|  |
| --- |
| Solar panel (PV) audit checklist Version 3.3 |
|  Auditors for the Solar Homes Program use this checklist when they conduct audit inspections of solar panel (PV) installations. |

## This checklist:

Is specific to the Solar Victoria solar panel (PV) rebate stream.

Comprises the questions for the audit of rebated solar panel (PV) installations nominally performed within six months of the solar PV installation date – focusing on safety and standards.

Is NOT and should not be regarded as an audit checklist for solar panel (PV) installations more broadly.

Is NOT a checklist for installing a solar panel (PV) system.

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

Auditors will assess the following components of an installed solar PV system:

[Power Conversion Equipment 2](#_Toc103096810)

[Ground DC Isolation 5](#_Toc103096811)

[PV Array 9](#_Toc103096812)

[Performance 13](#_Toc103096813)

[Roof DC Isolation 14](#_Toc103096814)

[Disconnection Point 18](#_Toc103096815)

[Array Components 20](#_Toc103096816)

[Wiring 22](#_Toc103096817)

[Switchboard 25](#_Toc103096818)

[Documentation 28](#_Toc103096819)

## What do these ratings mean?

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

|  |  |
| --- | --- |
| **Unsafe** | 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 until rendered safe. |
| **Needs Rectification** | 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. The system requires priority rectification by the retailer and installer. |
| **Improvements Identified (For Information)** | This means the system does not pose a safety risk but was found to not comply with all standards and guidelines.  |
| **Adequate** | This means no evidence of material non-compliance with standards or guidelines was identified and that the system was installed satisfactorily. |

They will also document other details for information purposes only.

\* Grey fill and **bolded** checklist items indicate new questions.

\* Grey fill checklist items indicate changes to ratings or wording.

# Power Conversion Equipment

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| PCE 1 | **\*\* IMPORTANT\*\*** Is the solar PV system fully operational at beginning of inspection (i.e., capable of producing electricity), if not is this due to installation defects? | AS/NZS 3000:2018 Clause 1.7 | Needs Rectification |
| PCE 39 | **\*\* IMPORTANT \*\*** Is the solar PV system fully operational at beginning of inspection, (i.e., capable of producing electricity), if not, is this due to external factors and not installation defects? | AS/NZS 3000:2018 Clause 1.7 | No rating is applied |
| PCE 2 | Has the inverter been installed in a location that has a safe distance from other services such as gas bottles etc? | AS/NZS 3000:2018 Clause 1.7.2 | Needs Rectification |
| PCE 33 | Has the inverter been installed in a location that has safe access and adequate working space? | AS/NZS 3000:2018 Clause 1.7.2AS/NZS 4777.1:2016 Clause 5.3.1 | Improvements Identified (For Information) |
| Label 11 | Has a shutdown procedure that clearly sets out the steps to safely shutdown the system, been place adjacent to and visible from the equipment to be operated in the event of a shutdown? Where the inverter is adjacent to the switchboard it is directly connected to, the shutdown procedure may be placed within that switchboard.Where PV array disconnectors have been used an additional black on yellow sign stating "WARNING: PV ARRAY d.c. ISOLATORS DO NOT DE-ENERGIZE THE PV ARRAY AND PV CABLES" must be placed with the shutdown procedure. | AS/NZS 4777.1:2016 Clause 6.7, Appendix AAS/NZS 5033:2021 Clause 5.7  | 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 | Number of inverters, inverter(s) make and model | N/A | No rating is applied |
| PCE 7 | Are the inverter(s) listed on Solar Victoria's list of products at the time of the system’s installation? | [Solar Victoria [Notice to Market](https://www.solar.vic.gov.au/notice-to-market)](https://www.solar.vic.gov.au/notice-to-market)[solar.vic.gov.au/product-lists](https://www.solar.vic.gov.au/product-lists) | Needs Rectification |
| PCE 8 | System type – string/optimisers/microinverters | N/A | No rating is applied |
| PCE 36 | At the PCE has either an adjacent and physically separate load break disconnection device OR a load break disconnection device that is part of and within the PCE and conforming to AS/NZS 4777.2 been provided, where applicable? | AS/NZS 5033:2021 Clause 4.5.3.1 | 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 (KW) | 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 17 | VDC max | N/A | No rating is applied |
| PCE 18 | IDC Max | N/A | No rating is applied |
| PCE 19 | Number of MPPTs | N/A | No rating is applied |
| PCE 21 | If the inverter is located further than 3 metres from the switchboard, has an AC isolator been provided at the inverter, that is suitably rated and securable in the open position? | AS/NZS 4777.1:2016 Clause 3.4.3 | Needs Rectification |
| PCE 22 | Is the inverter installed in an appropriate location and in accordance to manufacturers’ instructions such that it does not pose an imminent safety risk but may be at risk of becoming unsafe in the future? (e.g. IP rating, restricted locations)? | AS/NZS 3000:2018 Clauses 1.7.1, 2.10.2.5AS/NZS 4777.1:2016 Clause 5.3.1 | Needs Rectification |
| PCE 34 | Is the inverter installed in an appropriate location and in accordance to manufacturers’ instructions and whilst not posing a safety risk, was found to not comply with all standards (e.g. direct sunlight, clearance requirements). | AS/NZS 3000:2018 Clauses 1.7.1, 2.10.2.5AS/NZS 4777.1:2016 Clause 5.3.1 | Improvements Identified (For Information) |
| PCE 24 | Does the AC cable supplying the inverter have suitable strain relief? | AS/NZS 3000:2018 Clause 3.3.2.8 AS/NZS 4777.1:2016 Clauses 3.2.1 and 3.2.3 AS/NZS 5033:2021 Clause 4.4.7.1 (c) | Improvements Identified (For Information) |
| PCE 25 | Is there evidence of loose connections in the AC cables and connections with signs of heat? | AS/NZS 3000:2018 Clause 3.7.2.3 | Unsafe |
| PCE 35 | Is there evidence of loose connections in the AC cables and connections with no signs of heat? | AS/NZS 3000:2018 Clause 3.7.2.3 | Needs Rectification |
| PCE 26 | Are the AC 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 Clause 4.2 V13 CEC Installation Guidelines 10.1.5 and 10.1.6 | Needs Rectification |
| PCE 37 | If installed have all PCE DC plugs, sockets and connectors been installed to the following requirements?* + Installed to minimise strain on the connectors.
	+ Installed to maintain the IP rating.
	+ Installed on PV DC cables conforming to the plug, socket and connector manufacturer's requirements.
	+ Only mated with those from the same manufacturer and designed to be mated together.
	+ Terminated using a tool (where required) designed for the purpose and technique specified by the plug, socket or connector manufacturer's instructions.
 | AS/NZS 5033:2021 Clause 4.3.9.1 | Needs Rectification |
| PCE 31 | Is the inverter securely and safely installed in line with the manufacturers’ instructions? | AS/NZS 3000 Clause 1.7.1 | Needs Rectification |
| PCE 38 | Is the PCE PV input current rated to at least the PV array Isc (x1.25) of the circuit that is connected? | AS/NZS 5033:2021 Clause 4.5.1.1 and 4.2.2 | Improvements Identified (For Information) |

