ALPINE ENERGY LIMITED

DISTRIBUTED GENERATION OF LESS THAN 10KW

INFORMATION AND APPLICATION PROCESS FOR CONNECTION AND OPERATION

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1. Acknowledgement

Alpine Energy acknowledges the assistance from WEL Networks in producing this information for the Distributed Generation application process.

2. Distributed Generation

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

A generator through following procedures and standards to maintain electrical safety to 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.

Alpine Energy (AEL) provides 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. AEL does not retail electricity, but it does provide the means for retailers to convey or transport electricity through its 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 AEL's distribution network and have a capacity of less than 10kW. These generators are likely to be installed in residential or small business premises. Separate conditions and procedures apply to generating installations of 10kW or larger.

The Government has in 2007 issued regulations pertaining to small-scale distributed generation and this document has been issued in compliance with these. Alpine Energy's 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.

3. The Process – Selecting a Generator of Less than 10kW and Applying for Connection

If you are considering distributed generation, the process summarised in the following table and further 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 with connection to and use of Alpine Energy's 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.

The process adopted by Alpine Energy conforms to the Electricity Governance (Connection of Distributed Generation) Regulations 2007. These regulations, which can be viewed on the Ministry of Economic Development's website, provide for a one-step application process for distributed generators of less than 10kW.

4. Summary of Process for Selecting, Applying for Connection, Installing and Operating a Distributed Generator with Capacity Less Than 10kW

Select a generator type:	The generator type will depend on its location and the source of energy available. Solar panels, small wind turbines and micro-hydro generators are the most common. Connection to the network must be safe and must not interfere with the quality of electricity supplied to other connected parties. AEL requires equipment to comply with internationally recognised standards.
Making an enquiry:	Once a suitable generator has been identified and all of the related information is available, an application on the prescribed form for connection to AEL may be submitted. The application fee of $225 including GST must be provided with the application. You will be advised within 5 working days whether or not the information you have provided is complete. If it is, AEL will then assess the information and decide if the proposed generator meets our applicable safety, operational and technical standards.
Eligibility to connect to the network:	We will respond to your application within 30 working days, advising whether or not you may connect. If Alpine Energy is unable to respond within this time owing to resource or other constraints, we will request from you an extension of another 20 working days. If you are not eligible to connect, we will provide a detailed explanation of the basis for our decision and what changes you will need to make to be eligible. If you are eligible to connect, we will advise if there are likely to be any additional costs associated with the connection. You should now consider future operational issues, such as maintenance and an arrangement with an electricity retailer. These should include the following: • Acquisition of input and output meters. • Agreement for the sale of surplus electricity. • The tariffs that your retailer will apply.
Proceeding towards connection:	To be allowed to connect you must: • Use a registered electrician familiar with relevant regulations and standards for the work. • Comply with all relevant regulations and standards. • Get an Electrical Certificate of Compliance (CoC). • Make sure that appropriate metering arrangements are made through your retailer.
Notify AEL and get connected:	When all is in order, you will need to notify AEL that you intend to proceed with connection. You must provide this notice within 10 working days of receiving AEL's advice that you are eligible to connect, unless there has been mutual agreement to a longer period. We will proceed as soon as is practicable with any related work that is required on our network. The terms of the connection contract will be as set out in Schedule 2 of the Electricity Governance (Connection of Distributed Generation) Regulations 2007. The final step before activating the connection is inspection and testing. You must provide adequate notice of this, so that AEL can

	send a qualified representative to site for observation purposes. Our fee for this observation is $67.50 including GST. 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.
Operating the generator:	Once your generator is connected, your electricity retailer may: • Change you to a different tariff. • Credit you for your surplus electricity. AEL may request inspection of the site from time to time to ensure that the installation remains safe and that other connected parties will not be adversely affected. In some cases, a special line charge may apply that reflects any additional costs that may have been created by the connection of the generator.

5. Selecting Your Generator Type

Solar panels, also known as photovoltaic cells, are the most commonly used systems for distributed generation up to 5kW. Small wind systems and micro-hydro generators can also be used. These systems are available from various suppliers in New Zealand. AEL does not sell or supply these systems and has no affiliation with any supplier. Please note that AEL will not take any responsibility for claims or 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.

6. 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 4777.1 – Grid connection of energy systems via inverters – installation requirements.
AS 4777.2 – Grid connection of energy systems via inverters – inverter requirements.
AS 4777.3 – Grid connection of energy systems via inverters – grid protection 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.com.au.

