NS05-25

Small scale distributed generation connection standard

Document Type: Standard

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1 INTRODUCTION

1.1 Purpose

This document defines Network Waitaki's requirements for the connection of small-scale (capacity less than 10 kW) inverter based distributed generation (SSDG) to our electricity distribution network.

1.2 Scope

This standard applies to all SSDG that connects via inverters including photo-voltaic panels, batteries, or electric vehicles with vehicle-to-grid (V2G) technologies.

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.

1.3 References

- AS/NZS 4777.2:2020 A2 Grid Connection of Energy Systems via Inverters
- Electricity Industry Participation Code 2010 (EIPC), Part 6

1.4 Definitions

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*."
Network Waitaki Ltd	Also referred to as NWL or where we use the pronouns "us", "we", or "our".
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.
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 10 kW or less

2 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 4777.1:2016.
- 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 Amendment 2.
- The SSDG installation is not in an area identified as congested.

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 Hosting Capacity Assessment

For any SSDG application (including for areas not currently identified as congested), Network Waitaki may undertake a hosting capacity assessment using an industry-approved methodology (such as ELAM). This assessment determines whether the proposed export level can be safely accommodated without breaching network constraints.

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.

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

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.

3 NETWORK CONGESTION

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

4 TECHNICAL REQUIREMENTS

Except where noted otherwise, all inverter settings shall comply with AS/NZS 4777.2:2020 Amendment 2 "**Australia A**" settings. Except for frequency protection and frequency ride-through requirements which shall use the **New Zealand** settings.

4.1 Maximum esport power threshold

The maximum export power threshold per ICP is 10 kW.

4.2 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 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 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.

4.3 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 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 A2 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.

5 INSPECTION AND TESTING

SSDG installations must be approved by a Network Waitaki–authorised inspector before they will be approved to generate into our network, as required under Part 6 of the Electricity Industry Participation Code. To book an inspection, installers should phone 03 433 0065 and provide at least 5 business days' notice.

The inspector will also request documentation confirming electrical compliance, including:

- AS/NZS 3000 and AS/NZS 5033 certification,
- test and commissioning records,
- inverter configuration reports (or photos of settings) or demonstration on site that these are correct.

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.

6 METERING

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

7 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.

8 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.

9 RELATED REFERENCES

Policies

- Nil

Standards/Procedures

- Nil

Forms

- Nil

Other / External

- Electricity Industry Participation Code (EIPC) – Part 6
- AS/NZS 4777.2:2020

10 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):	
Revision Authority:	Head of Future Networks and Assets has the authority to approve minor revisions and amendments

11 DOCUMENT CONTROL

11.1 Review Timeframe

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

11.2 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