CLEAN ENERGY COUNCIL
ACCREDITED
INSTALLER

CLEAN ENERGY COUNCIL GUIDELINES FOR GRID-CONNECTED SOLAR PV SYSTEMS - (NO STORAGE)

VERSION 14, MAY 2022

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These Guidelines have been developed by the Clean Energy Council (CEC). These Guidelines specify the CEC requirements that apply to the design and installation of grid-connected solar photovoltaic systems. These Guidelines exist in addition to applicable Australian Standards and the local and national legal requirements.

While all care has been taken to ensure these Guidelines are free from omission and error, these Guidelines are provided to support best practice and are no substitute for the due care and diligence of designers and installers. No responsibility can be taken for the use of this information in the installation of any grid-connected power system.

1 GENERAL

The objectives of these Guidelines are to:

- Improve the safety, performance and reliability of solar photovoltaic power systems installed in the field.
- Encourage industry best practice for all design and installation work involving solar photovoltaic power systems.
- Provide a network of competent solar photovoltaic power systems designers and installers.
- Increase the uptake of solar photovoltaic power systems by giving system owners increased confidence in the design and installation work.

The performance of a reliable installation that fulfils system owner expectations requires both careful design and correct installation practice. Compliance with relevant state health and safety regulations is also necessary.

NOTE: These Guidelines alone do not constitute a fully definitive set of rules and are to be read in conjunction with all relevant Australian Standards. Where these Guidelines have additional requirements above those stated in the Australian Standards, then these Guidelines shall be followed.

This Guideline was published on 19 May 2022.

About your accreditation
Central to the Clean Energy Council's (CEC) work with solar photovoltaic (PV) designers and installers is an accreditation program we often refer to as the Solar Accreditation Scheme.

The CEC Scheme is an accreditation scheme for the purpose of reg 20AC of the Renewable Energy Electricity (REE) regulations[1] under the Clean Energy Regulator's Small-scale Renewable Energy Scheme (SRES). All PV systems within the SRES must be installed by a person accredited under the CEC Scheme.

Depending on the type of accreditation held, CEC accreditation demonstrates an Accredited Person's competence in the design and/or installation of:

- grid-connected solar PV systems
- stand-alone solar PV systems
- grid-connected battery storage.

[1] *Renewable Energy (Electricity) Regulations 2001* (Cth)

Holding CEC accreditation is one criterion for participation in Government incentive schemes like SRES and others. The objective of the CEC's regulatory programs is to increase consumer confidence in renewable energy services, systems and products. The CEC's main strategic objective is to accelerate Australia's transition to a clean energy future. Growth of the PV sector relies on the maintenance of a high standard of quality, customer service and safety.

Every Accredited Person has their part to play. After becoming accredited with the CEC, an Accredited Person is required to only work within the scope of the accreditation held by the Accredited Person detailed in the CEC Code of Conduct for Accredited Designers and Installers (Code of Conduct).

The Code of Conduct requires an Accredited Person to follow all requirements in the relevant Australian Standards, local and national laws, and these Guidelines. Where a CEC Accredited Person is found not to comply with these requirements, the Accredited Person will be subject to the CEC compliance process and other regulatory action.

The CEC compliance process may include:

- being required to rectify non-compliant work
- re-assessment of competency
- additional training
- and ultimately, suspension or cancellation of accreditation for serious breaches or lack of cooperation (subject to review by the Accreditation Review Panel).

Beyond compliance, installers are also required to stay up to date with changes in the industry by completing continual professional development (CPD) every year.

A copy of the CEC's Terms and Conditions, Compliance Process and CPD information can be found online at https://www.cleanenergycouncil.org.au/industry/installers/compliance-toolkit

2 DEFINITIONS

This document uses the same terminology as outlined in AS/NZS 3000. Two important definitions are:

2.1.1 **Shall:** Where the word "shall" is used, this indicates that the requirements of a statement are mandatory.

2.1.2 **Should:** Where the word "should" is used, this indicates that the matters recommended in a statement are recommendations.

3 RESPONSIBILITIES OF ACCREDITED PERSON

3.1 Signing off as an Accredited Installer

3.1.1 An Accredited Person shall only sign off on systems where they have:

- met all relevant requirements of the accreditation scheme;
- undertaken the installation; or
- supervised the installation by others.

Supervision includes attending the site during:

- job set up;
- mid-installation check-up; and
- testing and commissioning.

3.1.2 Sign off is defined as the installer or supervisor performing the testing and commissioning requirements.

3.1.3 The date of sign off is the day that the installer or supervisor performs the testing and commissioning requirements.

NOTE: It is vitally important that a system is tested to ensure it is safe at the time of final sign off.

