

GRID-CONNECTED SOLAR PV POWER SYSTEM MAINTENANCE CHECKLIST

VERSION 1, JUNE 2021

PRE-INSPECTION SYSTEM DETAILS		
System address		
Systems owner's name		
System owner's email address		
System owner's phone number		
My Jobs reference number (optional)		
Date of installation / System age	__ / __ / __	
Date of maintenance inspection	__ / __ / __	
Start and finish time	__ : __ - __ : __	
Recommended date of next inspection	__ / __ / __	
INSTRUCTIONS Please tick and/or insert a value or description for each relevant field to confirm compliance for this job. Mark any unrequired fields as NA (not applicable).  Indicates a location where a photo is recommended. Photo considerations: date / time stamped, geotagged, photos before and after any work.		
Building type	☐ Domestic ☐ Non-domestic	
National meter identifier (NMI)		
Meter number		
Number of phases (supply)		
Distribution network service provider (DNSP)		
Is the system documentation available?	☐	
Has the system owner identified any existing performance issues?	☐	
Details of issues:		

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Has the JSA been completed, and all personnel signed onto the SWMS?	☐
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Responsible person declaration	
Responsible person	
CEC accreditation no.	
Date:	Sign:
Secondary person	
CEC accreditation no. (if applicable)	
Date:	Sign:
System owner's consent	
I have requested that the above responsible person conduct a maintenance inspection on my solar system, I consent to them accessing the system and related equipment.	☐
System owner's name:	
Date:	Sign:

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MAIN SWITCHBOARD CHECKLIST	
Are there any visual indications of issues? <i>e.g. Tripped breakers, damage to enclosures, discolouration or burns marks</i>	☐ 
Are all relevant safety labels in place and secure?	☐ 
Verify operation of RCDs installed on the output of the IES	☐
CB rating of "MAIN SWITCH (INVERTER SUPPLY)"	___ A
Conductor size and estimated length of:	
Consumer mains	___ mm ² / ___ m
Inverter sub mains	___ mm ² / ___ m
Other _____	___ mm ² / ___ m
Summary switchboard	
Are there issues present that could affect system safety or performance?	☐
Details of issues: 	
Recommendations:	

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INVERTER (PCE) CHECKLIST	
Inverter nameplate	
Inverter location (broad view photo)	
Inverter manufacturer	
Inverter model	
Number of maximum power point trackers (MPPT)	
Maximum inverter DC input power	W
Maximum inverter DC input current per MPPT	A
Maximum inverter DC input short circuit current per MPPT	A
Inverter nominal AC power output	
Max. AC output current	
The AC cable voltage rise from inverter terminals to the point of supply is less than 2%	☐ Voltage rise %
Is the inverter currently operating?	
Inverter output at the time of inspection	W
When grid supply is interrupted, does the inverter disconnect within 2 seconds?	☐ Disconnection time:
AC voltage at inverter terminals under load and no-load	V / V
When grid supply is restored, does the inverter take at least 60 seconds to reconnect?	☐ Reconnection time:
Inverter settings <i>Note: if accessible</i>	
Inverter is installed as per distribution network service provider (DNSP) Connection Agreement	☐
Country code settings are set to Australia	☐

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Volt Var – setting e.g. 250V / 40%	V / %
Volt Var - setting – V2	V / %
Volt Var - setting – V3	V / %
Volt Var - setting – V4	V / %
Volt Watt – setting e.g. 250V / 30%	V / %
Volt Watt – setting – V2	V / %
Volt Watt – setting – V3	V / %
Volt Watt – setting – V4	V / %
Is there export limiting in place?	☐ W
Inverter DC isolators <i>Note: if the inverter DC isolator is integrated, move to the next section</i>	
DC isolator location	_____ 
DC isolator manufacturer/s	
DC isolator model/s	
Number of DC isolators	
Before opening the DC isolator or DC enclosure, please consider the following: • Does the isolator / enclosure appear to be installed non-compliantly for the age of the system? ☐ • Are there any signs of water ingress or other issues? i.e. discolouration, damage to the enclosure, smells ☐ • Can you only perform electrical tests via opening the isolator / enclosure? ☐ • Is there any other reason you need to open the isolator / enclosure? ☐ If none of these points apply to the isolator, it may not be necessary to open the isolator / enclosure. If opening the isolator / enclosure it is recommended that a photo is taken before and after. 	
All electrical connections secure	☐
Internals are dry and clean with no signs of water ingress	☐

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DC isolators enclosures IP maintained <i>e.g. orientation approved, pips installed if supplied</i>	☐
DC isolators installed to all relevant standards, guidelines, and manufacturer's instructions.	☐
All DC isolators are correctly rated and configured for the PV arrays they isolate.	☐
Inverter integrated DC isolators	
The inverter has an integrated DC isolator	☐
The inverter integrated DC isolator meets all the requirements in the Australian standards	☐
Does the local state or territory regulator require a physically separate adjacent DC isolator to be installed at the inverter (PCE)?	☐
Inverter summary	
Are there issues present that could affect system safety or performance?	☐
Details of issues: 	
Recommendations:	

