

Distributed Generation - Guidelines & Application Form

For small generators – total capacity less than 10 kW

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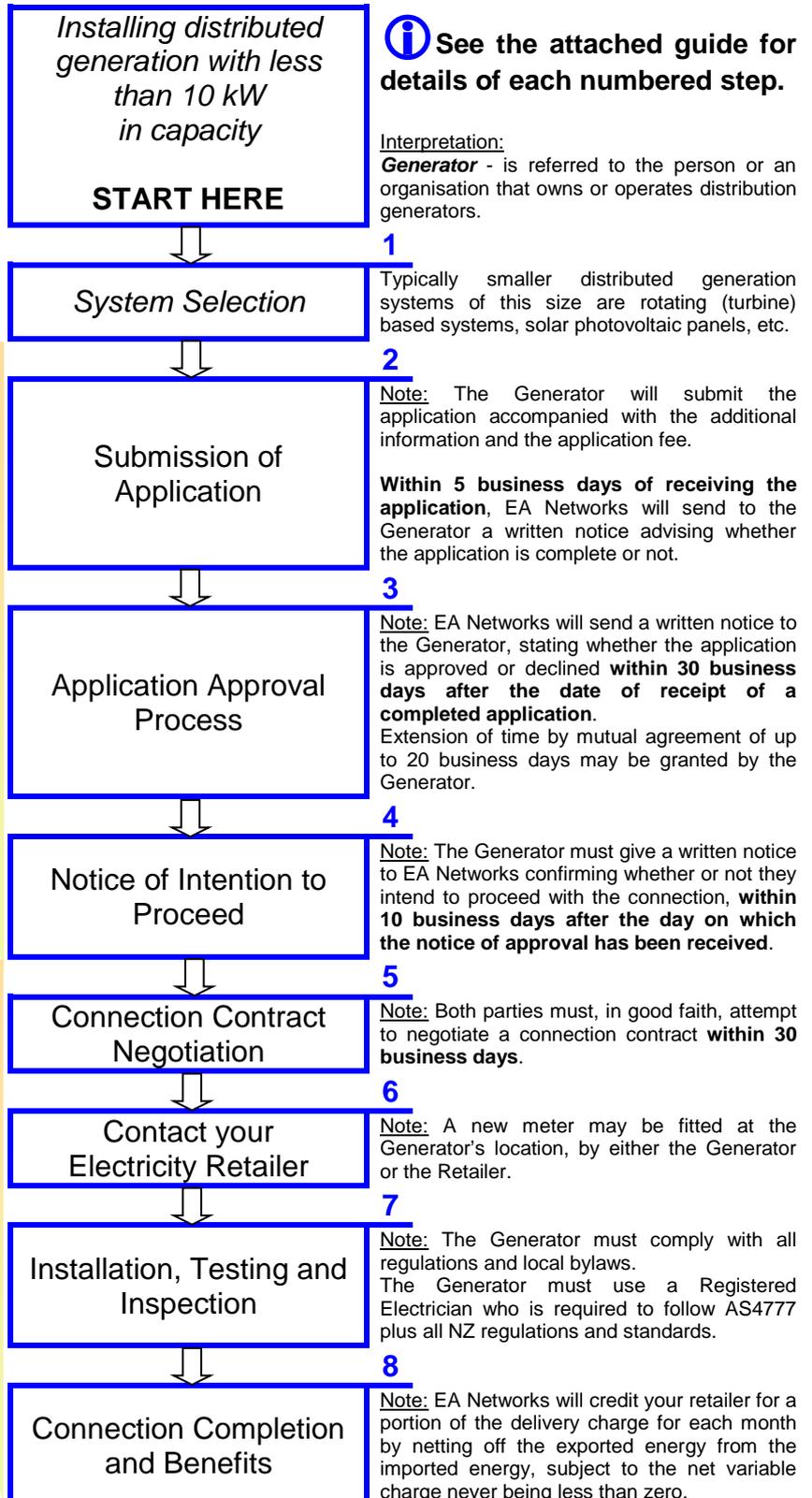
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Please ensure you have the latest version.

Application Process

Connection Process

A small system could generate up to 87,600 kWh per year (10 kW systems). The income from this generation will depend on the price negotiated with the retailer.



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Guide to installing distributed generation with capacity less than 10kW

This information guide is intended for individuals or organisations wishing to connect distributed generation with a total capacity less than 10 kW to EA Networks' electricity network for the purpose of generating into the grid and selling electricity. This is a **one-stage application process**.

For larger systems above 10 kW there are separate guidelines.

The information provided in this guide is of general nature and the owners of distributed generation must discuss their intentions with EA Networks **before** connecting the distributed generation system to the network.

EA Networks will assist you with the connection process as distributed generation of this size can require changes to your connection to the electricity network.

