NS0525 Small Scale Distributed Generation Connection Standard

Document Type: Standard

V.2.1

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1 PURPOSE

This document defines Network Waitaki's requirements for the connection of small-scale inverter-based distributed generation with a total inverter capacity of up to and including 10 kW to Network Waitaki's electricity distribution network.

2 SCOPE

This standard applies to small-scale inverter-based distributed generation systems, including photovoltaic systems, battery energy storage systems, hybrid inverter systems, and electric vehicles with vehicle-to-grid capability, where the system is capable of operating in parallel with and exporting electricity to Network Waitaki's low-voltage network.

This standard is to be read in conjunction with the Regulated Terms in Appendix 6A of Part 6 of the Electricity Industry Participation Code, and nothing in this document is intended to amend, limit or supersede those terms.

3 APPLICATION PROCESS AND TIMEFRAMES

The connection of SSDG will follow the processes, timeframes and regulations as set out in the Electricity Industry Participation Code (EIPC). Our online application process and details of application fees can be found on our website Solar and other distributed generation | Network Waitaki.

3.1 Streamlined Process (Part 1A)

The streamlined process applies where:

- The SSDG installation is designed and installed in accordance with AS/NZS 4777.1:2024.
- The proposed inverter is approved by the Clean Energy Council **OR** has a Declaration of Conformity from an approved test laboratory demonstrating compliance with AS/NZS 4777.2:2020 incorporating Amendments 1 and 2.
- The proposed maximum export power does not exceed the maximum export power threshold applicable to the ICP or relevant section of network, including any lower threshold or export condition published or advised by Network Waitaki in accordance with Part 6.

For streamlined applications:

- We will acknowledge receipt within **2 working days** and advise if the application is incomplete.
- We will advise our decision within **10 business days** of receiving a completed application.

3.2 Normal Process (Part 1)

Where the streamlined process does not apply:

- We will acknowledge receipt within **5 working days** and advise if the application is incomplete.
- We will advise our decision within **30 business days** of receiving a completed application.

3.3 Export Limit Assessment

Network Waitaki may undertake an export limit assessment using Network Waitaki's published export limit assessment methodology, or an applicable industry methodology where that methodology has been adopted. The assessment determines whether the proposed maximum export power can be safely accommodated without breaching network safety, voltage, thermal, power quality, or reliability limits.

If the assessment identifies insufficient hosting capacity, the application may be:

- **Approved** - subject to a reduced export limit consistent with the methodology; or
- **Declined** - where no safe and reasonable export level can be accommodated without network reinforcement.

Where practicable, Network Waitaki will advise any alternative export limit, conditions, or network upgrade options that may enable the application to be approved.

All assessments and decisions will comply with the timeframes above and regulated terms in **Part 6 of the EIPC**.

Applicants who disagree with an assessment outcome may access the review and dispute processes available under Part 6 of the Electricity Industry Participation Code.

3.4 Cost of Upgrades

Where a network upgrade is required to enable the requested export level, the applicant may be required to fund the incremental cost of the upgrade.

4 NETWORK CONGESTION

A list of known constrained areas and Network Waitaki's congestion management standard is published on our website: Solar and other distributed generation | Network Waitaki.

Network Waitaki may also publish planning information, including hosting capacity maps, indicative export thresholds and network constraints, to assist customers and installers. This information is indicative only and may change as network conditions, connected distributed generation, approved applications and assessment methodologies change over time. Approval of an application remains subject to the applicable Part 6 process and any site-specific assessment required by Network Waitaki.

5 TECHNICAL REQUIREMENTS

Except where noted otherwise, all inverter settings shall comply with AS/NZS 4777.2:2020 Amendment 2 incorporating Amendments 1 and 2 and "**Australia A**" settings. Network Waitaki may require alternative inverter settings where supported by an appropriate network study or industry guide and permitted under the Electricity Industry Participation Code.

5.1 Maximum export power threshold

The default maximum export power threshold applicable to an ICP is 10 kW. Network Waitaki may assign a different threshold where justified by network conditions and determined using Network Waitaki's export assessment methodology.

5.2 Inverter power quality response modes

The SSDG shall not cause the voltage at the point of supply to rise above regulatory limits:

- Volt-var and Volt-watt power quality response modes shall both be enabled and set to the Australia A regional parameters as defined in AS/NZS 4777.2:2020 (incorporating Amendments 1 and 2) A2 Clauses 3.3.2.3 (Volt-VAr), 3.3.2.2 (Volt-Watt) and 4.10.1 (IES power quality response modes), including the applicable Australia A tables
- DC injection, total harmonic distortion of current (THDi), voltage fluctuation, transient over-voltage and other power quality requirements in AS/NZS 4777.2:2020 (incorporating Amendments 1 and 2) A2 Clauses 2.8 (voltage fluctuation and flicker), 2.9 (transient voltage limits), 2.10 (DC current injection) and 4.10 (power quality) shall be complied with, in addition to power quality requirements in Network Waitaki's Connection Standard.

