



## What is Distributed Generation?

Distributed generation refers to any device, such as a photovoltaic solar array, which enables the generation of electricity and has potential to push excess electricity back into the power network.

This information pack contains details for those who are looking to connect a large distributed generation system of over 10 kilowatts to Counties Power's electricity network.

For those who are looking to connect any small scale distributed generation system of up to 10 kilowatts to Counties Power's electricity network please refer to the [up to 10 kilowatt information pack \(DG1\)](#).

Please note that Counties Power does not need to be informed about generation systems which will not be connected to the electricity network.

## How do I connect a distributed generation device of over 10 kilowatts to the Counties Power network?

If your distributed generation system has a generation capacity over 10 kilowatts you will need to complete the [Distributed Generation application form \(DG2\)](#) and submit this to Counties Power for processing.

If your device has a capacity less than 10 kilowatts, please refer to [Distributed Generation up to 10kW information pack](#) and complete the application form [DG1](#).

The [DG2](#) form used for installations over 10 kilowatts, requires you to provide information on:

- Location of where the distributed generator will be installed
- The person or people who own, and are responsible for the distributed generator
- Your system installer
- Generator type, e.g. solar, wind turbine, gas etc.

- Inverter specification
  - Technical specification
  - Safety protection features and specification
  - Control arrangements
  - Islanding

Please send your completed DG2 application form to Counties power by post or scan and email [distributedgeneration@countiespower.com](mailto:distributedgeneration@countiespower.com).

## How long will my application take to process?

A distributed generation over 10 kilowatts is likely to take some time due to the complexity of a connection this size. As outlined by the Electricity Authority the following timeframes are likely to apply:

Counties Power will review your application within 5 business days, and send a written response that your application has been received. If your application is incomplete, Counties Power will notify you that more information is required. In some circumstances a member of the metering team may contact you to discuss your distributed generation application.

Counties Power also commits to providing information in support of your application within the timeframes outlined by the Electricity Authority as specified in Part 6, Schedule 6.2 of the Electricity Code.

## What happens after my application has been approved?

### Inform Counties Power of your intention to proceed

After the approval of your application, you must give written notice to Counties Power within 30 business days confirming whether you want to proceed with the distributed generation system and providing confirmation of the following:

- Final details and specification of the distributed generation system
- Acceptance of all imposed conditions (or other measures) that Counties Power specified.

The notice can be extended and disputes resolved under Part 6 of the Code. Please note that if you choose not to proceed and reapply later to connect the same generation, a reapplication fee may be charged as per Appendix A.

## Contract negotiation for connection of distributed generation

Counties Power has 30 business days to negotiate a connection contract with you after you notify Counties Power in writing of your intention to proceed.

## Install, Inspect and Test your Installation

If your application to connect a distributed generation device has been approved, you are permitted to have your distributed generation device installed on the Counties Power network.

When your installer has completed the work they will issue a certificate of compliance (COC) and then arrange for a registered inspector to test and inspect your installation. Counties Power must be notified 5 business days prior to the testing, as Counties Power may send a qualified technician to observe the testing of your installation. The registered inspector will issue a Record of Inspection (ROI) if the installation has passed all regulated checks.

A copy of the COC and ROI must be provided to Counties Power within 10 business days of the installation being inspected.

You are not permitted to operate your distributed generation device until a meter is installed at your site. Refer to the next section for instruction on how this can be achieved.

## Contact your Electricity Retailer

You need a contractual arrangement with an electricity retailer in order to have a meter installed on your site. This will allow you to buy additional electricity and sell excess generated electricity.

Your contracted electricity retailer will nominate a Meter Equipment Provider (MEP) who is responsible for installing a meter on your site.

The MEP will require a copy of the Certificate of Compliance ([COC](#)) and the Record of Inspection (ROI) for your installation before they can install a meter at your site.

If Counties Power is chosen as the MEP Counties Power will send an electrical inspector to your site within 5 business days to install your electricity meter. Where all the electrical requirements are satisfied, your site will be **livened for use**.

