



Steve cockerill

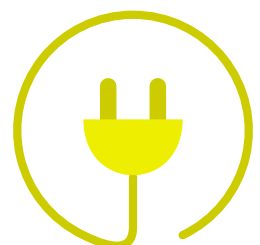
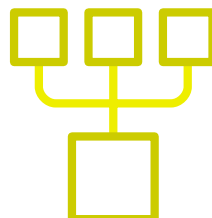
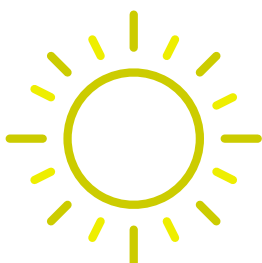
Project Name: Cockerill1.0

Phone: 07970878131

Address: 1 Old Barn Gardens, Lovedean, Hants, PO8 9XL

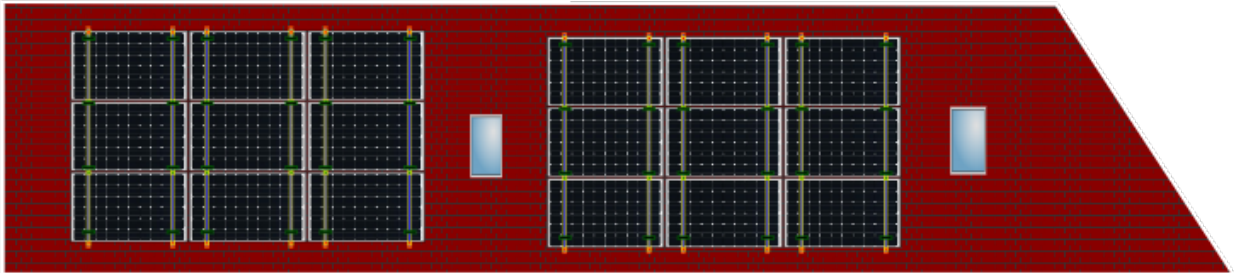
Date Created: 12th April 2022

Designer: Luke Stockdale-Powell



Roof Layout

Roof 1



Component list

Item	Quantity
 JA370Mono solar panel	18
 GivEnergy 5kW Hybrid inverter	1
 **NET** Emlite Bi-directional Meter ECA2.nv	1
 Label sheet	1
 GivEnergy 100A DC breaker	1
 GivEnergy EM115 Meter with CT Clamp	1
 GivEnergy WiFi Dongle	1
 Reinforced BirdBlocker for Solar Panels	1
 AC isolator - KN 25A 3-pole	2
 GivEnergy 8.2kWh LiFePO4 Battery	1
 DC isolator - KG20-4	2
Pair of MC4 connectors	4
50m reel of 4mm ² solar cable	1
Renusol end clamp (silver)	24
Renusol mid clamp (silver)	24

Renusol end cap (silver)	24
Renusol landscape flat tile roof hook	48
Renusol rail 3.3m black	0
Renusol rail 3.3m silver	12



Inverter checks

GivEnergy 5kW Hybrid

Panels

PV power **6660** Rated AC output **5000**

Input 1: 9 JA370Mono solar panels in 1 strings

Panels

Inverter

PV power	3330 W		
Open circuit voltage at -10° C	409 V	Max DC voltage	600 V
V _{mpp} at 40° C	296 V	V _{mpp} lower limit	120 V
V _{mpp} at -10° C	339 V	V _{mpp} upper limit	550 V
I _{mpp} at 40° C	11 A	Max DC input current	11 A

Max voltage

The open circuit voltage of the solar panels never exceeds the voltage limit of the inverter.



Max power point range

The maximum power point voltage of the solar panels is always above the lower limit of the inverter MPPT tracker. The maximum power point voltage of the solar panels is always below the upper limit of the inverter MPPT tracker.



Max Current

The maximum power point current of the solar panels is always below the maximum current for the inverter MPPT tracker.



Input 2: 9 JA370Mono solar panels in 1 strings

Panels

Inverter

PV power **3330 W**

Open circuit voltage at -10° C **409 V** Max DC voltage **600 V**

V_{mpp} at 40° C **296 V** V_{mpp} lower limit **120 V**

V_{mpp} at -10° C **339 V** V_{mpp} upper limit **550 V**

I_{mpp} at 40° C **11 A** Max DC input current **11 A**

Max voltage

The open circuit voltage of the solar panels never exceeds the voltage limit of the inverter.



