



2007

AND

**DISTRIBUTED GENERATION**

Distributed generation installations are technically complex, even for the smaller ones, especially where you want to connect to some-one else's distribution network to sell your surplus generation.

Other things to consider, apart from how and when you will generate are: -

**First and foremost safety to yourself and to others.**

- This includes the safety of assets belonging to others such as the retailer and the local Network owner.

**What return are you expecting on your total investment.**

- How many \$'s do you expect to be paid from your Retailer and Network owner for your surplus power.
- How much are you prepared to pay the local Network owner for the use of their cables and wires.

**How will you control the "Quality" of the power you are exporting into your home and the local distribution network.**

- Frequency; within regulation and meets Network requirements
- Voltage; within regulation and meets Network requirements
- To ensure that your generators voltage and frequency are synchronised at connection and during export into the Electra network.

You will need to work closely with your Electrician, Electra Ltd and your Retailer to ensure that your generation complies with: -

- Electricity Regulations and Codes of Practice AS/NZ 3000 – 2007.
- NZ and International Standards regarding generation, protection and control.
- Electra's requirements
- Your Retailer's requirements.

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.

## **Connecting to the Network.**

The safety and electrical requirements for your generation when only used within your property are stringent enough.

**Connecting to the local distribution Network adds to these requirements and has Safety and Health implications and your generation must meet the standards laid out in Electricity Governance [Connection of Distributed Generation] Regulations 2007**

- Feeding into the local distribution Network when the local distribution network is out of service and being worked on by others would be a major safety issue.
- As would feeding into the local distribution Network when the local distribution network is under unplanned [fault] outage conditions.

To ensure every-one's safety your generation installation: -

- Must comply with manufacturing standards both local and International
- Any additional safety standards to meet Electra's requirements.

Electra Ltd will offer every assistance, where practicable to do so, to ensure the on-going success of your generation installation when it feeds into the Electra distribution Network.

**A certificate of Compliance, signed by your Electrician, will be required prior to any connection to the local distribution network.**

Your obligations under section 1 & 2 of the Electricity Governance [Connection of Distributed Generation] Regulations 2007 are attached for your information.

**Part 1 is for generation 10 Kw's or less**

**Part 2 is for generation greater than 10 Kw's**

## **Part 1**

### **Applications for connection and operation of distributed generation 10 kW or less**

#### **1 Outline of Part 1**

(1) This Part applies only to distributed generation that is only capable of generating electricity at a rate of 10 kW or less.

(2) This Part provides for a one-stage application process.

#### Application process

#### **2 Generator wishing to connect must make application**

(1) A generator who wishes to connect distributed generation that is only capable of generating electricity at a rate of 10 kW or less must make an application to the distributor.

(2) The generator must make the application by—

(a) using the application form provided by the distributor that is publicly available under regulation 6(2)(a); and

(b) providing any information in respect of the distributed generation proposed to be connected that is—

(i) referred to in subclause (3); and

(ii) specified by the distributor under regulation 6(3) as being required to be provided with the application.

(3) The information is as follows:

(a) the full name and address of the owner or operator of the distributed generation and the contact details of a person whom the distributor may contact regarding the distributed generation:

(b) whether the proposed connection is a new connection or an increase in capacity for an existing connection:

(c) evidence of the size (nominal capacity) of the generating unit, including the name plate rating (if known) or other suitable evidence that the generating unit is or will

Part 1—*continued*

be only capable of generating electricity at a rate of 10 kW or less, including,—

(i) if the proposed connection is a new connection, the size (nominal capacity) of the total

generation:

(ii) if the application is for an increase in capacity for an existing connection, both the size (nominal capacity) of the additional generation and the aggregate size (nominal capacity) of all devices at the point of connection:

(iii) in all cases, an evaluation of the proposed connection based on the nominal capacity of the generating unit:

(d) the maximum amount of electricity that the generation is able to inject into the distribution network:

(e) type (for example, solar photovoltaic):

(f) when the distributed generation is likely to be connected:

(g) technical specifications of the distributed generation and associated equipment, including—

(i) technical specifications of equipment that allows the distributed generation to be disconnected from the network on loss of mains voltage:

(ii) proposed location:

(iii) manufacturer's rating of equipment:

(iv) number of phases:

(v) proposed point of connection to the distribution network (for example, installation control point, number and street address):

(vi) details of either or both of any inverter and battery storage:

(vii) details of any load at the proposed point of connection:

(viii) details of the connected voltage (for example, 415 V or 11 kV):

(h) information showing that the distributed generation complies with the distributor's connection and operation standards:

(i) any additional information or documents that are reasonably required.