# Ground DC Isolation

| **Checklist item** | **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 [productrecalls.gov.au](https://www.productsafety.gov.au/recalls) | 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 | Is there evidence of loose connections in the DC cables and connections with signs of heat (sight, smell etc.)? | AS/NZS 3000:2018 Clause 3.7.2.3AS/NZS 5033:2021 Clause 3.4 | Unsafe |
| G-DCI 27 | Is there evidence of loose connections in the DC cables and connections with no signs of heat (sight, smell etc.)? | AS/NZS 3000:2018 Clause 3.7.2.3AS/NZS 5033:2021 Clause 3.4 | Needs Rectification |
| G-DCI 5 | Is the DC isolator (or DC C/B) able to be secured in the open position? | AS/NZS 5033:2021 clause 4.3.4.2.2 (e) | Improvements Identified (For Information) |
| G-DCI 6b | Do all PCE adjacent and physically separate load break disconnection devices conform to the following requirements?* + Are readily available.
	+ Are adjacent to the PCE.
	+ Are contained in metal enclosures of at least 0.2mm thickness OR are mounted on a non-combustible surface that extends at least 200mm beyond the sides of the disconnector OR are mounted on non-combustible shrouds that are made of metal surface at least 0.2mm thickness.
	+ Have any penetrations through a surface that protects against the spread of fire, with internal diameter greater than 5mm, sealed with a fire retardant material.
 | AS/NZS 5033:2021 Clause 4.5.4.1 | Needs Rectification |
| G-DCI 7 | Have all load break disconnection devices been labelled with the following text? "PV ARRAY d.c. ISOLATOR" | AS/NZS 5033:2021 Clause 5.5.1 and 5.5.2.1 | Improvements Identified (For Information) |
| G-DCI 8 | Do all DC enclosure(s) at the inverter have the required IP rating (minimum IP55 if outdoors, minimum IP2X if indoors)? | AS/NZS 5033:2021 Clause 4.4.6 | Improvements Identified (For Information) |
| G-DCI 30 | Are all dedicated individual enclosures containing switch disconnection devices protected against the effects of weather and water as per appendix K of AS/NZS 5033:2021? | AS/NZS 5033:2021 clause 4.4.7.3 | Needs Rectification |
| G-DCI 31 | Have all enclosures containing d.c. conductor terminations been installed in line with the following conditions?* + Enclosure has been mounted onto its mounting bracket or wall using the screw locations and screw types specified by the manufacturer.
	+ Enclosures do not have debris or dust from installation process left inside once mounted.
	+ All return conductors routed through an enclosure containing terminations maintain double insulation.
 | AS/NZS 5033:2021 clause 4.4.7.1 | Needs Rectification |
| G-DCI 32 | Do all entry/exits into enclosures containing d.c. conductor terminations conform to the following requirements?* + Conduit entry/exits and fittings are installed in accordance with manufacturer's instructions, including water ingress requirements such as being glued.
	+ Only manufacturer provided entry/exit points have been used.
	+ Cable glands, conduits and fitting do not enter/exit the top face of the enclosure (excluding entry/exit points between disconnection device/s, and PCE/s mounted indoors).
	+ Silicone or sealant products are not used for sealing entry/exit points unless specified by the disconnector manufacturer's instructions.
 | AS/NZS 5033:2021 Clause 4.4.7.2.1 | Needs Rectification |
| G-DCI 33 | Do all cable glands connected to dc enclosures containing d.c. conductor termination and used in an outdoor environment conform to the following installation requirements?* + Are used to enter/exit enclosures containing conductor terminations.
	+ Are installed so each cable enters/exits through an individual hole.
	+ Are rated to at least IP 56.
	+ Have a hole diameter to maintain IP rating for the cables used.
	+ Have any spare holes sealed with gland manufacturer's approved sealing plug.
 | AS/NZS 5033:2021 Clause 4.4.7.2.2 | Needs Rectification |
| G-DCI 34 | Where cable glands enter/exit the side face of an enclosure containing d.c. conductor terminations and installed in an outdoor environment, has an appropriate drip loop been installed, and are all glands located within a protected zone of 30 degree as outlined in figure 4.8 and 4.9 of AS/NZS 5033:2021? | AS/NZS 5033:2021 Clause 4.4.7.2.2 | Needs Rectification |
| G-DCI 36 | For all continuous conduit systems that have a section installed in an outdoor environment, and that terminate into an enclosure containing a disconnection device, have all conduit ends been sealed with a gland conforming to AS/NZS 5033:2021 Cl 4.4.7.2.2? | AS/NZS 5033:2021 Clause 4.4.7.2.3 | Needs Rectification |
| G-DCI 35 | For all continuous conduit systems that have a section installed in an outdoor environment, and that terminate into an enclosure containing a disconnection device, has a liquid draining device been installed at the lowest point of the conduit system that is rated to at least IP56? | AS/NZS 5033:2021 Clause 4.4.7.2.3 | Needs Rectification |
| G-DCI 29 | Is there evidence of water found in ground DC enclosures containing conductor terminations? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Needs Rectification |
| G-DCI 10 | Are there signs of water damage observed at ground DC enclosures containing conductor terminations? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Unsafe |
| G-DCI 11 | Are the DC isolator(s) at the inverter readily available and do they facilitate safe operation, inspection, testing and maintenance? | AS/NZS 3000:2018 Cl 1.4.19, 1.6.1(d) and 2.3.2.2.1AS/NZS 5033:2021 Clause 4.3.5.3.1 (b) | Needs Rectification |
| G-DCI 12 | Do all Ground dc isolators conform to the following requirements?* + Are rated for D.C. use.
	+ Conform with switch disconnector. requirements of AS 60947.3 with utilization category d.c.-PV2.
	+ Interrupt all live conductors simultaneously.
	+ Are capable of being secured in the open position.
	+ Have an independent manual operation.
	+ Are not polarity sensitive.
 | AS/NZS 5033:2021 Clause 4.3.4.2.2 | Needs Rectification |
| G-DCI 14 | Is the DC isolator(s) at the inverter correctly wired? | AS/NZS 5033:2021 Clause 4.4.3.3AS/NZS 3000:2018 Clause 4.1.2 | 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 5033:2021 Clause 4.3.4.2.3 | Unsafe |
| 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 5033:2021 Clause 4.5.4.2 | Improvements Identified(Information Only) |
| G-DCI 17 | If multiple DC isolators are installed at the inverter, is there a sign stating "WARNING: MULTIPLE d.c SOURCES - TURN OFF ALL d.c. ISOLATORS TO ISOLATE EQUIPMENT." | AS/NZS 5033:5.5.2.1 | Needs Rectification |
| G-DCI 18 | Number of DC isolators installed at the inverter. | 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 |

