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RE: Aberfoyle rec centre string layout and cable route

From: "Peter Smith" <Peter.Smith@westsidegroup.com.au>

To: "Thoroughtec@mail.com" <Thoroughtec@mail.com>

Date: May 24, 2021 12:53:14 PM

Hi Andrea,

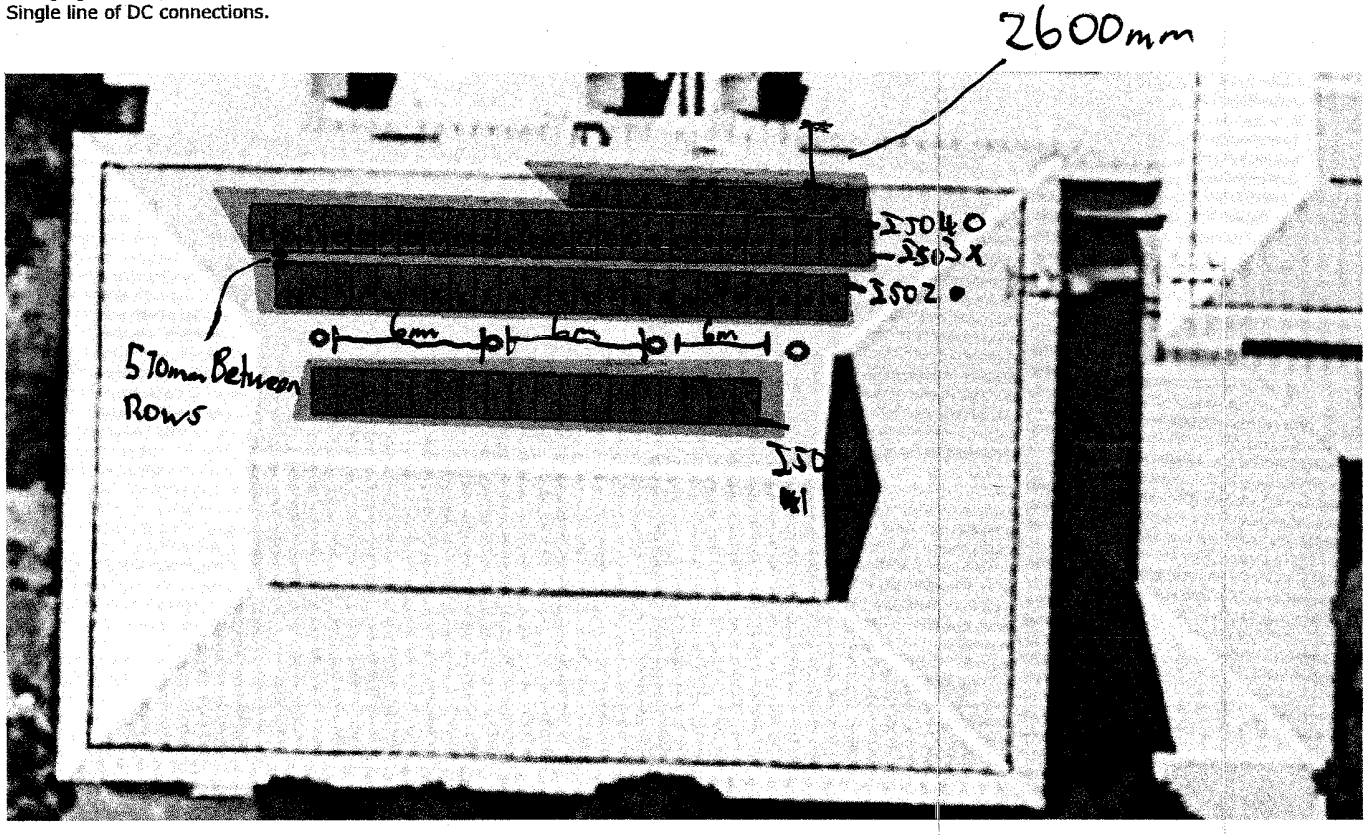
Thanks for sending through the details, can you please ensure you respond to me in the future when I send you something instead of forwarding to Nick.

There are some details that need to be gathered which are not clearly marked on the drawings and I have listed them below.

The consultant has requested that the clamping of the cabling be fixed and some labelling be done etc I have spoken to Adrian and he will rectify and provide photos, the list is attached.

Can you mark up and dimension the attached photo below if it is easier but I need the information legible and accurate.

- Panel Setoff from edges
- Distance between rows
- Dimensions and quantity of anchor points.
- Isolator Locations
- Stringing Details per isolator
- Single line of DC connections.