## Electricity Retailers on our Network

The following Retailers supply electricity across our Network:

- Contact Energy
- Energy Online
- Genesis Energy
- Mercury Energy
- Meridian Energy
- Mighty River Power
- Nova
- Opunake Hydro
- Powershop
- Prime Energy
- Pulse Utilities
- Simply Energy

## Additional reading

If you require more information on distributed generation Counties Power suggests the additional reading outlined below:

### Counties Power Policy

- [Technical requirements to be submitted with your DG2 application](#)
- [Control arrangements](#)
- [Protection](#)
- [Distributed Generation Network Islanding](#)
- [Safety Requirements](#)

### Electricity Authority publications

- [Guideline for a connection of distributed generation \(greater than 10 kW\) to a local network](#)
- [Information sheet on distributed generation](#)
- [The Electricity Industry Act 2010](#)

## Technical requirements to be submitted with your DG2 application

Other requirements follow:

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

## Control arrangements

It is preferred that distributed generators are not subjected to despatch, to export reactive energy (kVArh) whenever real energy (kWh) is exported onto our network. Subject to network voltage remaining within agreed limits, the desired power factor should be between 0.85 and 0.9. (See sections Protection and Distributed Generation Network Islanding for islanding detection requirements).

Counties Power will advise if continuously acting fast response automatic excitation and/or governor control systems are required to control the generator voltage and frequency without instability over the entire operating range of the generator. This will depend on the size and type of the generator and the characteristics of the part of our network to which it is connected.

## Protection

The generator must be equipped with the appropriate protection elements as required by the EEA Guide for “Connection of Generating Plant (Guide)”.

Owners and installers must consult Counties Power with regard to any special arrangements or protection that may be necessary due to the characteristics of our network.

The protection associated with the distributed generation must co-ordinate with the protection associated with our network as follows:

- In order to keep the impact of faults on our network to a minimum, the distributed generation must meet target clearance times agreed between Counties Power and the generation owner, for fault power flowing from our network. Counties Power will ensure that the relevant protection settings are compatible with the target clearance times that Counties Power specify;

- • The settings of any protection which controls a circuit breaker, or the operating parameters of any automatic switching device at any network connection point, must be approved by Counties Power;
- • The distributed generation protection must co-ordinate with any auto re-close settings specified by Counties Power; and
- • Any distributed generation connected to our network may be required to withstand, without tripping, the negative phase sequence loading incurred during the clearance of a close-up phase-to-phase fault by our network back-up protection and which is within the plant short-time rating.

## Distributed Generation Network Islanding

All distributed generation must disconnect from our network when a network outage is detected.

Distributed generation network islanding occurs when a fault on our network is isolated by network switches and the generator continues to supply power to the isolated network. Generators will disconnect and supply a load within their installation during a network outage (creating their own island).

Managing safety for operations and people becomes an issue with network islanding. If an attempt is made to re-liven the local network without synchronising to the distributed generation then substantial damage can occur to the network and to the customer's installation equipment.

It is therefore critical that all distributed generation operating intentions and protection systems are detailed to Counties Power. Counties Power will decide based on local network conditions and information given by you, whether network islanding is a credible possibility.

## Safety Requirements

In order to ensure that public safety is maintained, all distributed generators are 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, adhering to the requirements of the Electricity (Safety) Regulations 2010 and the Electricity (Safety) Amendment Regulations 2012.

Once you have finalised your distributed generation design, Counties Power will need to review it before Counties Power will allow it to connect to our network. As with any new or altered electricity

connections, Counties Power will need to see an Electrical Safety Certificate and Certificate of Compliance for the installation before it can be connected.

The distributed generator must comply with the requirements of the Health and Safety in Employment Act 1992.

To ensure compliance, generators are requested to carry out their own safety checks regularly using the recommended self-assessment PSMS2 Toolkit available from the Electricity Engineers' Association (EEA) website. Such areas are electrical protection during a generator and the back-feed of electricity into the network during a shutdown. The recommended time-frame is bi-annual safety checks.