# PV Array

| **Checklist item** | **Question** | **Relevant standards/ reference** | **Applicable rating** |
| --- | --- | --- | --- |
| 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 Solar Victoria's list of products at the time of the system's installation? | [Solar Victoria [Notice to Market](https://www.solar.vic.gov.au/notice-to-market)](https://www.solar.vic.gov.au/notice-to-market)[solar.vic.gov.au/product-lists](https://www.solar.vic.gov.au/product-lists) | 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 modules in the same series connected string installed in the same orientation +/- 5 degrees? | AS/NZS 5033:2014 Clause 2.1.6 | Improvements identified |
| 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 1.12 | N/A | No rating is applied |
| PVA 16 | Total array output current = ISC x 1.25 x K1 | 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 36 | Do all plug, socket and connectors conform to the following requirements?* + Conform to AS/NZS 62852.
	+ Are protected from contact with live part in connected and disconnected states.
	+ Are rated for the required DC voltage and current.
	+ Are capable of accepting the cable used for the circuit to which they are fitted.
	+ Require a deliberate force to separate.
	+ Have a temperature rating suitable for their installation location.
	+ Are polarized, where multi-polar.
	+ Are class II for systems above 35Vdc.
	+ Are rated for outdoor use, are UV-resistant type and of an IP rating suitable for the location where exposed to the environment.
 | AS/NZS 5033:2021 Clause 4.3.8 | Needs Rectification |
| PVA 19 | Have all array plugs, sockets and connectors been installed to the following requirements?* + Installed to minimize strain on the connectors.
	+ Installed to maintain the IP rating.
	+ Installed on PV DC cables conforming to the plug, socket and connector manufacturer's requirements.
	+ Only mated with those from the same manufacturer and designed to be mated together.

Terminated using a tool (where required) designed for the purpose and technique specified by the plug, socket or connector manufacturer's instructions. | AS/NZS 5033:2021 Clause 4.3.9.1 | 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 5033:2021 Clause 3.3.4.1 | Needs Rectification |
| PVA 22 | If fuses have been used as overcurrent protection, do they conform to the following requirements?* + Are DC rated.
	+ Are rated to interrupt full load current and prospective fault currents from the PV array and any other connected power sources such as batteries, generators and the grid if present.

Are of an overcurrent and short circuit current protective type suitable for PV. | AS/NZS 5033:2021 Clause 4.3.6.3 | Needs Rectification |
| PVA 37 | Do all fuse holders conform to the below requirements?* + Have a current rating equal to or greater than the corresponding fuse.
	+ Provide a degree of protection suitable for the location and to at least IPXXb or IP2x, even when the fuse link or carrier is removed.
	+ Conform to the requirements of clause 4.3.9 when incorporated into a plug, socket or connector?
	+ Have specified wattage rating higher than the fuses power dissipation.
	+ Are labelled with a warning to not withdraw fuse under load?
 | AS/NZS 5033:2021 Clause 4.3.6.4 and 5.8 | Needs Rectification |
| PVA 38 | If circuit breaker has been used as overcurrent protection do they conform to the following requirements?* + Are in accordance with AS/NZS 60898. or AS/NZS IES 60947.2
	+ Are not polarity sensitive.
	+ Are rated for DC use.
	+ Are rated to interrupt full load current and prospective fault currents from the PV array and any other connected power sources such as batteries, generators and the grid if present?
	+ Have a degree of protection of at least IPXXB or IP 2X.
 | AS/NZS 5033:2021 Clause 4.3.6.2 | Needs Rectification |
| PVA 23 | Does the designed array fit on the available roof area and meet all exclusion zones? (e.g. solar panels are not positioned over roof edges or gutters) | AS/NZS 5033:2021 Clause 4.3.2.2.5AS/NZS 1170.2:2021 Appendix B6 | Needs Rectification |
| PVA 24  | If PV array maximum voltages exceed 600Vdc, does the entire PV array and associated wiring and protection have restricted access? | AS/NZS 4777.1 clause 2.3 | Needs Rectification |
| PVA 25  | Have paralleled PV strings been connected with matched open circuit voltages within 5% per string? | AS/NZS 5033:2014 Clause 2.1.6 | Needs Rectification |
| PVA 39 | If IBF total of all external sources connected to the pce (eg grid, battery etc) is greater than the back feed short circuit current stated for the PCE, then has appropriate overcurrent protection been installed as closed as practice to the external source? | AS/NZS 5033:2021 Clause 3.3.2 and 4.3.7.1 and 4.3.7.3 | Needs Rectification |
| PVA 40 | Have more than 2 strings been paralleled together | AS/NZS 5033:2021 Clause 3.3.2 and 4.3.7.1 and 4.3.7.3 | No rating is applied |
| PVA 41 | If more than 2 strings have been paralleled at the array has an additional load break disconnector been installed? | AS/NZS 5033:2021 Clause 4.3.5.3.2 | Needs Rectification |
| PVA 42 | Where there are more than two paralleled strings without string fusing installed on all strings, and load break disconnection device/s have been installed at the connection point, where the strings are paralleled does, the load break disconnector disconnect so that no more than two strings are paralleled when in the “Off” position? | AS/NZS 5033:2021 Clause 4.3.5.3.3 | N/A -Improvements Identified(For Information Only) |

