

Congestion Management Policy

Version 2.0 – DOC-ID-00010

Date Issued 18 Oct 23

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1. Purpose

This policy sets out the principles governing how Powerco will manage export congestion on its network. It should be read in conjunction with Powerco’s DG Connection and Operation Policy 173P001.

This policy will apply to all connections approved after 1 April 2024.

2. Definitions

Term	Meaning
Commercial DG	Predominantly large, dedicated generation connections, but includes any DG at load installations above the limits specified for “Prosumer DG”.
Distributed Generation (DG)	Any Distributed Energy Resource (DER) that can generate electricity and thus energise the network. Excludes generators without grid-tie capability such as standby generators.
Export Congestion	Export congestion (as defined in Part 1 of the Electricity Industry Participation Code 2010) refers to a situation in which a distribution network is unable to accept electricity exported from DG because the injection of an additional unit of electricity into the distribution network would: <ol style="list-style-type: none"> Directly cause a component in the network to operate beyond the component’s maximum rated capacity; or Give rise to an unacceptably high level of voltage at the point of connection between the distribution network and the distributed generation.
Hosting Capacity	The maximum additional unconstrained DG the existing network can accommodate with all assets in service, after a prudent allowance ¹ to manage future changes in network loading, and especially Prosumer DG uptake. It is currently a static value but in future it may become time variant and dynamic.
Operational Congestion Management	The capability of the network operational control centre (NOC) to limit real time DG output to manage network export congestion
Prosumer DG	DG located at installations consuming power that may export at times, provided the capacity of the DG is below a published kW limit related to the class of load tariff

3. General approach

We support our customers’ decarbonisation efforts and seek to provide open access to the network. Powerco will therefore facilitate connection of as much distributed generation, especially renewable, as is technically and

¹ This is expected to be of the order of 5% of network load capacity

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economically feasible. But while we will make unused export capacity in the network accessible to any generator, such access does not confer any enduring rights. Once there is contention for limited capacity, we may need to actively (i.e., operationally) manage network congestion.

Our general approach to congestion management recognises two quite distinct types of connection, *Prosumer DG* and *Commercial DG*, as defined above and described below.

4. Treatment of Prosumer DG

Prosumer DG are tariff paying consumers with generation of similar scale to their loads². Existing network capacity is generally matched to the load requirements, and it can therefore accommodate similar levels of Prosumer DG. Prosumer DG's impact on export congestion is therefore not likely to be significant in the immediate future. Congestion can be managed through optimised network investment planning rather than by operationally constraining output (even if it were currently practicable).

Prosumer DG almost exclusively connects into the low voltage system. As we implement systems to monitor and manage the low voltage systems more effectively, we will also implement processes to forecast future uptake and injection levels. This will allow us to optimally plan the LV network capacity to provide for both demand and generation needs.

Should new connections give rise to export capacity constraints or require major upgrades in future, we will review this approach.

5. Treatment of Commercial DG

Connection priority for Commercial DG is predicated on the DG having secured final approval per The Code Part 6³ application and approval process and enabling works having been progressed.

In contrast to Prosumer DG, Commercial DG is more focused on exporting bulk generation to remote markets, and therefore often seeks to consume all available network capacity. Commercial DG is less predictable in location, scale and timing, which limits the application of systematic investment planning processes. Current pricing principles also restrict the fair allocation and recovery of any such planned investment costs.

Therefore, prior to any network-initiated investment, due to whatever driver, we will consult with any nearby commercial generators, including any known applicants or future interests to ascertain their potential expansion plans.

Our overall objective is to encourage renewable generation while optimising our capacity planning. Connection of Commercial DG up to the network hosting capacity is permitted and generation will only be operationally constrained as needed to manage outages and events where network export capacity is temporarily reduced.

² Consumers seeking to install DG above the allocation defined by their load class may do so but would then be treated as a Commercial DG provider

³ Electricity Industry Participation Code 2010 Part 6 Connection of distributed generation

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Connection of DG which exceeds current hosting capacity may also be permitted but it may then be subject to operational congestion management at times. Generation will only be constrained to the extent and for the period required to manage the congestion. The facilities to enable operational congestion management capability (communications, protocols, controls etc) are to be installed before commissioning, even if an unconstrained operation is initially viable.

If operational congestion management is required on a section of network where more than one Commercial DG has requested access, capacity will be allocated according to the order of compliant final application submission on a first in; first served basis. If it becomes necessary for us to manage congestion operationally, the last connected generator will be the first to be constrained off.

Adopting this approach will allow greater utilisation of the network and will encourage appropriate deployment of flexibility over time. This is also aligned with the move to advanced distribution management systems and leverages the capability of modern technology to allow remote, real-time matching of output to capacity. It may also allow generation to continue at reduced output when the network capacity has been temporarily reduced due to outage or changed switching configuration. If not, network outages might require complete shutdown of the generating plant.

In future, Powerco intends to introduce time variant or full dynamic network ratings to increase the potential extent of available DG connection capacity and reduce the degree of export constraint that might apply. Subject to the regulatory framework, we also intend to pursue allocation of capacity rights under congestion conditions to utilise dynamic or time-based cost-reflective pricing signals, as this will more effectively facilitate flexibility.

6. Capacity augmentation

To accommodate the reasonable future needs of both generation and load we will forecast and plan for economic network upgrades optimised across all drivers (demand, renewal, generation or congestion relief).

Any generator may request upgrades to the network, and then negotiate enduring export capacity rights on the section of network towards which they contributed.

Where a Commercial DG initiates a network upgrade, Powerco reserves the right to augment the requested additional capacity to serve other customers or to meet forecast future network needs, be these due to generation, load, reliability or other driver. In such case, our prevailing contribution policy will be applied and the share of costs to the initiating Commercial DG will reflect the appropriate capacity share. In no case will the shared cost exceed incremental standalone costs (i.e., the cost if the upgrade was solely for the generator's needs and fully charged to them).

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7. Document review history and Control

Version	Date	Change
2.0	18 Oct 23	First formal issue

Document management and control		
	Name and position	Date
Document owner	Eric Wolters, Strategy Principal	Oct 2023
Approved by	Ryno Verster, Business Strategy Manager	Oct 2023
This policy will be reviewed every 5 years		