

# Understanding the PV audit checklist

Auditors for the Solar Homes Program use a checklist when they conduct inspections. This document includes all questions the auditor bases their inspection on for solar PV installations.

## What do auditors look at when they conduct inspections?

Auditors will assess the following components of a PV system:

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## What do these ratings mean?

Auditors will apply one of these ratings to each question in this document:

<b>Unsafe</b>	This means there is a safety hazard which poses an imminent risk of damage to property or persons and that the system will be shut down.
<b>Needs Rectification</b>	This means the system does not meet key safety and quality clauses in the standards/guidelines for installation. The installation does not pose an imminent safety risk but may be at risk of becoming unsafe in the future.
<b>Improvements Identified (For Information)</b>	This means the system does not pose a safety risk but was found to not comply with all standards and guidelines. Improvements identified are provided as information and guidance for retailers and installers.
<b>Adequate</b>	This means no evidence of material non-compliance with standards or guidance was found and that the system was installed satisfactorily.

They will also document other details for information purposes only. No rating is applied to these items, which appear shaded in the tables.

# Power Conversion Equipment

Reference	Question	Relevant standards/reference	Applicable rating
PCE 1	<b>** IMPORTANT **</b> Is the solar PV system capable of producing electricity at the installation address without the need for any additional parts to be incorporated?	N/A	No rating is applied
PCE 2	Has the inverter been installed in a location that has safe access and adequate working space?	AS/NZS 3000:2018 CI 1.7.2	Improvements Identified (For Information)
Label 11	Is the site-specific shutdown procedure correct and permanently fixed at the inverter?	AS/NZS 4777.1:2016 CI 6.7, Appendix A AS/NZS 5033:2014 inc Amdt 1 CI 5.5.3 V13 CEC Installation Guidelines 10.7	Improvements Identified (For Information)
PCE 5A	Enter the output reading ... Kw(p)	N/A	No rating is applied
PCE 5B	Enter the output reading at ... am/pm	N/A	No rating is applied
PCE 5C	Enter the output reading with ... weather conditions	N/A	No rating is applied
PCE 6	Inverter make and model	N/A	No rating is applied
PCE 7	Are the inverter(s) listed on the CEC's list of approved products at the time of the system's installation?	N/A	Needs Rectification
PCE 8	System type – string/optimisers/microinverters	N/A	No rating is applied
PCE 9	Are the inverter(s) of appropriate IP rating for their location?	AS/NZS 3000: 1.7	Needs Rectification
PCE 10	IP Rating	N/A	No rating is applied
PCE 11	Number of inverter/s installed	N/A	No rating is applied
PCE 12	Power rating	N/A	No rating is applied
PCE 13	Type – transformer/transformer-less	N/A	No rating is applied
PCE 14	Inom – circuit breaker in switchboard must be at least this rating	N/A	No rating is applied
PCE 15	VMPPT min	N/A	No rating is applied
PCE 16	VMPPT max	N/A	No rating is applied
PCE 17	VDC max	N/A	No rating is applied
PCE 18	IDC Max	N/A	No rating is applied

