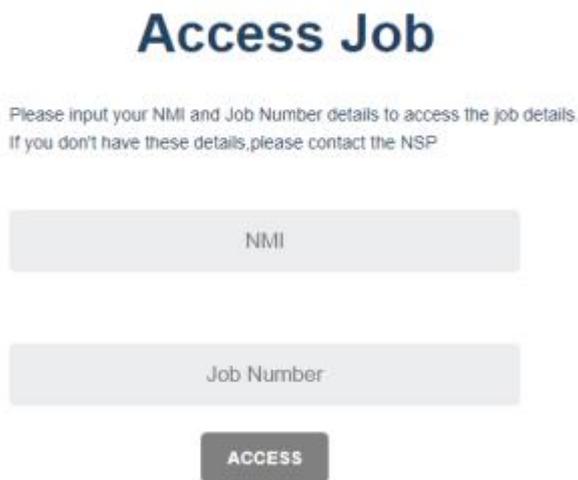
Ensure that you have the NMI and Job Number to access the Job (DER Record) you want to edit.

To edit installation data (existing DER record)

1. From the DER Register Installer Portal top menu, click **Access Job**.



The Access Job page displays.

A screenshot of the 'Access Job' page. At the top, the title 'Access Job' is displayed in a large, bold, blue font. Below the title, there is a message in a smaller font: 'Please input your NMI and Job Number details to access the job details. If you don't have these details, please contact the NSP'. Below the message, there are two input fields: one labeled 'NMI' and one labeled 'Job Number'. Below these fields is a dark grey button with the text 'ACCESS' in white capital letters.

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) [Connections & Devices](#) 3

DER Installation
NMI (National Metering Identifier)

Connection Agreement 'Job Number' Installer Identification

Approved Capacity (KVA) Number of phases available

Number of phases with DER connected Islandable installation

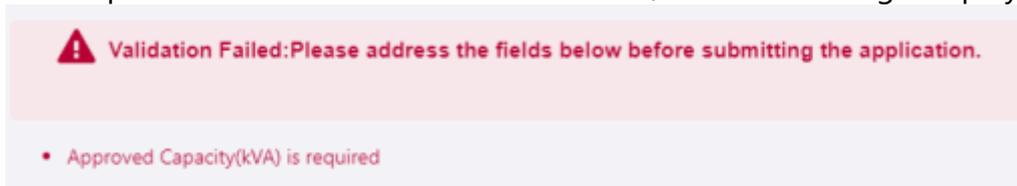
3. Edit the DER details as required.

Note: Account-holders cannot edit/update existing mandatory data (NMI, Job Number, Approved Capacity). These fields are supplied by your NSP when a connection application is submitted to the DERR.

If you need to save your changes for later, click **Save for Later**.

Note: The system retains all changes made when the Account-holder logs back in.

4. Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays.



Note: You will need to fix the errors before you can proceed. The DERR Portal will not allow you to submit your DER record until you have completed the first level submission validations. For more information, refer to [Appendix: First Validation Pre-submission](#) on page 41.

- If the updated data fails a second level validation, a warning message displays, and the **Update** button is activated.
5. To save your changes, click **Update**. The DER record is updated with second level exceptions displayed for actioning, if any.

Editing Existing AC Connections

Using the DER Register Installer Portal, Account-holders can edit existing AC Connections associated with DER records.

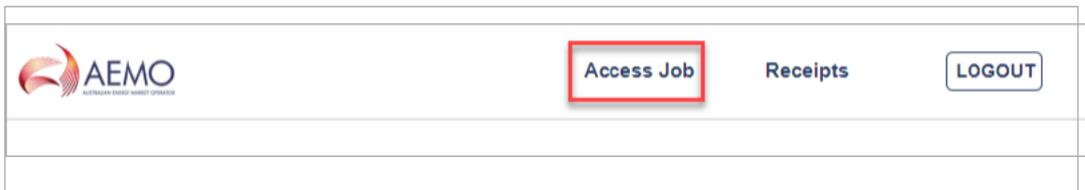
After editing existing AC Connection information, you will need to validate the entire DER record before submitting your updates for the DER Register.

Who can edit AC Connections

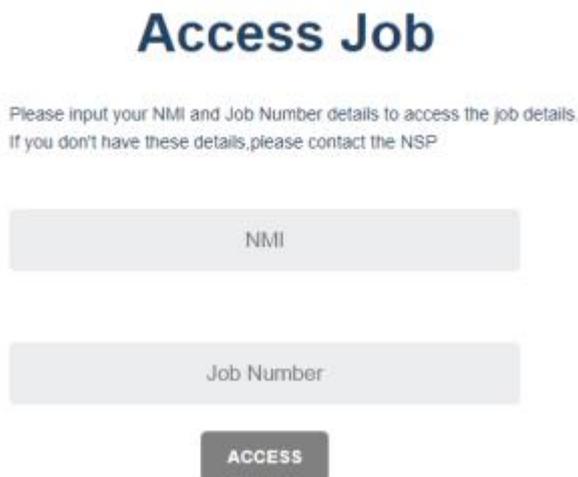
All Account-holders can edit AC Connections associated with DER records for the job they have access to.

To edit an existing AC Connection

1. From the DER Register Portal top menu, click **Access Job**.



The Access Job page displays.



2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) [Connections & Devices](#) 3

DER Installation

NMI (National Metering Identifier)

Connection Agreement 'Job Number'

Installer Identification

Approved Capacity (KVA)

Number of phases available

Number of phases with DER connected

Islandable installation

SAVE FOR LATER

VALIDATE

SUBMIT

3. Click the **Connections & Devices** tab. This tab displays all the AC Connections and DER Devices associated with the NMI.
4. Click **Edit** to view the AC Connection you want to edit. The Edit AC Connection page displays.
5. Update the following mandatory fields for the AC Connection.

Field	Description and Action
Equipment type	Select from either Inverter or Other. Indicates whether the DER device is connected via an inverter (and what category of inverter it is) or not (e.g. rotating machine).
Commissioning date	Select the date the AC Connection becomes Active .
Number of AC Connections	Type in the number of AC Connections in the group. For a suite of AC Connections to be considered as a group, all the AC Connections included must have the same attributes.

Field	Description and Action
Status	<p>Select the status of the AC Connection. This will be used to identify if an AC Connection is active, inactive or decommissioned.</p> <p>This status also tracks commissioning and decommissioning date. When a new record is inserted in the database, the installation date/ start date is defined by the user and may be backdated.</p>
DRED interaction enabled	Select if the inverter is controlled remotely via the Demand Response Enabled Device function.
Manufacturer	<p>Select the name of the inverter manufacturer, from a list pre-populated with accredited manufacturers. If the manufacturer is not in the list, you can enter this information manually.</p> <p>When you select an accredited inverter manufacturer/model number, the form will auto-populate certain attributes from reference database.</p>
Model Number	<p>Select the model number of the inverter, from a list pre-populated with accredited model numbers. If the model number is not in the list, you can enter this information manually.</p> <p>When you select an accredited inverter manufacturer/model number, the form will auto-populate certain attributes from reference database.</p>
Series	Select from the list of accredited model numbers. If the series is not in the list, you can enter this information manually.
Other Inverter Series	Used to indicate if an inverter series is accredited.
Serial Number	The number of AC Connections "count" shall determine how many serial numbers are required.
What standard applies to the inverter	<p>What standard/s is the inverter manufactured, tested and installed to?</p> <p>Examples include AS4777.2:2015, IEC 62109-1 and -IEC 62019-2</p>
Rated capacity (kVA)	The rated AC output power that is listed in the product specified by the manufacturer.

Note: Depending on the manufacturer and model, you may need to complete additional non-mandatory information for the AC Connection.

6. Click **Done** to save your changes.

Note: You will need to **Validate DER Record** below before you update these changes in the DER Register.

Validate DER Record

After you have edited existing AC Connection, you will need to validate the DER Record.

1. Click the **DER Installation Details** tab.
2. Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays and you will need to fix the error before you can proceed.
 - If the updated data fails a second level validation, a warning message displays, and the **Update** button is activated.
3. To save your changes, click **Update**.

Note: The DER Register Portal will not allow you to update your DER record until you have resolved any first level validations.

For more information on how to resolve exceptions, refer to **Error! Reference source not found..**

Editing Existing DER Devices

Using the DERR Portal, account-holders can edit existing DER Devices associated with AC Connections for a DER record.

After editing existing DER Device information, you will need to validate the entire DER record before submitting your updates for the DER Register.

Who can edit DER Devices

All account-holders can edit DER Devices associated with AC Connections for DER records for their organisation.

To edit an existing DER Device

1. From the DER Register Portal top menu, click **Access Job**.



The Access Job page displays.

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

NMI

Job Number

ACCESS

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) [Connections & Devices](#) 3

DER Installation

NMI (National Metering Identifier)

6001066128

Connection Agreement 'Job Number' JCSAP1000000000000000018

Installer Identification Installer ID

Approved Capacity (KVA) 30000

Number of phases available 3

Number of phases with DER connected 3

Islandable installation Yes

SAVE FOR LATER VALIDATE SUBMIT

3. Click the **Connections & Devices** tab. This tab displays all the AC Connections and DER Devices associated with the NMI.
4. Click **Edit** to view the DER Device you want to edit. The Edit DER Device page displays.
5. Update the following mandatory fields for the DER Device.

Field	Description and Action
Device type	<p>Indicates the primary technology used in the DER device. You can choose from:</p> <ul style="list-style-type: none"> • Fossil • Hydro • Wind • Solar PV • Biomass/Waste • Geothermal • Storage • Co- / Tri-generation • Other
Device sub-type	Indicates the secondary technology used in the DER device.
Number of devices	Number of devices in the group of DER devices.
Status	<p>Select the status of the DER Device. This will be used to identify if an AC Connection is active or inactive or decommissioned.</p> <p>Note: This status is only applicable to the DER Device. This is not a duplicate of the NMI level status, as devices may become active or inactive without a change of status to the overall system.</p>
Manufacturer	<p>Select the name of the device manufacturer, from a list pre-populated with accredited manufacturers.</p> <p>When you select an accredited device manufacturer/model number, the form will auto-populate certain attributes from reference database.</p>
Model Number	<p>Select the model number of the device, from a list pre-populated with accredited model numbers.</p> <p>When you select an accredited device manufacturer/model number, the form will auto-populate certain attributes from reference database.</p>

Field	Description and Action
Rated capacity (kW or kVA)	Maximum output in kVA that is listed in the product specification by the manufacturer.

