Network Connection Policy for Distributed Generation

Document Register

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Revision Register

Revision	Issued	Reason for revision	Change reference	Supersedes
0	18/07/2012	New Document		
1	07/05/2026	Update the policy to cover all sizes DG connections, process and fee requirements		Rev. 0

End of Revision Register

CONTENTS

1.Purpose

This policy has been prepared for the connection of distributed generation is set out in Part 6 of the Code. It sets out the process and requirements for the connection of distributed generation to Wellington Electricity's Network.

2.Policy

Wellington Electricity (WELL) is committed to owning and operating a sustainably profitable electricity distribution business that delivers a safe, reliable, cost-effective, and high-quality network to our customers. This includes facilitating the integration and providing equitable access to all demand and distributed energy resources, while ensuring the security, stability, capacity, and regulatory compliance of Wellington Electricity's distribution and sub-transmission networks remain uncompromised.

All Distributed Generators (hereinafter abbreviated as "DG") seeking connection to the WELL network must be designed, constructed, and operated in full compliance with applicable regulatory requirements, industry standards and WELL Policy.

3.Scope

This policy is intended primarily for consumers wishing to connect distributed energy generation systems, both rotating generation and non-rotating generation, such as solar panels, batteries, or wind turbines, to the WELL network. This also includes the backup/standby generator that synchronises temporarily.

4.Definitions

Table 1: Definitions

Terms	Definitions
Active Power	The real, usable energy in an AC electrical system that performs work (e.g., heats a resistor, spins a motor) and is consumed by loads. It is measured in Watt (W) or kilowatt (kW)
Alternating Current (AC)	A type of electric current that periodically reverses direction, causing the voltage polarity to switch back and forth over time, such as a residential power plug.
Apparent Power	The total power in an AC electrical system, combining: Active power (P, kW): real usable energy, and Reactive power (Q, kVAR): "Invisible" power for voltage support. It is measured in Voltage Ampere (VA) or kilo Volt Ampere (kVA)
As-Built Drawing	The document that records the final, installed conditions of a project, including all modifications made during construction.
Certificate of Compliance (COC)	An official document that verifies that electrical work has been performed safely and complies with New Zealand's electrical safety standards and regulations, it is issued by a registered electrician.
Circuit Breaker (CB)	A switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal conditions, such as those of a short circuit.
DC (Direct Current)	A type of electrical current where the flow of electric charge moves in a single, constant direction, such as a battery or photovoltaic.

Distributed Generation	Distributed generation refers to a variety of technologies that generate electricity at or near where it will be used, for example, solar panels
Distribution network	It is the part of an electrical power system that delivers electricity from the national grid to the customer.
Electrical Inspector or Inspector	A licensed professional is responsible for auditing electrical work to ensure compliance with safety standards and regulations.
Flicker	A variation of input voltage sufficient in duration to allow visual observation of a change in electrical light source intensity.
Fault	A physical condition that causes a device, a component, or an element to fail to perform in a required manner, for example, a short-circuit, a broken wire, an intermittent connection.
Flagging	It is the process of marking or tagging equipment, components, or data points for identification, maintenance, or safety purposes.
Frequency	The number of complete cycles of sinusoidal variation per unit time. It is measured in Hertz (Hz).
Interlock	It is a safety mechanism that prevents conflicting operations (e.g., disallowing a circuit breaker to close while maintenance is ongoing)
Intertrip	It is a protection scheme that forces the disconnection of a remote device (e.g., a generator) when a fault is detected elsewhere
Inverter	It is an electronic device that converts Direct Current (DC) electricity into Alternating Current (AC) electricity.
Islanding	It is a condition in which a portion of the Wellington Electricity network is energised by one or more DGs through their PCC(s) while electrically separated from the rest of the Wellington Electricity system.
Isolated generation	It is a condition where the electrical path at the is open and the DG continues to energise local loads.
Maximum Export Power	It is the aggregate nameplate capacity of the generating equipment, minus the minimum load at the point of connection or the active power export limit imposed by an active power export control device.
Minimum Load	It is the minimal power consumed by a consumer or distributed generation applicant. It is measured in kilowatt (kW) or kilo Volt-Amperes (kVA).
Nameplate Capacity	It is the maximum theoretical output or generating of a generator. It is measured in kilowatt (kW) or kilo Volt-Amperes (kVA).
Registered Electrician	It is a qualified professional authorised to perform and certify electrical work, ensuring compliance with national safety standards.
Record of Inspection (ROI)	It is a formal document that provides evidence of compliance with electrical safety standards after an inspection.
Self-commutation	It is the process that an electronic switch can turn itself off whenever it is told to, without waiting for the electricity from the grid to switch it off naturally.
Switchboard	It is the central electrical connection in each house, which houses cables to the lamp, stove, and distributed generation.
The system	Refers to the Distributed Generator system.

5. References

Table 2: References

Reference Standards	Title
Industry Standards and Regulations	
AS/NZS 4777.1:2024	Grid Connection of Energy Systems via inverters, Part 1: Installation requirements
AS/NZS 4777.2:2020	Grid Connection of energy systems via inverters, Part 2: Inverter requirements
AS/NZS 1768:2007	Lightning protection
AS/NZS 3000:2018	Electrical installations - Known as the Australian/New Zealand Wiring Rules
AS/NZS 3010:2017	Electrical installations - Generating sets
Safety Regulation	Electricity (Safety) Regulations 2010
The Code	Electricity Industry Participation Code 2010
Wellington Electricity Policies and Standards	
ENP-116	Wellington Electricity Distribution Code and Network Connection Standard
ENP-107	Congestion and Interruption Management Policy
ENG-100	Technical Requirements for Connection of Distributed Generation (DG)
End Of References	

6. Safety

For safety reasons, all DGs connected to Wellington Electricity network must be approved and have provided a Certificate of Completion (CoC) and Record of Inspection (RoI) to Wellington Electricity. This ensures our field crews are aware of the presence of any DGs when they are working on the network lines in the area.

As per AS/NZS 4777.2:2020, the distributed generation does not have the capability of self-commutation, which can generate electricity that could feed into a section of our network where all other sources of electricity are inactive. This live electricity could pose a serious electrocution risk to field crews.

For everyone's safety, all generating systems must, as a minimum, comply to statutory requirements, and must comply with safety standards specified by Wellington Electricity.

7.Requirement

7.1. Codes and Standards for Installation

For new distributed generation installations, the installation must be performed by a registered electrician in compliance with approved system designs, applicable building regulations, and current electrical standards—specifically including the most recent editions of:

- AS/NZS 3000:2018
- AS/NZS 4777.1:2024 and AS/NZS 4777.2:2020

7.2. Connection Requirement

The connection of a new distributed generation must meet the following requirements:

- Comply with ENP-116 Wellington Electricity Distribution Code and Network Connection Standard.
- Comply with ENP-107 Congestion and Interruption Management Policy on the WELL website.
- The specifications must comply with ENG-100 Technical Requirements for Connection of Distributed Generation (DG).
- Operate at the voltage outlined in the Safety Regulations.
- Reactive Power or Power Factor shall be controllable; the reactive power capability (kVAR) shall comply with AS/NZS 4777.2:2020 for the non-rotating (inverter-based) generator and shall comply with The Code for rotating generator.
- To comply with clause 6.3A(3)(c) of the Code, Distributed Generation (DG) systems must install the smart inverters capable of:
    - Operating at least up to the maximum export power threshold under unconstrained network conditions and dynamically adjusting export levels in real time through remote control to respond to network congestion and maintain system stability.
    - Operating at least up to the maximum export power threshold under unconstrained network conditions, and modulating export levels based on predefined schedules, forecasts, or operating scenarios, either programmed within the inverter or communicated remotely, to proactively manage anticipated network constraints.
- The applicant shall declare, as part of the application, the minimum load at the point of connection with a high degree of accuracy. Any supporting data provided shall have a temporal resolution of no greater than 30 minutes (e.g., 5-minute or 1-minute intervals). For compliance purposes, the applicant is strongly encouraged to engage a qualified electrical consultant or a registered electrician to determine this value. Where the applicant is unable to provide data that meets these requirements, the network operator may assign a representative load profile based on the applicable customer segment (including, but not limited to, residential, commercial, or industrial).
- Only the approved equipment shall be installed. The applicant must specify the exact make and model of the equipment to be installed in the application. All inverters and inverter-based equipment must be accompanied by a valid Certificate of Conformity demonstrating compliance with AS/NZS 4777.2:2020. All the settings shall be in accordance with the Code requirements unless specified otherwise by Wellington Electricity.

Wellington Electricity reserves the right to reject an application or deem it incomplete and place it on hold if any applicable requirement is not met; once finalized, such applications will be managed under the Queue Management Policy, which will supersede the current process.

The maximum export limit for the DGs <10kW would be calculated based on Export Limits Assessment Methodology (ELAM), whereas the large DGs would be calculated based on Bespoke Export Limits Assessment Methodology (BELAM), once finalized.

8.Steps to the distributed generation connection

The application process varies depending on the size of the distributed generation system. The relevant procedures and requirements are set out in Part 6 of the Code. The illustration

below outlines the key steps in the application process; applicants should refer to the Code for full details.