Part 1—*continued*

(4) The application must be accompanied by the application fee specified by the distributor, which must not exceed the maximum fee prescribed in Schedule 5.

**3 Distributor's decision on application**

(1) A distributor must, within 30 business days after the date of receipt of a completed application made in accordance with clause 2, give notice in writing to the applicant stating whether the application is approved or declined.

(2) A distributor must approve an application to connect distributed generation if—

(a) the application has been properly made in accordance with these regulations;  
and

(b) the information provided in the application would reasonably support an assessment by the distributor

that—

(i) the generator will comply at all times with the requirements of the Health and Safety in Employment Act 1992; and

(ii) the distributed generation will comply at all times with the Act, and the regulations and rules made under the Act; and

(iii) the connection of the distributed generation would be consistent with the distributor's connection and operation standards.

(3) A notice stating that an application is declined must be accompanied by the following information:

(a) detailed reasons as to why the application has been declined and, if the generator makes a new application, the steps that the applicant can take to ensure connection;

and (b) the default process for resolution of disputes under Schedule 3.

**4 Extension of time by mutual agreement for distributor to process application**

(1) The distributor may seek an extension of the time specified in clause 3 by which the distributor must give notice in writing stating whether the application is approved or declined.

Part 1—*continued*

(2) The distributor must do this by notice in writing to the generator specifying the reasons for the extension.

(3) The generator may grant an extension of up to 20 business days.

**5 Generator must give notice of intention to proceed**

(1) If the distributor advises that the generator's application to connect distributed generation is approved, the generator must provide written notice to the distributor confirming whether or not the generator intends to proceed with the connection and, if so, confirming—

(a) the details of the generation to be connected; and

(b) that the distributed generation is compliant with reasonable and prudent operating practice.

(2) The generator must give that notice within 10 business days after the day on which the distributor gives notice of approval to connect distributed generation, or within a longer period of time mutually agreed between the distributor and the generator.

(3) The distributor's duties under these regulations arising from the application for connection of distributed generation no longer apply if the generator fails to give notice to the distributor within the time limit specified in subclause (2).

(4) Subclause (3) does not prevent the generator making a new application for connection of distributed generation under these regulations.

**Connection process**

**6 Thirty business days to negotiate connection contract if generator notifies intention to proceed**

(1) If a generator gives notice under clause 5, the distributor and the generator have 30 business days during which they must, in good faith, attempt to negotiate a connection contract.

(2) The distributor or the generator may, by mutual agreement, extend the time specified in subclause (1) for negotiating a connection contract.

Part 1—*continued*

### **7 Testing and inspection before connection**

- (1) The generator must test and inspect its distributed generation before connection.
- (2) The generator must give adequate notice of the testing and inspection to the distributor.
- (3) The distributor may send qualified personnel to the site to observe the testing and inspection.
- (4) The generator must provide the distributor with a written test report when testing and inspection is complete, including confirmation that the metering installation has been certified.
- (5) The generator must pay any fee specified by the distributor for observing the testing and inspection, up to the maximum fee prescribed in Schedule 5.

### **8 Connection of distributed generation outside regulated terms if contract negotiated**

If the distributor and the generator enter into a connection contract before the period for negotiating a connection contract under this Part expires, the distributor must connect the distributed generation in accordance with that contract as soon as practicable after the testing and inspection under clause 7 has been completed.

### **9 Connection of distributed generation on regulated terms if contract not negotiated**

If the distributor and the generator do not enter into a connection contract by the expiry of the period for negotiating a connection contract under this Part, the distributor must, as soon as practicable after the expiry of that period, connect the distributed generation in accordance with the regulated terms as soon as practicable after the testing and inspection under clause 7 has been completed.

Application to install Distributed generation

Generation will be installed at: -	
Name	
Street Address	
Town	
ICP Number	
Contact Phone Number	

Generator Set Information	
Generated Energy by: -	E,G, Photovoltaic Cells, diesel.
Generator Manufacturer	
Model	
Supplier	
Rated Output [total]	
Inverter Manufactured by	
Invertor Model	
Rated Output	

Protection	
System Output into the Network	
Mains failure	
Synchronising	
Total system output [kW's]	
Total system output Voltage.	

