
Guide to Connection of Large Scale Distributed Generation

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1 PURPOSE AND SCOPE OF THIS DOCUMENT

As required by the *Network Connection Requirements* policy, this document details the requirements and procedures for the connection of Large Scale Distributed Generation. This document does not apply to stand-alone generation systems, not connected to the network.

2 DEFINITIONS

“CoC” means a Certificate of Compliance issued in accordance with the Regulations

“Code” means the Electricity Industry Participation Code

“ESC” means an Electrical Safety Certificate issued in accordance with the Regulations

“Generator” means the owner of the SSDG system, and/or their appointed agent / installer / contractor

“JAS-ANZ” means the Joint Accreditation System of Australia & New Zealand.

“Large Scale Distributed Generation (LSDG)” means distributed generation with a total generation capacity greater than 10kW

“Regulated Terms” means Schedule 6.2 of the Code

“Regulations” means the Electricity (Safety) Regulations 2010, as amended from time-to-time

3 REFERENCES

3.1 Standards and Legislations

AS 4777.1:2005 - Grid Connection of Energy Systems via Inverters: Part 1, Installation Requirements

AS 4777.2:2005 - Grid Connection of Energy Systems via Inverters: Part 2, Inverter Requirements

AS 4777.3:2005 - Grid Connection of Energy Systems via Inverters: Part 3, Grid Protection Requirements

AS/NZS 3000:2007 – Electrical Installations (AS/NZ Wiring Rules)

AS/NZS 5033:2012 - Installation and safety requirements for photovoltaic (PV) arrays

Electricity Industry Participation Code 2010

Electricity Act 1992

Electricity (Safety) Regulations 2010

3.2 Aurora Guides, Standards, and Forms

Available from Aurora's website at

<http://www.auroraenergy.co.nz/content/distributedgeneration.php>.

Guide to Connection of Large Scale Distributed Generation (this guide)

Distributed Generation Technical Requirements

Form F1714 - Large Scale Distributed Generation Connection Application

Form F1716 - Large Scale Distributed Generation Connection Application – Final Regulated Terms for Connection of Distributed Generation

Available from Aurora's website at

<http://www.auroraenergy.co.nz/content/gettingconnected.php>.

Network Connection Requirements

4 CONNECTING LARGE SCALE DISTRIBUTED GENERATION

4.1 General

This guide is intended for use by large scale Generators when proposing to connect LSDG systems to Aurora's network. LSDG systems most likely to be diesel, hydro, or wind powered, and also include co-generation plants driven by steam from industrial processes.

The information provided in this guide is of a general nature, and prospective Generators are encouraged to discuss the basic concepts of their proposal with Delta's Infrastructure Performance group prior to making a lodging application.

4.2 Equipment Requirements

LSDG systems have the potential to adversely affect Aurora's distribution network, and consumers connected to it. Accordingly, LSDG systems must comply with *Aurora's Distributed Generation Technical Requirements* and *Network Connection Requirements* (refer s.3.2).

4.2.1 Inverters

Where the LSDG system incorporates inverters, the proposed inverter must comply with AS4777.2:2005 and, unless a separate grid protection device is installed (see **sError! Reference source not found.** below), AS4777.3:2005.

A list of inverters accepted for use within Aurora network areas is available from the Aurora website (refer 3.2).

Where an inverter is proposed that is not currently listed as accepted for use on the Aurora website, the applicant must provide a declaration of conformity issued by a laboratory listed on the JAS-ANZ register (www.jas-anz.org), attesting that the inverter complies with AS4777.2 and AS4777.3. Inverter vendors should be able to provide this documentation.

4.3 Agreement for Energy Purchase

Generators must either have a commercial agreement with an electricity retailer for sale and purchase of exported energy, or be registered with the Electricity Authority as a trader under the Code. Unless or until appropriate arrangements are in place, Generators will not be permitted to connect.

4.4 Application

4.4.1 Initial Application

Generators wishing to connect LSDG systems to Aurora's network must make application to do so, using *Form F1714 Large Scale Distributed Generation Connection Application* (refer s.3.2).

Applications are to be sent to:

Network Connections Manager
Delta Utility Services Limited
PO Box 1,404
DUNEDIN 9054

By email: networkconnections@thinkdelta.co.nz

Fax: 03 474 9361

The preferred method of submitting an application is by email. If an email address is not provided, application processing may take longer, particularly if additional information is required.

4.4.2 Application Fee

A fee is payable to Aurora Energy Limited for processing the LSDG connection application. The appropriate application fee must accompany the application. The application fees vary according to proposed generation capacity, as shown below:

Scale of Distributed Generation	Application Fee
Greater than 10kW but less than 100kW	\$500.00
Greater than 100kW but less than 1MW	\$1,000.00
Greater than 1MW	\$5,000.00

4.5 Application Processing

4.5.1 Preliminary Assessment

The Generator's application will be assessed, and within 5 working days of the application being received, the Generator will be advised in writing that the application is either complete, or that further information is required. Even if advised that the application is complete, the Generator may be requested to furnish additional information as the application is processed.

