

Distributed Generation (DG) of more than 10kW

Information, application process and fees

*To ensure continuing commercial success by providing safe,
reliable, and efficient energy delivery and infrastructure services*



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Distributed Generation

You can generate and store some or all of your own electricity in a variety of ways. These include using solar energy (photo voltaic cells), wind, water (hydroelectric) or fossil fuels such as diesel or natural gas. You can even store some energy now in batteries.

A generator, through following procedures and standards to maintain electrical safety for people and property, can also be connected to your local electricity distribution network through your fuse board and meter board, enabling you to inject any electricity that is surplus to your requirements into the network and sell it to an energy retailer.

We provide a network that connects generators, the national grid and consumers. This enables generators and consumers to sell to and buy from their parties of choice. We do not retail electricity, but we do provide the means for retailers to convey or transport electricity through our network to buyers. All generators therefore have to either sell their electricity to a retailer that has contracted to access the network, or the generator can be an electricity retailer in its own right.

The information in this document applies to those generators that propose to be connected to our distribution network and have a capacity of more than 10 kW. These generators are likely to be installed in commercial, industrial or rural properties.

The Government has in 2010 issued regulations pertaining to small-scale distributed generation and this document has been issued in compliance with these. Our intention is to help you to understand our requirements and the steps that you will need to take to connect your generator to our network.

The process for connection

If you are considering distributed generation of more than 10 kW, the process explained in this document will help to ensure that you meet our requirements for a safe and trouble-free connection to our network. The information provided primarily deals with issues relating to connection to and use of the network. You will also need to ensure that other requirements and arrangements, such as safety aspects, building and resource consents, and electricity retail agreements, are in place with the relevant authorities and parties.

Selecting your generator type

Wind, mini-hydro, reciprocating engines and gas turbines are probably the most commonly used systems for distributed generation above 10 kW. These systems are available from various suppliers in New Zealand. We do not sell or supply these systems and have no affiliation with any supplier.

Please note that we will not take any responsibility for the accuracy of claims or other information provided by your generator supplier. Our advice is that you talk to a registered electrician and compare the specifications of various products before deciding on a system.

Technical requirements

You must ensure that your generator will not compromise safety and will not adversely affect other parties who are connected to our network. You will need to use a registered electrician to install your system and you will need to obtain an electrical Certificate of Compliance (CoC).

Regardless of the type of generator you select, you will need to comply with the following standards:

- AS/NZS 4777.1 - Grid connection of energy systems via inverters - installation requirements.
- AS/NZS 4777.2 - Grid connection of energy systems via inverters - inverter requirements.
- AS/NZS 3000 - Electrical installations (known as the Australian/New Zealand Wiring Rules)

Copies of these standards are available from the website www.standards.govt.nz. A list of preapproved inverters can be found at www.solaraccreditation.com.au

The AS/NZS 4777.1 to AS/NZS 4777.2 standards apply to distributed generation systems that are connected to an electricity network via inverters. They focus primarily on solar panel systems, but they can also be applied to other generator types. If you are contemplating a non-inverter system then you will still need to comply with the parts of these standards that are applicable.

Inverters can interfere with the reliable operation of the network or can affect plant and appliances of other connected parties. Therefore we require that all inverter-connected generators be approved by an Australia or New Zealand-based independent test house.

All synchronous generators exceeding 30 kW and not subject to dispatch must also comply with the current revision of the EEA Guidelines document "Connection of Generation".

Copies of this are available from the EEA website.

The generator must not interfere with our network switching operations or ripple control of protection signalling.

The generator must not interfere with other consumers' quality of supply, unless there is a specific agreement in place with these consumers and any third parties. This may mean that some generators will not be permitted to connect to the network, for example in certain rural locations.

Our control

We reserve the right to disconnect a generator for the purposes of maintaining safety or integrity of supply, or for the purpose of obtaining access to network equipment for maintenance, renewal or operation. If the generator is co-sited with a load, this could mean either disconnection of the generator from the premises or complete site de-energisation at the connection to the network.