Note: Depending on the manufacturer and model, you may need to complete additional non-mandatory information for the device.

6. Click **Done** to save your changes.

Note: You will need to **Validate DER Record** below before you update these changes in the DER Register.

Validate DER Record

After you have edited existing DER Device , you will need to validate the DER Record.

1. Click the **DER Installation Details** tab.
2. Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays and you will need to fix the error before you can proceed.
 - If the updated data fails a second level validation, a warning message displays, and the **Update** button is activated.
3. To save your changes, click **Update**.

Note: The DERR Portal will not allow you to update your DER record until you have resolved any first level validations.

For more information on how to resolve exceptions, refer to **Error! Reference source not found.**

Downloading Receipts

Once a DER device has been installed and recorded in the DERR, Account-holders can view and download a receipt for the installation. This receipt provides a summary of the installation and confirmation that the job is complete.

This topic describes how to view and download the receipt.

Before you begin

Ensure that:

- The installation job has been completed and the status is confirmed,
- The job has been recorded in the DERR Portal, and
- You have a valid NMI, job number and Installer ID to access the receipt.

To download the receipt

1. From the DERR Portal top menu, click **Receipts**. The **Download Receipt** page displays.

Download Receipt

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

The screenshot shows a web form titled 'Download Receipt'. It contains three text input fields stacked vertically, labeled 'NMI', 'Job Number', and 'Installer ID'. Below these fields is a blue button with the text 'Get Receipt'.

2. On the Download Receipt page, enter the NMI, Job Number and Installer ID.
Note: All these fields are mandatory. You cannot download the receipt if you do not enter all these details.

3. Click **Get Receipt**. A PDF version of the Receipt is downloaded.



[Confirmation Date]

Automated Record Confirmation for a Distributed Energy Resource

This is to confirm that AEMO's records show that a small generating system, battery system or other distributed energy resource has been installed and is now operational, with the details below.

Installer identification: [InstallerID]

Date record confirmed: [Job Complete Date]

Installation overview

The total approved distributed energy resource capacity for this site is [approved capacity] kVA, and the capacity of the installed system at his site is [total AC connection capacity] kVA.

Network Service Provider: [NSP name]

Job Number: [JobNumber]

National Metering Identifier (NMI): [NMI]

Export limit: [if applicable then export_limit, if not applicable then text: No limit]

Installed system details

Identifier	Type	No.	Capacity (kVA)	Total Capacity (kVA)	Manufacturer	Model Number
[AC connection ID]	[AC equipment type]	[number of AC connections]	[inverter capacity]	[Total capacity]	[manufacturer name]	[Model number]
[AC connection ID]	[AC equipment type]	[number of AC connections]	[inverter capacity]	[Total capacity]	[manufacturer name]	[Model number]
Fill rows as needed...						

System source details

Identifier	Type	No.	Source Capacity (kW)	Storage Capacity (kWh)	Manufacturer	Model Number
[Device ID]	[Device type]	[number of devices]	[Total device capacity]	[if battery, then kWh, if not then text: No storage]	[Device Manufacturer name]	[Device Model number]
[Device ID]	[Device type]	[number of devices]	[Total device capacity]	[if battery, then kWh, if not then text: No storage]	[Device Manufacturer name]	[Device Model number]

What's on the Receipt

The confirmation Receipt contains the following information.

Section	Description
Confirmation Date	Date when the installation was confirmed
Installer Details	Provides Installer ID details
Date record confirmed	Date when the job was completed
Installation Overview	Provides NSP details including: <ul style="list-style-type: none"> a. NSP name b. Job Number c. NMI d. Export limit
Installed system details	Provides a list of installed AC connection details, including: <ul style="list-style-type: none"> a. Identifier b. Type c. No of AC connections d. Capacity (kVA) e. Total Capacity (kVA) f. Manufacturer g. Model Number
System source details	Provides a list of installed DER Device details, including: <ul style="list-style-type: none"> a. Identifier b. Type c. No of devices d. Source Capacity (kW) e. Storage Capacity (kWh) f. Manufacturer g. Model Number

Managing AC Connections and DER Devices

Using the DER Register Installer Portal, Account-holders can:

- Edit existing AC Connection and DER Devices.
- Add one or multiple new AC Connection(s) and/or DER Device(s) (requires a new job number)
- Link new DER devices to new or existing AC connections.

Adding AC Connections

Using the DER Register Installer Portal, Account-holders can add one or multiple new AC Connections to existing DER records.

Note: Every AC Connection must have an associated DER Device.

You must create a new job number before you add a new AC connection to a DER Record.

Who can add AC Connections

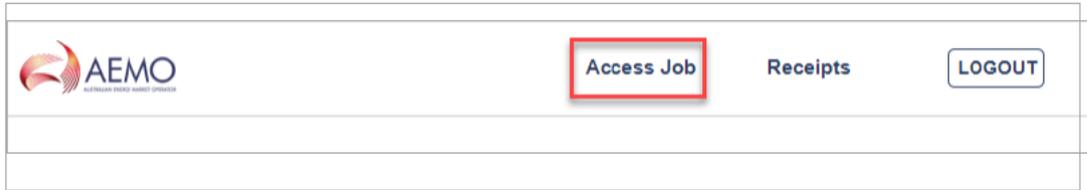
Account-holders can add AC Connections to DER records they have access to.