Reference	Question	Relevant standards/reference	Applicable rating
PCE 19	Number of MPPTs	N/A	No rating is applied
PCE 20	Current rating per MPPT	N/A	No rating is applied
PCE 21	If the inverter is located further than 3 metres from the switchboard is there a suitably rated lockable AC isolator at the inverter?	AS/NZS 3000:2018 CI 7.3.4 AS/NZS 4777.1:2016 CI 3.4.3 and 5.5 V13 CEC Installation Guidelines Section 10.3.1	Needs Rectification
PCE 22	Is the inverter installed in an appropriate area?	AS/NZS 3000:2018 Section 2, Section 6 AS/NZS 4777.1:2016 CI 5.3 V13 CEC Installation Guidelines Section 10	Improvements Identified (For Information)
PCE 23	Are the AC cables supplying the inverter secure and mechanically protected? (where cables are concealed within 50mm of a building surface steel conduit may be required based on date of installation)	AS/NZS 3000:2018 CI 3.3.2.8, 3.9.3.3 and 3.9.4 AS/NZS 4777.1:2016 CI 4.2 V13 CEC Installation Guidelines 9.1.2	Improvements Identified (For Information)
PCE 24	If there is flexible cable supplying the inverter, does it have strain relief?	AS/NZS 3000:2018 CI 3.3.2.8 AS/NZS 4777.1:2016 CI 3.2.1 and 3.2.3 V13 CEC Installation Guidelines 10.1.5	Improvements Identified (For Information)
PCE 25	Are there any signs of loose connections in the LV cables?	AS/NZS 3000:2018 CI 3.7.2.3	Unsafe
PCE 26	Are the DC cables connecting to the inverter mechanically secured in such a manner that they cannot be inadvertently unplugged from the inverter?	AS/NZS 4777.1:2016 CI 4.2 V13 CEC Installation Guidelines 10.1.5 and 10.1.6	Improvements Identified (For Information)
PCE 27	Are multi-holed glands installed if required?	AS/NZS 5033 Amd 2 CI 4.4.4.6(f) V13 CEC installation Guidelines 8.3.14	Improvements Identified (For Information)
PCE 28	If installed outdoors, do all cable/conduit enter the lower face of the enclosure?	AS/NZS 5033 Amd 1 CL 4.4.4.6 (c and d) V13 CEC Installation Guidelines 10.1.7	Improvements Identified (For Information)
PCE 29	Do all cable entries maintain the manufacture's IP rating?	AS/NZS 5033 Amd 1 CL 4.4.4.6(b) V13 CEC Installation Guidelines 10.1.7	Improvements Identified (For Information)
PCE 30	Does the clearance around the inverter meet the manufacturer's minimum requirements?	AS/NZS 4777.1 CI 5.3.1 (a and b) V13 CEC Installation Guidelines section 8	Adequate
PCE 31	Is the inverter securely and safely installed with all fixing/locking screws present?	AS/NZS 4777.1 Appendix C2.3 V13 CEC Installation Guidelines 10.1.1	Needs Rectification

## Ground DC Isolation

Reference	Question	Relevant standards/reference	Applicable rating
G-DCI 1	Are all components verified as not having been issued with a recall notice from manufacturers or regulators?	CEC and ACCC recalled lists, and <a href="http://productrecalls.gov.au">productrecalls.gov.au</a>	Needs Rectification
G-DCI 2	Are installed DC isolator(s) on the Electrical Regulator Authorities Council (ERAC) list?	Refer to ESV and ERAC lists	Needs Rectification
G-DCI 3	Are there any visible loose connections in LV cables?	AS/NZS 3000:2018 CI 3.7.2.3	Unsafe
G-DCI 4	Has segregation been provided between any AC and DC components connected in the same enclosure? (i.e. there must be physical separation between AC and DC in an enclosure where wiring from both components are terminated)	AS/NZS 3000:2018 CI 3.9.8.3 AS/NZS 5033:2014 4.4.4.3 V13 CEC Installation Guidelines 10.3.3	Improvements Identified (For Information)
G-DCI 5	Is the DC isolator (or DC C/B) lockable in the off position?	AS/NZS 3000:2018 CI 2.3.2.2.1 and CI 2.3.6.3.1  AS/NZS 5033:2014 incl Amdt 2 CI 4.3.5.2(d)	Adequate
G-DCI 6	Is the DC isolator inbuilt?	N/A	No rating is applied
G-DCI 7	Is the DC isolator(s) at the inverter appropriately signed? (DC isolator(s) are correctly labelled and there is a label warning that switching off the DC isolator does not isolate all components of the system)	AS/NZS 5033:2014 inc Amdt 1 CI 5.5.1 and 5.5.2  V13 CEC installation guidelines 8.1.3 and 10.7.2	Adequate
G-DCI 8	Does the DC enclosure(s) at the inverter have the required IP rating (minimum IP56NW if outdoors) and has been installed to maintain that rating??	AS/NZS3000:2018 CI 4.1.2 and 4.1.3  AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.3.1  V13 CEC Installation Guidelines 8.1 and 8.3	Improvements Identified (For Information)
G-DCI 9	Is there evidence of Water Ingress?	AS/NZS3000:2018 CI 4.1.2 and 4.1.3  AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.1  V13 CEC Installation Guidelines 8.1 and 8.3	Needs Rectification
G-DCI 10	Are there signs of water damage observed?	AS/NZS3000:2018 CI 4.1.2 and 4.1.3  AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.1  V13 CEC Installation Guidelines 8.1 and 8.3	Unsafe