Max power point range

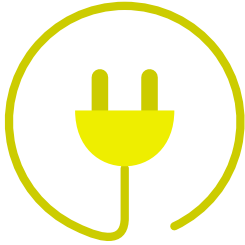
The maximum power point voltage of the solar panels is always above the lower limit of the inverter MPPT tracker. The maximum power point voltage of the solar panels is always below the upper limit of the inverter MPPT tracker.



Max Current

The maximum power point current of the solar panels is always below the maximum current for the inverter MPPT tracker.





Electrical

GivEnergy 5kW Hybrid



AC Isolator

A AC isolator - KN 25A 3-pole has been specified for this input

Current

The rated isolator current (25A) is greater than the rated inverter current (21.7A)



Phases

The isolator is suitable for use on a single phase inverter.



Input 1



DC Isolator

Integrated isolator

This inverter contains an integrated DC Isolator.





Cable

10m of 4mm² solar cable has been specified

Voltage drop

Voltage drop at maximum power point at 40°C will be around
0.94 V (0.32 percent)



Input 2



DC Isolator

Integrated isolator

This inverter contains an integrated DC Isolator.



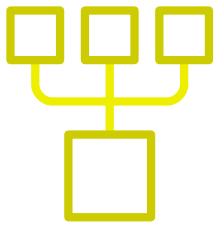
Cable

10m of 4mm² solar cable has been specified

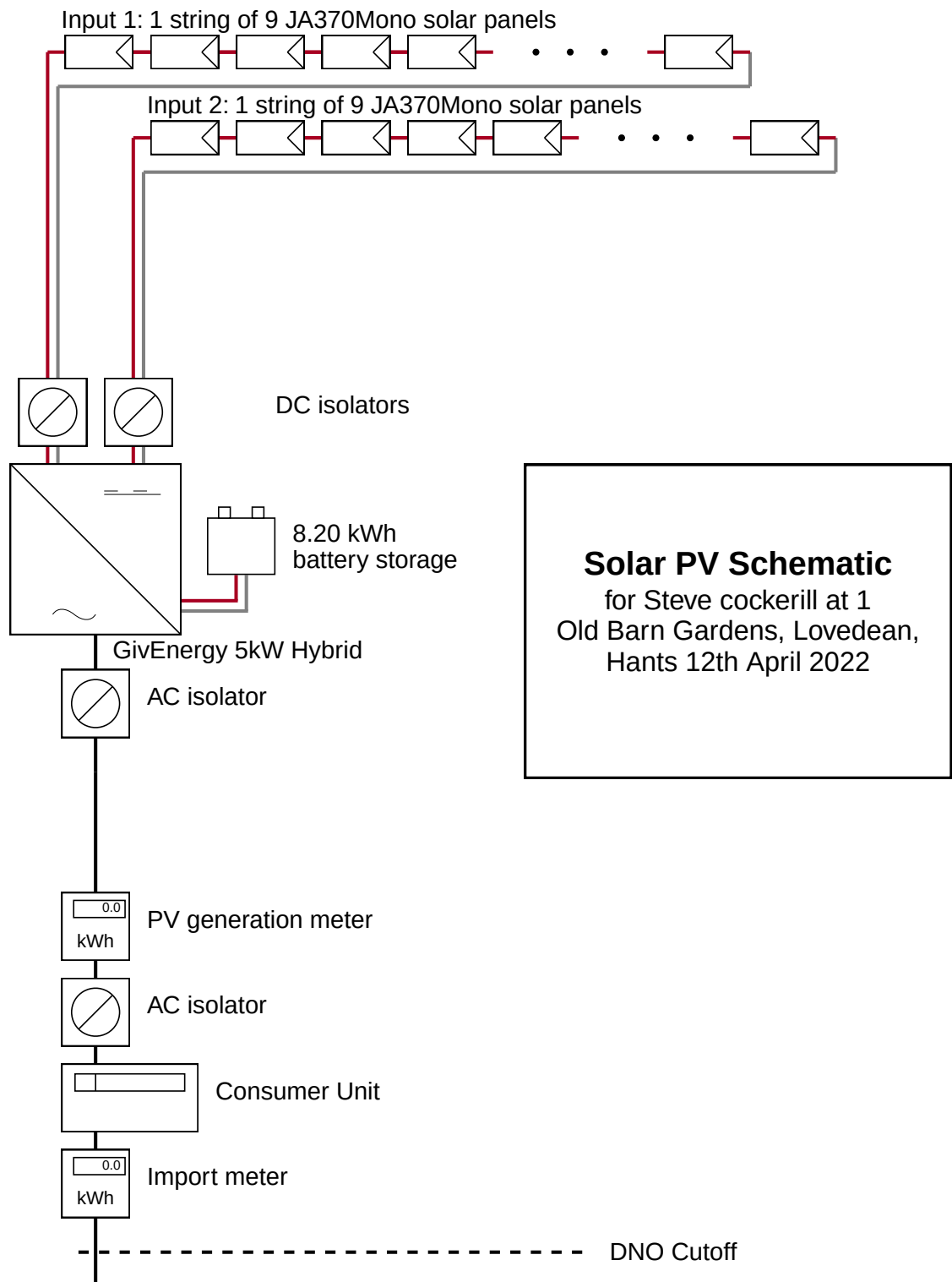
Voltage drop

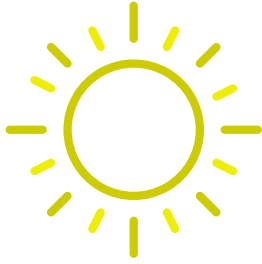
Voltage drop at maximum power point at 40°C will be around
0.94 V (0.32 percent)





Schematic diagram





Performance Estimate

Site details

Client

Steve cockerill

Address

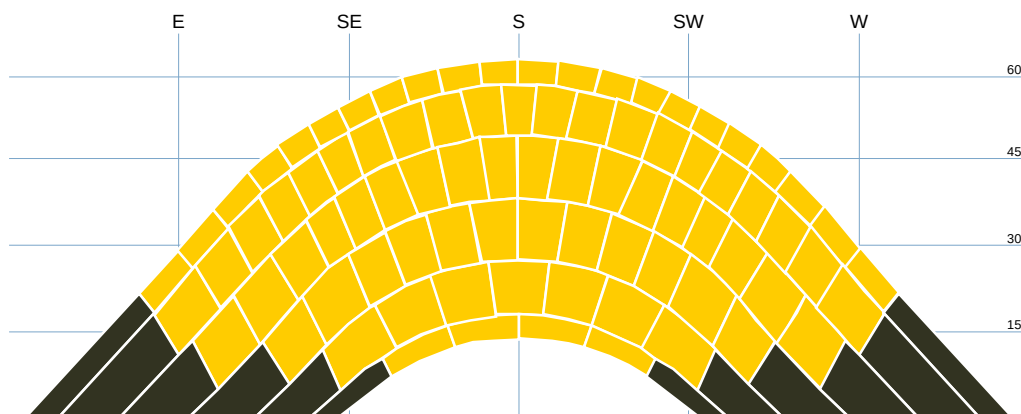
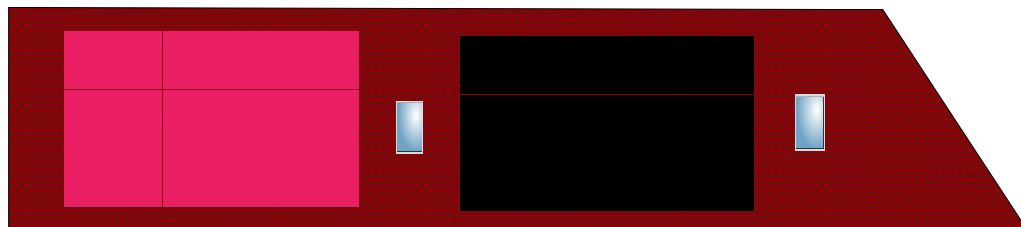
1 Old Barn Gardens, Lovedean, Hants

The sunpath diagram shows the arcs of the sky that the sun passes through at different times of the day and year as yellow blocks. The shaded area indicates the horizon as seen from the location of the solar array. Where objects on the horizon are within 10m of the array, an added semi-circle is drawn to represent the increased shading. Blocks of the sky that are shaded by objects on the horizon are coloured red, and a shading factor is calculated from the number of red blocks. The performance of the solar array is calculated by multiplying the size of the array (kWp) by the shading factor (sf) and a site correction factor (kk), taken from tables which take account of the geographical location, orientation and inclination of the array.

