



# NE-POL-0001 – Congestion Management Policy

**New Energy – Distributed Energy Resources**

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## Approvals

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## Version History

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VERSION	PAGE	PARAGRAPH	DESCRIPTION OF CHANGE
1.0			Creation of Document by B Williams
1.0	All		Changes/comments from K Singh

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## 1. Scope

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Distributed generation (DG) means equipment used, or proposed to be used, for generating electricity that is:

- a) Connected, or proposed to be connected, to our network that is directly or indirectly connected to the grid, or to your installation that is connected to our distribution network
- b) Capable of injecting electricity into our distribution network.

Export congestion occurs when electricity injected from this DG into our network causes a component in the network (for example, a line) to operate beyond its rated maximum capacity or give rise to an unacceptably high level of voltage at the point of connection to the network. The purpose of identifying areas of the network that are subject to export congestion is to provide you, at the earliest possible time, with information that may impact your decision to invest in distributed generation.

If the DG connects to the PowerNet managed networks, this policy applies to it. In future, this policy may also apply to other types of technology capable of injecting into the network (for example Vehicle-To-Grid/Home connections).

## 2. Introduction

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PowerNet Limited is the electricity network management company delivering power to Invercargill City, Southland, West Otago, parts of Central Otago and Stewart Island. PowerNet was established in 1994 by network owners Electricity Invercargill Limited (EIL) and The Power Company Limited (TPCL) to develop, manage and maintain their electricity network assets – lines, poles, cables, substations and other equipment, in a cost-effective way. PowerNet manages the electricity networks of TPCL, EIL, OtagoNet Joint Venture and Electricity Southland Limited (in Central Otago).

Based on the regulatory value of the networks it manages, PowerNet is the equivalent of the fourth largest electricity management company in New Zealand, delivering electricity to over 71,700 consumers.

PowerNet's vision is 'Safe, Efficient, Reliable, Power to Communities'. Distributed Generation (DG), especially if localised and over-supplied, poses the risk of not delivering on this vision – causing power quality issues, impacting other customers, and making the network less safe for those working on it and for our customers.

The [New Zealand Electricity Industry Participation Code \(the Code\)](#) sets out the duties and responsibilities that apply to industry participants and the Electricity Authority (EA). PowerNet allows the connection of DG to its network, when all appropriate requirements are met, as per their requirements in [Part 6 of this Code](#). PowerNet accepts the connection of DG to the network, providing technical and regulatory requirements are met with tolerable affects to our 'Safe, Efficient, and Reliable' values.

## 3. Causes of Congestion

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To ensure safe, efficient, reliable, power to our communities PowerNet may need to curtail electrical output from DG, or disconnect the DG from our managed networks. In an attempt to minimise interruptions this will only occur when:

- a) Electrical output from the DG may cause the network to exceed voltage limits set by the [Electricity \(Safety\) Regulations Clause 28\(1\)\(b\)](#).

- b) Operation of the customer installation may disrupt supply to other customers. The use of DG may, for example, result in power quality issues under certain operational conditions e.g. excessive voltage fluctuations or harmonics
- c) Operation of customer-connected installations may present a danger to personnel working on the network or other customers on the network. This could be due to the operation of the installation being contrary to recognised industry-wide and PowerNet safe-working practices, or when work is carried out on live low voltage (LV) conductors.
- d) Connection and operation of the customer installation may exceed the fault or current rating of network equipment.

## **4. Congestion Management**

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Congestion will be managed using either Curtailment or Disconnection, expanded in more detail below.

### **4.1 Curtailment**

Where issues are identified (such as the circumstances mentioned above) PowerNet may require the DG operator to curtail or disconnect their operation of the DG to reduce output, operate within nominated times or under nominated conditions, or both. No compensation will be paid by PowerNet should DG output be curtailed under these conditions.

The curtailment may be restricted to any or all of the DG operators on that part of the network experiencing the conditions.

### **4.2 Disconnection**

If curtailment of the DG output fails to address the conditions compromising the network, disconnection of any or all of the DG installations connected to the affected part of the network may be required.

DG installations less than 10kW must adhere to PowerNet's technical standards before their approval to connect is granted, which requires an inverter that will automatically disconnect DG from the network when conditions above are met. DG reconnection may be re-established following clearance of the condition.

For DG installations greater than 10kW, DG must automatically disconnect via the inverter protection settings, unless alternative options such as curtailment have been previously agreed. Reconnection of the DG is permissible on clearance of the conditions.

## **5. Applications to Connect**

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PowerNet will review all DG applications for both new connections and modification of existing connections (e.g. changes to generating capacity), and identify situations where the connection of DG may compromise the safe, efficient, and reliable performance of the network.

If, in PowerNet's assessment, the connection of the proposed DG will result in network congestion, we will offer guidance to the applicant to help enable them to meet our requirements.

If the proposed DG installation is still unable to meet our requirements to avoid congestion, the application to connect to the network will be declined (with an explanation). Where the application is declined, the applicant may wish to resubmit a revised application addressing the issues in the original application. PowerNet may work with the applicant to identify potential solutions that may allow us to reverse the declined application (e.g. restricting export to certain time periods in the future).

Approved DG applications will be cancelled if they are not installed within six months. The applicant will be advised by email to the email address on the application. A new DG application is required if the applicant wishes to continue to connect. If the applicant only partially installs the approved DG on the application, the remainder will be cancelled after six months. A new application must be submitted for the remaining DG following the cancellation.

Areas of congestion are identified on [our website](#)