



Share your feedback  
about this standard.  
Scan the QR code on your  
phone or click/ enter the  
link to take the survey  
[feedback.standards.org.au/4777.1:2016](http://feedback.standards.org.au/4777.1:2016)

AS/NZS 4777.1:2016

AS/NZS 4777.1:2016

Australian/New Zealand Standard™

## Grid connection of energy systems via inverters

### Part 1: Installation requirements



## **AS/NZS 4777.1:2016**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-042, Renewable Energy Power Supply Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 22 August 2016 and by the New Zealand Standards Approval Board on 17 August 2016. This Standard was published on 30 September 2016.

---

The following are represented on Committee EL-042:

Australasian Fire and Emergency Service Authorities Council  
Australian Energy Market Operator  
Australian Industry Group  
Australian PV Association  
Australian Solar Council  
Clean Energy Council  
Clean Energy Regulator  
Construction, Environment and Workplace Protection, ACT Government  
Consumer Electronics Suppliers Association  
CSIRO  
Electrical Compliance Testing Association  
Electrical Regulatory Authorities Council  
Electrical Safety Organisation, New Zealand  
Electricity Engineers Association, New Zealand  
Energy Networks Association  
Engineers Australia  
Institute of Electrical and Electronics Engineers  
Institute of Electrical Inspectors  
Institution of Professional Engineers New Zealand  
Joint Accreditation System of Australia and New Zealand  
Master Electricians Australia  
National Electrical and Communications Association  
New Zealand Electrical Institute  
NSW Fair Trading  
Office of the Technical Regulator, SA  
Solar Energy Industries Association  
Sustainable Electricity Association New Zealand  
Sustainable Energy Association  
University of New South Wales  
Worksafe New Zealand

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia Web Site at [www.standards.org.au](http://www.standards.org.au) or Standards New Zealand web site at [www.standards.govt.nz](http://www.standards.govt.nz) and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

---

*This Standard was issued in draft form for comment as DR AS/NZS 4777.1:2016.*

---

AS/NZS 4777.1:2016

Australian/New Zealand Standard™

## **Grid connection of energy systems via inverters**

### **Part 1: Installation requirements**

Originated in Australia as AS 4777.1—2002.

Previous edition 2005.

Third edition jointly revised and designated as AS/NZS 4777.1:2016.

#### **COPYRIGHT**

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

ISBN 978 1 76035 572 2

## PREFACE

This Standard was prepared by 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, renewable energy, battery, inverter and industry experts. This Standard supersedes AS 4777.1—2005 six months after publication. During this period, either this edition or AS 4777.1—2005 may be utilized. After this period, it is anticipated that the 2005 edition will be withdrawn.

In addition, the provisions of Clause 3.4.8.3 for the soft limit of an export control function of an IES will apply 18 months after publication. These transitional periods are expected to be adopted by the relevant regulators.

Where a clause in this Standard refers to an inverter requirement of AS/NZS 4777.2, then either an inverter complying with AS/NZS 4777.2:2015 or an inverter complying with both AS 4777.2—2005 and AS 4777.3—2005 may be used during the transitional period for the application of AS/NZS 4777.2.

The objective of the Standard is to specify safety and installation requirements for inverter energy systems (IES) intended for the injection of electric power through an electrical installation to the grid. IES are distributed energy resources when connecting to the grid and need to ensure overall safe operation of the installation and interaction with the broader grid.

This Standard is part of a series, which consists of the following:

- (a) AS/NZS 4777.1, *Grid connection of energy systems via inverters, Part 1: Installation requirements* (this Standard).
- (b) AS/NZS 4777.2, *Grid connection of energy systems via inverters, Part 2: Inverter requirements*.

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

This Standard is required to be read in accordance with the following:

- (i) AS/NZS 3000 *Electrical installations (known as the Australian/New Zealand Wiring Rules)*.
- (ii) AS/NZS 5033 *Installation and safety requirements for photovoltaic (PV) arrays*, where applicable.

There has been extensive revision of this Standard to cater for changes in the industry. Both this Standard and AS/NZS 5033 now require inverters that comply with IEC 62109-2, *Safety of power converters for use in photovoltaic power systems, Part 2: Particular requirements for inverters*, for grid-connected PV systems.

There has also been significant innovation in the areas of multiple mode IES, voltage management and commencement of enabling a smart grid, which this revision accommodates.

This Standard has also been revised to accommodate some consideration of other energy sources where relevant standards may not be available. Until installation, wiring and safety concepts have been developed to cover these other energy source technologies, this Standard provides a limited range of provisions.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

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

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-