Before you begin

Ensure that you are authenticated and authorised to make changes to the DER record.

To add a new AC Connection

1. From the DER Register Portal top menu, click **Access Job**.



The Access Job page displays.

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

NMI

Job Number

ACCESS

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) Connections & Devices 3

DER Installation

NMI (National Metering Identifier)

6001066128

Connection Agreement 'Job Number'

JCBAP11000000000000000018

Installer identification

Installer ID

Approved Capacity (KVA)

30000

Number of phases available

3

Number of phases with DER connected

3

Islandable installation

Yes

SAVE FOR LATER VALIDATE SUBMIT

3. Click the **Connections & Devices** tab. This tab displays all the AC Connections and DER Devices associated with the NMI.
4. Click **+AC Connection**. The **Add New AC Connection** page displays.
5. Complete the following mandatory fields for the AC Connection.

Field	Description and Action
Equipment type	Select from either Inverter or Other. Indicates whether the DER device is connected via an inverter (and what category of inverter it is) or not (e.g. rotating machine).
Commissioning date	Select the date the AC Connection becomes Active .
Number of AC Connections	Type in the number of AC Connections in the group. For a suite of AC Connections to be considered as a group, all the AC Connections included must have the same attributes.
Status	Select the status of the AC Connection. This will be used to identify if an AC Connection is active, inactive or decommissioned. This status also tracks commissioning and decommissioning date. When a new record is inserted in the database, the installation date/ start date is defined by the user and may be backdated.
DRED interaction enabled	Select if the inverter is controlled remotely via the Demand Response Enabled Device function.
Manufacturer	Select the name of the inverter manufacturer, from a list pre-populated with accredited manufacturers. If the manufacturer is not in the list, you can enter this information manually. When you select an accredited inverter manufacturer/model number, the form will auto-populate certain attributes from reference database.
Model Number	Select the model number of the inverter, from a list pre-populated with accredited model numbers. If the model number is not in the list, you can enter this information manually. When you select an accredited inverter manufacturer/model number, the form will auto-populate certain attributes from reference database.
Series	Select from the list of accredited model numbers. If the series is not in the list, you can enter this information manually.
Other Inverter Series Used	Used to indicate if an inverter series is accredited.

Field	Description and Action
Serial Number	The number of AC Connections "count" shall determine how many serial numbers are required.
What standard applies to the inverter	What standard/s is the inverter manufactured, tested and installed to? Examples include AS4777.2:2015, IEC 62109-1 and -IEC 62019-2
Inverter rated capacity (kVA)	The rated AC output power that is listed in the product specified by the manufacturer.

Note: Depending on the manufacturer and model, you may need to complete additional non-mandatory information for the AC Connection.

- Click **Done** to save your changes. A new AC Connection is created with validation status as **Pending Validation**. The AC Connection will be validated when you validate the DER record.

Validate DER Record

After you have added a new (or editing existing) AC Connection or DER Device, you will need to validate the DER Record.

- Click the **DER Installation Details** tab.
- Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays and you will need to fix the error before you can proceed.
 - If the updated data fails a second level validation, a warning message displays, and the **Update** button is activated.
- To save your changes, click **Update**.

Note: The DERR Portal will not allow you to update your DER record until you have resolved any first level validations.

For more information on how to resolve exceptions, refer to [Resolving Exceptions](#).

Adding DER Devices

Using the DER Register Installer Portal, Account-holders can add one or multiple new DER Devices to existing DER records.

You must create a new job number before you add a new DER Device to a DER Record.

Who can add DER Devices

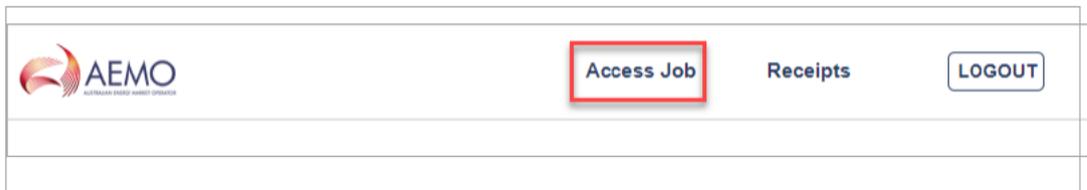
Account-holders can add DER Devices to DER records they have access to.

Before you begin

Ensure that you are authenticated and authorised to make changes to the DER record.

To add a new DER Device

1. From the DER Register Portal top menu, click **Access Job**.



The Access Job page displays.

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

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) [Connections & Devices](#) 3

DER Installation

NMI (National Metering Identifier)

Connection Agreement 'Job Number'

Installer identification

Approved Capacity (KVA)

Number of phases available

Number of phases with DER connected

Islandable installation

3. Click **Connections & Devices** tab. This tab displays all the AC Connections and DER Devices associated with the NMI.
4. Click **+DER Device**. The **Add new DER Device** page displays.
5. Complete the following mandatory fields for the DER Device.

Field	Description and Action
Device type	<p>Indicates the primary technology used in the DER device. You can choose from:</p> <ul style="list-style-type: none"> • Fossil • Hydro • Wind • Solar PV • Biomass/Waste • Geothermal • Storage • Co-/Tri-generation • Other
Device sub-type	Indicates the secondary technology used in the DER device.

