GRID-CONNECTED SOLAR PV POWER SYSTEM COMMISSIONING CHECKLIST

VERSION 1.1, NOVEMBER 2020

System address	13-15 MCKINNA RD, CHRISTIE DOWNS
Systems owner's name	ONKAPARINGA COUNCIL
System owner's email address	
System owner's phone number	
My Jobs reference number (optional)	
Date of installation	27th APRIL 2021

Please tick and/or insert a value for each relevant field to confirm compliance for this job. Mark any unrequired fields as NA (not applicable).

Building type	☐ Domestic ☒ Non-domestic
National meter identifier (NMI)	2001325734
Meter number	
Number of phases (supply)	3
Distribution network service provider (DNSP)	
Energy retailer at the time of commissioning	ORIGIN
Network preapproval reference	
Export limiting requirements	NIL

PV MODULE (SOLAR PANEL) CHECKLIST

Panel manufacturer	LONGI
Panel model	LR4-60HPH-370M
Panel DC connector manufacturer	GENUINE MC-4
Panel DC connector type/model *e.g. MC-4 or MC-4EVO2*	MC-4
STRING 1: Number of panels / orientation (azimuth/tilt) / MPPT # *e.g. 12 / 270° / 30° / MPPT 1*	22 / 80°/20° / MPPT 1

STRING 2: Number of panels / orientation (azimuth/tilt) / MPPT #	22 / 260° / 20° / mppt 2
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 *e.g. 15A / 1000V*	/ NIL
PV array short circuit current – calculated as the sum of all the array currents at STC	23 A
PV array maximum voltage – calculated for lowest operating temperature	990 V
DC LOAD BREAKING DISCONNECTOR (DC ISOLATOR) CHECKLIST	
DC isolators	
DC isolator manufacturer/s	ZJ BENY
DC isolator model/s	BYH 32
Number of DC isolators	2
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	☑
A manufacture's specification (spec) sheet and declaration has been provided and included with system documentation	☐ Spec sheet ☐ Declaration
Does the local state or territory regulator require a physically separate adjacent DC isolator to be installed at the inverter (PCE)?	NO

Installation and testing of DC isolators	
DC isolators enclosures IP maintained *e.g. orientation approved, pips installed if supplied*	☑
DC isolators installed to all relevant standards, guidelines, and manufacturer's instructions.	☑
All DC isolators have been tested (turned off) under load	☑
CONDUIT AND CABLING CHECKLIST	
Conduit compliantly installed and adequately supported *e.g. glued, secured and labelled*	☑
Roof penetrations for cabling system adequately sealed e.g. appropriate collard flashing for roof material	☑
Cable is mechanically protected and supported as per AS/NZS 3000 and AS/NZS 5033	☑
DC cable volt drop (Vd) is less than 3%	☑ Voltage drop %
INVERTER (PCE) CHECKLIST	
Inverter manufacturer	FRONIUS
Inverter model	12.5.3-M
Number of inverters	1
Number of maximum power point trackers (MPPT)	2
Maximum inverter DC input power	16666 W
Maximum inverter DC input current per MPPT	27/16 A
Maximum inverter DC input short circuit current per MPPT	40/24 A
The inverter is installed to all relevant standards, guidelines, and manufacturer's instructions	☑
The AC isolator (if required) is mounted adjacent to the inverter and is correctly rated and lockable	☑

The AC circuit breaker is mounted in the switchboard and is correctly rated and lockable	☑
The AC cable voltage rise from inverter terminals to the point of supply is less than 2%	☑ Voltage rise %
AC voltage at inverter terminals under load and no-load	V / V
MOUNTING STRUCTURE (MOUNTING SYSTEM) CHECKLIST	
Mounting system manufacturer	CLENERGY
Mounting system model	
The mounting system is installed to all relevant standards, guidelines, and manufacturer's instructions	☑
The roof penetrations for the mounting system are adequately sealed *e.g. tiles maintain their original ingress protection*	☑
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 *e.g. separated by nylon or rubber spacers*	☑
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	☑
Mounting system and panels are correctly earthed	☑
Earth connections are UV and mechanically protected *e.g. gal sprayed*	☑
Earth fault alarm type *e.g. visual, audible, electronic, etc.*	NIL

OTHER	
System is labelled as per requirements in AS/NZS 3000, AS/NZS 5033, AS/NZS 4777.1 and CEC guidelines	☑ AS/NZS 3000 ☑ AS/NZS 5033 ☑ AS/NZS 4777.1 ☑ CEC guidelines
LV wiring system installed by a licensed electrical worker	☑
LV wiring system tested and certified by a licensed electrical worker	☑
System is compliant as per AS/NZS 5033 *Section 5 - Marking & Documentation, and Appendix A*	☑
Distributed energy resource (DER) documented as per NSP requirements	☐
Inverter settings	
Inverter is installed as per network service provider (NSP) Connection Agreement	☑
Country code settings are set to Australia SAPN	☐
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 / %
Export limit - setting	W

Inverter shuts down within 2 seconds of isolation	☑
Inverter takes at least 60 seconds to start after re-connection to supply	☑
Inverter then takes 6 minutes to ramp up to 100%	☑

TESTING AND COMMISSIONING SHEET

Array	Commissioning Information Details Using the panel nameplate information		Calculated Information Details Refer to AS/NZS 5033:2014 Cl 4.2 a, b, c and Cl 5.4.1	Commissioning Test Details Refer to AS/NZS 5033 Appendix D for correct testing procedures.						Commissioning Information Details Measured at, or obtained from PCE			
							Non-Operational condition at time of testing (No load condition)			Operational condition at time of commissioning. (Under Load condition)			
	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	Open circuit voltage - Voc (V)	*Short circuit current – Isc (A)	*Irrad (W/M^2)	Operational Voltage (V)	Operational Current (A)	Power (W)	*Irrad (W/M^2)
String 1	40.9	11.52	940	Y	0.2	>100/>100	818	0.7		737	0.7	1004	
String 2	40.9	11.52	940	Y	0.2	>100/>100	816	0.6		739	0.6	1004	
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*

DECLARATION OF RESPONSIBLE PERSONS	
I hereby sign and verify that this system has been designed, installed and commissioned to all relevant Australian standards, state and territory regulations, and CEC guidelines.	
CEC-accredited designer's name	TORSTEN RUTTER
CEC accreditation no.	
Date: 22-6-21	Sign:
CEC-accredited installer's name	AS ABOVE
CEC accreditation no.	
Date:	Sign:
Licensed electrician's name	
Licensed electrician no.	
Date:	Sign:

SYSTEM OWNER'S DECLARATION	
I confirm that I have received an operating manual and have been instructed on the safe operation of the system.	☐
I confirm that the CEC-accredited installer named above: a. Is the installer that physically undertook the installation, or; b. Supervised the installation by physically attending the site at three stages of the installation, at job set-up (beginning), mid-installation check-up (during), and testing and commissioning (end).	a. ☐ or b. ☐
System owner's name:	
Date:	Sign: