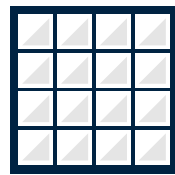
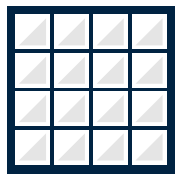


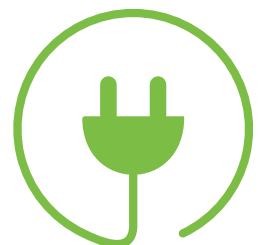
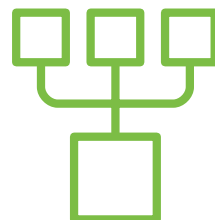
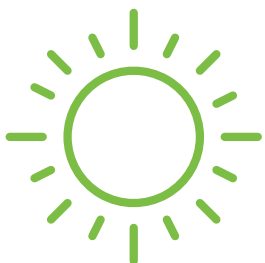
Malbern



SOLAR LTD

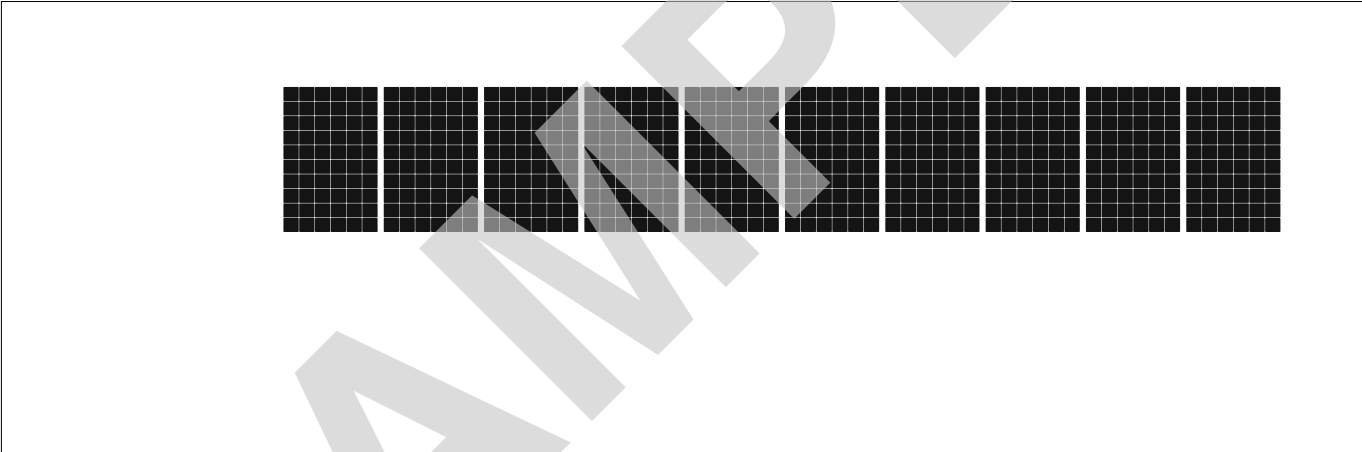
Illuminating a Brighter Future

SAMPLE



Roof Layout

Roof South East



Component list

Item	Quantity
 *HIH* Longi HiMo5 405W Black Framed Mono (white backsheet) solar panel	10
 G3 GivEnergy 3.6kW hybrid inverter	1
 **NET** Emlite Bi-directional Meter ECA2.nv	1
 Label sheet	1
 GivEnergy DC Miniature Circuit Breaker (MCB)	1
 GivEnergy GEM120CT Modbus Energy Meter	1
 GivEnergy Plug to Lug Cable (Gen3)	1
 Rubber Grommet for Gen3 Inverter Plug Cables	1
 AC isolator - IMO - 20A 4-pole	2
 GivEnergy 2.6kWh LiFePO4 Battery	2
 IMO DC isolator 16A 2p 1string	1
 Pair of MC4 connectors	2
 50m reel of 4mm2 solar cable	1
 Fastensol end clamp (30mm black)	4
 Fastensol mid clamp (30mm black)	18



Fastensol black end cap

4



Fastensol portrait concrete tile roof hook

22



Fastensol rail splice

6



BB200 Reinforced BirdBlocker (30m)

1



BirdBlocker clips for square tube (box of 50)

4



Fastensol silver rail 3550mm

7

SAMPLE



Inverter checks

G3 GivEnergy 3.6kW hybrid

Panels

PV power **4050** Rated AC output **3600**

Input 1: 10 *HIH* Longi HiMo5 405W Black Framed Mono (white backsheet) solar panels in 1 strings

Panels

Inverter

PV power	4050 W		
Open circuit voltage at -10° C	406 V	Max DC voltage	580 V
V _{mpp} at 40° C	298 V	V _{mpp} lower limit	120 V
V _{mpp} at -10° C	340 V	V _{mpp} upper limit	550 V
I _{mpp} at 40° C	13 A	Max DC input current	15 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.



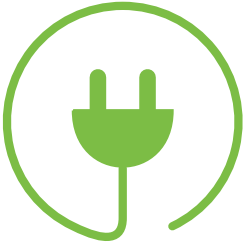
Max Current

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



Input 2: No panels

SAMPLE



Electrical

G3 GivEnergy 3.6kW hybrid



AC Isolator

A AC isolator - IMO - 20A 4-pole has been specified for this input

Current

The rated isolator current (20A) is greater than the rated inverter current (16A)



Phases

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



Input 1



DC Isolator

A IMO DC isolator 16A 2p 1string has been specified for this input

Current

The isolator is rated for a current of 16A, which is more than the expected maximum current of 14A.



Voltage

At 16A the isolator is rated for a voltage of 600V, which is more than the expected maximum voltage of 406V.



Cable

10m of 4mm² solar cable has been specified

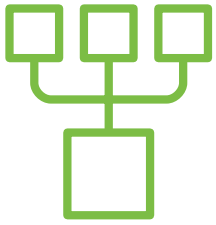
Voltage drop

Voltage drop at maximum power point at 40°C will be around **1.10 V (0.37 percent)**

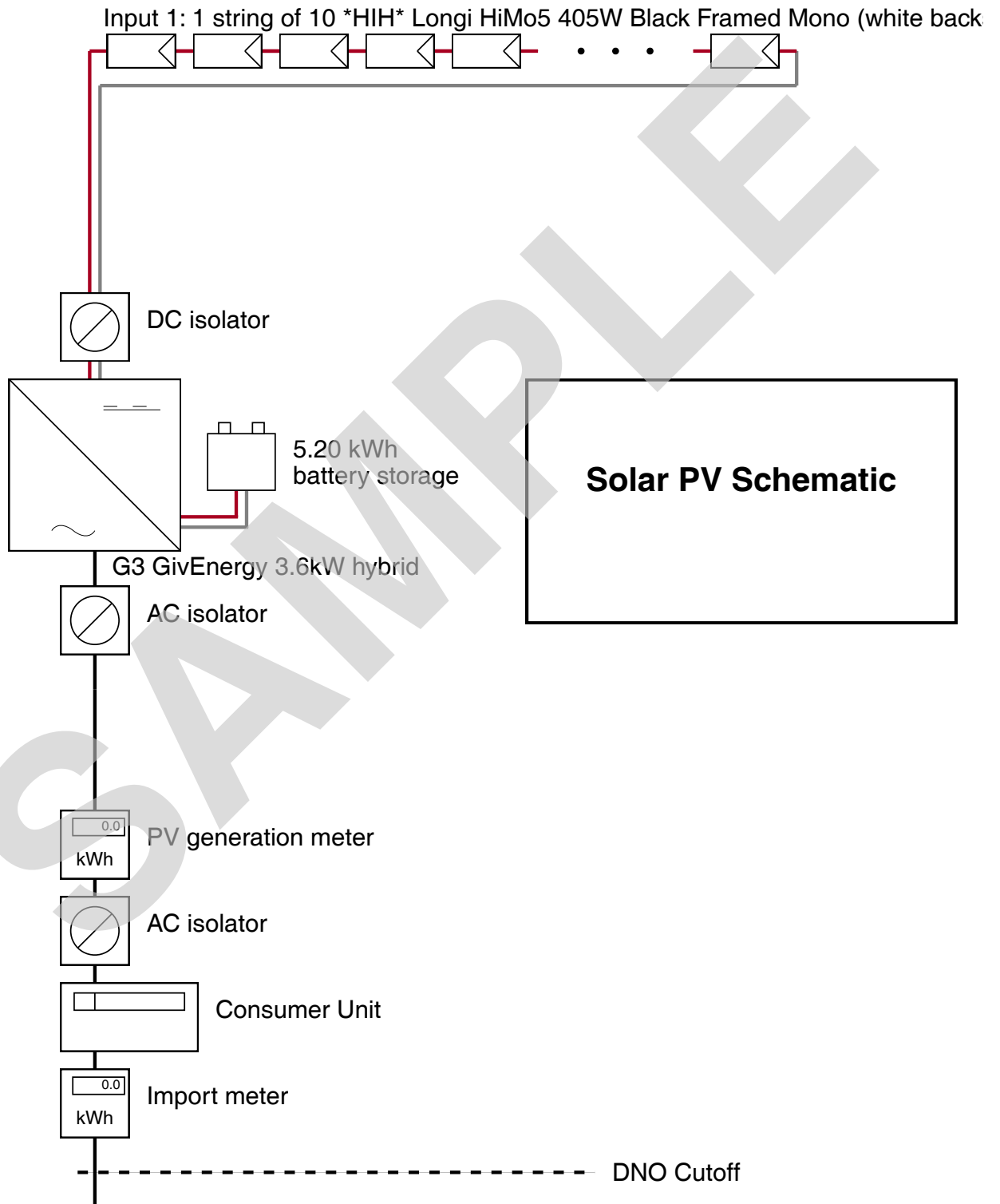


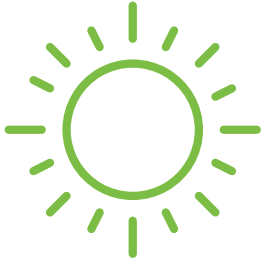
Input 2: No panels

SAMPLE



Schematic diagram





Performance Estimate

Site details

Client

Address

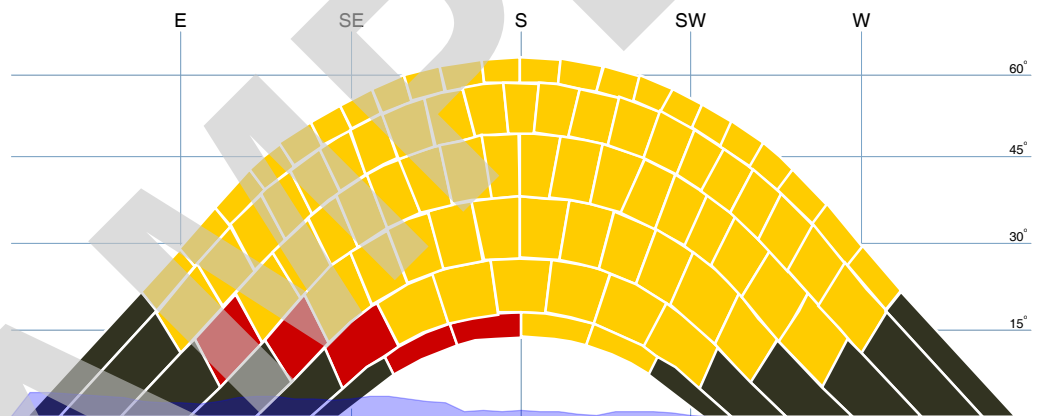
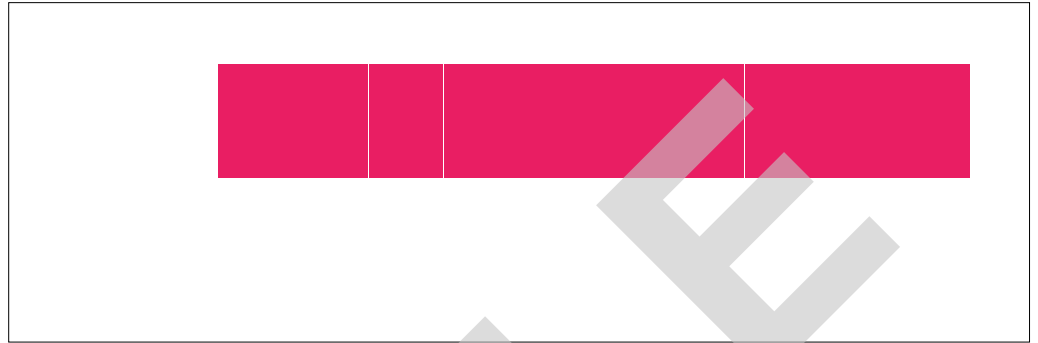