Inverter 1

GivEnergy 5kW Hybrid

Input 1



A. Installation data

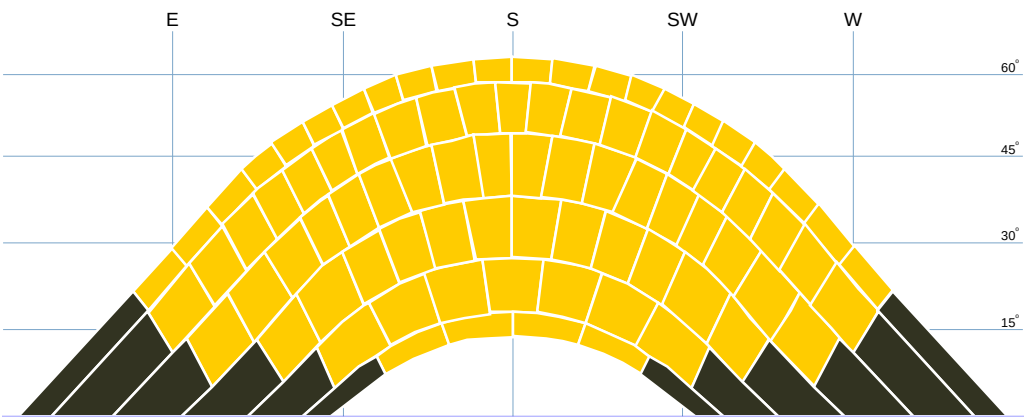
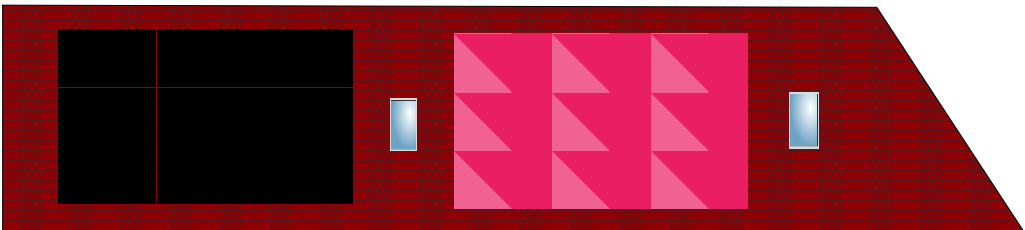
Installed capacity of PV system - kWp (stc)	3.330	kWp
Orientation of the PV system - degrees from South	-24	°
Inclination of system - degrees from horizontal	35	°
Postcode region	3	



B. Performance calculations

kWh/kWp (Kk)	1002	kWh/kWp
Shade factor (SF)	1.00	
Estimated output (kWp x Kk x SF)	3337	kWh

Input 2



A. Installation data

Installed capacity of PV system - kWp (stc)	3.330	kWp
Orientation of the PV system - degrees from South	-24	°
Inclination of system - degrees from horizontal	35	°
Postcode region	3	



B. Performance calculations

kWh/kWp (Kk)	1002	kWh/kWp
Shade factor (SF)	1.00	
Estimated output (kWp x Kk x SF)	3337	kWh

Performance Summary

A. Installation data		
Installed capacity of PV system - kWp (stc)	6.66	kWp
Orientation of the PV system - degrees from South	See individual inputs	
Inclination of system - degrees from horizontal	See individual inputs	
Postcode region	3	
B. Performance calculations		
kWh/kWp (Kk)	See individual inputs	
Shade factor (SF)	See individual inputs	
Estimated output (kWp x Kk x SF)	6674	kWh

Important Note: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure is given as guidance only for the first year of generation. It should not be considered as a guarantee of performance.