Any generator with a capacity greater than 500 kW may be subject to dispatch and must be able to provide our Control Room with generator status information. We may require fast-response excitation equipment to be fitted.

In the event that we agree to control the generator, we will enter into an appropriate arrangement with the generator as part of the connection agreement. This will mean that we have exclusive control of the generator and that on-site safety precautions and procedures will be established to promote safe and reliable operation.

Protection

The EEA Guide specifies protection requirements. The level of protection and the associated requirements to integrate with the network's protection equipment (e.g. rural auto reclosers) will have to be approved by us prior to initial connection of the generator.

For directly connected (non-inverter) generators of any size, we will require the following:

- A generator circuit breaker.
- Over and under voltage protection.
- Over and under frequency protection.
- Earth fault protection.
- Neutral voltage displacement.

All generators must have means of synchronisation.

For all generators above 200 kW and for smaller generators in some locations, voltage regulation or power factor control will be required.

Loss of Supply

Unless a specific agreement to the contrary between the parties is reached, all generators must disconnect themselves automatically from the network upon loss of supply. Reconnection will not be allowed without the prior approval of us. Also there must be a readily accessible means of isolation for the generator which is to be equipped with a lockable isolator switch.

Initial Application Form for Generators above 10 kW

All initial applications for the connection of generators of more than 10 kW must be made by completing and submitting the appropriate form. This is available on our website, [Alpine Energy - Generating electricity](#). Use the "Distributed Generator Application" for your initial application. A final application is only required where your generation is over 200 kW, and we can advise you on the application where this is needed.

This application will enable us to:

- Assess whether or not your proposed generator meets our safety and technical requirements.
- Identify any network constraints or conditions that may result in additional costs being incurred.
- Evaluate the combined effect on our network and other connected parties of your proposal, together with other proposals that may have been received.

The information that we require includes:

- The ICP number of your existing connection if you have one.
- Your street or installation location address.
- The generator type and nominal power output in kW.
- The number of electrical phases to be generated (1 or 3).
- Manufacturer and model of the generator and related equipment.
- Technical specifications.
- Your contact details for our response or requests for additional information.

Fees

The fees that are to be provided with initial applications depend on the total capacity of the generator and can be viewed on the EA website under Schedule 6.5 of the Code.

Description of fees	\$ (exclusive of GST)
Distributed generation 10 kW or less in total (EIPC 2010, Part 1 of Schedule 6.1 application)	
Application fee EIPC 2010, clause 2(2)(c)	200
Fee for observation of testing and inspection EIPC 2010, clause 7(5)	60
Distributed generation 10 kW or less in specified circumstances Part 1A of Schedule 6.1 application	
Application fee EIPC 2010, clause 9B(2)(c)	100
Fee for inspection EIPC 2010, clause 9C(3)	60
Deficiency fee EIPC 2010, clause 9E(4)	80
Distributed generation above 10 kW Part 2 of Schedule 6.1 application	
Application fee for distributed generation with nameplate capacity of more than 10 kW but less than 100 kW EIPC 2010, clause 11(2)(c)	500
Application fee for distributed generation with nameplate capacity of 100 kW or more in total but less than 1 MW EIPC 2010, clause 11(2)(c)	1,000
Application fee for distributed generation with nameplate capacity of 1 MW or more EIPC 2010, clause 11(2)(c)	5,000
Fee for observation of testing and inspection of distributed generation with nameplate capacity of more than 10 kW but less than 100 kW EIPC 2010, clause 22(5)	120
Fee for observation of testing and inspection of distributed generation with nameplate capacity of 100 kW or more EIPC 2010, clause 22(5)	1,200

Response to initial application

You will be advised within 5 working days of receipt of the completed initial application and fee whether or not the information you have provided is complete. If it is, we will then assess the information and respond with information that you will need to assess the viability of the project. We will respond to your application within 30 working days of our receipt of the completed application by providing information about the network that will help you to decide if you want to proceed. You will also be advised at this time of any further investigative studies that will be required.

