



Generation Congestion Management Policy

Document Summary

This policy outlines how Northpower will manage Congestion through connection decisions for new Distributed Generation and through the curtailment and interruption of connected Distributed Generation.

Document Approval

Version	2
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Document Approver	Raj SINGH General Manager - Network Operations and DSO
Date Published	26/07/2026
Date for Next Review	25/07/2027

Controlled Document



Published Date:

Next Review Date:

Document Approver:

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26/07/2026

25/07/2027

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1.0 Introduction

1.1 Purpose

To take a consistent approach to managing Congestion.

1.2 Scope

This policy applies to all Distributed Generation connected (or proposed for connection) to the Network.

1.3 Application

This policy is one of Northpower's publicly available Connection and Operation Standards. The policies in this Application are subject to any legal requirements.

2.0 References

Please note hyperlinks have been supplied to Northpower Network internal controlled content in below reference table. **Not available to external users (non Northpower).**

Internal Reference	Details
Connection and Operations Standards	
Technical Requirements for Large Scale Distributed Generation Standard (over 10kW)	This document details Northpower's technical requirements for the connection of large-scale (>10kW) Distributed Generation ("DG") systems to Northpower's electricity distribution network.
Technical Requirements - Connection of Small to Medium Scale Distributed Generation Standard	This document details Northpower's technical requirements for the connection of small to Medium -scale DG. (<10kW) Small Distributed Generation ("DG") and (10kW <300kW) Medium Distributed Generation ("DG") systems using inverters to connect to Northpower's low voltage electricity distribution network.
Large Scale DG Commissioning Standard	<i>Under development</i>
Any other Standards developed by Northpower in accordance with Good Electricity Industry Practice	

External Reference	Details
Code	The Electricity Industry Participation Code 2010.



3.0 Definitions

Terminology	Definition
Application	An application to connect Distributed Generation to the Network, made under Part 6 of the Code.
Applicant	A person making an Application.
Congestion	Has the meaning given to “Export Congestion” in Part 1 of the Code.
Connection and Operation Standards	Has the meaning given to the term in Part 1 of the Code and includes the other reference documents identified as such in section 2.0 of this Policy.
“Curtail” and “Curtailment”	To disconnect, interrupt or reduce the operation or output of Distributed Generation partially or completely whether directly by Northpower or by direction given to the operator of Distributed Generation.
Distributed Generation or DG	Has the meaning given to the same term in Part 1 of the Code but also includes any plant, fitting, vehicle or other thing which is connected to and capable of exporting electricity into the Network, including certain electric vehicles and battery energy storage systems.
Distributed Generator	Has the meaning given to the term in Part 1 of the Code.
Established DG	Means any Distributed Generation of less than 1MW which is connected to the Network as at the date this updated policy was issued
Final Application Date	The date upon which a Distributed Generator made a final Application to Northpower (as described in part 6 of the Code) to connect the relevant Distributed Generation to the Network.
Good Electricity Industry Practice	The degree of skill, diligence, prudence and foresight which could reasonably be expected from a skilled and experienced electricity distribution network owner engaged in New Zealand in the distribution of electricity under conditions comparable to those applicable to the Network (taking into account factors such as the relative size, age and technological status of the Network), consistent with law, safety and environmental protection.
Large Scale DG	Distributed Generation with a Maximum Injection Entitlement greater than 10kW excluding Established DG.
Maximum Injection Entitlement	The maximum amount imposed by Northpower on Distributed Generation as a condition of connecting to the Network, whether expressed as a maximum voltage, maximum current injection, maximum quality measure, any another measure or any combination of the same.
Long term Congestion	Congestion, which is not Temporary Congestion, including without limitation, a scenario in which load at a Network location is reduced, meaning that the Network at the location can no longer support the same level of injected Distributed Generation.
Network	Northpower’s electricity distribution network including any part of it and any item which is a part of or attached to it.
Small Scale DG	Distributed Generation with a Maximum Injection Entitlement of 10kW or Established DG.
Standards	Any policy, standard, framework, process, procedure, guideline or form which Northpower has established through its quality management system and applies to the Network.

