AS/NZS 5033:2005
(Incorporating Amendment No. 1)

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Australian/New Zealand Standard™

Installation of photovoltaic (PV) arrays

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 8 April 2005 and on behalf of the Council of Standards New Zealand on 15 April 2005.
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The following are represented on Committee EL-042:

Alternative Technology Association
Australian Electrical and Electronic Manufacturers Association
Business Council for Sustainable Energy
Electrocomm and Energy Utilities Qualifications Standards
Energy Network Association
Institution of Professional Engineers, New Zealand
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PREFACE

This Standard was produced by Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment, with the assistance of the Australian Greenhouse Office (AGO) and the University of NSW.

This Standard incorporates Amendment No. 1 (January 2009). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide guidance for installers of photovoltaic arrays.

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.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out the general installation requirements for photovoltaic (PV) arrays with d.c. open circuit voltages up to 600 V between positive and negative conductors or up to ±600 V with respect to earth and a maximum power of 30 kW.

A1 This Standard does not apply to photovoltaic systems or arrays operating at less than 25 V d.c. and with a power of less than 25 W.

NOTES:

1 This includes the following PV array configurations (refer to Figures 1.1 and 1.2)—

(a) Single string of modules.

(b) Multi-string PV array.

(c) PV array divided into several sub-arrays.

2 Direct current systems, and photovoltaic systems in particular, pose some hazards in addition to those derived from conventional a.c. power systems, including the ability to produce and sustain electrical arcs with currents that are not much greater than normal operating currents. This Standard addresses the safety requirements arising from the particular characteristics of photovoltaic systems. A discussion of those characteristics is presented in Appendix A.

3 Although this Standard does not cover PV array systems with a power greater than 30 kW, similar principles can be used for such systems.

1.2 OBJECTIVE

The objective of this Standard is to provide electrical safety and fire protection requirements for—

(a) uninformed persons, including owner(s)/occupier(s) and users of the premises where photovoltaic arrays are installed;

(b) informed workers (e.g. electricians) working on these systems; and

(c) emergency workers.

NOTE: Mechanical safety recommendations are given in Appendix B.

1.3 NORMATIVE REFERENCES

AS
1319 Safety signs for the occupational environment

60529 Degrees of protection provided by enclosures (IP Code)

4509 Stand-alone power systems
4509.1 Part 1: Safety requirements
4509.2 Part 2: System design guidelines

AS/NZS
1170 Structural design actions
1170.2 Part 2: Wind actions