Field	Description and Action
Number of devices	Number of devices in the group of DER devices.
Status	Select the status of the DER Device. This will be used to identify if an AC Connection is active or inactive or decommissioned. Note: This status is only applicable to the DER Device. This is not a duplicate of the NMI level status, as devices may become active or inactive without a change of status to the overall system.
Manufacturer	Select the name of the device manufacturer, from a list pre-populated with accredited manufacturers. When you select an accredited device manufacturer/model number, the form will auto-populate certain attributes from reference database.
Model Number	Select the model number of the device, from a list pre-populated with accredited model numbers. When you select an accredited device manufacturer/model number, the form will auto-populate certain attributes from reference database.
Rated capacity (kW or kVA)	Maximum output in kVA that is listed in the product specification by the manufacturer.

Note: Depending on the manufacturer and model, you may need to complete additional non-mandatory information for the device.

6. Click **Done** to save your changes. A new DER Device is created with validation status as **Pending Validation**. The DER Device will be validated when you validate the DER record.

Validate DER Record

After you have added a new DER Device, you will need to validate the DER Record.

1. Click the **DER Installation Details** tab.
2. Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays and you will need to fix the error before you can proceed.
 - If the updated data fails a second level validation, a warning message displays, and the **Update** button is activated.

3. To save your changes, click **Update**.

Note: The DERR Portal will not allow you to update your DER record until you have resolved any first level validations.

For more information on how to resolve exceptions, refer to [Resolving Exceptions](#).

Linking DER Devices to AC Connections

Using the DERR Portal, Account-holders can link DER devices to existing AC Connections.

All DER Devices must be linked to an AC Connection in the DER Register Portal. A device can only be linked to one AC Connection.

Before you begin

Ensure that you are authorised to update DER Devices information.

To link a DER Device to an existing AC Connection

1. From the DERR Portal top menu, click **Access Job**. The Access Job displays.

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

NMI

Job Number

ACCESS

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) Connections & Devices 

DER Installation

NMI (National Metering Identifier)

Connection Agreement 'Job Number'	Installer identification
<input type="text" value="JCBAPr102000000000000018"/>	<input type="text" value="Installer ID"/>

Approved Capacity (KVA)	Number of phases available
<input type="text" value="30000"/>	<input type="text" value="3"/>

Number of phases with DER connected	Islandable installation
<input type="text" value="3"/>	<input type="text" value="Yes"/>

3. Click **Connections & Devices**. A list of existing AC Connections and DER Devices for the DER record displays.

Connections & Devices 2 +AC Connection +DER Device

AC Connection-1 Validation status: Confirmed Edit
ID:200000003985410 Type: Unknown_equipment Connection status: Active

DER Device Validation status: Confirmed Parent AC Connection 1 Edit
ID:200000005402997 Type: Solar PV Device status: Active

DER Device Validation status: Confirmed Parent AC Connection 1 Edit
ID:200000004019509 Type: Other Device status: Active

AC Connection-2 Validation status: Confirmed Edit
ID:200000005700873 Type: Inverter Connection status: Active

DER Device Validation status: Confirmed Parent AC Connection 2 Edit
ID:200000005744651 Type: Storage Device status: Active

4. For the DER Device you want to link, from the Parent dropdown, select the AC Connection you want to associate the device with. For example, AC Connection 2.

The screenshot shows the 'AC Connection-1' page. At the top, it displays 'AC Connection-1' with ID:200000003985410, Validation status: Confirmed, Type: Unknown_equipment, and Connection status: Active. Below this, there are two 'DER Device' entries. The first entry has ID:200000005402997, Type: Solar PV, and Device status: Active, with its Parent dropdown set to 'AC Connection 1'. The second entry has ID:200000004019509, Type: Other, and Device status: Active. Its Parent dropdown is open, showing 'AC Connection 1' and 'AC Connection 2', with 'AC Connection 2' highlighted by a red box.

The DER Device is now linked to AC Connection-2 and the Connections and Devices page is refreshed with these changes.

The screenshot shows the 'AC Connection-2' page. At the top, it displays 'AC Connection-2' with ID:200000005700873, Validation status: Confirmed, Type: Inverter, and Connection status: Active. Below this, there are four 'DER Device' entries. The first three entries have their Parent dropdown set to 'AC Connection 2'. The first entry has ID:200000005744651, Type: Storage, and Device status: Active. The second entry has ID:200000005744649, Type: Solar PV, and Device status: Active. The third entry has ID:200000005744648, Type: Storage, and Device status: Active. The fourth entry, which is highlighted with a red box, has ID:200000004019509, Type: Other, and Device status: Active, with its Parent dropdown set to 'AC Connection 2'.

Resolving Exceptions

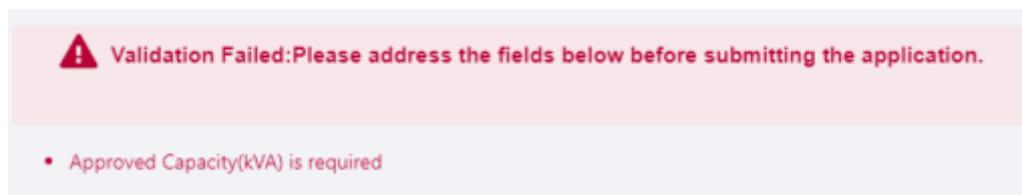
Using the DER Register Installer Portal, Account-holders can resolve exceptions and also:

- View attributes associated with the exception code which failed Pre-Submission checks, and review these for accuracy.
- Edit these attributes and re-submit data.