Reference	Question	Relevant standards/reference	Applicable rating
G-DCI 11	Are the DC isolator(s) at the inverter readily available?	AS/NZS 3000:2018 CI 1.4.19 and 2.3.2.2.1 AS/NZS 4777.1:2016 CI 1.3.27, 3.4.3 and 4.5 V13 CEC Installation Guidelines 10.2.3	Adequate
G-DCI 12	Is the isolator(s) [or C/B] at the inverter connected to the array DC rated?	AS/NZS 5033:2014 inc Amdt 1 CI 4.3.1 and 4.3.4 V13 CEC Installation Guidelines 8.1	Unsafe
G-DCI 14	Is the DC isolator(s) at the inverter correctly wired?	AS/NZS 3000:2018 CI 4.1.2 AS/NZS 5033:2014 inc Amd 2 CI 4.3.5.2 V13 CEC Installation Guidelines 10.2.6	Needs Rectification
G-DCI 15	Is the load breaking DC isolator(s) located adjacent to the inverter correctly rated for the required DC voltage and current?	AS/NZS 5033:2014 CI 4.3.1 V13 CEC Installation Guidelines 10.2.6	Unsafe Needs Rectification
G-DCI 16	If multiple DC isolators are installed at the inverter, are they grouped/ganged so that they operate simultaneously, or grouped/ganged in a common location?	AS/NZS 5033:2014 inc Amdt 1 CI 4.4.1.4 V13 CEC Installation Guidelines 10.2.4	Adequate
G-DCI 17	If multiple DC isolators are installed at the inverter, is the correct warning sign (indicating the need to operate all DC isolators to isolate the equipment) present?	AS/NZS 5033:2014 inc Amdt 1 CI 4.4.1.4 and 5.5.2 V13 CEC Installation Guidelines 10.2.4 and Section 15	Adequate
G-DCI 18	Number of DC isolators installed at the inverter.	N/A	No rating is applied
G-DCI 19	Isolator ID No. if labelled	N/A	No rating is applied
G-DCI 20	Isolator Manufacturer at the inverter	N/A	No rating is applied
G-DCI 21	Isolator Model No. at the inverter	N/A	No rating is applied
G-DCI 22	Voltage rating per leg (V)	N/A	No rating is applied
G-DCI 23	Current rating per leg (I)	N/A	No rating is applied
G-DCI 24	Number of modules in series	N/A	No rating is applied
G-DCI 25	Number of modules in parallel	N/A	No rating is applied
G-DCI 26	Has double insulation been maintained between all live conductor(s) and all earthed or exposed conductive part(s)?	AS/NZS 3000:2018 AS/NZS 5033:2014 clause 4.4.4.3 and 3.2 V13 CEC Installation Guidelines 9.1.8	Improvements Identified (For Information)

## PV Array

Reference	Question	Relevant standards/reference	Applicable rating
PVA 1	Do the modules have sufficient ventilation space to minimise temperature rise?	CEC Installation Guidelines 7.2.7 at least 50mm	Adequate
PVA 2	Number of modules installed	N/A	No rating is applied
PVA 3	PV Module Manufacturer	N/A	No rating is applied
PVA 4	PV Module Model No	N/A	No rating is applied
PVA 5	Were the solar modules listed on the CEC's list of approved products at the time of the system's installation?	CEC and ACCC recalled lists, and <a href="http://productrecalls.gov.au">productrecalls.gov.au</a>	Needs Rectification
PVA 6	PV Module Power rating(W)	N/A	No rating is applied
PVA 7	PV Module VoC(V)	N/A	No rating is applied
PVA 8	PV Module Isc(A)	N/A	No rating is applied
PVA 9	PV Module VMP(V)	N/A	No rating is applied
PVA 10	Are the modules in the same string installed in the same orientation +/- 5 degrees?	AS/NZS 5033:2014 CI 2.1.6	Adequate
PVA 11	Number of modules in series	N/A	No rating is applied
PVA 12	Number of strings in parallel	N/A	No rating is applied
PVA 13	PV Array Tilt	N/A	No rating is applied
PVA 14	PV Array Orientation	N/A	No rating is applied
PVA 15	PV Array Maximum Array Voltage = VoC at STC x temp derating (V)	N/A	No rating is applied
PVA 16	Total array output current = ISC x 1.25(A)	N/A	No rating is applied
PVA 17	Total PV Array system size(kWp)	N/A	No rating is applied
PVA 18	Panel serial number(s)	N/A	No rating is applied
PVA 19	Are all DC connectors of the same type/model from the same manufacturer? (Connectors are to be matched and mated pairs at connection points)	AS/NZS 5033:2014 CI 4.3.7 (k) V13 CEC Installation Guidelines 7.8.6	Needs Rectification
PVA 20	If there are a number of PV array strings, which could result in a potential fault current in any one string greater than the reverse current of an individual module, is appropriate string protection provided? (e.g. protected with fuses or non-polarised circuit breakers)	AS/NZS 5033 CI 3.3.4 and 3.3.5 V13 CEC Installation Guidelines 8.4	Needs Rectification