**Part 2**

**APPLICATIONS FOR CONNECTION AND OPERATION OF DISTRIBUTED GENERATION ABOVE 10 KW IN TOTAL**

**10 Outline of Part 2**

(1) This Part applies only to distributed generation that is capable of generating electricity at a rate above 10 kW in total.

(2) This Part provides for a 2-stage application process.

(3) In this Part, unless the context otherwise requires: -

**final application** means an application made under clause 15

**initial application** means an application made under clause 11.

**Initial application process**

**11** Generator wishing to connect must make initial application and provide information

(1) A generator who wishes to connect distributed generation that is capable of generating electricity at a rate above 10 kW in total must first make an initial application to the distributor.

(2) The generator must make the initial application by: -

(a) using the application form provided by the distributor that is publicly available under regulation 6(2)(a); and

(b) providing any information in respect of the distributed generation proposed to be connected that is---

(i) referred to in subclause (3); and

(ii) specified by the distributor under regulation 6(3) as being required to be provided with the application.

(3) The information may include the following:

(a) the full name and address of the owner or operator of the distributed generation and the contact details of a person whom the distributor may contact regarding the distributed generation:

(b) whether the proposed connection is a new connection or an increase in capacity for an existing connection and evidence of the size (nominal capacity) of the generating unit, including the name plate rating (if known), including: -

(i) if the proposed connection is a new connection, the size (nominal capacity) of the total generation:

(ii) if the application is for an increase in capacity for an existing connection, both the size (nominal capacity) of the additional generation and the aggregate size (nominal capacity) of all devices at the point of connection:

(c) type of distributed generation (for example, solar photovoltaic):

(d) proposed location of the distributed generation and when the distributed generation is likely to be connected:

(e) technical specifications of the distributed generation and associated equipment, including: -

(i) technical specifications of equipment that allows the distributed generation to be disconnected from the network on loss of mains voltage:

(ii) manufacturer's rating of equipment:

(iii) number of phases:

(iv) proposed point of connection to the distribution network (for example, installation control point number and street address):

(v) details of either or both of any inverter and battery storage:

(vi) details of any load at the proposed point of connection:

(vii) details of the connected voltage (for example, 415 V or 11 kV):

(f) information showing how the distributed generation complies with the distributor's connection and operation standards:

(g) the maximum active power injected (MW max):

(h) the reactive power requirements (MVARs) (if any):

(i) resistance and reactance details of the generating unit:

(j) fault level contribution (kA):

(k) method of voltage control:

(l) single line diagram of proposed connection:

(m) means of synchronisation and connection and disconnection to the network, including the type and ratings of circuit breaker proposed:

(n) details of compliance with frequency and voltage support requirements as specified in the rules (if applicable):

(o) proposed periods and amounts of electricity injections into, and offtakes from, the distribution network (if known):

(p) any other information that is required by the system operator:

(q) any additional information or documents that are reasonably required.

(4) The application must be accompanied by the application fee specified by the distributor, which must not exceed the maximum fee prescribed in Schedule 5.

(5) The distributor must, within 5 business days of receiving an initial application, give written notice to the applicant advising whether or not the application is complete.

## **12 DISTRIBUTOR MUST PROVIDE INFORMATION TO GENERATOR**

The distributor must provide the generator with a copy of the following within 30 business days of receiving a completed initial application:

(a) information about the capacity of the distribution network, including both the design capacity (including fault levels) and actual operating levels; and

(b) information about the extent to which connection and operation of the distributed generation may result in a breach of the relevant standards for safety, voltage, power quality, and reliability of supply to other connected parties; and

(c) information about any measures or conditions (including modifications to the design and operation of the distribution network or to the operation of the distributed generation) that may be necessary to address the matters referred to in paragraphs (a) and (b); and

(d) 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 the distributed generation; and

(e) information about any further detailed investigative studies that the distributor reasonably considers are necessary to identify any potential adverse effects on the system resulting from the proposed connection, together with an indication of: -

(i) whether the distributor agrees to the generator, or a suitably qualified agent of the generator, undertaking those studies; or

(ii) if not, whether the distributor could undertake those studies and, if so, the reasonable estimated cost of the studies that the generator would be charged; and

(f) information about any obligations to other parties that may be imposed on the distributor and that could affect the distributed generation (for example, obligations to Transpower, in respect of other networks, or under the rules); and

- (g) any additional information or documents that the distributor considers would assist the generator's application; and
- (h) information about the extent to which planned and unplanned outages may adversely affect the operation of the distributed generation.

### **13 OTHER MATTERS TO ASSIST WITH DECISION MAKING**

- (1) A distributor must provide, if requested by a generator making an initial application, further information that is reasonably necessary to enable the generator to consider and act on the information given by the distributor under clause 12.
- (2) The information that the distributor must provide under subclause (1) may include single line diagrams, equipment ratings, normal switch configurations (including fault levels), and protection system details relevant to the proposed point of connection of the distributed generation to the distribution network.
- (3) The distributor must provide the further information under this clause within 10 business days of the request being received.

### **14 DISTRIBUTOR AND GENERATOR MUST MAKE REASONABLE ENDEAVOURS REGARDING NEW INFORMATION**

If a distributor or generator has given information under this Part and subsequently becomes aware of new information that is relevant to the application, the party who becomes aware of the new information must use reasonable endeavours to provide the other party with the new information.

## **FINAL APPLICATION PROCESS**

### **15 GENERATOR MUST MAKE FINAL APPLICATION**

- (1) The generator must make a final application, within 12 months after receiving the information under clauses 12 and 13, if the generator intends to proceed to connect to the distribution network.
- (2) The generator must make the final application by: -
  - (a) using the final application form provided by the distributor that is publicly available under regulation 6(2)(a); and
  - (b) providing the results of any investigative studies that were identified by the distributor under clause 12(e)(i) as to be undertaken by the generator or the generator's agent.

### **16 APPLICATION FOR CONNECTION**

A distributor who receives a final application must use reasonable endeavours to notify in writing: -

- (a) all persons who have made an initial application for connection of distributed generation to the particular part of the distribution network that the distributor considers would be affected by the connection of the distributed generation that is the subject of the final application; and

- (b) all generators who have distributed generation above 10 kW in total connected on the regulated terms to the particular part of the distribution network that the distributor considers would be affected by the connection of the distributed generation.

## **17 PRIORITY OF FINAL APPLICATIONS**

- (1) This regulation applies if: -
  - (a) a distributor receives a final application for connection to a distribution network (the first application); and
  - (b) the distributor receives another final application, within 10 business days after receiving the first application, for connection to a particular part of the distribution network that the distributor considers would be affected by the connection of the distributed generation that is the subject of the first application.
- (2) The distributor---
  - (a) may consider the 2 or more final applications together as if they were competitive bids to use the same part of the network; and
  - (b) must consider the final applications in light of the purpose of these regulations; and
  - (c) in giving reasons under clause 18 in the case of any final application that is declined, must set out the criteria used in making any decision that relates to paragraph (a) or (b).
- (3) In any other case in which a distributor receives more than 1 final application for connection to a similar part of the distribution network, the distributor must consider an earlier final application in priority to other final applications.
- (4) Subclause (3) does not limit clause 19.

## **18 DISTRIBUTOR'S DECISION ON APPLICATION**

- (1) A distributor must, within the time limit specified in clause 19, give notice in writing to the applicant stating whether the final application is approved or declined.
- (2) A distributor must approve a final application to connect distributed generation, subject to any conditions specified by the distributor that are reasonably required, if: -
  - (a) the application has been properly made in accordance with these regulations; and
  - (b) the information provided in the application would reasonably support an assessment by the distributor that---
    - (i) the generator will comply at all times with the requirements of the Health and Safety in Employment Act 1992; and
    - (ii) the distributed generation will comply at all times with the Act and the regulations and rules made under the Act; and

- (iii) the connection of the distributed generation would be consistent with the distributor's connection and operation standards (assuming that the generator performs the conditions (if any) referred to in subclause (3)).
- (3) A notice stating that an application is approved subject to conditions must be accompanied by the following information:
  - (a) a detailed description of the conditions (or other measures) that are conditions of connection, and what the generator must do to comply with them; and
  - (b) detailed reasons for those conditions (or other measures); and
  - (c) a detailed description of the charges payable by the generator; and
  - (d) the default process for resolution of disputes under Schedule 3, if the generator disputes all or any of the conditions (or other measures) or charges payable.
- (4) A notice stating that an application is declined must be accompanied by the following information:
  - (a) detailed reasons as to why the application has been declined and, if the generator makes a new application, the steps that the applicant can take to ensure connection; and
  - (b) the default process for resolution of disputes under Schedule 3.