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PV ARRAY CHECKLIST	
Array location <i>e.g. north roof-face</i>	_____ 
Panel manufacturer	
Panel model	
Panel nameplate	
Array cables adequately supported	☐ 
Any signs of degradation or damage to the panels? <i>e.g. damaged glass or frames, corrosion on bus bars, visual damage to cells, degradation of the backing sheet</i>	☐ 
Are the panels heavily soiled / require cleaning	☐ 
STRING 1: Number of panels / orientation (azimuth/tilt) / MPPT # <i>e.g. 12 / 270° / 30° / MPPT 1</i>	/ / /
STRING 2: Number of panels / orientation (azimuth/tilt) / MPPT #	/ / /
STRING 3: Number of panels / orientation (azimuth/tilt) / MPPT #	/ / /
STRING 4: Number of panels / orientation (azimuth/tilt) / MPPT #	/ / /
STRING 5: Number of panels / orientation (azimuth/tilt) / MPPT #	/ / /
STRING 6: Number of panels / orientation (azimuth/tilt) / MPPT #	/ / /
String fuse current and voltage rating if installed are appropriately rated. <i>e.g. 15A / 1000V</i>	/ ☐
PV array short circuit current – calculated as the sum of all the array currents at STC	A
PV array maximum voltage – calculated for lowest operating temperature	V
Array DC isolators	
DC isolator location (broad view photo)	
DC isolator manufacturer/s	

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DC isolator model/s	
Number of DC isolators	
Before opening the DC isolator or DC enclosure, please consider the following: • Does the isolator / enclosure appear to be installed non-compliantly for the age of the system? ☐ • Are there any signs of water ingress or other issues? i.e. discolouration, damaged enclosure, smells ☐ • Can you only perform electrical tests via opening the isolator / enclosure? ☐ • Is there any other reason you need to open the isolator / enclosure? ☐ If none of these points apply to the isolator, it may not be necessary to open the isolator / enclosure. If opening the isolator / enclosure it is recommended that a picture is taken before and after. 	
All electrical connections secure	☐
Internals are dry and clean with no signs of water ingress	☐
DC isolators enclosures IP maintained <i>e.g. orientation approved, pips installed if supplied</i>	☐ 
DC isolators installed to all relevant standards, guidelines, and manufacturer's instructions.	☐
All DC isolators are correctly rated and configured for the PV arrays they isolate.	☐
Conduit and cabling	
Conduit compliantly installed and adequately supported <i>e.g. glued, secured and labelled</i>	☐
Roof penetrations for cabling system adequately sealed <i>e.g. appropriate collard flashing for roof material</i>	☐
Cable is mechanically protected and supported as per AS/NZS 3000 and AS/NZS 5033	☐
Mounting structure / mounting system	
Mounting system manufacturer (if available)	
Mounting system model (if available)	
The mounting system is installed to all relevant standards, guidelines, and manufacturer's instructions	☐

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The roof penetrations for the mounting system are adequately sealed <i>e.g. tiles maintain their original ingress protection</i>	☐
The mounting system manufacturer's exclusion zones are adhered to and meet the minimum requirement of AS/NZS 1170.2	☐
The array frame is certified to AS/NZS 1170.2	☐
Galvanically dissimilar metals are not in contact with each other <i>e.g. separated by nylon or rubber spacers</i>	☐
The panels are installed to the panel manufacturer's instructions	☐
The panels are installed within the manufacturer's clamping zones	☐
All bolts and terminations are correctly torqued	☐
All array components are correctly fixed and secure	☐
Mounting system and panels are correctly earthed	☐
Earth connections are UV and mechanically protected <i>e.g. gal sprayed</i>	☐
Summary PV array	
Are there issues present that could affect system safety or performance?	☐
Details of issues: 	
Recommendations:	

MAINTENANCE TESTING SHEET

Array	Maintenance Information Details		Calculated Information Details	Maintenance Test Details						Maintenance Information Details			
	Using the panel nameplate information		Refer to AS/NZS 5033:2014 Cl 4.2 a, b, c and Cl 5.4.1	Refer to AS/NZS 5033 Appendix D for correct testing procedures.						Measured at or obtained from PCE			
	Voc (V)	Isc (A)	PV Array Maximum Voltage PVAMV (V)	Continuity of strings and correct polarity (Y or N)	Earth continuity (Ω)	Insulation resistance (M Ω) +ve to E / -ve to E	Non-Operational condition at time of testing (No load condition)			Operational condition at time of testing. (Under Load condition)			
							Open circuit voltage - Voc (V)	*Short circuit current – Isc (A)	*Irrad (W/M²)	Operational Voltage (V)	Operational Current (A)	Power (W)	*Irrad (W/M²)
String 1						/							
String 2						/							
String 3						/							
String 4						/							
String 5						/							
String 6						/							
MPPT 1						/							
MPPT 2						/							
MPPT 3						/							

Greyed out cells may not be required depending on specific system design but can assist an installer in confirming correct system operation.

**Note: non-mandatory*