Reference	Question	Relevant standards/reference	Applicable rating
PVA 21	If string protection is installed, are all components rated for DC application and the required voltage and current?	AS/NZS 5033:2014 CI 3.3.4 and 3.3.5 V13 CEC Installation Guidelines 8.4	Needs Rectification
PVA 22	If string protection is installed, do the fuse holders have a current rating equal to or greater than the corresponding fuse?	AS/NZS 5033:2014 inc Amdt 2 CI 3.3.4, 3.3.5.2 and 3.3.5.3 V13 CEC Installation Guidelines 8.4	Needs Rectification
PVA 23	Does the designed array fit on the available roof area? (e.g. solar panels are not positioned over roof edges or gutters)	AS/NZS 5033:2014 CI 2.2.5; V13 CEC Installation Guidelines 7.2.8 and 7.5 AS 1170.2 Appendix D6	Improvements Identified (For Information)

# Performance

Reference	Question	Relevant standards/reference	Applicable rating
Performance 1	Is the array's maximum voltage VoC array max (at minimum temperature) less than 600vDC?	AS/NZS 5033:2014 CI 3.1 V13 CEC Installation Guidelines 7.1.1	Needs Rectification
Performance 2	Is the array's maximum voltage V array max (at minimum temperature) less than the maximum VDC of the inverter?	CEC Design Guidelines for Accredited Installers 2013	Adequate
Performance 3	Does the design of the system fall within the inverter's MPPT window at the minimum temperature?	CEC Design Guidelines for Accredited Installers 2013	Adequate
Performance 4	Does the design of the system fall within the inverter's MPPT window at the maximum temperature?	CEC Design Guidelines for Accredited Installers 2013	Adequate
Performance 5	Calculate system parameters based on configuration – confirm DC isolators on roof and at ground meet minimum requirements and array configuration is suitable for inverter optimal operation.	N/A	No rating is applied
Performance 6	Are the AC wiring losses less than 2% between the inverter terminals and the point of supply?	AS/NZS 4777.1:2016 CI 3.3.3	Adequate



## Roof DC Isolation

Reference	Question	Relevant standards/reference	Applicable rating
R-DCI 1	Is the roof safe to access?	N/A	No rating is applied
R-DCI 2	Are there any signs of broken tiles or damage to tin?	N/A	No rating is applied
R-DCI 3	Are there any signs of loose connections in the LV cables?	AS/NZS 3000:2018 CI 3.7.2.3	Unsafe
R-DCI 4	Is the array wiring and wiring to the inverter protected from UV? (This requires a visual inspection of all cables related to the system and may require checking on the roof)	AS/NZS 3000:2018 CI 1.5.14 AS/NZS 5033:2014 4.3.6.2 V13 CEC Installation Guidelines 7.8	Improvements Identified (For Information)
R-DCI 5	Are the DC isolator(s) at the array readily available?	AS/NZS 3000:2018 CI 1.4.19 and 2.3.2.2.1 AS/NZS 5033:2014 CI 4.3.3.2 inc Amdt V13 CEC Installation Guidelines 7.9.3	Adequate
R-DCI 6	Is a load breaking DC isolator located adjacent to the array?	AS/NZS 5033:2014 inc Amdt 1 CI 4.4.1.5 V13 CEC Installation Guidelines 7.9	Improvements Identified (For Information)
R-DCI 8	Confirm all components have not been issued with a recall notice from manufacturers or Regulators?	CEC and ACCC runs recalled list, and <a href="http://productrecalls.gov.au">productrecalls.gov.au</a>	Needs Rectification
R-DCI 9	Are installed DC isolator(s) on the Electrical Regulator Authorities Council (ERAC) list?	Refer to ESV and ERAC lists	Needs Rectification
R-DCI 11	Has double insulation been maintained between all live conductor(s) and all earthed or exposed conductive part(s)?	AS/NZS 3000:2018 AS/NZS 5033:2014 clause 4.4.4.3 & 3.2 V13 CEC Installation Guidelines 9.1.8	Improvements Identified (For Information)
R-DCI 12	Is the isolator(s) [or C/B] located adjacent to the array DC rated?	AS/NZS 5033:2014 inc Amdt 1 CI 4.3.1 and 4.3.4 V13 CEC Installation Guidelines 7.10 and 8.1	Unsafe
R-DCI 14	Is the DC isolator at the array(s) correctly wired?	AS/NZS 3000:2018 CI 4.1.2 AS/NZS 5033:2014 inc Amdt 2 CI 4.3.5.2 V13 CEC Installation Guidelines 7.10.1	Needs Rectification

