AS 4777.1—2005

Australian Standard™

Grid connection of energy systems via inverters

Part 1: Installation requirements

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee EL-042, Renewable Energy Power Supply Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 6 April 2005. This Standard was published on 20 May 2005.

The following are represented on Committee EL-042:

Alternative Technology Association
Australian Electrical and Electronic Manufacturers Association
Business Council for Sustainable Energy
Electrical Regulatory Authorities Council
Electrical Safety Organisation, New Zealand
Electricity Engineers Association, New Zealand
ElectroComms & Energy Utilities Industries Skills Council
Energy Efficiency & Conservation Authority of New Zealand
Energy Networks Association
Institution of Professional Engineers, New Zealand
Ministry of Economic Development, New Zealand
National Electrical and Communications Association
New Zealand Electrical Institute
Research Institute for Sustainable Energy
Sustainable Energy Authority, Victoria
University of New South Wales

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Part 1: Installation requirements

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment and is based on requirements developed by a group of utility, photovoltaic and inverter industry experts coming together under the auspices of the Energy Networks Association. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian, rather than an Australian/New Zealand Standard. This Standard replaces AS 4777.1—2002 on publication.

The objective of this Standard is to provide guidance for installers of inverter energy systems intended for the injection of electric power through an electrical installation to the electricity distribution network.

It is Part 1 of AS 4777, *Grid connection of energy systems via inverters* which is published in parts as follows:

AS 4777.1 Part 1: Installation requirements (this Standard)

AS 4777.2 Part 2: Inverter requirements

AS 4777.3 Part 3: Grid protection requirements

This Standard should be read in conjunction with the regulations, service and installation rules of the electricity distributor approving the connection.

This Standard has been revised to include a number of minor clarifications and corrections (principally in Clauses 5.3.3 and 5.6.4 and figures 1, 2 and 3).

This Standard was developed with the assistance of the following organisations—

(a) Australian Greenhouse Office;

(b) Research Institute for Sustainable Energy, Murdoch University; and

(c) University of New South Wales.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is provided for information and guidance.

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STANDARDS AUSTRALIA

Australian Standard
Grid connection of energy systems via inverters

Part 1: Installation requirements

1 SCOPE

This Standard specifies the electrical installation requirements for inverter energy systems and grid protection devices with ratings up to 10 kVA for single phase units, or up to 30 kVA for three-phase units, for the injection of electric power through an electrical installation to the electricity distribution network.

NOTES:

1 Although this Standard does not apply to larger systems, similar principles can be used for the installation of such systems.

2 This Standard does not cover detailed installation requirements for the energy source(s) and its associated wiring.

2 APPLICATION

This Standard should be used in conjunction with the installation requirements of the appropriate electrical distributor. The connection of an inverter energy system to an electrical installation connected to the electricity distribution network shall be approved by the appropriate electrical distributor.

3 NORMATIVE REFERENCES

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Standard.

AS	
1319	Safety signs for the occupational environment
4777	Grid connection of energy systems via inverters
4777.2	Part 2: Inverter requirements
4777.3	Part 3: Grid protection requirements
AS/NZS	
3000	Electrical Installations (known as the Australian/New Zealand Wiring Rules)

4 DEFINITIONS

For the purpose of this Standard, the following definitions apply:

4.1 Distribution board

A switchboard other than a main switchboard.

4.2 Electrical installation

The definition in AS/NZS 3000 shall apply.

4.3 Electricity distribution network

The portion of an electrical system that is operated by an electrical distributor.