4.5.2 **Network Information will be Provided**

Within 30 business days of receiving a complete application, the following information will be provided to the Generator, to enable a more detailed analysis of the proposed LSDG system:

- (a) information about the capacity of Aurora's 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 LSDG 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 Aurora's network or to the proposed operation of the LSDG) that may be necessary to address the matters referred to in paragraphs (a) and (b); and
- (d) the approximate cost of any network related measures or conditions identified under paragraph (c), along with an estimate of time constraints or restrictions that may delay connection of the LSDG; and
- (e) information about any further detailed investigative studies reasonably considered as necessary to identify any potential adverse effects on Aurora's network resulting from the proposed connection, together with an indication of:
 - (i). whether Aurora agrees that the Generator, or a suitably qualified agent engaged by the Generator, may undertake those studies; or
 - (ii). if not, the reasonably estimated cost of the studies that the Generator will be required to fund; and
- (f) information about any obligations to other parties that may be imposed on Aurora and that could affect the LSDG (for example, obligations to Transpower, in respect of other networks, or under the Code); and
- (g) any additional information or documents that Aurora 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 proposed LSDG.

The Generator may request any additional information that it reasonably requires in order to consider and act on the information provided above. That additional information will be provided within 10 business days of receiving the request.

4.5.3 **Final Application**

Within 12 months of receiving the information described in (a) to (h) above, the Generator must make a final application to connect the LSDG system to Aurora's network. Final applications must be made using *Form F1716 Large Scale Distributed Generation Connection Application - Final* (refer s.3.2) and must be accompanied by the results of any investigative studies referred to in (e), above.

If other final applications are received within 10 days of receipt of the Generator's final application, and they affect the same part of Aurora's network, then Aurora will treat these applications as competitive bids for use of the same part of Aurora's network. In any other case, the earlier final application will be considered in priority.

4.5.4 **Decision**

Within the timeframes specified below, the Generator will be advised in writing whether the final application to connect LSDG to Aurora's network is approved or declined. Approval may be subject to reasonable conditions.

Scale of Distributed Generation	Timeframe
Less than 1 MW	Within 45 business days of final application
Between 1 MW and 5 MW	Within 60 business days of final application
Greater than 5 MW	Within 80 business days of final application

If the final application is not approved, the Generator will be given reasons why the application is declined, along with the steps that may be taken to allow approval to be given (if any).

4.5.5 **Notice of Intention to Proceed**

Within 30 business days of receiving final application approval, the Generator must provide written notice that it intends to proceed with connection of the LSDG system to Aurora's network.

4.5.6 **Connection Agreement**

Within 30 business days of receiving the Generator's written notice of intention to proceed, Aurora will negotiate a connection contract agreement with the Generator. If agreement is not reached within 30 business days, or any longer period by mutual agreement, then the Regulated Terms will apply. The Regulated Terms are reproduced on Aurora's website (refer s.3.2).

4.6 **Installation**

Once approved, the Generator may proceed with the connection of the LSDG system to Aurora's network. The physical connections to Aurora's lines and/or cable must be undertaken by an Aurora approved contractor.

4.7 **Metering**

It is the Generator's responsibility to arrange installation of metering systems that meet the requirements of the electricity retailer and the Code.

4.8 **Inspection and Observation**

The LSDG must be tested and inspected. Reasonable notice of testing and inspection must be given to allow Aurora to arrange for a qualified person to observe. There is a fee payable for observing the testing and inspection, as listed below:

Scale of Distributed Generation	Observation Fee
Greater than 10kW but less than 100kW	\$120.00
100kW or greater	\$1,200.00

5 DISPUTE RESOLUTION

Schedule 6.3 of the Code prescribes a dispute resolution process in the event that:

1. It is alleged that either party (Generator or Aurora) has breached any of the Regulated Terms, and the allegation is disputed; or
2. there is any other dispute regarding an alleged breach of any other of the provisions of Part 6 of the Code.

The following dispute provisions apply:

1. The disputing party must give written notice of the dispute to the other party; and
2. Both parties must attempt, in good faith, to resolve the dispute; and
3. If the parties cannot resolve the dispute, either party may complain in writing to the Electricity Authority.

6 RECORDS

The Generator shall provide the following post-connection documentation:

1. The final commissioning report and test results
2. A copy of the CoC, issued by the installer in respect of the SSDG installation; and
3. A copy of the ESC, where applicable, issued by the installer in respect of the SSDG installation.