Reference	Question	Relevant standards/reference	Applicable rating
R-DCI 15	Is the load breaking DC isolator located adjacent to the array(s) correctly rated for the required DC voltage and current?	AS/NZS 5033:2014 CI 4.3.1 V13 CEC Installation Guidelines section 8.2	Unsafe Needs Rectification
R-DCI 16	Does the DC enclosure(s) at the array have the required IP rating (minimum IP56NW if outdoors) and has been installed to maintain that rating?	AS/NZS3000:2018 CI 4.1.2 and 4.1.3 AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.3.1 V13 CEC Installation Guidelines 8.1 & 8.3	Improvements Identified (For Information)
R-DCI 17	Is there evidence of water ingress in roof top DC isolator/s?	AS/NZS3000:2018 CI 4.1.2 and 4.1.3 AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.3.1 V13 CEC Installation Guidelines 8.1 and 8.3	Needs Rectification
R-DCI 18	Are there signs of water damage observed?	AS/NZS3000:2018 CI 4.1.2 and 4.1.3 AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.1 V13 CEC Installation Guidelines 8.1 and 8.3	Unsafe
R-DCI 19	Number of DC isolators installed at the PV array/s.	N/A	No rating is applied
R-DCI 20	Isolator ID No. if labelled	N/A	No rating is applied
R-DCI 21	Isolator Manufacturer at the PV array/s.	N/A	No rating is applied
R-DCI 22	Isolator Model No. at the PV array/s	N/A	No rating is applied
R-DCI 23	Voltage rating per leg (V)	N/A	No rating is applied
R-DCI 24	Current rating per leg (I)	N/A	No rating is applied
R-DCI 25	Number of modules in series	N/A	No rating is applied
R-DCI 26	Number of modules in parallel	N/A	No rating is applied

## Array Components

Reference	Question	Relevant standards/reference	Applicable rating
Roof 1	Do the PV mounting structure and attachments comply with AS/NZS 1170.2?	AS/NZS 5033:2014 inc Amdt 2 Cl 2.2.5 AS/NZS 1170.2:2011 V13 CEC Installation Guidelines 7.5 and 7.6	Needs Rectification  Improvements Identified (For Information)
Roof 2	Are all array supports, brackets, screws and other metal parts either: (a) of similar material or stainless steel to minimise corrosion; or (b) where dissimilar metals that can have a galvanic reaction are used, they are galvanically isolated?	AS/NZS 5033:2014 inc Amdt 1 Cl 2.2.7 V13 CEC Installation Guidelines 7.2.1 & 8.3.3	Adequate  Improvements Identified (For Information)
Roof 3	Are the array structure's roof penetrations suitably sealed and waterproofed for the expected life of the system, or if this is not possible, then it is detailed in the system's maintenance timetable?	AS/NZS 5033:2014 inc Amdt 1 Cl 2.2.1 V13 CEC Installation Guidelines 7.2.3	Adequate  Improvements Identified (For Information)
Roof 4	Are the roof penetrations and/or the roof top components used in the wiring system, including secondary shields, isolator shrouds, collared flashings, multi-holed glands, conduits and conduit glands, suitably installed, sealed and waterproof?	AS/NZS 5033:2014 inc Amdt 1 Cl 4.4.4.2 V13 CEC Installation Guidelines 7.2.3	Adequate  Improvements Identified (For Information)
Roof 5	Does the PV array structure allow sufficient clearance to facilitate self-cleaning of the roof, to prevent any build-up of leaves and other debris?	V13 CEC Installation Guidelines 7.2.4	Adequate
Roof 6	Are all cables/wiring in the installation securely fixed in place to minimise any movement of the cable?	AS/NZS 3000:2018 Cl 1.5.14	Adequate  Improvements Identified (For Information)
Roof 7	Are any conduits installed protected from UV or UV rated?	AS/NZS 3000:2018 1.5.14 AS/NZS 5033:2014 inc Amdt 1 Cl 4.3.3.1 and 4.3.6.3.1 V13 CEC Installation Guidelines 7.8.12	Adequate
Roof 8	Is the array wiring and wiring to inverter rated for the appropriate voltage and current?	AS/NZS 5033:2014 inc Amdt 1 Cl 4.3.1 V13 CEC Installation Guidelines 7.8.8	Improvements Identified (For Information)