The sunpath diagram shows the arcs of the sky that the sun passes through at different times of the day and year as yellow blocks. The shaded area indicates the horizon as seen from the location of the solar array. Where objects on the horizon are within 10m of the array, an added semi-circle is drawn 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.

SAMPLE

Inverter 1

G3 GivEnergy 3.6kW hybrid

Input 1



A. Installation data

Installed capacity of PV system - kWp (stc)	4.050	kWp
Orientation of the PV system - degrees from South	-27	°
Inclination of system - degrees from horizontal	21	°
Postcode region	7E	



B. Performance calculations

kWh/kWp (Kk)	827	kWh/kWp
Shade factor (SF)	0.95	
Estimated output (kWp x Kk x SF)	3182	kWh

Performance Summary

A. Installation data		
Installed capacity of PV system - kWp (stc)	4.05	kWp
Orientation of the PV system - degrees from South	See individual inputs	
Inclination of system - degrees from horizontal	See individual inputs	
Postcode region	7E	
B. Performance calculations		
kWh/kWp (Kk)	See individual inputs	
Shade factor (SF)	See individual inputs	
Estimated output (kWp x Kk x SF)	3182	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.

Shading will be present on your system that will reduce its output to the factor stated. This factor was calculated using the MCS shading methodology and we believe that this will yield results within 10% of the actual energy estimate stated for most systems.