Exception Types

First level validations

You will need to fix/resolve any first level validations before you submit any changes to the DER record.

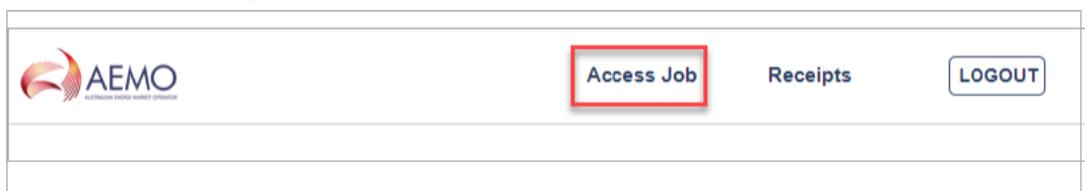


The DER Register Installer Portal will not allow you to submit your changes to the DER record until you have completed the first level submission validations. For more information, refer to [Appendix: First Validation Pre-submission](#).

Second level validations

The DER Register Installer Portal displays all second level validations on the **DER Installation Details** and **Connections & Devices** tabs.

1. From the DER Register Portal top menu, click **Access Job**.



The Access Job page displays.

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

2. Enter the NMI and Job Number for the DER record you want to access, and click **Access**. The **Connection Agreement** page displays.

Connection Agreement

[DER Installation Details](#) [Connections & Devices](#) ⓘ

DER Installation

NMI (National Metering Identifier)

Connection Agreement 'Job Number'	Installer Identification
<input type="text" value="JCBAP102000000000000018"/>	<input type="text" value="Installer ID"/>

Approved Capacity (KVA)	Number of phases available
<input type="text" value="30000"/>	<input type="text" value="3"/>

Number of phases with DER connected	Islandable installation
<input type="text" value="3"/>	<input type="text" value="Yes"/>

3. Click **Connections & Devices** tab. This tab displays all the AC Connections and DER Devices associated with the NMI.

4. Click the AC Connection (or DER Device) you want to resolve exceptions for.

Edit AC Connection

Equipment type*
Inverter

Commissioning date
01 Aug 2020
Clear Commissioning Date

Number of AC Connections
2

Status
Please Select

DRED interaction enabled
Yes

Other Manufacturer
Victron Energy BV

Manufacturer
Other
• 2000-Update or Accept: Equipment (Manufacturer) not listed on third-party accredited product database.

Model Number
Other
• 2052-Review data: Model number not available for this manufacturer in third-party accredited product database.

5. Review and update the relevant fields and click **Done** to save your changes.
6. Click the **DER Installation Details** tab.
7. Click **Validate** to validate your changes.
 - If the updated data fails a first level validation, an error message displays and you will need to fix the error before you can proceed.
 - If the updated date is validated successfully, the **Update** button is activated.
8. To save your changes, click **Update**.

Note: The DER Register Installer Portal will not allow you to update your DER record until you have fixed any first level validations.

Appendix: DER Register Terms

AC Connections and DER Devices	39
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AC Connections and DER Devices

What are AC Connections?

An AC Connection refers to any form of DER generating unit/power source implemented at consumer premises. For example, inverters or rotating machines.

What are DER Devices?

DER devices are consumer-owned devices that as individual units can generate or store electricity.

Examples of DER devices include:

- Rooftop solar photovoltaic (PV) units
- Wind generating units
- Battery storage
- Solar farms

DER Register Actors

Actor	Role
Account-holder	A person (non-NSP) holding an account with AEMO that allows access to the DER Register under controlled access conditions. This could be a DER installer, or someone acting on behalf of a DER installer (e.g. a business acting for its employees). For example, Solar Retailers.
AEMO System Administrator	AEMO staff authorised to manage the systems and data.

Actor	Role
NSP	NSP employee with read and write access to DER, to submit data.
Participant administration	An NSP employee who grants participant users permission to use DERR.
Participant	NSP employees who use DERR.

DER Record Status

The DER Register determines the installation progress of AC Connection(s) or DER Device(s). AC Connections and DER Devices can have one of the following statuses as it progresses through the connection and installation process.

Status	Description
Idle	When a record is "Initial" for 365 days, it becomes idle.
Initial	AC Connection/DER Device records exist but the DER system is not yet physically installed or operating.
Conditional	AC Connection/DER Device records exist, and the DER system physically is installed and operating. The DER record is waiting on an action from the user.
Confirmed	AC Connection/DER Device record exist and the DER system physically is installed and operating.

Note: The installation progress is associated with AC Connections and DER Devices and does not define a NMI installation progress.

Appendix: First Validation Pre-submission

Exception Code	Exception message	Business Rules	Applies to
1000	Invalid submission: Job number already in use.	Job number must be unique for a NMI and for the NSP that sent it. Job number must not have been submitted before for a different NMI by the same NSP.	NSP
1010	Invalid submission: NMI does not exist in MSATS	NMI must exist in MSATS	NSP
1011	Invalid submission: NMI is Extinct and cannot be used	NMI must not be extinct	NSP
1012	Invalid submission: NMI not aligned to NSP NMI allocation	NSP currently holds the local network service provider role for this NMI.	NSP
1020	Invalid submission: Incorrect format	Content must be in the correct format	Account-holder and NSP
1021	Invalid submission: Mandatory field not provided	All mandatory fields are completed	Account-holder and NSP
1030	Invalid submission: DER installation information missing. Please link an AC Connection to this NMI	NMI must have at least one AC Connection linked to it.	Account-holder and NSP
1031	Invalid submission: DER installation information missing. Please link a Device to this AC Connection	Each AC Connection with status of null, Active or Inactive must have at least one Device linked to it	Account-holder and NSP

Exception Code	Exception message	Business Rules	Applies to
1032	Invalid submission: DER installation information missing. Please link this Device to an AC Connection	Each Device with status of null, Active or Inactive must have an AC Connection linked to it	Account-holder and NSP
1040	Invalid submission: DER Record mismatch to AEMO data	If there is an existing Confirmed AC Connection or DER Device and status = Active, it must be included in every submission, i.e. Confirmed AC Connections or DER Devices cannot be removed If Confirmed DER Record is decommissioned, status changes to "Decommissioned" and must be submitted.	Account-holder and NSP
1041	Invalid submission: DER Record mismatch to AEMO data	If there is an existing Confirmed AC Connection or DER Device and status = Active, it must be included in every submission, i.e. Conditional DER Records cannot be removed If Conditional DER Record is decommissioned, status changes to Decommissioned and must be submitted	Account-holder and NSP
1050	Invalid submission: Invalid AC Connection identifier	AC Connection ID must be null or generated previously by AEMO.	Account-holder and NSP
1051	Invalid submission: Invalid Device identifier	DER Device ID must be null or generated previously by AEMO.	Account-holder and NSP
1060	Invalid submission: DER installation not yet commissioned	AC Connection status must be null or Inactive if commissioning date is null or in the future	Account-holder and NSP
1061	Invalid submission: DER installation already commissioned. Status must be active or decommissioned	AC Connection status must be Active or Decommissioned if commissioning date is in the present or in the past	Account-holder and NSP
1062	Invalid submission: Device status not aligned to linked AC Connection	Device Status must be null or Inactive if the AC Connection linked to it has status of null or Inactive.	Account-holder and NSP

Exception Code	Exception message	Business Rules	Applies to
1063	Invalid submission: Device status not aligned to linked AC Connection.	Device Status must be Decommissioned if the AC Connection linked to it has status of Decommissioned	Account-holder and NSP
1064	Invalid submission: AC Connection status invalid	AC Connection status cannot be Inactive if it was previously Active or Decommissioned	Account-holder and NSP
1065	Invalid submission: AC Connection status invalid	DER Device status must NOT be Inactive if it was previously Active or Decommissioned	Account-holder and NSP
1070	Invalid submission: Value not approved by NSP	Number values must be within the permitted range. These ranges are specified in the Guide to DERR APIs.	Account-holder and NSP
1080	Invalid submission: Device type invalid for AC Connection type	Device Type must be Solar, Storage, or Wind if the AC Connection linked to it = Inverter	Account-holder and NSP
1081	Invalid submission: Device type invalid for AC Connection type	Device Type must be NOT Solar, Storage, or Wind if the AC Connection linked to it = Other	Account-holder and NSP
1090	Invalid submission: Missing information	The count of submitted Serial numbers for an AC Connection must equal the number of AC Connections	Account-holder and NSP
1110	Invalid submission: Not enough Devices in DER Record	Each ACTIVE AC Connection must have "number of AC Connection" equal to or less than total of Total of "number of DER Devices" that are linked to it, i.e. $\text{number of AC Connections} \leq \text{SUM \{number of Devices 1 + number of Devices 2 ... + number of Devices n\}}$ Where n is the number of Devices or group of DER Devices connected to that AC Connection This validation is only applicable if AC Equipment Type = Inverter	Account-holder and NSP
1111	Invalid submission: Number of Devices and AC Connections must match	If AC Equipment Type = Other, then "number of AC Connection" must equal to "number of DER Devices" linked to it	Account-holder and NSP

Exception Code	Exception message	Business Rules	Applies to
1120	Invalid submission: Missing information. At least one field must be completed	One of Protection and Control Modes attributes must be submitted	Account-holder and NSP
1121	Invalid submission: Cannot enable reactive power AND voltage response modes	Reactive power mode MUST be "Not Enabled" if any of Voltage response modes are Enabled	Account-holder and NSP
1122	Invalid submission: Cannot enable fixed power factor AND voltage response modes	Fixed power factor mode MUST be "Not Enabled" if any of Voltage response modes are Enabled	Account-holder and NSP
1123	Invalid submission: Cannot enable variable power factor AND voltage response modes	Power factor curve / power response mode MUST be "Not Enabled" if any of Voltage response modes are Enabled	Account-holder and NSP
1130	Invalid submission: Export limit exceeds approved capacity	If export limit is specified, it must be equal or smaller than approved capacity	Account-holder and NSP
1140	Invalid submission: Value is percentage, maximum is 100%	If "Voltage set point unit" is %, then "Voltage set point" must NOT be more than 100	Account-holder and NSP
1160	Invalid submission: Equipment type not approved by NSP	Inverter default settings ranges must NOT overlap	NSP
1161	Invalid submission: Default standards capacity ranges already in use	Inverter default NSP approval ranges must NOT overlap	NSP
1170	Invalid submission: NSP-approved information has been edited	Account holders must NOT edit "Non-Editable" fields at any point. Refer to DER Job Access for non-editable fields for account holders	Account-holder
1171	Invalid submission: NSP-approved information has been edited	Account holders must NOT edit commissioning dates for AC Connections that were created with previous job numbers	Account-holder

Appendix: Second Validation Pre-submission

Exception Code	Exception Message	Business Rules	Applies to	Comments
2000	Update or Accept: Equipment (Manufacturer) not listed on third-party accredited product database	Manufacturer must be accredited	Account-holder and NSP	<p>Exceptions generated by any of these business rules can be acknowledged by NSPs.</p> <p>Acknowledging these exceptions will change the "installationStage" the AC Connection or DER Device related to it to become "Confirmed".</p> <p>Refer to "DERRecord Status" on page Error! Bookmark not defined..</p>
2001	Update or Accept: Equipment (Model) not listed on third-party accredited product database	Inverter Model number must be accredited	Account-holder and NSP	

Exception Code	Exception Message	Business Rules	Applies to	Comments
2002	Update or Accept: Equipment (Series) not listed on third-party accredited product database	Inverter Series must be accredited	Account-holder and NSP	
2003	Update or Accept: Equipment (Manufacturer) not listed on third-party accredited product database	Device Manufacturer must be accredited	Account-holder and NSP	
2004	Update or Accept: Equipment (Model) not listed on third-party accredited product database	Device Model number must be accredited	Account-holder and NSP	
2010	Update or Accept: Equipment listing on third-party accredited product database not current at time of commissioning.	Accredited inverter commissioning date must be within the accredited approved period	Account-holder and NSP	

Exception Code	Exception Message	Business Rules	Applies to	Comments
2011	Update or Accept: Equipment listing on third-party accredited product database not current at time of commissioning	Accredited device commissioning date must be within the accredited approved period	Account-holder and NSP	
2020	Update or Accept: NSP Approval required for this record	NSP must be notified if the Approved Capacity for a NMI is in the range that this NSP specified to approve for	Account-holder	
2021	Update or Accept: Default data input has been edited. Accept when ready to proceed	Account-holders must not edit pre-populated AC Connection attributes that were submitted by NSP	Account-holder	
2022	Update or Accept: Default data input has been edited	Account-holders must not edit pre-populated DER Devices attributes that were submitted by NSP	Account-holder	
2023	Review data: Data not provided	NSP must be notified if optional fields are not submitted by Account-holders.	NSP and Account-holder	NSP cannot acknowledge this exception.
2030	Review data: Inverter capability does not provide required control mode	Inverter must have the capabilities to support the inverter settings data, i.e. if user has entered inverter settings data for inverter capabilities, but the inverter entered does not have the capabilities that support it, the system will raise an exception.	Account-holder and NSP	NSP cannot acknowledge this exception. Exception will be resolved if the selected mode that resulted exception becomes "Not Enabled"

Exception Code	Exception Message	Business Rules	Applies to	Comments
2040	Review data: Installed capacity greater than approved capacity	If no export limit is specified, approved capacity must be equal or bigger than AC Connection installed Capacity	Account-holder and NSP	AC Connection Installed capacity is a calculated value. It represents what is the total capacity physically installed at site. Exceptions generated due to this validation rule cannot be acknowledged. All AC Connections and DER Devices that were newly added will be "Conditional". Refer to "DER Record Status" on page Error! Bookmark not defined..
2050	Review data: Equipment capacity not aligned to third-party accredited product database for this model	For accredited inverters, "Inverter device capacity" must be aligned with the submitted model number. Reference data shall be used for validating this alignment.	Account-holder and NSP	These exceptions cannot be acknowledged.
2051	Review data: Standards entered not aligned to third-party accredited product database for this model	For accredited inverters, "What standard applies to the inverter" attribute must be aligned with the submitted model number. Reference data shall be used for validating this alignment.	Account-holder and NSP	
2052	Review data: Model number not available for this	For accredited inverters, "Model Number" attribute must be aligned with the submitted Manufacturer Reference data shall be used for	Account-holder and NSP	

Exception Code	Exception Message	Business Rules	Applies to	Comments
	manufacturer in third-party accredited product database	validating this alignment.		
2053	Review data: Inverter series not available for this manufacturer and model in third-party accredited product database	For accredited inverters, "Inverter Series" attribute must be aligned with the submitted Manufacturer and model number Reference data shall be used for validating this alignment.	Account-holder and NSP	
2060	Review data: Equipment capacity not aligned to third-party accredited product database for this model	For accredited batteries (storage), "Nominal rated capacity" must be aligned with the submitted model number. Reference data shall be used for validating this alignment.	Account-holder and NSP	
2061	Review data: Equipment capacity not aligned to third-party accredited product database for this model	For accredited batteries (storage), "Nominal storage capacity" must be aligned with the submitted model number. Reference data shall be used for validating this alignment.	Account-holder and NSP	
2062	Review data: Model number not available for this manufacturer in third-party accredited product database	For accredited batteries (Storage) or Solar PVs , "Model Number" must be aligned with the Reference data shall be used for validating this alignment submitted Manufacture.	Account-holder and NSP	