To understand the various terms used in this guide, please refer to the glossary on the back of this guideline.

This guide does not apply to generation systems that are stand-alone and have no connection to EA Networks' electricity network.

1. System Selection

The likely distributed generation technology for systems with a capacity less than 10 kW will be rotating plant, such as turbines (wind, steam, hydro, etc) or large arrays of solar panels. At the upper end of the range, systems are likely to have a three-phase output. If so, you will need a three-phase connection to EA Networks' network. You need to consider your connection to the network in this regard.

Generation systems that are less than 10 kW in capacity may require some modifications to be carried out which can affect your connection to the network. All distributed generation systems must comply at all times with the requirements of the [Health and Safety in Employment Act 1992](#), [Electricity Act 1992](#) and the regulations and rules made under the Electricity Act 1992. The distributed generation must comply with EA Networks' connection and operation standards (EA Networks Distribution Code).

For this reason, EA Networks recommends that you contact an experienced electrical contractor/consultant to make sure that your distributed generation complies with all requirements prior to submitting the application. This may involve extra charge.

2. Submission of Application

Any person or organisation, who wishes to connect distributed generation capable of generating electricity at a rate of 10 kW or less in total, must apply to EA Networks by using the application form attached to this guideline and provide any information in respect of the distributed generation proposed to be connected.

If the application is for an increase in capacity for an existing connection, you must provide extra information about the size (nominal capacity) of the additional generation and the total size (nominal capacity) of all generators at the point of connection.

The application form has to be accompanied by the following attachments:

- a. information about the name plate rating (if known), or other suitable evidence that the generating unit is (or will be) only capable of generating electricity at a rate of 10 kW or less;

- b. detailed information about the inverter and/or battery (if applicable);
- c. technical specification of the equipment that allows the distributed generation to be disconnected from the network on loss of mains voltage;
- d. information and justification showing how the distributed generation complies with AS 4777 (where appropriate);
- e. information and justification showing how the distributed generation complies with EA Networks' connection and operation standards (where applicable);
- f. the application fee.

Within 5 business days from the date when the application has been received, EA Networks will advise you in writing whether or not your application contains all the information required.

3. Application Approval Process

Based on the information provided in the application, EA Networks will assess whether:

- a. the generator will comply at all times with the requirements of the [Health and Safety in Employment Act 1992](#); and
- b. the distributed generation will comply at all times with the [Electricity Act 1992](#), and the regulations and rules made under this Act; and
- c. the connection of the distributed generation complies with EA Networks' connection and operation standards (EA Networks' "Conveyance and Use of System Agreement").

Within 30 business days following the date a completed application is received, EA Networks will notify you in writing whether the application has been approved or declined.

Due to situations which occasionally arise, EA Networks may seek an extension of the application processing time. In these circumstances, EA Networks will notify you in writing specifying the reasons for the delay and the amount of additional time required to process the application.

You may grant an extension of up to 20 business days and must not unreasonably withhold consent to an extension.

4. Notice of Intention to Proceed

If the application is approved, a written notice must be provided to EA Networks confirming whether or not you as "The generator" intend to proceed with the connection and, if so, confirming the details of the generation to be connected.

Notice must be given within 10 business days after the day on which EA Networks gives notice of approval to connect distributed generation or, within a longer period of time mutually agreed between EA Networks and you.

Failure to give written notice to EA Networks within the time limit specified, the application will be considered cancelled and EA Networks' responsibilities under the Electricity Industry Participation Code 2010, [Part 6](#) (the Code) will no longer apply. This does not prevent you from submitting a new application for connection of distributed generation at a later, subsequent date.

5. Connection Contract Negotiation

After receiving the written notice of intention to proceed, both the applicant and EA Networks have 30 business days during which they must, in good faith, attempt to negotiate a connection contract.

If no connection contract has been negotiated by the expiry of the negotiating period, the regulated terms attached to this guideline will apply for the connection of distributed generation.

The period for negotiating a connection contract may be extended by mutual agreement between both parties.

6. Contact your Electricity Retailer

You must discuss your Generator scheme with an electricity retailer as you may be selling any surplus of energy (exported energy) back to them. You can purchase from, and sell to, any retailer trading in EA Networks' area.

The electricity retailers that currently have a Use of System Agreement with EA Networks' Network are:

- TrustPower
- Energy Online
- Meridian Energy
- Mercury Energy
- Just Energy
- Genesis Energy
- Pulse Energy
- Contact Energy
- Simply Energy

Agreement with an electricity retailer and you must be completed before you can connect your generator to the EA Networks' network.