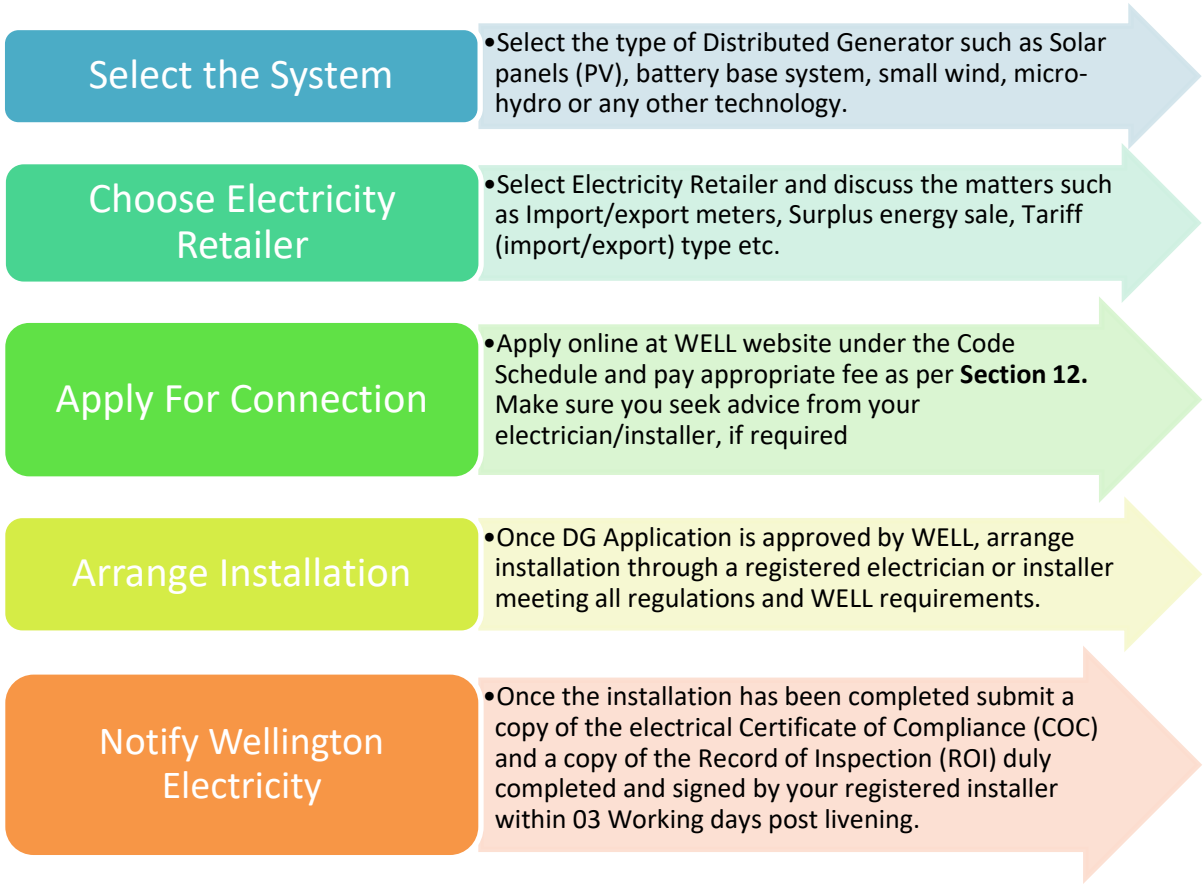

Figure 1. Distributed Generation Connection Steps

9.Connection Contract and Regulated Terms

Wellington Electricity may, by mutual agreement with the applicant, enter into a connection contract outside the Regulated Terms where the Regulated Terms would otherwise apply. Terms used in the Regulated Terms have the meanings given to them in the Code.

For distributed generation connections, Wellington Electricity reserves the right to recover costs associated with maintaining network infrastructure impacted by DGs. Ongoing operational expenses, including but not limited to routine maintenance requirements, may be subject to connection charges. The applicable charges and related commercial terms are determined on a case-by-case basis for each generator.

All distributed generation connected to WELL network must agree and comply all the time with ENP-107 Congestion and Interruption Management Policy on the WELL website. This includes the terms on the use of the operating envelopes in network congested areas through a published pricing schedule through the ICP retailer.

These arrangements are formalised through a Distributed Generation Connection Agreement. A template agreement outlining standard terms and conditions is available on Wellington Electricity's official website under the "Generating Your Own Electricity" section.

10.Change of Occupancy

The distributed generator owner is responsible for the maintenance of the distributed generation system to the requirements of the CoC connection agreement and appropriate standards. The owner is also responsible for notifying any future owners/tenants of the

property about the responsibilities and obligations of having a distributed generator connected to Wellington Electricity's network.

Should the distributed owner sell the property, or someone else move in, the new operator of the distributed generator must understand the requirements for ensuring a safe and well-maintained electricity connection. In case of the DG exports more than the allowable limit during times of congestion, an export charge through an operating envelope would apply. This would be recovered through the ICP retailer.

11.Inspection and Record Keeping

The DG system owner is obliged to maintain complete records of the installation, including a Single Line Diagram (SLD), Certificate of Compliance (CoC), and Record of Inspection (RoI). The installer is responsible for providing an accurate SLD and ensuring that the specific makes and models of all installed equipment recorded within the SLD and CoC match exactly those approved in the Wellington Electricity application form.

Wellington Electricity may also inspect distributed generation that is connected or is proposed to be connected to its network as stipulated in The Code.

12.Fees

Wellington Electricity requires time to analyse and review the information submitted. An initial application fee will be charged in accordance with Part 6 of the Electricity Industry Participation Code 2010.Our current application fees can be found on the Distributed Generation page of our website and/or in our Network Pricing Schedule, also available on our website.

The formal assessment process will commence once the fee has been paid and a confirmation or receipt has been provided to the Wellington Electricity Distributed Generation (DG) Connections team.

13.For further information

Any queries or require further information, please call +64 4 915 6100.

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