The final application and response

This requires submitting an application on our prescribed form, which is available from our website www.alpineenergy.co.nz. This must be done within 12 months of your receiving our response to your initial application. The results of any investigative studies that you may have undertaken also need to be submitted at this time.

We aim to assess all Distributed Generation applications as efficiently as possible and will always endeavour to provide a decision as early as we can within statutory response timeframes set under Part 6, Schedule 6.1 of the Electricity Distribution Code and these may vary depending on the size of your proposed generation and its installed location.

For larger systems, statutory timeframes apply once a final application has been received. These are:

- 45 working days for systems greater than 10 kW and less than 1 MW,
- 60 working days for systems 1 MW to less than 5 MW, and
- 80 working days for systems 5 MW or greater.

At our discretion, for systems less than 500 kW, we may allow the customer to move to final approval without the need to make a final application. This will vary depending on network impact.

If your initial or final application is declined, we will provide detailed reasons and advise what steps you will need to take to ensure approval.

If your application is approved, we will provide the following with our response:

- Detailed description of the related conditions of approval together with the reasons for these.
- Details of the line charges payable by the generator.
- If the connection of your DG is likely to require expenditure on the network then we will advise you accordingly. This would mean that approval to connect would be subject to agreement on additional terms relating to payment for part or all of the related expenditure on the network.

Generator's notice of intention to proceed

For larger generation exceeding 1 MW, you must provide written notice to us within 30 days of our approval of your final application as to whether or not you intend to proceed. This period may be extended by mutual agreement. The notice of intention to proceed must include:

- Details of the distributed generator to be connected.
- Acceptance of all of the conditions and other requirements of us that were specified in the approval document. If one or more of these is not accepted then a dispute resolution process is triggered as outlined in [Schedule 6.3](#) of the Code.

Connection agreement

A connection agreement will be negotiated between the parties within 30 business days of receipt of the generator's notice to proceed. This period can be extended by mutual agreement. If the parties cannot conclude a connection agreement within the agreed time, then the generator will be connected as soon as is practicable on the Regulated Terms prescribed in [Schedule 6.2](#) of the Code.

Inspection & testing

The final step before activating the connection is inspection and testing. You must provide adequate notice of this, so that we can send a qualified representative to site for observation purposes. Our fee for this observation is prescribed in [Schedule 6.5](#) of the Code if your generator is smaller than 100kW. Higher fees apply to larger generators and these will be the maxima as specified by [Schedule 6.5](#) of the Code. When the inspection and testing is complete, you must provide us with a written test report that includes suitable evidence that the metering installation complies with the required standards and rules.

The role of your retailer

We are a distribution business and not an energy or retailing business (as defined in Part 3 of the Act), so we are prohibited from purchasing the surplus electricity from your generation.

You must discuss the options for the sale of the electricity to be produced by your generation with your retailer. The retailer will usually enter into a contract with you for the purchase of the electricity once the generation has been approved for connection to the network.

Before committing to the project, you are advised to consider future operational matters, such as maintenance of your plant and a suitable arrangement with an electricity retailer. This retailer arrangement will need to address:

- Acquisition and reading of input and output meters.
- Agreement for the sale of surplus electricity.
- The tariffs that your retailer will apply.
- As a generator, you are responsible for your metering installation. Your electricity retailer can look after this for you. It may arrange for a metering service provider to call and fit a second meter to measure exported energy or a single meter that measures the amount of electricity both imported and exported at your installation.
- Authorisation must be received from your retailer prior to connection (livening and energisation) to the network.

Additional line charges

Even though you will be generating and selling your own electricity, you may be required to pay an additional line charge. In particular this will apply if your export levels are greater than your current connection capacity.

