
Distributed Generation Requirements

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1.0 Introduction to distributed generation

Distributed generators, also known as ‘embedded generators’, are generators located at a home or business which are capable of generating electricity for that home or business’s own use. They may also be capable of putting surplus electricity back into Counties Power’s electricity distribution network. These generators can take many forms; diesel generators, wind turbines and solar panels are the most common.

Consumers interested in operating distributed generation and connecting it to our network, will be supplied with an information guide on distributed generation. This guide contains information on distributed generation and requirements prior to connection to our network.

The requirements follow the regulated terms for connection of distributed generation as per [Schedule 6.2](#) of the Electricity Industry Participation Code 2010 (Connection of Distributed Generation).

2.0 Definitions

The Code: In this document, the code refers to [Part 6 of the Electricity Industry Participation Code 2010](#) (Connection of distributed generation)

Information Pack: Refers to the current Distributed Generation Information Pack available on the company’s website at www.countiespower.com.

3.0 Requirements for Distributed Generation

The requirements for consumers to operate distributed generation are in the Information Pack.

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These guidelines are separated into two categories:

- information about medium to large distributed generation systems (above 10 kilowatts)
- information about small distributed generation systems (10 kilowatts or less).

4.0 Consumer's proposed distributed generation

Larger generators (above 1000kW) may be subject to Transpower's terms and conditions.

Distributed generation must meet all relevant statutory and regulatory requirements and comply with all applicable safety standards, including:-

1. System must conform to the Standards Electrical Code of Practice AS/NZS 3000 – Electrical Installations (known as the Australian/New Zealand Wiring Rules).
2. Other EA guidelines which the generator must comply with, includes the following:
 - [Information Sheet Embedded Generation](#)
 - [Connection of small scale distributed generation \(equal to or less than 10 kW\) to a local network](#)
 - [Guidelines-for-connection-of-DG-greater-than-10kW.pdf](#)
3. System manufactured to Australian Standard 4777.2 and with protection systems installed in accordance with the Australian Standard 4777.3, will provide isolation and prevent this happening.

5.0 Additional Technical Requirements

Other technical guidelines follow:

- Generators above 300kVA shall have characteristics of synchronous generators
- Small wind farms above 300kVA shall have a static compensator.
- Variable speed drives with rated current greater than 16A shall have active mitigation of harmonics.

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6.0 Public Safety Requirements

Besides the requirements of the Information Pack and in order to ensure that public safety is maintained, connections to the network shall comply with public safety standards as required by *Section 61A* of the [Electricity Act 1992](#) and *Regulation 47 Works Covered By Audited Safety Management Systems* of the [Electricity \(Safety\) Regulations 2010](#).

Distributed generators are also required to ensure that their generators and their operation do not present a significant risk of serious harm to any member of the public or significant damage to property of any member of the public. To ensure compliance, generators are requested to carry out their own safety checks regularly using the recommended self-assessment PSMS Toolkit available from the EEA website. Such areas are electrical protection during a generator and the back-feed of electricity into the network during a shutdown.

7.0 Congestion, Curtailment and Interruption of Generation

The electricity network is currently set up for electricity flow in one direction only. Increased distributed generation could introduce bi-directional electricity flow on the network and lead to congestion of its low and high voltage networks. Network congestion will cause a network asset to operate beyond its rated capacity or give rise to a high voltage at the point of connection to the network.

In order to manage network congestion, Counties Power ensures that distributed generation is only connected in unconstrained areas and will upgrade the network where necessary to meet requirements. Counties will also implement real-time operational curtailment rules and arrangement on a need basis as well as on a case-by-case basis.

The network congestion measure will be dependent on the extent of congestion, technical and operational characteristics, and connection terms and conditions. The additional costs will be allocated based on a pro-rated share of reinforcement costs following its capital contribution policy.

In the event of a fault on a distribution feeder, any distribution generator must be automatically disconnected from the network via its own protection. The customer has sole responsibility for the safety of their generating plant and equipment under such conditions.

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8.0 General

The Information Pack also contains the following information:

- Schedules for the application and approval process
- Testing and inspection before connection
- Fees may be charged as per [Schedule 6.5](#) of the Electricity Industry Participation Code 2010
- Energy credits and charges
- Minimum metering requirements