

AS/NZS 4777.2:2020

(Incorporating Amendments up to and including No. 2)



Australian/New Zealand Standard™

Grid connection of energy systems via inverters

Part 2: Inverter requirements



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The following are represented on Committee EL-042:

Australasian Fire and Emergency Service Authorities Council
Australian Energy Market Operator
Australian Industry Group
Australian PV Institute
Better Regulation Division — NSW Fair Trading
Clean Energy Council
Clean Energy Regulator
Communications, Electrical and Plumbing Union — Electrical Division
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This Standard was issued in draft form for comment as DR AS/NZS 4777.2:2020.

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Part 2: Inverter requirements

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Preface

^{A2} This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment, to supersede AS/NZS 4777.2:2015, *Grid connection of energy systems via inverters, Part 2: Inverter requirements*.

AS/NZS 4777.2:2020 incorporating Amendment No. 1 will remain current for 12 months from the date of publication of this document (Amendment No. 2). After this time, it will be superseded by AS/NZS 4777.2:2020 incorporating Amendment No. 1 and Amendment No. 2. Regulatory authorities that reference this Standard in regulation may apply these requirements at a different time. Users of this Standard should consult with these authorities to confirm their requirements. ^{A2}

^{A2} This Standard incorporates Amendment No. 1 (October 2021) and Amendment No. 2 (August 2024). The start and end of changes introduced by the Amendments are indicated in the text by tags including the amendment numbers 1 and 2. ^{A2}

The objective of this Standard is to specify minimum performance and safety requirements for the design, construction and operation of inverters intended for grid connection of energy systems.

^{A2} This Standard now incorporates the terms “independent supply” and “substitute supply” introduced in AS/NZS 4777.1:2024 in addition to “supplementary supply” and “alternative supply” as defined in AS/NZS 3000. In the next revision the terminology grid-interactive inverter/port may be changed to supplementary supply inverter/port so that the terminology aligns with AS/NZS 4777.1:2024. ^{A2}

This Standard is part of a series on the grid connection of energy systems via inverters. The series is as follows:

AS/NZS 4777.1, *Grid connection of energy systems via inverters, Part 1: Installation requirements*

AS/NZS 4777.2, *Grid connection of energy systems via inverters, Part 2: Inverter requirements* (this Standard)

The differences between this and the previous edition include but are not limited to the following:

- (a) Revision of sustained frequency response.
- (b) Revised set-points and limits to match electricity distributor and grid operator requirements.
- (c) Revision of provisions for demand response and power quality response modes.
- (d) Inclusion of requirements for electrical safety of non-PV energy sources in accordance with IEC 62477-1.
- (e) Inclusion of requirements for improved withstand capabilities including multiple voltage disturbances, rate of change of frequency and voltage phase shift.
- (f) Inclusion of requirements for measurement system accuracy and functional prioritization.
- (g) Inclusion of requirements for ^{A2} independent supply ^{A2} inverters.
- (h) Inclusion of requirements for generation limit and export limit control function.
- (i) Revised and expanded testing procedures.

The following documents were used for information and guidance in the preparation of this Standard to ensure that features and requirements were aligned with international developments.

IEEE 1547-2018, *IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces*

VDE-AR-N 4105:2018-11, *Generators connected to the low-voltage distribution network — Technical requirements for the connection to and parallel operation with low-voltage distribution networks*

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