Reference	Question	Relevant standards/reference	Applicable rating
Roof 9	Are all joints in cables enclosed in junction boxes comply with the exceptions of AS/NZS3000 Clause 3.7.3?	AS/NZS 3000:2018 CI 3.7.3 <i>NOTE: this clause references the requirements of 3.7.2 where other clauses around flexible cable joins are to be found. 3.7.3 is the catch all.</i> AS/NZS 5033:2014 inc Amd 1 CI 4.3.6.3.1 and 4.3.6.3.2 V13 CEC Installation Guidelines 7.8	Improvements Identified (For Information)
Roof 10	Do any PV cable junction boxes have a minimum IP 55 rating (IP 55 if mounted on the array), and have been correctly installed to maintain that rating?	AS/NZS 3000:2018 CI 3.7.3 AS/NZS 5033:2014 inc Amdt 2 CI 4.3.3.1 V13 CEC Installation Guidelines 7.11 recommends IP55	Improvements Identified (For Information)
Roof 11	Is there evidence of water ingress to all PV Cable junction boxes?	AS/NZS 3000:2018 CI 3.7.3 AS/NZS 5033:2014 CI 4.3.3.1 V13 CEC Installation Guidelines 7.11 recommends IP66	Needs Rectification
Roof 12	Are there signs of water damage observed in PV cable junction boxes?	AS/NZS 3000:2018 CI 3.7.3 AS/NZS 5033:2014 inc Amdt 1 CI 4.3.3.1 V13 CEC Installation Guidelines 7.11 recommends IP66	Unsafe
Roof 13	Has the double insulation been maintained between the positive and negative conductors/terminations within all enclosures?	AS/NZS 3000:2018 CI 3.9 AS/NZS 5033:2014 inc Amdt 1 CI 4.4.4.1 V13 CEC Installation Guidelines 9.1.8	Improvements Identified (For Information)
Roof 14	Is there evidence of mechanical damage to LV cables?	AS/NZS 3000:2018 CI 3.9.4 AS/NZS 5033:2014 inc Amdt 1 CI 4.3.6.2 and 4.4.4.5 V13 CEC Installation Guidelines 7.8.5, 7.12.4 and 8.5.2	Unsafe Needs Rectification
Roof 15	Are all array cables: (a) temperature rated for the application, (b) UV resistant if exposed to the environment, and (c) are flexible (multi-stranded) to allow for thermal/wind movement of arrays/modules?	AS/NZS5033:2014 inc Amdt 1 CI 4.3.6.2	Improvements Identified (For Information)
Roof 16	Do all LV string cables comply with the requirements of: (a) PV1-F, (b) UL 4703, or (c) VDE-AR-E 2283-4?	AS/NZS5033:2014 inc Amdt 1 CI 4.3.6.2	Improvements Identified (For Information)

Reference	Question	Relevant standards/reference	Applicable rating
Roof 17	Do the PV array mounting frames and modules have an equipotential bond connected to the earthing terminal on the switchboard/distribution board to which the inverter is connected, either directly or via the inverter main earth conductor?	AS/NZS 3000:2018 CI 1.4.60 and 5.6.2.1 (e) AS/NZS 5033:2014 inc Amdt 1 CI 4.4.2.2 CEC Installation Guidelines 7.7	Unsafe Needs Rectification Improvements Identified (For Information)
Roof 18	All earthing cables for the frame earth connections are of adequate size to comply with Standards.	AS/NZS 3000:2018 CI 1.4.60 and 5.6.2.1 (e) AS/NZS 5033:2014 CI 4.4.2.2 note at bottom of clause lists 4mm for mechanical protection V13 CEC Installation Guidelines 7.7	Improvements Identified (For Information)
Roof 19	Do the PV array frame and module earthing connections and methods comply with Australian Standards? (AS/NZS3000:2018 and AS/NZS5033:2014)	AS/NZS 3000:2018 CI 1.4.60 and 5.6.2.1 (e) AS/NZS 5033:2014 CI 4.4.2.2 note at bottom of clause lists 4mm for mechanical protection V13 CEC Installation Guidelines 7.7	Improvements Identified (For Information)

