

Connection Application Guide – Vehicle-to-building (V2B) and Vehicle-to-Grid (V2G)



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This guide is for applicants preparing a Low Voltage (LV) Embedded Generation connection application for a bidirectional charger and inverter capable of vehicle-to-building (V2B) and vehicle-to-grid (V2G) capability. It explains the equipment checks, information to enter in our Portals, and what happens after you apply.

Key Terms

This form of system capability may be known under several terms, such as EVSE or ESS. However, for the purpose of this guide we will describe these as being an inverter with V2B and V2G capability.

ESS - Energy Storage System: A system comprising one or more components (e.g. batteries) that store electricity generated by Distributed Energy Resources or directly from the grid, and that can discharge the electricity to loads.

EV – Electric Vehicle: an electric vehicle.

EVSE – Electric Vehicle Supply Equipment: The charging equipment connected to the electrical installation.

IES – Inverter Energy System: A grid-connected system that uses an inverter, including a bidirectional EV system

V2G – Vehicle-to-Grid: The system can export electricity from the EV battery to the electricity network.

V2B or V2H – Vehicle-to-Building: The system can supply a building from the EV battery.

General Considerations

- Under the Energex and Ergon Energy Network connection standards, including *STNW1170 – Standard for Small IES Connections*, an inverter with V2B or V2G capability must meet the same connection requirements as other grid-connected IES. It also counts towards the total aggregate inverter capacity at the premises.
- To determine if an inverter has V2B or V2G capability check the exact make and model on the Clean Energy Council Approved Inverters list. The “Inverter Input/Output Ports” information must show “EV Port – Bi-Directional”. See the example below.

Model Number ↓	Series ↓	Rated AC Output(VA) ↓	Equipment Category ↓	Inverter Input/Output Ports ↓
AD20074EU1923 (AS4777-2 2020)	Halo	7400	Grid Connect Inverter - Other Energy Source	EV Port - Bi-Directional; Supplementary Supply Port

- Applicants do not need to note if an inverter will operate in V2B or V2G. V2G will require applying for a Partial, Full or Dynamic export configuration.
- EV details are not typically required to be entered in the connect application. However, when the inverter only has an EV Port and the portal does not allow solar panels or batteries to be associated with that inverter, EV details must be provided. The steps are provided below.
- A generation limit may be imposed only if the inverter has an EV Port and no PV or Battery ports, this may be required to comply with capacity and phase balance requirements. A generation limit supersedes the inverter nameplate rating. Because the application Portal does not support a generation limit function, use the pathway below to impose a limit.

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When Applying

1. Choose the relevant Connect application Service Type for 'Embedded Generation – (Incl. Solar, Wind, etc)'.
2. Add the inverter with V2B and V2G capability. If existing inverters are already installed and will remain connected, or you are proposing to install additional inverters, ensure all inverter details are captured in the application.
3. Add Devices (i.e. Panel or Battery) to the newly proposed inverters. If the inverter with V2B and V2G capability only has an EV Port, this is the only time you are required to provide electric vehicle details using the below steps. If electric vehicle details are not required since you have already added Panel and or Battery devices, proceed to Step 4.

Adding an Electric Vehicle as a Device

- Select 'Add Device(s)' to open the screen where Panel and Battery details can be entered.
- Under the Battery section, select "Non-CEC Approved Battery".
- Manually enter the relevant EV details. For 'Battery Type' select 'Electric Vehicle'. See the example below.

Add Device(s)

**Batteries**

Search for a CEC approved battery that complies with the Best Practice Guide: Battery Storage Equipment - Electrical Safety Requirements. Batteries labelled (BESS) include an integrated inverter and are classified as Pre-assembled Integrated Battery Energy Storage Systems. Batteries labelled (BS) do not include an inverter and are considered Pre-assembled Battery Systems.

There may be more matching items than can be shown. Keep typing if you can't see your model in the list yet.

Search Text (Battery)		Non-CEC Approved Battery ☒
Manufacturer	Hyundai	Model Ioniq 9
Storage Capacity (Nominal kWh)	110.3	Number of Batteries 1
Output Capacity (kVA)	0	
Battery Type	Electric Vehicle	Add Battery

Manual entry required.

When submitting your application, please ensure the following:

- The battery details entered accurately match the specifications provided in the battery datasheet.
- A copy of the battery datasheet is attached to your application.

Note: If your application includes a battery that is not CEC-approved, it will require manual review before it can be processed.

Note: Please confirm your Battery Details by clicking "Add Battery" before adding any additional devices.

4. Optional: propose a generation limit:
 - Select 'My Application is for High Voltage, Non-Solar, or Non-Standard Inverter'. Enter the 'Total Generation Output Rating (kVA) (inverter, rotating machine nameplate capacity)'. Calculate the value using the full nameplate rating of each inverter without an EV port, plus the proposed generation limit for each EV-port-only inverter.

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- In “Equipment Additional Info”, identify the affected inverter and state its nameplate rating and proposed generation limit. Example: “The [make and model] inverter has a nameplate rating of 7.4 kVA and will be generation limited to 5 kVA”.
5. Finish entering all other required information and submit the Connect application.

What Happens Next

6. Connection Assessment and issue Connection Offer
We will assess the application and advise the applicant of the outcome. Applications that include manually entered electric vehicle details or a proposed generation limit may require further assessment by the Solar and Renewables Team.
7. Accept the Connection Offer
The connection offer must be accepted before the connection can proceed.
8. Installation
Installation or alteration must not start until the connection offer has been accepted and the connection contract has been formed.
9. Submit the Electrical Work Request
After installation, the electrical contractor must submit the Electrical Work Request (EWR) within the timeframe in the connection contract. Note, Energex only requires an EWR for the Initial Installation of embedded generation at a premise.

Further Information and support

[Vehicle to grid EV connections | Energex](#)

[Vehicle to grid EV connections | Ergon Energy](#)

For help with a connection application, contact the Solar and Renewables Team at energexgeneration@energyq.com.au or ergongeneration@energyq.com.au