Special considerations for isolated networks

This information is specifically designed for industry people intending to either install solar PV systems on Ergon Energy’s isolated networks in Queensland, or sell PV systems to customers in those communities.

Ergon Energy, as part of the Energy Queensland group, operates 33 (predominantly diesel generation) power stations on networks isolated from the main grid. These isolated networks are mainly located in communities across western Queensland and the Torres Strait. The communities served are listed at the end of this Update.

These networks have particular attributes that require us to tightly control connections of micro embedded generating (EG) units, such as PV systems. This control helps us to protect our generators, the isolated networks and the interests of all customers on these networks.

The two key issues in integrating renewable energy generation into isolated networks are:

1. Cloud movement over small, isolated networks can cause rapid decreases in total PV generation and corresponding increases in demand on the diesel generators, and the opposite effect when the cloud clears. In a worst-case scenario, this causes a power supply outage.

2. High levels of solar PV generation can reduce demand on the diesel generators below the recommended minimum loading. This can reduce engine performance, increase maintenance requirements and accelerate ageing of the generator.

The total capacity of micro EG units that these networks can accept without undue risk to the diesel generators is determined by us on a network-by-network basis. We have defined a total ‘unmanaged’ inverter hosting capacity for each network. A PV system is an example of an unmanaged generator in that its output is not visible to, or controlled by, the diesel generators and does not have a stability support device.

Accordingly, we conduct a technical assessment of all applications to connect a micro EG unit to an isolated network.

Application process for a premises on an isolated network

- An application for inverter capacity up to and including 30 kVA is lodged through the Electrical Partners Portal. An application for inverter capacity above 30 kW is lodged with our Major Customers group.
All applications to connect to an isolated network undergo technical assessment and therefore require negotiated connections.

Applications are first assessed for the likely impact the desired capacity may have on the diesel generators. The majority of challenges associated with connections to isolated networks are related to power station constraints.

If the application is for a premises in an isolated community where the unmanaged hosting capacity has been reached, we will advise the applicant and offer to work with them to investigate network augmentation and other technical options.

If the capacity can be accommodated by the power station, the application is then assessed for its potential impact on the distribution network.

If the distribution network can accommodate the proposed capacity, a connection offer is made.

Acceptance of that offer must be lodged with us before installation can commence.

If the offer is not accepted within 20 business days, the connection offer lapses. Similarly, if the offer is accepted but the system is not installed within 65 business days of that acceptance, the connection contract ends and the system cannot be installed. If an extension to this installation period is needed, you can contact us to request this. If the offer lapses, or the contract ends, and the customer still wants the system installed, the application process must start again.

The diagram below describes the steps:
In two recent cases, solar PV systems were installed in isolated communities without us having made an offer. As the unmanaged hosting capacity had already been reached on the network, we had no viable option other than to direct the applicant to disconnect the system from our network. We understand the installer had to return to site (hundreds of kilometres from their base), remove the systems, reinstate the roofs to a watertight condition, and reimburse the customers.

Notes:

- The customer may be liable for network augmentation costs to support a proposed connection.

- If the unmanaged hosting capacity has been reached, we may present options that include power station augmentation to allow remote monitoring and control of the PV system, or the installation of a battery energy storage system with specific ramp-rate control functionality. While these options are technically possible, they are unlikely to be financially viable for most customers.

These 39 isolated communities, with postcodes, are served by our 33 isolated power stations. If you are unsure if a proposed system will be connected to one of our isolated networks, contact our Solar Team using the details at the bottom of the page:

- Aurukun 4892
- Badu Island 4875
- Bedourie 4829
- Birdsville 4882
- Boigu Island 4875
- Boulia 4829
- Burketown 4830
- Camooweal 4828
- Coconut Island 4875
- Coen 4892
- Damley Island 4875
- Dauan Island 4875
- Doomagee 4830
- Hammond Island 4875
- Horn Island 4875, including:
  - Wasaga 4875
- Jundah 4736
- Kowanyama 4892
- Lockhart River 4892
- Mabuiag Island 4875
- Mapoon 4874
- Moa Island 4875, including:
  - St Pauls 4875
  - Kubin 4875
- Mornington Island, including:
  - Gununa 4892
- Murray Island 4875
- Napranum 4874
- Northern Penninsula Area, including:
  - Bamaga 4876
  - Umagico 4876
  - Injinoo 4876
  - Seisia 4876
  - New Mapoon 4876
- Palm Island 4816
- Pormpuraaw 4892
- Saibai Island 4875
- Stephens Island 4875
- Thursday Island 4875
- Warraber Island 4875
- Windorah 4481
- Yam Island 4875
- Yorke Island 4875