



**NS05-30**  
**Distributed generation  
congestion management standard**

Network Waitaki Limited  
10 Chelmer Street  
PO Box 147,  
Oamaru 9444

Telephone 03 433 0065  
Facsimile 03 434 8845  
service@networkwaitaki.co.nz  
www.networkwaitaki.co.nz

## 1 DOCUMENT CONTROL

<b>Author:</b>	Craig Conlan - Network Development Manager
<b>Owner and approver:</b>	Shane Watson - GM Network

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Version 1	New document	Dec 2021

## 2 INTRODUCTION

Network Waitaki provides electricity lines services to our connected customers via our electricity distribution network.

Our distribution network is shared by many customers, each receiving power sufficient to meet their specific electrical needs.

However, any localised over-supply of exported energy from distributed generation (DG) into our network has the potential to cause power quality issues and adversely impact other customers. We strive to ensure that our network is safe for our workers, the equipment connected to it.

The Electricity Industry Participation Code 2010 (the Code) governs the connection of DG to ensure that the operation of New Zealand's electricity grid remains stable and reliable. In accordance with Part 6 of the Code, we manage the connection of DG to our network to ensure all appropriate requirements are met without adversely impacting our other customers.

## 3 SCOPE

This standard applies to any device that can inject power into our network.

## 4 CONGESTION MANAGEMENT

We manage the integration of Distributed Generation to minimise congestion by:

- Using our DG connection process and DG Standards
- Ensuring DG inverters are compliant with AS/NZS4777.2:2020
- Ensuring new DG inverters have at least one voltage response mode enabled
- Ensuring DG power output does not cause network components to malfunction or exceed ratings
- Ensuring the network has the capacity to accommodate the installed DG
- Publishing congested areas on our website

DG power output may need to be curtailed or disconnected from the network in the following circumstances:

1. DG power output is likely to cause the network to exceed voltage limits set by the Electricity (Safety) Regulations Clause 28(1)(b)
2. Operation of customer DG is likely to present a danger to workers on our network. This could be due to the operation of the installation being contrary to recognised industry-wide safe-working practices, or when work is carried out on live LV conductors
3. Operation of the customer DG may exceed the fault or current rating of network equipment
4. Operation of the customer DG may disrupt supply to other customers. E.g. power quality issues such as excessive voltage fluctuations or harmonics

### 4.1 Curtailment

Electricity networks are dynamic and future changes to network conditions may result in a reassessment of previously accepted DG applications.

New small scale DG inverters must be compliant with AS/NZS4777.2:2020 and have at least one of the following voltage response options implemented:

1. Volt-VAR and Volt-Watt response should both be enabled if possible
2. If both modes cannot be enabled simultaneously, the Volt-Var response should be enabled
3. If only the Volt-Watt mode is available this should be enabled

Where network issues are identified we may require the DG operator to curtail the DG to reduce output, operate within nominated times or under nominated conditions, or both.

No compensation will be paid by Network Waitaki should DG output be curtailed.

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 10kVA must adhere to Network Waitaki's technical standards before their approval to connected 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 10kVA, 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

We will review all DG applications for both new connections and existing connections (e.g. changes to nameplate capacity or fuel type), and identify situations where the connection of DG may compromise the safety and operational performance of the network.

If, in our 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 and we will work with the applicant to identify potential solutions that may allow us to reverse the declined application. For example, this may include restricting export to certain time periods.

## 6 EXPIRY OF APPROVED APPLICATIONS

Approved DG applications may be cancelled by us if they are not constructed within 18 months.

The applicant will be advised by email to the email address on the application. A new DG application will be required if the applicant wishes to continue to connect.

If the applicant has only partially installed the approved DG on the application, the remainder may be cancelled after 18 months. A new application must be submitted for the remaining DG following the cancellation....