# Wiring

Reference	Question	Relevant standards/reference	Applicable rating
Wiring 1	If entering the ceiling space ensure that it is safe to do so. If isolation of electricity is required, notify system owner or representative.	AS/NZS 3000:2018 CI 1.5	No rating is applied
Wiring 2	Is the array wiring and wiring to the inverter protected from mechanical damage? (this requires a visual inspection of all cables related to the system and therefore might require checking on the roof)	AS/NZS 3000:2018 CI 3.9.4 AS/NZS 5033:2014 inc Amdt 1 CI 4.3.6.3.1 V13 CEC Installation Guidelines 7.8.4 & 10.5.1	Improvements Identified (For Information)
Wiring 3	Are all DC cable(s) installed within the ceiling space, wall cavity or floor enclosed in heavy duty conduit or equivalent?	AS/NZS 3000:2018 CI 3.9.4 AS/NZS 5033:2014 CI 4.3.6.3.2 V13 CEC Installation Guidelines 9.1.3	Needs Rectification
Wiring 4	Is the PV array cabling distinctively marked 'PV' in permanent, legible and indelible English, or where the cable is not distinctively marked, distinctive coloured labels marked 'SOLAR' are attached at intervals not exceeding 2 metres?	AS/NZS 5033:2014 inc Amdt 1 5.3.1 V13 CEC Installation Guidelines 9.1.9	Adequate
Label 12	Are all PV cable junction boxes labelled 'WARNING: HAZARDOUS DC VOLTAGE'?	AS/NZS 5033:2014 5.3.2 V13 CEC Installation Guidelines Section 15	Adequate
Wiring 6	Are all cables/wiring in the installation securely fixed in place to minimise any movement of the cable?	AS/NZS 3000:2018 CI 3.3.2.8, 3.9.3.3 and 3.9.4 AS/NZS 5033:2014 inc Amdt 1 4.3.6.3.1 V13 CEC Installation Guidelines 7.8	Adequate
Wiring 7	Are LV array and inverter cables not installed near building surfaces?	AS/NZS 3000:2018 CI 3.3.2.8 & 3.9.3.3 & 3.9.4 & 3.9.4.4(a) and Appendix H, paragraph H5.4; AS/NZS 5033:2014 inc Amdt 2 4.3.6.3.1 V13 CEC Installation Guidelines 10.5.2 & 9 & 7.8	Adequate
Wiring 10	Is all electrical equipment for the system installed in accordance with AS/NZS3000?	AS/NZS 3000:2018 1.6 and 1.7	Unsafe Needs Rectification Improvements Identified (For Information)
Wiring 11	Does the installation minimise the spread of any fire which may occur within the system? (Any new circuit breaker holder, junction box or similar must not allow any fire to escape the enclosure onto any combustible material e.g. circuit breaker box)	AS/NZS 3000:2018 1.5.12 and 3.9.9	Improvements Identified (For Information)



Reference	Question	Relevant standards/reference	Applicable rating
Wiring 13	Estimated length and size (CSA i.e. 4mm <sup>2</sup> ) of DC cable	N/A	No rating is applied
Wiring 14	Estimated length and size (CSA i.e. 6mm <sup>2</sup> ) of AC cable from inverter to switchboard	V13 CEC Installation Guidelines 7.8.5 & 9.1.5 & 10.5.2	No rating is applied
Wiring 15	Estimated length and size (CSA i.e. 10mm <sup>2</sup> ) of AC cable from switchboard the inverter is connected to the Point of Supply	N/A	No rating is applied