5.3 Islanding

SSDG must not, under any circumstances, re-energise parts of our network that have been disconnected (islanded) from the rest of our network. The SSDG must have both active and passive anti-islanding protection which must always be fully functional, in accordance with AS/NZS 4777.2:2020 (incorporating Amendments 1 and 2) A2 Clause 4.3 (active anti-islanding protection) and the voltage and frequency limits for passive anti-islanding in Tables 4.1 and 4.2. For inverter-based systems, compliance with AS/NZS 4777.2:2020 incorporating Amendments 1 and 2 is achieved by applying:

- Australia A regional settings for all *voltage-based protection* parameters, and
- New Zealand regional settings for all *frequency limits*, *frequency protection*, and *frequency ride-through* requirements.

Frequency protection and ride-through must comply with Clause 4.5.3 and the New Zealand regional settings tables, while reconnection conditions must comply with Clause 4.7. These settings together satisfy Network Waitaki's anti-islanding protection requirements.

6 INSPECTION AND TESTING

Before final approval to generate into Network Waitaki's network, the applicant must provide the required electrical compliance and commissioning evidence, including Certificate of Compliance, Record of Inspection where required, inverter configuration evidence, and test or commissioning records.

Network Waitaki may require an on-site inspection before final approval where this is necessary to verify compliance with this standard, Part 6, or Network Waitaki's connection requirements. To book an inspection, installers should phone 03 433 0065 and provide at least 5 business days' notice.

Network Waitaki may charge a reasonable inspection fee in accordance with Clause 19 of Part 6.

The SSDG owner is responsible for ensuring inverter settings remain correct and unaltered. Network Waitaki may periodically verify settings for ongoing compliance.

7 METERING

Metering of the SSDG injection will be organised by the retailer for the ICP.

8 CONNECTION CONTRACT

The *Regulated Terms for Connection of Distributed Generation* (Part 6) https://www.ea.govt.nz/code-and-compliance/the-code/ will apply to all connections approved under this standard unless a unique connection contract is agreed between Network Waitaki and the connected customer within the Regulated Terms timeframes.

9 FEES

Application and Inspection fees are detailed on our website Solar and other distributed generation | Network Waitaki and comply with Clause 19 of Part 6 of the EIPC, being based on reasonable costs.

10 RELATED REFERENCES

Policies
- Nil

Standards/Procedures
- NS0530 – Distributed Generation Congestion Management Standard

Forms
- Nil

Other / External
- Electricity Industry Participation Code (EIPC) – Part 6
- AS/NZS 4777.1:2024 Installation of Energy Systems via Inverters
- AS/NZS 4777.2:2020 incorporating Amendments 1 and 2
- Electricity Industry Participation Code 2010 (EIPC), Part 6

11 RESPONSIBILITIES

Responsibility	Position / Role
Document Approver:	GM Network
Document Owner:	Head of Future Networks and Assets
Document Author:	Head of Future Networks and Assets
Other Document Reviewer(s):	Project Administrator
Revision Authority:	Head of Future Networks and Assets has the authority to approve minor revisions and amendments

12 DOCUMENT CONTROL

12.1 Review Timeframe

Revision Frequency	3 yearly	Next Review Date	16/12/2028

12.2 Summary of Document Amendments

Date	Version	Summary of Changes
16 Dec 2021	1.0	Rewrite, replacing NI 05/36 Distributed generation up to 10kW
16 Dec 2025	2.0	Amended to increase single phase limit from 5kW to 10kW to align with changes to NZ regulated voltage limits
15 July 2026	2.1	Updated inverter requirements to align with AS/NZS 4777.1:2024, AS/NZS 4777.2:2020 incorporating Amendments 1 and 2, Australia A inverter settings, and updated reference standards.

13 DEFINITIONS

Term	Definition
Connected customer	This term has the same definition and meaning as defined for a "consumer" in the Electricity Act 1992, namely "…*any person who is supplied, or who applies to be supplied, with electricity*."
ELAM (Export Limit Assessment Methodologies)	ELAM is an industry-approved methodology used to assess network hosting capacity and determine safe export limits for distributed generation (DG) less than 10kW. ELAM provides a transparent and standardised process to confirm whether the default single-phase export limit of 10 kW can be accommodated on the network, or whether an alternative export limit is required.
Export Limit	The actual approved export power for a specific connection.
Network Waitaki Ltd	Also referred to as NWL or where we use the pronouns "us", "we", or "our".
Maximum Export Power Threshold	A distributor-defined default threshold that applies to an ICP or area.
ICP	Installation Control Point - the point where a retailer is deemed to supply electricity to a connected customer.
Inverter (grid tied)	An electronic device which converts DC from SSDG into AC and can export power into our network.
Retailer	A party who purchases electricity and on-sells it to customers
Small Scale Distributed Generation (SSDG)	Generation with a capacity of up to and including 10 kW