In addition, depending on the nature of your installation, if you need to upgrade your capacity an agreement may need to be reached regarding payment for additional work required on the network that results from your installation.

Any such charges will need to be agreed prior to connection and may either be billed directly to you or via your electricity retailer as an additional line charge.

Change of occupancy or configuration of the installation

In the event that the occupancy of your property changes, it is important that the new operator of the generation equipment understands and accepts the responsibilities and obligations of having a distributed generator connected to our network.

If you wish to make any changes to the DG installation at any time, you will be required to submit a new application.

However, in the case where you are a new property owner, the retailer can address matters regarding changes to your electricity account.

Limiting your generation

Our network was originally designed to distribute electricity in a single direction from large grid substations. While generators with a capacity of up to around 10 kW are unlikely to materially affect network performance, larger generators may give rise to **“export congestion”** under the Code.

Under the Code, we have the ability to manage and, where necessary, constrain generation to ensure the safe and reliable operation of the network. This includes limiting the output of generators where export capacity is constrained or where continued operation would risk overloading network assets or voltage rise, affecting power quality.

Accordingly, we reserve the right to:

- **Decline an application** to connect distributed generation where the proposed connection is not consistent with connection and operation standards or would create unacceptable network impacts;
- **Approve a connection and revise your export limits or non-firm (constrained) connection conditions**; and
- **Constrain or curtail generation output** from time to time where required to manage export congestion and maintain network security and quality of supply.

Where multiple applications are received for connection within the same part of the network, the Code (in Schedule 6.1 processes for distributed generation above 10 kW) allows us to assess those applications in the context of **limited network capacity**, and to prioritise or manage them accordingly, provided we act consistently with the purpose and principles of Part 6.

Appendix A - Table outlining stages and timeframes

Table 1 - Stages of the process and timeframes

Stage	Timeframe
Initial application submitted by generator	We will respond within 5 working days advising if application is complete.
Initial application response	We will supply information (see Appendix B) relating to the connection to the generator within 30 working days.
Further information	The generator may request further information relating to their application. We must supply this within 10 working days.
Investigative studies (i.e. load flows, connection designs)	We will advise you if you need to undertake any investigative studies. Up to 80 working days.
Final application	Within 12 months of receiving the information above the generator can make a final application.
Final application approval	Within 45 working days (extensions possible) of the application being received, we will advise the generator whether or not the application has been approved.
Network changes	Depends on changes needed.
Intention to proceed.	The generator will advise us of their intention to proceed within 30 working days (extensions possible) of receiving the notice of approval for connection from us.
Connection agreement	Within 30 days of the notice of intention to proceed a connection agreement must be negotiated.
Inspection and testing	Once generator ready to be activated.

Appendix B - Information we must supply you

Within 30 business days of receiving your completed application we will provide you with the following information:

1. the capacity of our network, including both the design capacity (including fault levels) and actual operating levels;
2. the extent to which connection and operation of your distributed generation may result in a breach of the relevant standards for safety, voltage, power quality, and reliability of supply to other connected parties;
3. any measures or conditions (including modifications to the design and operation of our network or to the operation of your distributed generation) that may be necessary to address the matters referred to in paragraphs (a) and (b);
4. the approximate costs of any network-related measures or conditions identified under paragraph (c) and an estimate of time constraints or restrictions that may delay the connecting of your distributed generation;
5. any further detailed investigative studies that we reasonably consider are necessary to identify any potential adverse effects on the system resulting from the proposed connection, together with an indication of:
 - a. whether we agree to you, or a suitably qualified agent for you, undertaking those studies; or
 - b. if not, whether we could undertake those studies and, if so, the estimated cost of the studies that you would be charged;
6. any obligations to other parties that may be imposed on us and that could affect your distributed generation (for example obligations to Transpower, in respect of other networks, or under the Electricity Industry Participation Code);
7. any additional information or documents that we consider would assist your application; and
8. information about the extent to which planned and unplanned outages may affect the operation of your distributed generation.