

## Congestion Management Policy

25.11.2016

VECTOR LIMITED  
101 CARLTON GORE ROAD  
PO BOX 99882  
AUCKLAND 1149  
NEW ZEALAND

+64 9 978 7788 / VECTOR.CO.NZ

### Introduction

Vector provides electricity lines services to consumers via its electricity distribution network within the Auckland region. The 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 the network has the potential to cause power quality issues and adversely impact other customers. Operationally, Vector strives to ensure that the network is safe for both those working on it, and for those with equipment connected to it. We work to help ensure exposure to damage and costly remedial works are avoided where possible.

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, Vector allows the connection of DG to its network, when all appropriate requirements are met. Vector accepts the connection of DG to the network, providing technical and regulatory requirements are met without affecting other customers.

### Scope

This policy applies to all forms of DG which have a connection to the network. In future, this policy may also apply to other types of technology capable of injecting into the network.

### Causes of Congestion

The following specifies the circumstances under which electrical output (i.e. energy injected into our network) may need to be curtailed or disconnected from the network:

1. Electrical output may cause the network to exceed voltage limits set by the Electricity (Safety) Regulations Clause 28(1)(b).
2. Operation of customer connected installations may present a danger to personnel working on the 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. Connection of the customer installation may exceed the fault or current rating of network equipment.
4. 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.

### Applications to Connect

Vector 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 Vector’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.

For larger DG proposals (>10kVA), Vector may 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.

## Congestion Management

### *Curtailment*

Electricity networks are dynamic. This means that future changes to network conditions may result in a reassessment of previously accepted DG applications. Where issues are identified (such as the circumstances discussed above) Vector 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 Vector 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.

### *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 Vector'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.

## Expiry of Approved Applications

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.