Published Date:

Next Review Date:

Document Approver:

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Terminology	Definition
"System Operator"	The person who ensures the real-time co-ordination of the electricity transmission system, as referred to in section 8 of the Electricity Industry Act 2010.
Temporary Congestion	Congestion, which is caused by events which do not reflect, in relation to any part of the Network, a normal operating state as reasonably expected by Northpower in accordance with Good Electricity Industry Practice and includes planned and unplanned outage events.

4.0 Background

This policy takes into account the following context as at the date of publishing:

- distribution and transmission networks in New Zealand operate as open access networks;
- the New Zealand electricity system does not have a system of firm export capacity rights;
- there is no established market to manage congestion on the distribution network in New Zealand.

5.0 Locations of Long Term Congestion

The locations of known and expected Long Term Congestion on the Network are available on Northpower's website for 'Alternative energy': [Follow this link](#).

6.0 General discretion

Northpower may, in its discretion but acting reasonably, elect not to apply any part of this Policy in any individual circumstances including for safety, protection of property or the protection and performance of any part of the Network.

7.0 Applications to connect Distributed Generation

7.1 Northpower will seek to maximise Distributed Generation on the Network

Northpower will consider Applications on the basis that Northpower seeks to maximise Distributed Generation on the Network, subject to the protection and performance of the Network and the Grid.

7.2 Northpower requires Congestion to be avoided or managed

Northpower will not approve Applications unless satisfied that the proposed Distributed Generation can operate in conjunction with existing or approved Distributed Generation including through avoiding congestion (for example by requiring a network upgrade) or via the management policies in section 7.3 and 8.0 below without creating Congestion.



Northpower may approve Applications of 10kW or less where there is export capacity on the relevant part of the network (e.g. an LV feeder), even if this causes Congestion in another area of the Network (e.g. on the HV network), requiring management, subject to being satisfied that Network performance and protection will be maintained in accordance with Good Electricity Industry Practice.

Where Northpower receives an Application which will create Congestion, it will work with Applicants to explore options to manage Congestion prior to approving the application. This may include conditions of approval of an Application or contractual arrangements which:

- require an Applicant to fund a capacity upgrade on the Network;
- approve a lower Maximum Injection Entitlement than sought in an Application;
- limit the export capability of Distributed Generation on a flexible basis, for example by requiring that a Distributed Generator inject on a subservient basis to other existing or approved Distributed Generators; or
- impose custom Curtailment rules (on the new generation in question only) which override any standard approach in this policy.

7.3 Temporary Congestion

Northpower will apply the following policies to manage Temporary Congestion. The policies are listed in priority, i.e., if there is a conflict between the application of two policies, the earlier one will prevail.

7.4 Northpower will Curtail DG to manage Temporary Congestion

Northpower will Curtail DG to manage Temporary Congestion.

7.5 Northpower may Curtail Large Scale DG before Small Scale DG

Northpower recognises that Small Scale DG does not generally currently have the capability to be remotely Curtailed. However, Congestion of Small Scale DG will generally be managed on the LV network through the technical operation of inverters that disconnect export once Network limits are reached.

To address Temporary Congestion, Northpower may Curtail Large Scale DG before it Curtails Small Scale DG.

Note: As at the publishing date of this policy, Northpower has limited alternative options to manage congestion - it is not feasible from a cost or complexity perspective to control Small Scale DG and Northpower cannot refuse Small Scale DG from connecting if Small Scale DG does not cause local congestion. The only feasible option is to Curtail Large Scale DG if congestion occurs on the HV distribution or sub-transmission Network. Northpower intends to support the development and introduction of flexible export (and import) limits for all Distributed Generation. As such, Northpower does not commit to maintaining this policy setting once technological and industry changes can support a different approach.