# Performance

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist item** | **Question** | **Relevant standards/ reference** | **Applicable rating** |
| Performance 1 | If the solar array is installed on a domestic dwelling and connected to a grid inverter, Is the array’s maximum voltage VoC array max (at minimum temperature) less than 600vDC? | AS/NZS 4777.1 Clause 2.3 | Improvements Identified (For Information) |
| Performance 2 | Is the PCE PV input voltage rated to at least the PV array max voltage (at minimum temperature) of the circuit that is connected? | AS/NZS 5033:2021 Clause 4.5.1.1 | Needs Rectification |
| 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 estimated AC wiring losses between 2% and 5% between the inverter terminals and the point of supply?Please see attached estimated calculation. | AS/NZS 4777.1:2016 Cl 3.3.3 | Improvements Identified (For Information) |
| Performance 7 | Are the estimated AC wiring losses more than 5% between the inverter terminals and the point of supply?Please see attached estimated calculation. | AS/NZS 3000:2018 Clause 3.6.2AS/NZS 4777.1:2016 Cl 3.3.3 | Needs Rectification |

# Roof DC Isolation

| **Checklist item** | **Question** | **Relevant standards/ reference** | **Applicable rating** |
| --- | --- | --- | --- |
| R-DCI 2 | Is there evidence of any pre-existing roof damage? (Please note: Any damage identified may not be attributable to installer) | N/A | No rating is applied |
| R-DCI 3 | Is there evidence of loose connections in the DC cables and connection with signs of heat?  | AS/NZS 3000:2018 Clause 3.7.2.3AS/NZS 5033:2021 Clause 3.4 | Unsafe |
| R-DCI 27 | Is there evidence of loose connections in the DC cables and connections with no signs of heat? | AS/NZS 3000:2018 Clause 3.7.2.3AS/NZS 5033:2021 Clause 3.4 | Needs Rectification |
| R-DCI 5 | Are the DC isolator(s) at the array readily available and do they facilitate safe operation, inspection, testing and maintenance? | AS/NZS 3000:2018 Cl 1.4.19, 1.6.1(d) and 2.3.2.2.1AS/NZS 5033:2021 Clause 4.3.5.3.1 (b)  | Needs Rectification |
| R-DCI 6 | If an array load break isolator has been installed, is it located adjacent to the array it controls? | AS/NZS 5033:2021 Clause 4.3.3.1 | Improvements Identified(For Information Only) |
| 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 productrecalls.gov.au | 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 12 | Do all array dc isolators conform to the following requirements?* + Are rated for D.C. use.
	+ Conform with switch disconnector requirements of AS 60947.3 with utilization category d.c.-PV2
	+ Interrupt all live conductors simultaneously.
	+ Are capable of being secured in the open position
	+ Have an independent manual operation
	+ Are not polarity sensitive.
 | AS/NZS 5033:2021 Clause 4.3.4.2.2 | Needs Rectification |
| R-DCI 14 | Is the DC isolator at the array(s) correctly wired? | AS/NZS 5033:2021 Clause 4.4.3.3AS/NZS 3000:2018 Clause 4.1.2 | Needs Rectification |
| 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 5033:2021 Clause 4.3.4.2.3 | Unsafe |
| R-DCI 28 | Do all array load break disconnection devices conform to the following requirements?* + Are readily available.
	+ Are installed external to the building
	+ Are contained in metal enclosures of at least 0.2mm thickness OR are mounted on a non-combustible surface that extends at least 200mm beyond the sides of the disconnector OR are mounted on non-combustible shrouds that are made of metal surface at least 0.2mm thickness.
	+ Have any penetrations through a surface that protects against the spread of fire, with internal diameter greater than 5mm, sealed with a fire-retardant material.
 | AS/NZS 5033:2021 Clause 4.3.5.3.1 | Needs Rectification |
| R-DCI 16 | Does the DC enclosure(s) at the array have the required IP rating (minimum IP55 if installed outside) | AS/NZS 5033:2021 Clause 4.4.6.1 | Improvements Identified (For Information) |
| R-DCI 29 | Are all dedicated individual enclosures containing switch disconnection devices protected against the effects of weather and water as per appendix K of AS/NZS 5033:2021? | AS/NZS 5033:2021 clause 4.4.7.3 | Needs Rectification |
| R-DCI 30 | Have all array enclosures containing d.c. conductor terminations been installed in line with the following conditions?* + Enclosure has been mounted onto its mounting bracket or wall using the screw locations and screw types specified by the manufacturer.
	+ Enclosures do not have debris or dust from installation process left inside once mounted.
	+ All return conductors routed through an enclosure containing terminations maintain double insulation.
 | AS/NZS 5033:2021 clause 4.4.7.1 | Needs Rectification |
| R-DCI 31 | Do all array entry/exits into enclosures containing d.c. conductor terminations conform to the following requirements?* + Conduit entry/exits and fittings are installed in accordance with manufacturer's instructions, including water ingress requirements such as being glued.
	+ Only manufacturer provided entry/exit points have been used.
	+ Cable glands, conduits and fitting do not enter/exit the top face of the enclosure (excluding entry/exit points between disconnection device/s, and PCE/s mounted indoors).
	+ Silicone or sealant products are not used for sealing entry/exit points unless specified by the disconnector manufacturer's instructions.
 | AS/NZS 5033:2021 Clause 4.4.7.2.1 | Needs Rectification |
| R-DCI 32 | Do all array cable glands connected to dc enclosures containing d.c. conductor terminations and used in an outdoor environment conform to the following installation requirements?* + Are used to enter/exit enclosures containing conductor terminations.
	+ Are installed so each cable enters/exits through an individual hole.
	+ Are rated to at least IP 56.
	+ Have a hole diameter to maintain IP rating for the cables used.
	+ Have any spare holes sealed with gland manufacturer's approved sealing plug.
 | AS/NZS 5033:2021 Clause 4.4.7.2.2 | Needs Rectification |
| R-DCI 33 | Where array cable glands enter/exit the side face of an enclosure containing d.c. conductor termination and installed in an outdoor environment, has an appropriate drip loop been installed, and are all glands located within a protected zone of 30 degree as outlined in figure 4.8 and 4.9 of AS/NZS 5033:2021? | AS/NZS 5033:2021 Clause 4.4.7.2.2 | Needs Rectification  |
| R-DCI 34 | For all continuous conduit systems that have a section installed in an outdoor environment, and that terminate into an enclosure containing a disconnection device, has a liquid draining device been installed at the lowest point of the conduit system that is rated to at least IP56? | AS/NZS 5033:2021 Clause 4.4.7.2.3 | Needs Rectification |
| R-DCI 35 | Is there evidence of water found in array DC enclosures containing conductor terminations? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Needs Rectification |
| R-DCI 18 | Are there signs of water damage observed at array DC enclosures containing conductor terminations? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Unsafe |
| R-DCI 36 | Does the installed system contain a String Inverter (DC Components) or a Micro-Inverter System (AC Components) |  | Improvements Identified(For Information Only) |
| R-DCI 37 | Has a load break disconnection device been installed adjacent to the PV modules of the PV array? |  | Improvements Identified(For Information Only) |
| R-DCI 19 | Number of DC isolators installed at the PV array/s. | 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 |

# Disconnection Point

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| DP 1 | For systems above 120 VDC, If a load break disconnection device has not been installed adjacent to the array then has a disconnection point been provided to isolate each string at the PV modules? | AS/NZS 5033:2021 Clause 4.3.3.1 | Needs Rectification |
| DP 2 | If installed, do all disconnection points conform to the following requirements?* + Are adjacent to the PV modules of the PV array.
	+ Are readily available.
	+ Are protected against weather and water, and no more than 150mm from the edge of the PV modules that they are installed under.
	+ Are adequately supported. But able to be disconnected
	+ Have both positive and negative disconnection device located together.
 | AS/NZS 5033:2021 Clause 4.3.5.2.1 | Improvements Identified(For Information Only) |
| DP 4 | Is all PV d.c. wiring located in a ceiling space between a disconnection point and a load break disconnection device, not installed within 0.6m above the ceiling surface if further than 1.5m from the internal surface of an external wall? | AS/NZS 5033:2021 clause 4.4.5.2.3 (a) and figure 4.6 | Needs Rectification |
| DP 9 | Is any PV d.c wiring located in a ceiling space between a disconnection point and a load break disconnection device, installed within 0.6m above the surface and between 1 to 1.5m from the internal surface of an external wall, and not attached to the roof structure? | AS/NZS 5033:2021 clause 4.4.5.2.3 (b) and figure 4.6 | Needs Rectification |
| DP 5 | If PV d.c. wiring is located in a ceiling space between a disconnection point and a load break disconnection device using the vertical drop method laid out in figure 4.5 of AS/NZS 5033:2021, is the conduit vertical drop located within 200mm of the vertical edge of the load break disconnector? | AS/NZS 5033:2021 clause 4.5.5.2.3 (c) and figure 4.5 | Needs Rectification |
| DP 6 | If PV d.c. wiring systems have been installed between the disconnection point and a load break disconnection device and located in an accessible ceiling space or within and accessible floor, Has a warning label stating the below been installed adjacent to the access hatch?WARNING: HAZARDOUS d.c. VOLTAGESolar d.c. cables in conduit have been installed in this ceiling space. The conduit is labelled "SOLAR" and care must be taken while working nearby. The internal solar d.c. cables may be live and must not be disturbed or damaged. | AS/NZS 5033:2021 clause 5.3.1.2 | Improvements Identified(For Information Only) |
| DP 7 | Do all PV string disconnection points have a sign with the following information, printed on both the positive and negative cables, within 100mm of the disconnection point?"WARNING: LOADS MUST BE ISOLATED AND CIRCUIT MUST BE TESTED FOR THE ABSENCE OF CURRENT BEFORE UNPLUGGING" | AS/NZS 5033:2021 clause 5.5.2.2 | Improvements Identified(For Information Only) |
| DP 8 | Has a sign with the below text, been attached to the PV module or structure within 300mm of the disconnection point to identify the location of the disconnection point?“WARNING: PV STRING DISCONNECTION POINT” | AS/NZS 5033:2021 clause 5.5.2.2 | Needs Rectification |

# Array Components

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| Roof 1 | Is the PV array mechanically installed to comply with manufacturers’ installation instructions (e.g., foot spacing, fixing type, end clamps, etc) and is in compliance with manufacturers engineering certification and AS/NZS 1170.2 and may present a hazard to person or property? | AS/NZS 5033:2021 Clause 4.3.2.2.5AS/NZS 1170.2:2021 | Needs Rectification |
| Roof 20 | Is the PV array securely installed to manufacturers’ installation instructions, (e.g., fixing type, clamping zones, mid clamps, etc), and in compliance with manufacturers engineering certification and AS/NZS 1170.2 and does not present a hazard to person or property? | AS/NZS 5033:2021 Clause 4.3.2.2.6 | Improvements Identified (For Information) |
| Roof 2 | Are PV Module mounting frames, and the methods used for attaching PV Modules to frames and frames to buildings made from corrosion resistant materials? | AS/NZS 5033:2021 Clause 4.3.2.2.8 | 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 5033:2021 clause 4.3.2.2.1 and 4.4.5.1 | Needs Rectification |
| Roof 6 | Do all PV DC Array cables conform to the following requirements?* + Insulated and sheathed UV resistant cables have been used.
	+ Cables have been protected from mechanical damage.
	+ Cables have been clamped to prevent undue strain on connections/terminations.
	+ Cables do not lie on roofs.
	+ Cables do not obstruct the natural flow of water or promote accumulation of debris.
	+ Plastic cable ties shall not be used as the primary method of support.
	+ Cables shall be protected against abrasion, tension, compression and cutting forces that may arise from thermal cycles, wind and other forces.
	+ Cables have been supported so they do not suffer fatigue due to wind/snow effects.
 | AS/NZS 5033:2021 Clause 4.3.2.3.1 | Improvements Identified (For Information) |
| Roof 7 | Are all conduits exposed to sunlight adequately installed and protected from UV or UV rated? | AS/NZS 5033:2021 Clause 4.4.4.1 | Improvements Identified (For Information) |
| Roof 8 | Is the DC array wiring and wiring to inverter rated for the appropriate voltage and current? | AS/NZS 5033:2021 Clause 4.4.2.1 | Needs Rectification |
| 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 Clause 3.7.3 and 3.7.2.8 | Improvements Identified (For Information) |
| Roof 21  | Is all PV d.c. wiring located in a ceiling space between nonadjacent groups of pv modules, not installed within 0.6m above the ceiling surface if further than 1.5m from the internal surface of an external wall? | AS/NZS 5033:2021 Clause 4.4.5.2.4 (a) | Needs Rectification |
| Roof 22 | Is all PV d.c. wiring located in a ceiling space between nonadjacent groups of pv modules, attached to the roof structure if installed between 1 and 1.5m of an external wall and less than 0.6m above the surface of the ceiling? | AS/NZS 5033:2021 Clause 4.4.5.2.4 (b) | Needs Rectification |
| Roof 15 | Do all PV Array D.C cables conform to the following requirements?* + Conforms to IEC 62930 where not installed underground.
	+ Suitable for d.c. applications.
	+ Has a temperature rating appropriate for the application.
	+ If exposed to the environment, is IV-resistant, or is protected from UV light by appropriate protection.
	+ Cables directly terminated to plugs, socket and connectors are class 5 (flexible) in accordance with IEC 60228
 | AS/NZS 5033:2021 Clause 4.4.2.1 | Needs Rectification |
| Roof 17 | Where the calculated PV d.c circuit maximum voltage is greater than 35V have the following exposed conductive parts earthed with an impedance of less than 0.5 ohms?* + All conductive PV module frames.
	+ Array mounting frames that are directly in contact with the PV d.c. cables.
	+ Conductive cable support systems or conductive wiring enclosures that are directly in contact with PV d.c. cables.