A new meter may need to be installed

Your retailer is responsible for your metering installation. When you contact a retailer, you need to discuss with them the fitting of a new meter, or ask if your present meter will be suitable. The complexity of the metering required will depend on the contract you have arranged with the retailer who is purchasing your exported power.

Your electricity retailer will advise you of any rental costs and data handling fees associated with this metering.

Minimum metering requirements

You will usually need full "import/export" metering system that measures in each half hour the energy (kWh) used (imported) or injected back into the system (exported).

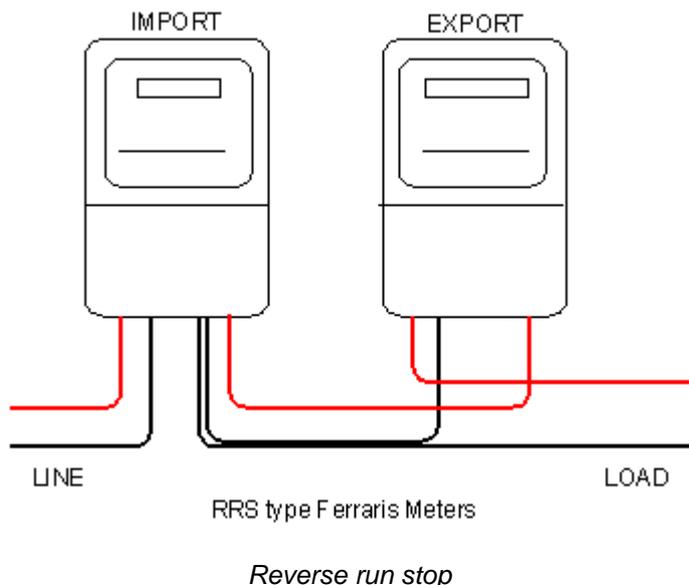
You can own the meter yourself, or your retailer or meter provider may choose to own it and lease it to you.

This type of metering will need access to a phone line, or could be fitted with a cellular modem, to allow it to be remotely interrogated.

Where the volumes of exported electricity are not likely to be large, you may be able to use a simpler type of metering which uses a second meter to measure the quantity of electricity exported, but will not provide the information of when it was exported.

The simplified metering is illustrated below. While this diagram shows single-phase metering, three-phase metering could be connected in a similar manner. Metering of this type will usually be rented from your retailer who will advise you of any rental costs for this meter, which may only be a few cents per day.

In addition there may be a tariff / meter change fee, depending on your location and your existing metering.



7. Installation, Testing and Inspection

The installation must be undertaken by qualified trades personnel to ensure compliance with all required building and electrical codes and standards.

All wiring associated with the system must comply with AS/NZS 3000 - Electrical Installations (Australian/New Zealand Wiring Rules) or any successive standard or legislation, and be undertaken by a registered electrician where required by legislation. You must also ensure that all building and other consents required are obtained, by discussing the proposal with your local council.

Safety comes first in connection of any generation equipment; safety to you, and safety to others connected to, or working on, EA Networks' electricity network.

If your generator continued to operate when there was a power cut, you could cause EA Networks' electricity network to become alive at a time it was assumed to be dead. This can cause serious harm to anyone working on the network, and/or damage to your equipment.

A system complying with Australian Standard (AS) 4777.2 and with protection systems installed in accordance with the AS 4777.3 will provide isolation and prevent this happening.

Your registered electrician should closely follow AS 4777.1 for Installation requirements. This Standard is downloadable from [Standards Australia](#). While AS 4777.1 deals primarily with the connection of inverter based systems, the principles covered by this standard shall also be followed for distributed generation systems that do not employ inverters.

EA Networks will require any inverter to disconnect if it detects the AC voltage exceeding 248 volts. This is a prudent level to prevent damage to household appliances which are typically rated to tolerate 230 volts $\pm 6\%$. This is not true of all appliances and some may be irreparably damaged by any voltage over that specified on the nameplate, possibly causing a fire. In some cases, a limit lower than 248 volts may be required. It is suggested that you obtain the professional advice of your equipment supplier and/or installer. EA Networks do not accept any liability for an overvoltage setting above 244 volts.

The installation must also comply with EA Networks' "Conveyance and Use of System Agreement".

Please note that after your application has been approved and the steps outlined above are completed, as a minimum you must:

- a. test and inspect your distributed generation before connection;
- b. give EA Networks adequate notice of the tests and inspection – we may send qualified personnel to the site to observe the testing and inspection;
- c. provide EA Networks with a written test report when testing and inspection is complete, including suitable evidence that the metering installation complies with the metering standards in the rules; and
- d. pay the fee specified by EA Networks for observing the testing and inspection, up to the maximum fee prescribed in Schedule attached.

Whether or not you entered into a connection contract with EA Networks before the period for negotiating a connection contract, you must complete the testing and inspection presented above **prior** to the connection of distributed generation.