#### **19 TIME WITHIN WHICH DISTRIBUTOR MUST DECIDE FINAL APPLICATIONS**

- (1) The written notice required by clause 18 must be provided within---
  - (a) 45 business days after the date of receipt of the final application, in the case of an application for distributed generation that is not capable of generating electricity at a rate of at least 1 MW; or
  - (b) 60 business days after the date of receipt of the final application, in the case of an application for distributed generation that is capable of generating electricity at a rate of at least 1 MW but is not capable of generating electricity at a rate of at least 5 MW; or
  - (c) 80 business days after the date of receipt of the final application, in the case of an application for distributed generation that is capable of generating electricity at a rate of at least 5 MW or above.
- (2) The distributor may seek 1 or more extensions of the time specified in subclause (1).
- (3) The distributor must do this by notice in writing to the generator specifying the reasons for the extension.
- (4) The generator may grant an extension of up to 40 business days and must not unreasonably withhold consent to an extension.

#### **20 GENERATOR MUST GIVE NOTICE OF INTENTION TO PROCEED**

- (1) If the distributor advises that the generator's final application to connect distributed generation is approved, the generator must provide written notice to the distributor confirming whether or not the generator intends to proceed with the connection

and, if so, confirming: -

- (a) the details of the distributed generation to be connected; and
  - (b) that the generator accepts all of the conditions (or other measures) that have been specified by the distributor under clause 18 as conditions of the connection.
- (2) The generator must give that notice within 30 business days after the day on which the distributor gives notice of approval to connect distributed generation, or within a longer period of time mutually agreed between the distributor and the generator.
  - (3) If the generator does not accept all of those conditions, but does intend to connect distributed generation, the generator must: -
    - (a) give notice of the dispute within 30 business days after the day on which the distributor gives notice of approval to connect distributed generation; and
    - (b) give a notice under subclause (1) within 30 business days after the dispute is resolved.
  - (4) The distributor's duties under these regulations arising from the application for connection of distributed generation no longer apply if the generator fails to give notice to the distributor of an intention to proceed with the connection within the time limits specified in this clause.
  - (5) Subclause (4) does not prevent the generator making a new application for connection of distributed generation under these regulations.

## **21 CONNECTION PROCESS**

Thirty business days to negotiate connection contract if generator notifies intention to proceed

- (1) If a generator gives notice under clause 20, the distributor and the generator have 30 business days (starting on the date on which the distributor receives the notice) during which they must, in good faith, attempt to negotiate a connection contract.
- (2) The distributor and the generator may, by mutual agreement, extend the time specified in subclause (1) for negotiating a connection contract.

## **22 TESTING AND INSPECTION**

- (1) The generator must test and inspect its distributed generation.
- (2) The generator must give adequate notice of the testing and inspection to the distributor.
- (3) The distributor may send qualified personnel to the site to observe the testing and inspection.
- (4) The generator must provide the distributor with a written test report when testing and inspection is complete, including suitable evidence that the metering installation complies with the appropriate metering standards in the rules.
- (5) The generator must pay any fee specified by the distributor for observing the

testing and inspection, up to the maximum fee prescribed in Schedule 5.

23 Connection of distributed generation outside regulated terms if contract negotiated If the distributor and the generator enter into a connection contract before the period for negotiating a connection contract under this Part expires: -

- (a) the distributor must connect the distributed generation in accordance with that contract as soon as practicable; and
- (b) the generator must complete the testing and inspection under clause 22.

**24 CONNECTION OF DISTRIBUTED GENERATION ON REGULATED TERMS IF CONTRACT NOT NEGOTIATED**

(1) If the distributor and the generator do not enter into a connection contract before the period for negotiating a connection contract under this Part expires: -

- (a) the distributor must connect the distributed generation on the regulated terms as soon as practicable after the later of: -
  - (i) the expiry of that period; and
  - (ii) the date on which the generator has fully complied with any conditions (or other measures) that were specified by the distributor under clause 18 as conditions of the connection; and

(b) the generator must complete the testing and inspection under clause 22.

(2) However, to the extent that those conditions (or other measures) were the subject of a dispute under clause 20(3), or of negotiation during the period for negotiation of the connection contract, the distributor must connect the distributed generation on the regulated terms, as soon as practicable after the later of---

- (a) the dates referred to in subclause (1); and
- (c) the date on which the dispute about the conditions or other measures is finally resolved or negotiated and the generator has performed those conditions (or other matters).