If above 0.5 ohm impedance is recorded has a voltage greater than 5Vac been measured between main earth and the conductive material using a low impendence meter? | AS/NZS 5033:2021 Clause 4.6.2 and 4.6.5AS/NZS 3000:2018 Clauses 5.6.2.1(e) and 7.3.6 | Unsafe |
| Roof 17.1 | Where the calculated PV d.c circuit maximum voltage is greater than 35V have the following exposed conductive parts earthed with an impedance of less than 0.5 ohms?* + All conductive PV module frames.
	+ Array mounting frames that are directly in contact with the PV d.c. cables.
	+ Conductive cable support systems or conductive wiring enclosures that are directly in contact with PV d.c. cables.
 | AS/NZS 5033:2021 Clause 4.6.2 and 4.6.5AS/NZS 3000:2018 Clauses 5.6.2.1(e) and 7.3.6 | Needs Rectification |
| Roof 18 | All earthing cables for the frame earth connections are of adequate size to comply with Standards. | AS/NZS 5033:2021 Clause 4.6.5 | 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 5033:2021 Clause 4.6.3AS/NZS 3000:2018 Clause 3.7.2.6 | Improvements Identified (For Information) |

# Wiring

| **Checklist item** | **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 Clause 1.5 | No rating is applied |
| Wiring 2 | Is the array wiring and wiring to the inverter protected from mechanical damage?(Please note additional requirements in relation to wiring systems fixed in a position within 50mm of a building surface) | AS/NZS 3000:2018 Clause 3.3.2.6 and 3.9.4 AS/NZS 5033:2021 Clauses 4.4 | Needs Rectification |
| Wiring 28 | Is there evidence of mechanical damage to LV cables? | AS/NZS 3000:2018 Clause 3.9.4 and 3.3.2.6 and 3.3.2.8 AS/NZS 5033:2021 Clauses 4.4 | Needs Rectification |
| Wiring 32 | Have all conduit systems containing PV dc conductors been appropriately sealed (by using methods such as glue)? | AS/NZS 5033:2021 Clause 4.4.5.1 | Needs Rectification |
| Wiring 16 | Is the DC and AC 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 5033:2021 Clause 4.4.2.1AS/NZS 3000:2018 Clause 3.3.2.11 | Needs Rectification |
| Wiring 3 | For all PV d.c cables that are installed within buildings has the following mechanical protection been provided?* + Cables located within ceiling space, wall cavities or under a floor are enclosed in metal or heavy duty insulating conduit.
	+ Installed in medium duty insulating wiring enclosure in all other internal locations within a building (e.g. non concealed surface mount).
 | AS/NZS 5033:2021 Clause 4.4.5.2.2 | Needs Rectification |
| Wiring 29 | Have all d.c. cables that are installed external to a building and not in a restricted access location been enclosed in a wiring enclosure?Exception: Within 300mm of a PCE or load break disconnection device. | AS/NZS 5033:2021 Clause 4.4.5.2.2 | Needs Rectification |
| Wiring 4 | Where PV d.c. wiring system are not installed directly behind and adjacent to pv modules, have they been identified by distinctive labels with the word "SOLAR" at intervals not exceeding 2m and visible after mounting? | AS/NZS 5033:2021 Clause 5.3.1.1 | Needs Rectification |
| Label 12 | Have all junction boxes housing PV d.c. cable terminations been labelled with the following warning?"WARNING: HAZARDOUS d.c. VOLTAGE" | AS/NZS 5033:2021 Clause 5.3.2 | Needs Rectification |
| Wiring 6 | Are all cables/wiring in the installation securely fixed in place to minimise any movement of the cable? | AS/NZS 3000:2018 Clause 3.3.2.8 and 3.9.3 | Improvements Identified (For Information) |
| Wiring 7 | Are LV array and inverter cables not installed within 50mm of a building surface?Are the AC cables supplying the inverter secure and mechanically protected? | AS/NZS 3000:2018 Clauses 3.3.2.8, 3.9.3.3, 3.9.4, 3.9.4.4(a) and Appendix H, paragraph H5.4 | Needs Rectification |
| Wiring 17 | Have all cable junction boxes been installed in a manner that will prevent water from entering electrical equipment and enclosures containing conductor terminations? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Needs Rectification |
| Wiring 18 | Is there evidence of water ingress to any junction boxes that are connected to electrical equipment enclosures containing conductor terminations?? | AS/NZS3000:2018 Clauses 4.1.2 and 4.1.3AS/NZS 5033:2021 Clause 4.4.6 and 4.4.7 | Needs Rectification |
| Wiring 19 | Have circuit connections been correctly connected such that a safety hazard is not posed with an immediate risk (e.g. transposition of conductors resulting in exposed conductive parts becoming energised)? | AS/NZS 3000:2018 Clause 8.3.7.2 | Unsafe |
| Wiring 20 | Have circuit connections been correctly connected such that an immediate safety hazard is not posed, but may be at risk of becoming unsafe in the future (e.g. protective earthing conductors carrying current under normal operation)? | AS/NZS 3000:2018 Clause 8.3.7.1 | Needs Rectification |
| Wiring 21 | Are all AC isolators and other AC electrical equipment installed exposed to the weather rated to at least IP33 and have been installed to uphold their IP ratings? | AS/NZS 3000:2018 Clauses 3.10.2.3 and 4.1.3 and figure 4.1, 4.2 | Needs Rectification |
| Wiring 22 | Have all flexible AC/DC cabling connections been correctly terminated? | AS/NZS 5033:2021 Clause 4.4.3.3AS/NZS 3000 Clause 3.7.2.2 and 3.7.2.5 | Improvements identified |
| Wiring 23 | Has all electrical equipment (not previously covered in this checklist) been installed according to all applicable standards and additional manufacturers requirements? If not could the applicable defects cause a potential safety concern at some stage now or in the future? | AS/NZS 3000:2018 Clause 1.7.1 (c) 4.1.2 | Needs Rectification |
| Wiring 30 | Has all electrical equipment (not previously covered in this checklist) been installed according to all applicable standards and additional manufacturers requirements? If not are applicable defects not likely to cause a safety concern now or any time in the future? | AS/NZS 3000:2018 Clause 1.7.1 (c) 4.1.2 | Improvements Identified(For Information Only) |
| Wiring 24 | Has sufficient segregation/separation been provided between LV and ELV and AC and DC Circuits in the same enclosure? | AS/NZS 3000:2018 Clause 3.9.8.3AS/NZS 5033:2021 Clause 4.4.3.2 and 4.4.3.3 | Improvements identified |
| Wiring 25 | Have the ends of flexible conduits been securely anchored to the fixed conduit, structure or electrical equipment where it terminates? | AS/NZS 3000:2018 Clause 3.10.3.6 | Improvements Identified |
| Wiring 26 | If an RCBO/RCD has been installed, is it not on the ESV prohibited list | AS/NZS 4777:2016 Clause 3.4.5[Electrical Safety Act](https://www.legislation.vic.gov.au/in-force/acts/electricity-safety-act-1998) - Section 63 (1) | Needs Rectification |
| Wiring 33 | If an RCBO/RCD has been installed, is it compatible with inverter manufacturers' instructions and switches all live conductors? | AS/NZS 4777:2016 Clause 3.4.5 Electrical Safety Act - Section 63 (1) | Improvements Identified(For Information Only) |
| Wiring 31  | Has all electrical equipment (not previously covered in this checklist) been installed according to all applicable standards and additional manufacturers requirements? If not are the applicable defects likely to cause an immediate safety concern? | AS/NZS 3000:2018 Clause 1.7.1 (c) 4.1.2 | Unsafe |
| Wiring 34 | If an RCBO/RCD has been installed it must not be type AC, must be 30 mA and must be of a type specified by the manufacturer as required? | AS/NZS 3000:2018 Clause 2.6.2.2.2 | Needs Rectification |
| Wiring 27 | Are there any accessible live parts?Allowing direct contact with any equipment, component, terminals or connection, tested to be LIVE and accessible by 1 action to be touched. | AS/NZS 3000:2018 Clause 3.1.2 (a) and 4.1.2 (d) | Unsafe |
| **Wiring 35** | **Are there connectors, couplings, covers or components able to be removed without the use of a tool which provide access to live parts?** | **AS/NZS 3000:2018 Clause 3.1.2 (a) and 4.1.2 (d)** | **Needs Rectification** |
| Wiring 11 | Have all solar installation associated cables entering the switchboard been installed in such a manner as to prevent the spread of fire? | AS/NZS 3000:2018 Clause 2.10.7 | Improvements Identified (For Information) |
| Wiring 13 | Estimated length and size (CSA i.e. 4mm2) of DC cable | N/A | No rating is applied |
| Wiring 14 | Estimated length and size (CSA i.e. 6mm2) of AC cable from inverter to switchboard | V13 CEC Installation Guidelines 7.8.5 and 9.1.5 and 10.5.2 | No rating is applied |
| Wiring 15 | Estimated length and size (CSA i.e. 10mm2) of AC cable from switchboard the inverter is connected to the Point of Supply | N/A | No rating is applied |