7.6 Northpower will Curtail based on the nature of the fuel and its function supporting the Network

Northpower recognises that generation plant has different physical properties affecting their capability to ramp up and down, as well as the role they play in supporting the Network.

During outage situations, any Distributed Generator may be required to Curtail to maintain Network or Grid operational requirements. Northpower will use reasonable endeavours to Curtail in the order below where there is more than one Distributed Generator affected:

1. Flexible plant first (e.g., peakers or batteries)
2. Intermittent/interruptible plant (e.g., wind or solar)
3. Run of river hydro (low storage)
4. Hydro with significant storage
5. Inflexible / stable plant (e.g., geothermal).
6. Plant required for frequency or voltage keeping.

Note: Northpower have prioritised generation in this way to support network and grid stability (i.e., prioritising synchronous/stable generation to remain connected) including consideration of the controllability of the generation.

7.7 Northpower will Curtail based on order of Final Applications

Northpower recognises that the Code effectively provides for a general priority amongst Applicants who wish to connect to the Network based upon the date on which Applicants lodge their Final Applications. Northpower adopts a similar principle to manage the priority of Curtailment.

When it is possible to Curtail more than one Distributed Generator to manage Temporary Congestion within an available category (see 7.6 above), Northpower will where practicable impose Curtailment between available Distributed Generation on a last on, first off basis in the area of Congestion based on the date of each affected Distributed Generator's right to connect.

Note: Northpower will apply this policy in substance over form. In most cases, for DG connected under the rules now embodied in Part 6 of the Code (as at the date of this Policy), the right of a Distributed Generator to connect in relation to other Distributed Generators will be determined by reference by the relevant Final Application Date of each Distributed Generation. However, exceptions might include:

- *for Distributed Generation, which is already connected to the Network, recognising the original date of the right to connect instead of a subsequent Final Application Date where the Application does not seek a material change to the relevant connection.*
- *Where the Final Application Dates of two Distributed Generators are made within a timeframe that requires Northpower to treat the applications in a competitive manner under the Code, in which case an Applicant's right to connect compared to any other Applicant, may not be determined by the earliest relevant Final Application Date but some other criteria, as the case may be.*



8.0 Long Term Congestion

Northpower will apply the following policies to manage Long term Congestion.

The policies are listed in priority, i.e., if there is a conflict between the application of two policies, the earlier one will prevail.

8.1 Northpower will Curtail DG to manage Long term Congestion

Northpower will Curtail DG to manage Long term Congestion.

8.2 Northpower may reduce the Maximum Injection Entitlements of Large Scale DG

Northpower may, notwithstanding any technical Maximum Injection Entitlement, Curtail Large Scale DG in order to manage Long term Congestion caused or contributed to by cumulative connection of Small Scale DG impacting export capacity available on another part of the HV network, including Small Scale DG which is connected after any Large Scale DG.

Note: see the note in section 7.5 above.

8.3 Northpower will Curtail based on order of Final Applications

Northpower recognises that the Code effectively provides for a general priority amongst Applicants who wish to connect to the Network based upon the date on which Applicants lodge their Final Applications. Northpower adopts a similar principle to manage the priority of Curtailment.

When it is possible to Curtail more than one Distributed Generator to manage Long term Congestion, Northpower will impose Curtailment between available Distributed Generation on a last on, first off basis in the area of Congestion based on the date of each affected Distributed Generator's right to connect.

Note: see the note in section 7.7 above.

9.0 Review

9.1 Northpower will review its policy as required

Northpower recognises that Distributed Generation is subject to significant growth and change. This policy may be updated if required by law or regulation, a regulatory authority or any material changes in Good Electricity Industry Practice that justifies such a change.





10.0 Document Review History

Version Number	Date	Revision Notes (reason for change)
1.0	29/08/2023	New version release. Replaces - NET.NP.00.03 Congestion Management Policy – Distributed Generation. (v4) - ENS 02.01.064 Congestion Management Policy – Distributed Generation. (v1-3)
2.0	TBA	TBA - Due for a review