The AS 4777.1 to AS 4777.3 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 need to discuss your specific plans and requirements with us.

Inverters can interfere with the reliable operation of the network or can affect plant and appliances of other connected parties. If this occurs, you will be required to disconnect your unit to remove interference with other consumers equipment. Therefore we require that all inverter-connected generators be approved by an Australia or New Zealand-based independent test house.

7. Safety Standards

Your system needs to comply with the previously mentioned AS 4777.1 to 4777.3 standards to ensure that our network's safety requirements are met. Systems that comply with these standards are classified as "non-islanding" systems. This means that your generator will automatically isolate itself if there is a power outage on the distribution network upstream of your point of supply. It also means that your system will not reconnect to the network until we have restored the supply. Also we require that your inverter be sealed so as to restrict any adjustment of the protection provisions. Access will be by means of a lockable isolation switch or circuit breaker, which will be restricted to AEL contractors or other authorised representatives. These provisions will enable a linesman to isolate a section of our network so that he can safely work on it without your generator back-feeding live electricity into it.

8. Distributed Generation (DG) Connection Application Form for Generators of Less than 10kW

All applications for generators of less than 10kW to connect to our network must be made by completing and submitting the form provided by AEL. This form is available on our website http://www.alpineenergy.co.nz from our head office in Timaru.

When you have selected your system and decided that you wish to proceed, you will need to complete the connection application on the prescribed form. This application will enable AEL 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.
- Nominal output voltage.

An application fee of $225 including GST is payable on submission of the application.

9. Response to Your Application

You will be advised within 5 working days of receipt of your application whether the information that you have provided is complete. If it is not, we will advise you what is still required. When the information is complete, AEL will assess the information and decide if the proposed generator meets our applicable safety, operational and technical standards.

We will respond to your application in writing within 30 working days, advising whether or not you may connect. If AEL is unable to respond within this time owing to resource or other constraints, we will request from you an extension of another 20 working days. If you are not eligible to connect, we will provide a detailed explanation of the basis for our decision and what changes you will need to make to be eligible. If you are eligible to connect, we will advise if there are likely to be any additional costs associated with the connection and whether we believe that it will be necessary to involve external experts. In either of these cases, we will seek your approval before proceeding.

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.

10. Operational Matters

Before proceeding further, you should consider future operational issues, such as maintenance of your plant and a suitable arrangement with an electricity retailer. This 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.

11. Proceeding Towards Connection

To be allowed to connect you will need to:

- Use a registered electrician familiar with the relevant distributed generation standards and regulations.
- Comply with all relevant regulations and standards.
- Get an electrical Certificate of Compliance (CoC).
- Provide confirmation by your retailer that suitable metering has been installed and that arrangements are in place for the purchase of electricity injected into the network.

An import/export meter is the minimum requirement for use with distributed generation. These meters are capable of measuring both imported and exported volumes of electricity.

12. Notifying Alpine Energy Ltd and Getting Connected

When all is in order, you will need to notify AEL that you intend to proceed with connection. You must provide this notice within 10 working days of receiving AEL's advice that you are eligible to connect, unless there has been mutual agreement to a longer period. We will proceed as soon as is practicable with any related work that is required on our network. The terms of the connection contract will be as set out in Schedule 2 of the Electricity Governance (Connection of Distributed Generation) Regulations 2007. The final step before activating the connection is inspection and testing. You must provide adequate notice of this, so AEL can send a qualified representative to site for observation purposes. Our fee for this observation is $67.50 including GST. 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.

If one-off or ongoing costs are incurred by AEL that are directly attributable to your generation facility, then we will agree a suitable means of cost recovery prior to connecting your generator to our network.

Our terms and conditions for the connection of distributed generation with capacity less than 10kW are the same as those promulgated in the Electricity Governance (Connection of Distributed Generation) Regulations 2007. These Regulations provide for a disputes resolution process in the event of disagreements arising that cannot be resolved between the parties.

13. Additional Line Charges

Even though you will be generating and selling your own electricity, you may be required to pay an additional line charge. This will depend on the nature of your installation and the agreement 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.

14. Change of Occupancy or Changing the 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 Alpine Energy's network.

If you wish to make any changes to the DG installation, you will be required to submit a new application for connection using the prescribed form.