# Switchboard

Reference	Question	Relevant standards/reference	Applicable rating
Label 2	<p>Is signage, consisting of circular, green reflector of at least 70mm in diameter, with the letters "PV", installed immediately on or adjacent to the meter box and switchboard, and is readily available to be seen by approaching emergency workers?</p> <p>(If there is a battery, a green ES label is also required as AS/NZS4777.1 Clause 6.5)</p>	<p>AS/NZS 5033:2014 Section 5 Cl 5.4.2</p> <p>V13 CEC Installation Guidelines Section 15</p>	Improvements Identified
Label 3	<p>Is there a Green Victorian label: "Warning - this premises contains an electricity generation system" with the location of isolation switches for all electricity generating systems installed or connected to the premises?</p>	<p>Electricity Safety (General) Regulations 2019, Regulation 211</p> <p>V13 CEC Installation Guidelines Section 15</p>	Adequate
Label 4	<p>Is the fire emergency label, including:</p> <ul style="list-style-type: none"> <li>• SOLAR ARRAY (specific location)</li> <li>• Circuit Current (specific current) A</li> <li>• Open Circuit Voltage (specific voltage) V</li> </ul> <p>permanently attached to the main switchboard and legible?</p> <p>(Should indicate VoC at coldest temperature)</p>	<p>AS/NZS 5033:2014 inc Amdt 2 Section 5 Cl 5.4.1</p> <p>V13 CEC Installation Guidelines Section 15</p>	Improvements Identified
Label 5	<p>If the solar system is connected to a distribution board, is the following label present: "Warning Multiple Supplies Isolate Inverter Supply at Distribution Switchboard at ..."?</p>	<p>AS/NZS 5033:2014 inc Amdt 2 Section 5 Cl 5.4.1</p> <p>AS/NZS 477.1:2016 Cl 6.3</p> <p>V13 CEC Installation Guidelines Section 15</p>	Improvements Identified
Label 6	<p>Is the grid supply main switch labelled "Main Switch Grid Supply"?</p>	<p>AS/NZS 4777.1:2016 Cl 6.2</p> <p>V13 CEC Installation Guidelines Section 13</p>	Improvements Identified
Label 7	<p>Does the switchboard contain the label "Multiple Supplies Isolate all Supplies before Working on this Switchboard"?</p>	<p>AS/NZS 4777.1:2016 Cl 6.2</p> <p>V13 CEC Installation Guidelines Section 15</p>	Improvements Identified
Label 8	<p>Is there an AC circuit breaker in or adjacent to the switchboard for the system labelled "Main Switch Inverter Supply"?</p>	<p>AS/NZS 4777.1:2016 Cl 6.2</p> <p>V13 CEC Installation Guidelines Section 15</p>	Improvements Identified
Label 9	<p>What is the size?</p>		No rating is applied
Switchboard 10	<p>Is the AC circuit breaker rated to at least the output current of the inverter?</p>	<p>AS/NZS 3000:2018 Cl 3.1.2 (b)</p> <p>AS/NZS 4777.1:2016 Section 3 Cl 3.4.1</p> <p>V13 CEC Installation Guidelines 10.5.1</p>	Improvements Identified





Reference	Question	Relevant standards/reference	Applicable rating
Switchboard 11	Is the AC circuit breaker suitably sized to protect the cable supplying the inverter?	AS/NZS 4777.1 CI 3.4.2 AS/NZS 3000:2018 CI 2.5 V13 CEC Installation Guidelines 10.5.1	Improvements Identified
Label 10	Where the inverter is not within 3m and in direct line of sight of the main switchboard, is the inverter location information provided?	AS/NZS 4777.1 CI 6.2, 6.4 V13 CEC Installation Guidelines Section 15	Adequate

Solar Victoria periodically reviews this checklist (version 2.4c). If you would like us to consider your feedback on an audit item, please email us: [quality.assurance@team.solar.vic.gov.au](mailto:quality.assurance@team.solar.vic.gov.au)

## Useful links

For more information about the audit process:

[www.solar.vic.gov.au/audits-workplace-safety](http://www.solar.vic.gov.au/audits-workplace-safety)

Australian Competition and Consumer Commission:

[www.accc.gov.au](http://www.accc.gov.au)

Australian and New Zealand Standards:

[www.standards.org.au](http://www.standards.org.au)

Clean Energy Council:

[www.cleanenergycouncil.org.au](http://www.cleanenergycouncil.org.au)

Electrical Regulator Authorities Council:

[www.erac.gov.au](http://www.erac.gov.au)

Electrical Equipment Safety System:

[www.eess.gov.au](http://www.eess.gov.au)

Energy Safe Victoria:

[www.esv.vic.gov.au](http://www.esv.vic.gov.au)

Product recall list:

[www.productsafety.gov.au/recalls](http://www.productsafety.gov.au/recalls)

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