



ACN 082 464 622

Customer Guidelines for the Connection of Micro or Small Generating Systems to the Distribution Network

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1.0 Introduction

Aurora Energy Pty Ltd ABN 85 082 464 622 (Aurora) is a state government owned energy generator, distributor and retailer. Reference to “Aurora” in this guideline is a reference to Aurora in its capacity as the owner and operator of the regulated distribution network in Tasmania, unless an alternative meaning is explicitly given in the text.

These guidelines have been developed to provide information to people who are intending to connect to the Aurora distribution network generating units (eg solar, wind, mini hydro etc) with output of either:

- 10 kVA single phase or 30 kVA three phase connected to Aurora’s low voltage distribution network (“**micro-generators**”); or
- greater than that of micro-generators but less than 1 MVA connected to Aurora’s low voltage distribution network (“**small generators**”),

with connection via electronic inverters or as otherwise approved by Aurora.

This guideline aims to provide assistance to identify the responsibilities of all parties involved with respect to connection requirements for embedded generating units and assist applicants applying for a connection to the distribution network.

2.0 Responsibilities

Aurora is responsible for the safe and effective operation of the distribution network in compliance with the Tasmanian Electricity Code (TEC) with regard to supply voltage, frequency and power quality issues.

Aurora as a licensed entity under the *Electricity Supply Industry Act 1995* is also responsible for ensuring that generators connected to its distribution network meet the requirements placed upon the generators in the TEC.

Aurora has established procedures in place to process requests for micro-small generating units to the distribution network. Aurora may disconnect your generating unit if it is causing nuisance to other customers connected to the grid.

As the owner and operator of a generating unit, you are responsible for the safe and correct installation, operation and maintenance of your generating unit in accordance with appropriate legislation and standards. For further guidance please contact your electrical consultant or Electricity Standards and Safety Tasmania.

Connection service charges are currently waived for micro connections, however owners of small embedded generating units may be required to contribute towards the costs associated with the units connection to the grid

and the installation and operation of their units while maintaining the connection to the grid.

3.0 Planning and Selection

It is advisable to engage the services of an experienced consultant in this field to assist you in the planning and selection of your generating unit. To avoid unnecessary expenditure once you have narrowed down your preferred generating equipment, it is suggested you contact Aurora to discuss your chosen designs and equipment to confirm compatibility before entering into purchase contracts.

The Clean Energy Council of Australia (The CECA) has details of Accredited Installers, Suppliers and Consultants who are experienced in this area with respect to PV cells. The CECA are also aiming to provide similar details covering wind generators. Visit their website at www.cleanenergycouncil.org.au

4.0 Inverter Requirements

If your generator connects through an inverter, it is desirable that the inverter is compliant with AS 4777.

As mentioned above the CECA has information on models of inverters that comply with AS 4777.

If the inverter is not compliant with AS 4777, or AS 4777 does not apply to your inverter or generating unit (if no inverter), you will be required to liaise with Aurora to ensure that the inverter/unit meets Aurora's technical requirements for connection to Aurora's low voltage distribution network.

Aurora may approve the connection to the grid of other generating units that are greater than 10 kVA single phase and 30 kVA three phase and may not have a certification of compliance with the AS 4777 series, provided that the technical and safety requirements and principles as articulated in AS 4777.3 (in particular sections 2, 3, 4, 5 and Appendices A and B) can be demonstrated to Aurora's satisfaction.

Under such conditions and where required, Aurora will monitor aspects of the generating unit following connection to the grid to understand compliance.

Key safety and operating issues that require consideration with demonstrated compliance and compatibility with the low voltage grid include, but not limited to:

- Voltage flicker, voltage and frequency limits;
- Impulse protection;
- Disconnection capability and reconnection procedures; and
- Anti-islanding protection.

Further information on Aurora's technical requirements regarding connection of generating units can be obtained from Aurora or via Aurora's website.

4A.0 Distribution Network constraints and issues

The connection of a generating unit to a distribution network may have impacts upon that network. As a result, before approval is given by Aurora, Aurora may need to undertake specific studies to ascertain these effects, and to implement mitigation where necessary. Mitigation measures may include the installation of protection systems.

Please note that connection will not be permitted until any mitigation action has been completed.

5.0 Connection Process for Micro-generators with AS 4777-compliant Inverters

- Applicant contacts Aurora
- Aurora send out connection application (on web site)
- Applicant or their installer fills out application
- If satisfied with the information contained in the application Aurora send out Offer to Connect and 2 copies of the Connection Agreement
- Installer installs generating unit and submits EWR to Aurora
- Customer returns signed Connection Agreements to Aurora
- Install new meter (if required)
- Installer switches system on
- Applicant organises retail contract.

6.0 Connection Process for Micro-generators with inverters that are not AS 4777-compliant

- Applicant contacts Aurora
- Aurora send out connection application (on web site) including any technical requirements
- Applicant or their installer fills out application and enclose inverter certification proving the generating unit meets Aurora's technical requirements
- If satisfied with the information contained in the application Aurora send out Offer to Connect and 2 copies of the Connection Agreement
- Installer installs generating unit and submits EWR to Aurora
- Customer returns signed Connection Agreements to Aurora
- Install new meter (if required)
- Installer switches system on
- Applicant organises retail contract.

7.0 Connection Process for Micro and Small generators without inverters

- Applicant contacts Aurora
- Aurora send out connection application (on web site) including any technical requirements
- Applicant or their installer fills out application and enclose certification and other material which certifies that the unit meets Aurora's technical requirements
- If satisfied with the information contained in the application Aurora send out Offer to Connect and 2 copies of the Connection Agreement
- Installer installs generating unit and submits EWR to Aurora
- Customer returns signed Connection Agreements to Aurora
- Install new meter (if required)
- Installer switches system on
- Applicant organises retail contract.

For more information on the connection processes, please refer to the Micro/Small Generator Application Process document which is available on our website.

The Tasmanian Connection Process regarding solar connections is also available on the CECA website at:

www.cleanenergycouncil.org.au/cec/resourcecentre/Consumer-Info/connecting-to-the-grid.html - Tasmania

8.0 Relevant Standards and Guidelines

- Tasmanian Electricity Code
- Aurora Service and Installation Rules
- AS/NZS3000:2007 SAA Wiring Rules
- AS 4777:2002 Grid Connection of Energy Systems via Inverters
 - AS 4777.1-2002 Part 1: Installation requirements
 - AS 4777.2-2002 Part 2: Inverter requirements
 - AS 4777.3-2002 Part 3: Grid protection requirements
- ENA Customer Guide to Electricity Supply November 2008

Abbreviated Terms

AS 4777	Australian Standard AS4777-2005 "Grid Connection of Energy Systems via Inverters"
CECA	Clean Energy Council of Australia www.cleanenergycouncil.org.au .
kVA	kiloVoltAmps, a measure of power
MVA	MegaVoltAmps,

9.0 Disclaimer

While Aurora makes every effort to ensure that this information and material is current and accurate, the information and material is provided to you on the understanding that:

- Aurora makes no warranty, guarantee or promise, express or implied, in relation to the content or accuracy of this information and material.
- You will seek verification and/or professional advice from an independent source before relying on or acting upon any of this information and material.
- Aurora is not liable or responsible in any way for the results of any actions taken on the basis of this information and material.

To the fullest extent permitted by law, Aurora expressly excludes any and all liability whatsoever and responsibility to any person arising in connection with their use or reliance of the information and material in whole or in part.

Please note that approval from Aurora Energy Distribution to connect a micro or small generating unit to the distribution network is only an acknowledgement that the embedded generating unit is suitable to be connected to the distribution network at the location requested at the time of your application. Aurora Energy Distributions' approval does not in any way indicate, guarantee, or approve the embedded generator is or will be eligible to receive payments, credits or other forms of entitlements from any Government or Retailer sponsored energy feed-in rebate schemes. The customer's eligibility should be determined with the relevant agencies responsible for the payment or provision of such entitlements.

10.0 Revisions

Aurora may amend and expand this guideline from time to time where it may be necessary to meet requirements of the applicable regulations and to suit the needs of the distribution network.