3.2 Responsibilities of System Designers

3.2.1 System designers must comply with the following responsibilities:

- Provide full specifications of the system including quantity, make and model number of the solar modules and inverter.
- Provide a site-specific full system design including all shading issues, orientation and tilt, along with the system's site-specific energy yield, including average daily performance estimate in kWh for each month of solar generation.
- Ensure array design will fit on available roof space.
- Ensure array mounting frame installation will comply with AS/NZS1170.2.
- Ensure array configuration is compatible with the inverter specification.
- Ensure all equipment is fit for purpose and correctly rated.
- Obtain warranty information on all equipment.

3.3 Limits apply to the number of installations an Accredited Person shall sign off per day

3.3.1 Where an Accredited Person is installing or supervising complete installations only, they shall not sign off on more than two (2) installations per day.

3.3.2 Where an Accredited Person is installing or supervising complete installations and upgrades/repairs (e.g. the installation or replacement of modules only) in the same day, they shall not sign off on more than one (1) complete installation and not more than three (3) upgrades on the same day.

3.3.3 Where an Accredited Person is installing or supervising upgrades and/or repairs to existing systems involving the installation or replacement of modules only, the installer or supervisor shall not sign off on more than four (4) system upgrades/repairs per day.

3.4 Multiple systems at one location

If a project involves multiple systems at one location, where the systems are installed in stages, the Accredited Person installing or supervising these installations may request a formal exemption from clause 3.3 to sign off up to 10 systems per day.

Example: multiple systems installed on an apartment block or at a retirement village, where the cables are roughed in on one date; the inverter, mounting frame and modules are installed on another date; and the final connection and commissioning occurs on another date.

3.4.1 An installer shall contact the CEC and request an exemption from clause 3.3 prior to the commencement of the project. Exemptions to clause 3.3 ***WILL NOT*** be granted after a project has commenced.

3.4.2 The installer must provide details of the project and the installation schedule for assessment by the CEC. Exemptions may be granted by the CEC to installers who can demonstrate that the schedule of installation will ensure all systems are installed in a safe manner and meet all Guidelines and Standards.

3.4.3 Once the assessment is complete, the CEC will respond to the installer with a letter detailing the assessment findings and exemption from clause 3.3.1 if granted. This letter shall be the only acceptable evidence of an exemption from clause 3.3.1 for the purposes of STC creation.

NOTE: An administration fee may apply for exemption request assessments.

3.5 Grid-connect battery backup system

3.5.1 When designing or installing a grid-connect battery backup system, the design and installation shall be performed by an accredited person with grid-connected battery accreditation.

4 PV ARRAY INSTALLATION

4.1 Roof mounting (not building integrated)

4.1.1 It is important to allow enough clearance under the array to facilitate self-cleaning of the roof to prevent the build-up of leaves and other debris (refer to roofing manufacturer's installation manual).

4.1.2 If fauna (such as birds, vermin, etc) are a problem in the vicinity of the installation, consideration should be given to how to prevent them gaining access to the roof area under the array.

4.1.3 Tiles shall sit flat after the installation of tile mounting brackets to ensure the tiles maintain their original ingress protection. There may be a requirement to grind the underside of the tile to enable it to sit correctly.

4.2 Building integrated (BIPV) installations

4.2.1 The installation of modules that are being used as building material (e.g. tiles, building walls, sun-screens) shall only be installed by a person qualified to install that particular type of building element and the accredited installer/s.

4.2.2 Roof tiles shall be installed in accordance with these Guidelines, all relevant Standards and the additional requirements as specified by the manufacturer's install instructions.

4.3 Wiring system roof penetration

4.3.1 Where the PV array cable and conduit passes through a tile or steel roof, a fit for purpose collar flashing shall be installed (e.g. dektite).

4.4 Array peak power – inverter sizing

4.4.1 In order to facilitate the efficient design of PV systems, the inverter nominal AC power output cannot be less than 75 per cent of the array peak power and it shall not be outside the inverter manufacturer's maximum allowable array size specifications.

Example of a 6 kW array and four inverters with different specification.

SYSTEM DETAILS	System 1	System 2	System 3	System 4
a) proposed array peak power (eg 20 x 330W)	6600	6600	6600	6600
b) 75 per cent of proposed array peak power output (watts)	4950	4950	4950	4950
c) inverter manufacturer's maximum allowable array size (watts)	7500	6500	7500	6500
d) inverter manufacturer's nominal AC power rating (watts)	5000	5000	4500	4500
QUESTIONS				
Is the manufacturer's maximum allowable array size greater than peak array power? (Is c > a?)	YES	NO	YES	NO
Is the inverter nominal AC power greater than 75 per cent of proposed peak power? (Is d > b?)	YES	YES	NO	NO
RESULT				
Is the array peak power to inverter sizing acceptable?	YES	NO	NO	NO

NOTE: The inverter manufacturer's specification shall be adhered to.