# Switchboard

| **Checklist item** | **Question** | **Relevant standards/ reference** | **Applicable rating** |
| --- | --- | --- | --- |
| Label 2 | Has a circular green reflective sign of at least 100mm in diameter and with the letter "PV", been placed on or immediately adjacent to the main metering panel and main switchboard, and readily visible to approaching emergency workers? | AS/NZS 5033:2021 Section 5 Clause 5.4 | Improvements Identified(For Information Only) |
| Label 21 | On the green PV label at the main switchboard and main meter panel, are there additional letters under the PV to designate the following?* + AC For inverter with a calculated PV d.c. circuit maximum voltage less than 120V d.c. and the PV modules are within 1.5m for the inverter.
	+ DP Where a disconnection point is used as the isolation method.
	+ SW Where a load break disconnection device is used as the isolation method.
 | AS/NZS 5033:2021 Clause 5.4 (a), (b) and (c) | Improvements Identified(For Information Only) |
| Label 3 | Is there a Victorian label: "Warning - this premises contains an electricity generation system" installed at the main switchboard, any fire indicator panels and all switchboards that will be energised by that consumer’s electricity generation system? | [Electricity Safety (General) Regulations 2019](https://www.legislation.vic.gov.au/in-force/statutory-rules/electricity-safety-general-regulations-2019), Regulation 211 | Improvements Identified |
| Label 5 | Where the inverter of the solar system is connected to a distribution board, is the following label present on the main switchboard and all intermediate distribution switchboards: “Warning Multiple Supplies Isolate Inverter Supply at Distribution Switchboard at …”? | AS/NZS 4777.1:2016 Clause 6.3 | Improvements Identified |
| Label 6 | Where the inverter is connected to the main switchboard, is the grid supply main switch labelled “Main Switch Grid/Mains/Normal Supply”? | AS/NZS 4777.1:2016 Cl 6.2(c) | Improvements Identified |
| Label 15 | Where the inverter is connected to a distribution switchboard, is the grid supply main isolator labelled “Main Isolator Grid/Mains/Normal Supply”? | AS/NZS 4777.1:2016 Clause 6.2(d) | Improvements Identified |
| Label 7 | Does the switchboard which the inverter is directly connected to contain the label "Multiple Supplies Isolate all Supplies before Working on this Switchboard”? | AS/NZS 4777.1:2016 Clause 6.2(a) | Improvements Identified |
| Label 8 | Is there an AC circuit breaker in or adjacent to the switchboard for the system labelled “Main Switch Inverter Supply”? | AS/NZS 4777.1:2016 Clause 6.2(b) | Improvements Identified |
| Label 9 | What is the size of the circuit breaker labelled “main switch inverter supply”? |  | No rating is applied |
| Switchboard 10 | Is the AC circuit breaker rated to at least the output current of the inverter? | AS/NZS 4777.1:2016 Section 3 Clause 3.4.1 | Needs Rectification |
| Switchboard 11 | Is the AC circuit breaker suitably sized to protect the cable supplying the inverter? | AS/NZS 4777.1 Clause 3.4.2AS/NZS 3000:2018 Clause 2.5 | Needs Rectification |
| 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 Clauses 6.2 and 6.4 | Improvements Identified (For Information) |
| Switchboard 12 | Where multiple inverter supplies are connected to a main switchboard or distribution board, are the main switches grouped together? | AS/NZS 4777.1:2016 Clause 5.5.3.2 | Improvement Identified (For Information) |
| Label 17 | Where multiple IES are installed at one installation, does signage accurately reflect which device controls which item of equipment? | AS/NZS 4777.1:2016 Clause 6.9 | Improvement Identified (For Information) |
| Label 19  | Has solar system layout been provided at the main switchboard and/or meter box, fire panel and does it conform to the following requirements?* + Is legible and sufficiently durable for the location, i.e. laminated or protected by solid clear sheet (Perspex etc).
	+ Is fixed permanently in a manner appropriate for the location.
	+ Is written in English.
	+ Is labelled "PV (solar) site information" in white letters with a red background.
	+ Shows the location address as recorded for the installation.
	+ Contains a plan view of the building showing the location of the PCE, the PV array/s.
	+ contains a legend for the map or clearly labelled to identify key components and building reference points.
	+ Identity's the location of the site information sign with the words "you are here".
	+ Is as accurate as practicable when ensuring the various components on the drawing are indicative of the actual location.
	+ Installation date is marked on the plan
 | AS/NZS 4777.1:2016 Clause 6.4AS/NZS 5033:2021 Clause 5.6 | Improvement Identified (For Information) |
| Label 22 | For PV d.c. systems, has the following information been included in the onsite plan?* + The path of d.c. cabling.
	+ The location of d.c. disconnection point/s indicated by "DP".
	+ The location of additional load break disconnector/s.
	+ PV array size.
	+ d.c. Voltage.
