

How to enter distributed generation capacity data in the registry

User guide

Effective 1 December 2023

Purpose

- 1.1 This guide provides instruction to participants on how to enter distributed generation (DG) capacity data into the electricity registry (registry).

Scope and definitions

- 1.2 To correctly enter DG capacity data in the registry, participants must consider the definitions of *nameplate capacity* and *generating plant* in Part 1 of the Code.

Roles and responsibilities

- 1.3 Distributors calculate the capacity according to the methodology in this guideline.
- 1.4 Distributors enter the 'nameplate capacity' into the 'generation capacity' field in the registry according to the timeframes in Part 11 of the Code.
- 1.5 The registry manager maintains the data and notifies registry users according to the registry functional specification.

Process

- 1.6 Schedule 11.1.7 of the Code requires the *nameplate capacity* of DG to be entered into the registry. The Code says:
nameplate capacity means the lesser of—
 - (a) the full-load continuous rating of generating plant under conditions specified by its designer in MW or kilowatts; or
 - (b) the full-load continuous rating of the generating plant's inverter (if any) under conditions specified by its designer in MW or kilowatts.*Generating plant* means equipment collectively used for generating electricity.
- 1.7 Due to the complexity of adding fields into the registry, there is currently only one field to enter the nameplate capacity of **all** the generation at an ICP combined. To minimise compliance costs for participants, the Authority will consider adding more fields for DG capacity when further registry changes are made.
- 1.8 Where more than one generating plant is present at an ICP, the participant must add together the nameplate capacity for each and enter the lesser of the total generation (if lower than the inverter's capacity) or the inverter's capacity in the registry. This is so the registry data reflects the total amount of electricity that can be injected into the network.
- 1.9 Based on the definitions above, the following scenarios illustrate how DG nameplate capacities should be entered into the registry (all figures are full-load continuous ratings).

Entry type	Solar	Nameplate capacity
solar	6kW of solar connected to a 4kW inverter	4kW
solar	8kW of solar connected to a 10kW inverter	8kW
Solar & DC-coupled batteries (solar >> batteries >> inverter >> <u>AC</u>)		
solar + battery	6kW of solar and 4kW of DC-coupled batteries connected to a 5kW inverter	5kW
solar + battery	5kW of solar and 4kW of DC-coupled batteries connected to a 10kW inverter	9kW
Solar & AC-coupled batteries (solar >> inverter >> <u>AC</u> < > bidirectional inverter < > batteries) Note: there are two inverters independently connected to the network, each inverter can inject electricity		
solar + battery	10kW of solar connected to 6kW inverter + 8kW of AC-coupled batteries connected to 5kW bidirectional inverter	11kW
solar + battery	5kW of solar connected to 6kW inverter + 4kW of AC-coupled batteries connected to 5kW bidirectional inverter	9kW
Solar & hybrid inverters (inverters with integrated batteries) Solar >> hybrid inverter >> <u>AC</u>		
Solar + battery	8kW of solar connected to 6kW hybrid converter (with 2kW battery)	6kW
Solar + battery	3kW of solar connected to 6kW hybrid converter (with 2kW battery)	5kW
Standalone batteries		
standalone batt	3kW of batteries connected to a 4kW inverter	3kW

standalone batt	6kW of batteries connected to a 4kW inverter	4kW
Electric vehicles (V2G)		
elec vehicl V2G	3.6kW exporting electric vehicle connected to a grid-connected bi-directional 3kW charger	3kW
elec vehicl V2G	3.6kW exporting electric vehicle connected to a grid-connected bi-directional 5kW charger	3.6kW

- 1.10 The DG nameplate capacity must be entered in the registry as above, even when the distributor limits export to a kW value lower than the nameplate capacity. The is because the DG is capable of exporting at nameplate capacity (eg, through unauthorised interference with the settings), even if under normal circumstances the export is limited. Additionally, the load normally supplied within the ICP may be higher than the export limit and would need to be supplied from the distribution network if the DG failed.
- 1.11 The nameplate capacity of batteries is the capacity to *generate* electricity (in kW) and not the capacity to *store* electricity (in kWh). For the battery below, the nameplate capacity would be 5kW.

PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	230 V
Feed-In Type	Single Phase
Grid Frequency	50 Hz
Total Energy ¹	14 kWh
Usable Energy ¹	13.5 kWh
Real Power, max continuous ²	5 kW (charge and discharge)
Apparent Power, max continuous	5 kVA (charge and discharge)

- 1.12 The Code requires nameplate capacity to be entered into the registry in kW, even though most equipment is rated in kVA (apparent power). These units are generally interchangeable at consumer connections but there is a small but meaningful difference, relating to the connection's power factor. Further reading is available here:
<https://www.tutorialspoint.com/difference-between-apparent-power-and-real-power>
- 1.13 Participants are not required to enter the nameplate capacity for generation that is electrically isolated from the network and physically cannot export.

Guidance review

- 1.14 The Authority will review this document every two years or earlier if relevant changes to the registry are made.