If you have entered into a connection contract with EA Networks, your distributed generation will be connected in accordance with that contract as soon as practicable. Otherwise, EA Networks will connect the distributed generation on the regulated terms as soon as practicable after the expiry of that period.

8. Connection Completion and Benefits

Once the connection has been completed, you and EA Networks must perform all obligations under the negotiated connection contract or regulated terms, in accordance with connection and operation standards.

As owner of the distributed generation installation, you will need to negotiate a contract for the amount of electricity that is sold to an electricity retailer or, to another party via an electricity retailer.

EA Networks will credit your retailer for a portion of the delivery charge for each month by netting off the exported energy from the imported energy, subject to the net variable charge never being less than zero.

9. Glossary

Business day is considered as any day of the week other than Saturday, Sunday, or a public holiday (within the meaning of the [Holidays Act 2003](#))

Connect, in relation to distributed generation, means to be connected to a distribution network or, to a consumer installation that is connected to a distribution network

Distributed generation means equipment used, or proposed to be used, for generating electricity that:

- a. is connected, or proposed to be connected, to a distribution network, or to a consumer installation that is connected to a distribution network; and
- b. is capable of injecting electricity into that distribution network

Distribution network means the electricity lines, and associated equipment, owned or operated by EA Networks, but does not include:

- a. the national grid; or
- b. an embedded network that is used to convey less than 2.5 GWh per annum

Distributor means a person who supplies line function services to any other person or persons (such as EA Networks)

Generator means a person who owns or operates distributed generation

Any term that is defined in the Electricity Industry Participation Code 2010, [Part 6](#) (the Code) and used, but not defined, in this guideline has the same meaning as in the Code.

Please return completed form to:

EA Networks
Private Bag 802, Ashburton 7740

Phone: 03-307 9800
Fax: 03-307 9801

Details of a person/organisation applying to connect a Distributed Generator	Details of Distributed Generator to be installed
<p>Name: _____</p> <p>Company: _____</p> <p>Address: _____ _____</p> <p>Phone: _____</p> <p>Cell phone: _____</p> <p>Email: _____</p>	<p>Network Connection: <input type="checkbox"/> Existing <input type="checkbox"/> New <input type="checkbox"/> Residential <input type="checkbox"/> Commercial</p> <p>Expected Connection Date: _____</p> <p>Manufacturer's rating of A.C. Equipment: Max Output Current: _____ Amps Total System Size: _____ kW Rated Voltage: _____ Volts</p> <p>Number of Phases: <input type="checkbox"/> Single Phase <input type="checkbox"/> Three Phases</p>
<p>Details of customer at premises where a Distributed Generator is to be connected <i>(if different from above)</i></p> <p>Name: _____</p> <p>Company: _____</p> <p>Address: _____ _____</p> <p>Phone: _____</p> <p>Cell phone: _____</p> <p>Email: _____</p>	<p>Type: <input type="checkbox"/> Solar PV <input type="checkbox"/> Micro Hydro <input type="checkbox"/> Other (please specify): _____</p> <p>Max Setpoint Voltage: _____ Volts <small>(Please note that the default setpoint, $V_{nom-max}$ is 248 volts single phase.)</small></p> <p>Inverter Model (if applicable): _____ _____</p> <p>Distributed Storage <input type="checkbox"/> <small>(such as batteries)</small></p>
<p>ICP of Installation (from power account):</p>	<p>Name of Electrical Contractor:</p>
<p>Certificate of Compliance No: <small>(please supply a copy when available)</small></p>	<p>System complies with AS 4777 <i>(where appropriate)</i> <input type="checkbox"/> Yes, Information attached <input type="checkbox"/> Not applicable</p>
<p>Equipment that allows the generator to be disconnected from network on loss of mains voltage: <input type="checkbox"/> Technical Specification Attached</p>	<p>System complies with EA Networks' "Conveyance and Use of System Agreement" <input type="checkbox"/> Yes, Information attached</p>
<p>FAILURE TO COMPLETE ALL SECTIONS OF THIS FORM MAY RESULT IN DELAYS PROCESSING THIS APPLICATION</p>	
<p>I hereby apply to connect a distributed Generator to EA Networks' Network and confirm that the above information is correct:</p>	
<p>Signed: _____</p> <p>Date: _____</p>	<p>Name (please print): _____</p>
<p>EA Networks agrees to the connection of the above Distributed Generator to EA Networks' Electricity Network</p> <p>Signed: _____</p> <p>Name (please print): _____</p> <p>Date: _____</p>	<p>EA Networks does not agree to the connection of the above Distributed Generator to EA Networks' Electricity Network</p> <p>Signed: _____</p> <p>Name (please print): _____</p> <p>Date: _____</p>