	+ Contain a warning where d.c. disconnection type/s can only be operated by suitable qualified personnel.
 | AS/NZS 5033:2021 Clause 5.6.1.1 | Improvements Identified (For Information) |
| Label 24 | Have all switchboard conductor terminations associated with the solar installation been connected in a compliant manner? | AS/NZS 3000:2018 Clause 3.7.2.2 and 3.7.2.5 | Improvements Identified (For Information) |
| Label 25 | Do all labels and signs conform to the following requirements?* + Are durable and designed for the service lifetime of the system.
	+ Are constructed of appropriate materials suitable for the location.
	+ Are fixed in a matter appropriate for the location.
	+ Are written in English.
	+ Are legible and the letter sizing is appropriate for the location.
	+ Are indelible.
* Are visible when applicable.
 | AS/NZS 5033:2021 Clause 5.2.1 | Improvements Identified (For Information) |

# Documentation

Has an electronic or hard copy manual been provided with the following information?

| **Checklist item** | **Question** | **Yes/ No/ Documents sighted** | **Applicable rating**  | **Relevant standards/reference** |
| --- | --- | --- | --- | --- |
| Doc 1 | Basic system information, including system rating and component ratings, and combining date. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 2 | A list of electrical equipment supplied, with model description and serial numbers. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 3 | A list of actions to be taken in the event of an earth fault alarm. |  | Needs Rectification | AS/NZS 5033:2021 section 6 |
| Doc 4 | Shutdown and isolation procedure for emergency and maintenance that shall ensure safe de­ energization of the system. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 5 | System connection diagram that includes the electrical ratings of the PV array, and the ratings of all overcurrent devices and switches as installed. |  | Needs Rectification | AS/NZS 5033:2021 section 6 |
| Doc 6 | Disconnection device location and cable routing in accordance with Clause 5.6.System performance estimate. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 7 | Maintenance procedure and timetable |  | Needs Rectification | AS/NZS 5033:2021 section 6 |
| Doc 8 | A maintenance checklist for the installed equipment |  | Needs Rectification | AS/NZS 5033:2021 section 6 |
| Doc 9 | Commissioning records and installation checklist, A completed record of the initial system settings at the time of system installation and commissioning checklists for quality assurance. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 10 | Details of wind and mechanical loading. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 11 | Warranty information. |  | Information Only | AS/NZS 5033:2021 section 6 |
| Doc 12 | Equipment manufacturer's documentation and handbooks for all equipment supplied. As a minimum the following shall be included:(i) Panels.(ii) Mounting frame.(iii) Inverter.(iv) Isolators.(v) Cable.(vi) Monitoring devices. |  | Information Only | AS/NZS 5033:2021 section 6 |

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

Review date: 15 December 2023

Prior version: 3.2

Current revision: Version 3.3

# Useful links

For more information about the audit process: [solar.vic.gov.au/safety-and-quality](https://www.solar.vic.gov.au/safety-and-quality)

Australian Competition and Consumer Commission: [accc.gov.au](https://www.accc.gov.au/)

Australian and New Zealand Standards: [standards.org.au](http://www.standards.org.au/)

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

Electrical Regulator Authorities Council: [erac.gov.au](https://www.erac.gov.au/)

Electrical Equipment Safety System: [eess.gov.au](http://www.eess.gov.au/)

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

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

|  |  |
| --- | --- |
| © The State of Victoria Department of Energy, Environment and Climate Action 2024LogoThis work is licensed under a Creative Commons Attribution 4.0 International licence. You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author. The licence does not apply to any images, photographs, or branding, including the Victorian Coat of Arms, the Victorian Government logo and the Department of Energy, Environment and Climate action (DEECA) logo. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/ DisclaimerThis publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication. | AccessibilityIf you would like to receive this publication in an alternative format, please contact Solar Victoria at comms@team.solar.vic.gov.au. This document is also available on the internet at solar.vic.gov.au. |

Also see our website for solar industry guidance, and training and workforce development opportunities:

* [solar.vic.gov.au/solar-industry-guidance](https://www.solar.vic.gov.au/solar-industry-guidance)
* [solar.vic.gov.au/solar-pv-audit-checklists-tips](https://www.solar.vic.gov.au/solar-pv-audit-checklists-tips)
* [solar.vic.gov.au/training-workforce-development](https://www.solar.vic.gov.au/training-workforce-development)