

- **Connection of Distributed Generation over 10kW**

For all applications to connect distributed generation to our network, we will evaluate the total export capability of your proposed distributed generation (i.e. the maximum amount of electricity that your generation is able to inject into our network) to assess whether your proposed generation will operate safely and within the capacity of your electricity connection and our upstream network.

Details of person/organisation intending to supply/install distributed generation at consumers property	Details of consumer and premises where distributed generation is to be connected
Company Name: _____	Name: _____
Address: _____ _____	Address: _____ _____
Phone: _____	Phone: _____
Email: _____	Email: _____

Intended Energy Retailer for export metering: _____

NTL do not arrange metering beyond advising your Energy Retailer that Import/Export metering is required)

Email address for invoice:

Details of your proposed distributed generation

Equipment Type: Synchronous ☐ Induction ☐ Inverter ☐
Energy Source: Solar PV ☐ Gas turbine ☐ Wind turbine ☐ Micro hydro ☐
 Fuel cell ☐ Other (specify) _____

Inverter Details

Inverter make: _____ Inverter model: _____

N° of inverters: _____ @ kW _____ Amps _____ each

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N° of inverters _____ @ kW _____ Amps _____ each

Total nominal (nameplate) output capacity of all proposed and/or existing inverter's at this site:

Total kW output: _____ **Total Amps:** _____ AC (inverter output current)

Voltage: _____ kVA: _____ kVAr reactive power _____ Power factor max kW output _____

Exported over: One phase ☐ Two phases ☐ Three phases ☐

Is the inverter/generator included on NTL's list of approved inverters on web site: Yes ☐ No ☐

Battery make: _____ Battery model: _____

Battery kW output: _____ Battery storage only: _____

Anticipated operating profile: continuous ☐ Intermittent ☐ Other ☐ _____

How will generator be controlled and supervised: _____

Method of voltage control: _____

Over/Under Voltage protection: _____

Synchronising arrangements: _____

Generator transformer details if applicable: _____

Means of connection/disconnection/isolation: _____

Protection systems and settings to be used: _____

Circuit breakers to be installed: _____

Generator earthing arrangements if applicable: _____

How will generator disconnect when outage occurs on NTL's Network: _____

Measures to prevent "islanding": _____

Meter Board/connection point signage: _____

Name of design engineer: _____

Name of registered electrical contractor physically installing inverter: _____

Email address of electrical contractor: _____

The distributed generation system will comply with:

AS 4777 series Yes ☐ No ☐ NTL's Conditions for Connection Yes ☐ No ☐

NTL's Distribution Code Yes ☐ No ☐ AS/NZ 5033 Yes ☐ No ☐

Expected Date/s of Testing: _____

Expected Date/s of Commissioning: _____

Please attach a single line diagram for the installation and its connection to Network Tasman's network. Also attach the technical specifications of your equipment. You need to show how your proposed distributed generation would automatically disconnect from our network during a power outage. (it is important that distributed generation systems isolate from the network to avoid injury to line workers).

Please complete all sections of this form and ensure the payment of the application fee \$575 GST inc. is made promptly to avoid delays

Prior to final commissioning we will require you to submit a Declaration and Confirmation form to confirm that the plant has been installed and will be operated in accordance with this application.

I/we, the applicant (being the power account holder, property owner or authorised agent to act on behalf of the power account holder, property owner) apply to connect a distributed generator to Network Tasman Limited's electricity network and confirm that the above information is correct.

I/we, the applicant (being the power account holder, property owner or authorised agent to act on behalf of the power account holder, property owner) agree that the Electricity Participation Code 2010 Part 6, schedule 6.2 Regulated Terms of Distributed Generation govern the contractual basis for connection of this plant to Network Tasman's distribution system, now and into the future, unless all parties agree otherwise.

Name: _____

Signature: _____ **Date:** _____

Further enquiries and submission of completed application form to: solar@networktasman.co.nz

Network Tasman's Approval

Network Tasman Limited agrees to the connection of the distributed generator as detailed above, to its electricity network. This approval however remains subject to the conditions of approval below, and the fitting of appropriate import/export metering and final electrical inspection before the generation plant is connected to the distribution network.

Name: _____

Signature: _____ Date: _____

Conditions of Approval:

1. The applicant submitting a fully completed Declaration and Confirmation of DG Installation form before the generation plant is connected to the distribution network.
2. The overvoltage shutdown limit in all inverters is to be set to 246V with a two minute time delay to operate.

As an alternative to the above overvoltage shutdown condition for inverters that are 2015 AS4777.2 compliant, the Volt-VAr and Volt-W responses may be enabled with the Green Grid operating values set (see below). With these modes enabled, the overvoltage shutdown limit can be set to 248V for a ten minute average voltage.

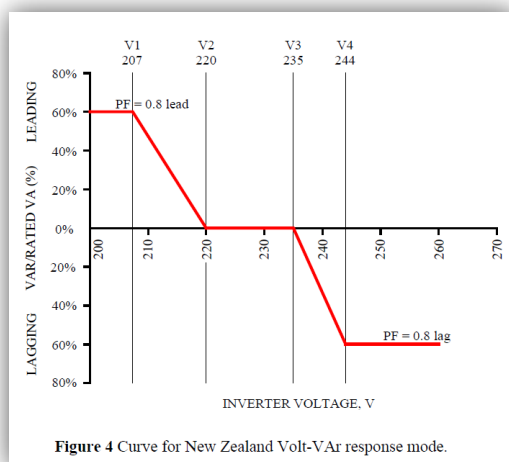


Figure 4 Curve for New Zealand Volt-VAr response mode.

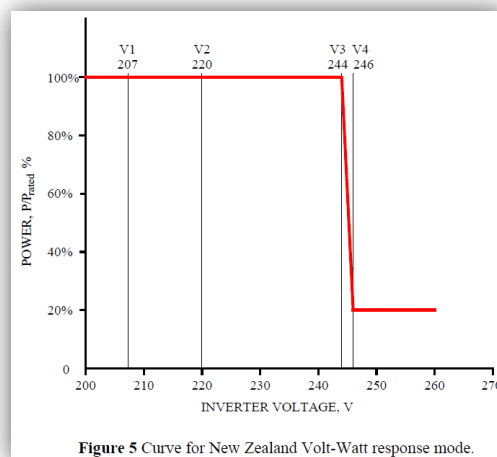


Figure 5 Curve for New Zealand Volt-Watt response mode.

Reference	AS/NZS 4777.2	GREEN Grid NAG		Range
	NZ Default Values	NZ DefaultValues		
Volt-VAr Response Volt-Watt Response				
V ₁	207	207	207	Not Applicable
V ₂	220	220	220	216 to 230
V ₃	244	235	244	235 to 255
V ₄	255	244	246	244 to 265 240 to 265

Parameter	Limit	Minimum trip delay time	Maximum disconnection (trip) time
V _{max, max} (10 minute average)	248 V		
Overvoltage 1*	260 V	1 second	2 seconds
Overvoltage 2*	265 V	-	0.2 seconds
Undervoltage*	180 V	1 second	2 seconds
Under-frequency* *	45 Hz	1 second	2 seconds
Over-frequency*	52 Hz	-	0.2 seconds
Minimum reconnection time	60 Seconds		
Volt response modes: Volt-VAr, Q(V) and Volt-Watt, P(V)	Applicability determined according to GREEN Grid traffic light system, Figure 3. GREEN Grid designed Volt-response curves shown in Figure 4 and Figure 5.		

3. Inverters to be set up with Volt/Var and Volt/W responses configured with NZ Green Grid voltage set points and enabled.
4. _____
5. _____
6. _____