Regards

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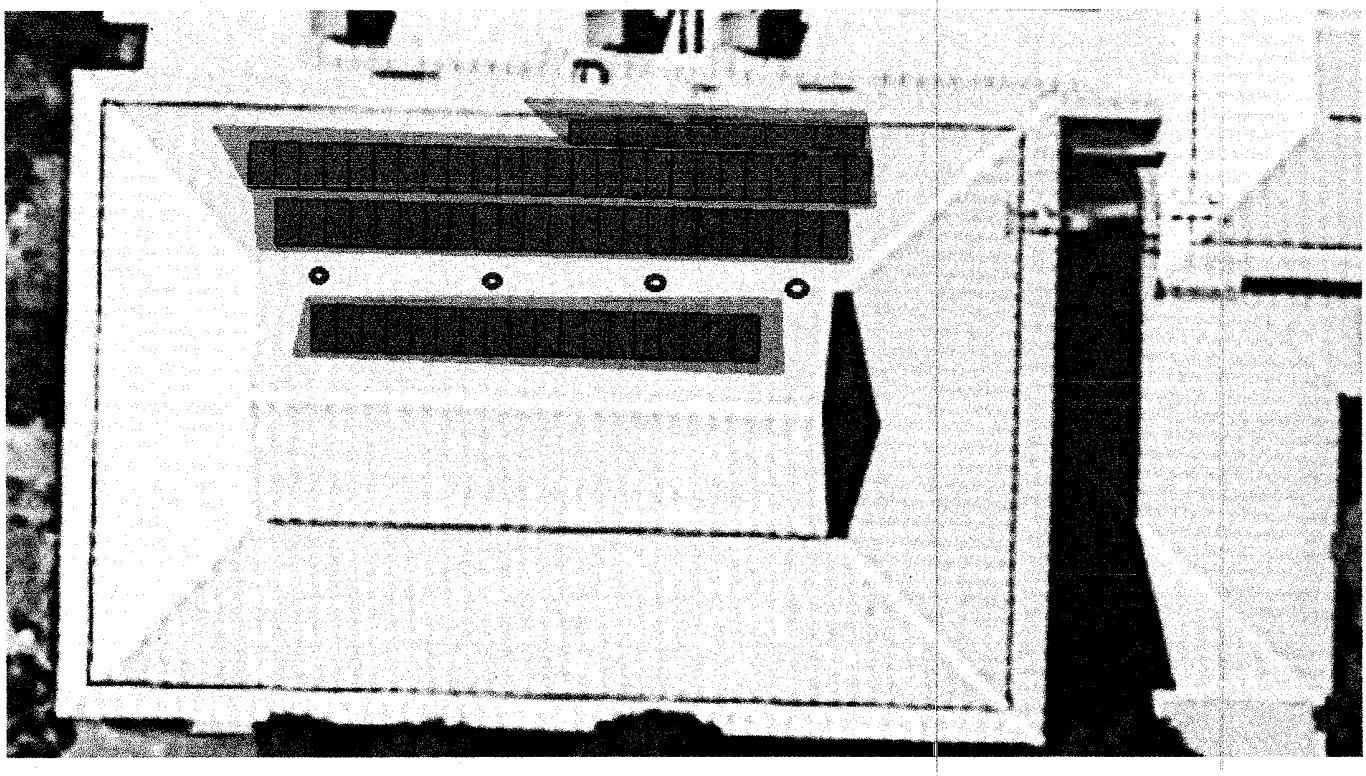

Regards

GRID-CONNECTED SOLAR PV POWER SYSTEM COMMISSIONING CHECKLIST

VERSION 1.1, NOVEMBER 2020

System address	ABERFOYLE REC CENTRE
Systems owner's name	City of Onkaparinga
System owner's email address	Ryan.HalyBurton@onkaparinga.sa.gov.au
System owner's phone number	0466 939 725
My Jobs reference number (optional)	
Date of installation	27.4.21

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)	
Meter number	995908
Number of phases (supply)	3
Distribution network service provider (DNSP)	SAPN
Energy retailer at the time of commissioning	
Network preapproval reference	
Export limiting requirements	

PV MODULE (SOLAR PANEL) CHECKLIST

Panel manufacturer	Longi
Panel model	
Panel DC connector manufacturer	MC4
Panel DC connector type/model *e.g. MC-4 or MC-4EVO2*	MC4
STRING 1: Number of panels / orientation (azimuth/tilt) / MPPT # *e.g. 12 / 270° / 30° / MPPT 1*	18 / / /

STRING 2: Number of panels / orientation (azimuth/tilt) / MPPT #	18 / / /	
STRING 3: Number of panels / orientation (azimuth/tilt) / MPPT #	18 / / /	
STRING 4: Number of panels / orientation (azimuth/tilt) / MPPT #	18 / / /	
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*	/	
PV array short circuit current – calculated as the sum of all the array currents at STC	11.52	A
PV array maximum voltage – calculated for lowest operating temperature	809	V
DC LOAD BREAKING DISCONNECTOR (DC ISOLATOR) CHECKLIST		
DC isolators		
DC isolator manufacturer/s	ZJBENNY	
DC isolator model/s	BYT-32	
Number of DC isolators	4	
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)?	N/A	

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 1.71 %
INVERTER (PCE) CHECKLIST	
Inverter manufacturer	Fronius
Inverter model	Symo 20.0-3
Number of inverters	
Number of maximum power point trackers (MPPT)	1
Maximum inverter DC input power	26.64 W
Maximum inverter DC input current per MPPT	23.04 A
Maximum inverter DC input short circuit current per MPPT	23.04 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 1.71 %
AC voltage at inverter terminals under load and no-load	237 V / 234 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.*	Electronic

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	☑	
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/M²)	Operational Voltage (V)	Operational Current (A)	Power (W)	*Irrad (W/M²)
String 1	809	11.52	809	y	✓	145/145	669	[illegible]	578	616	6.5		578
String 2	809	11.52	809	y	✓	150/150	6[illegible]	[illegible]	578	616	6.5		578
String 3	809	11.52	809	y	✓	150/150	631	4.83	578	618	6.43	775	578
String 4	809	11.52	809	y	✓	150/150	638	4.83	578	618	6.43		578
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	Adrian Van Jaarsveldt
CEC accreditation no.	A2191536
Date: 28.5.21	Sign:
CEC-accredited installer's name	Adrian Van Jaarsveldt
CEC accreditation no.	A2191536
Date: 28.5.21	Sign:
Licensed electrician's name	Adrian Van Jaarsveldt
Licensed electrician no.	PGE271285
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: