QUOTATION

TriNRG

The best energy in life is free

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Renewable | Sustainable | EcoFriendly

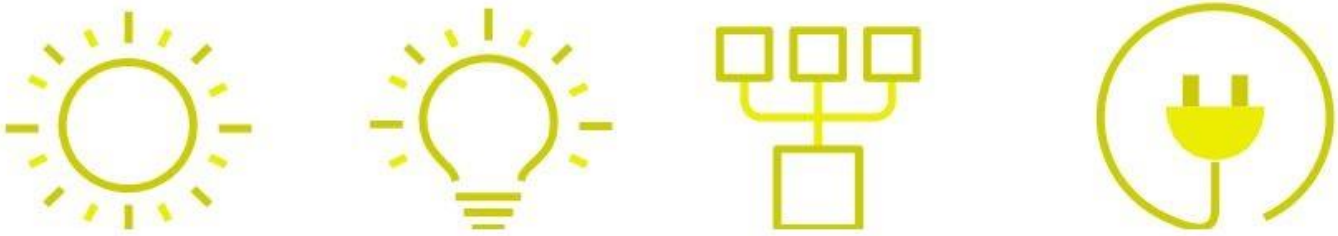
Project Name: TriNRG …

Phone:

Address:

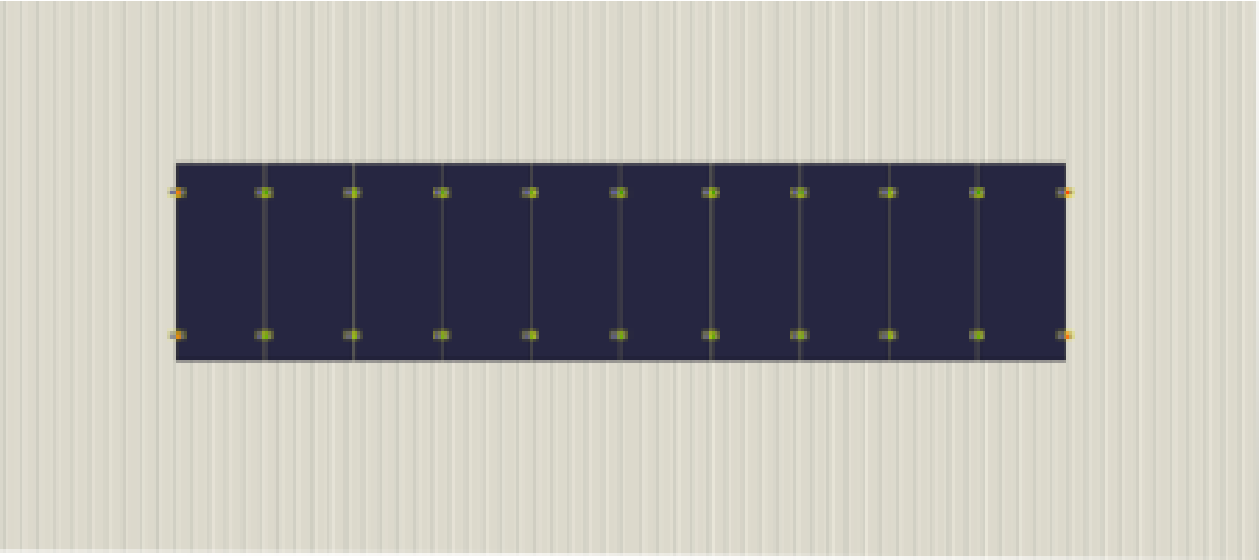
Date Created:

Designer:



Roof Layout

Roof 1



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Component List

Item		Quantity
	REC Alpha Pure 400w N Series Mono All Black panel	10
	Huawei SUN2000-4KTL-Smart Inverter SP	1
	Eastron SDM120A - Single Phase Energy Meter	1
	Huawei LUNA2000-5-EO	1
	Huawei LUNA BMS	1
	Set of PV warning labels / stickers	2
	Eddi Immersion Controller	1
	Huawei Smart Power Sensor for 1ph (Meter with CT)	1
	Projoy 4 Pole Fire Safety Switch *NEW MODEL*	1
	Harvi Wireless CT Clamp	0
	KN Newbury 20A 4-pole AC isolator	2
	KG20-4 DC isolator	2
	Pair of MC4 connectors	4
	100m reel of 4mm2 cable	1
	Flexible Conduit 20mm	1
	Flexible Conduit 25mm	1
	Flexible Conduit 32mm	1
	300mm Cable Ties (pk100)	1
	370mm Cable Ties (pk100)	1
	370mm Cable Ties (Heavy Duty) (pk100)	1
	540mm Cable Ties (pk100)	1
	Metasole flat channel (portrait)	0
	Renusol Rail 3.3m (silver)	8
	Renusol end clamp (black)	16
	Renusol mid clamp (black)	12
	Cat6 U/FTP LSOH Cable	50
	Genius Slate Flashings	28
	Renusol Flat Tile Roof Hook	28
	Tex Screws	0.5
	Trunking	10
	Renusol wood screw pack	3
	Optional Extra	
	WallBox Pulsar Eco Bundle	1

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Inverter Checks

Huawei SUN2000-4KTL-L1 Smart Inverter SP

Panels

PV power	4000	Rated AC output	4000

Input 1: 5 REC Alpha Pure 400w N Series Mono All Black solar panels in 1 string

Panels		Inverter	
PV power	**4000 W**		
Open circuit voltage at -10° C	**531 V**	Max DC voltage	**600 V**
V_{mpp} at 40° C	**406 V**	V_{mpp} lower limit	**90 V**
V_{mpp} at -10° C	**458 V**	V_{mpp} upper limit	**560 V**
I_{mpp} at 40° C	**10 A**	Max DC input current	**18 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

Huawei SUN2000-4KTL-L1 Smart Inverter SP

AC Isolator

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

Current

The rated isolator current (20A) is greater than the rated inverter current (15A)

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

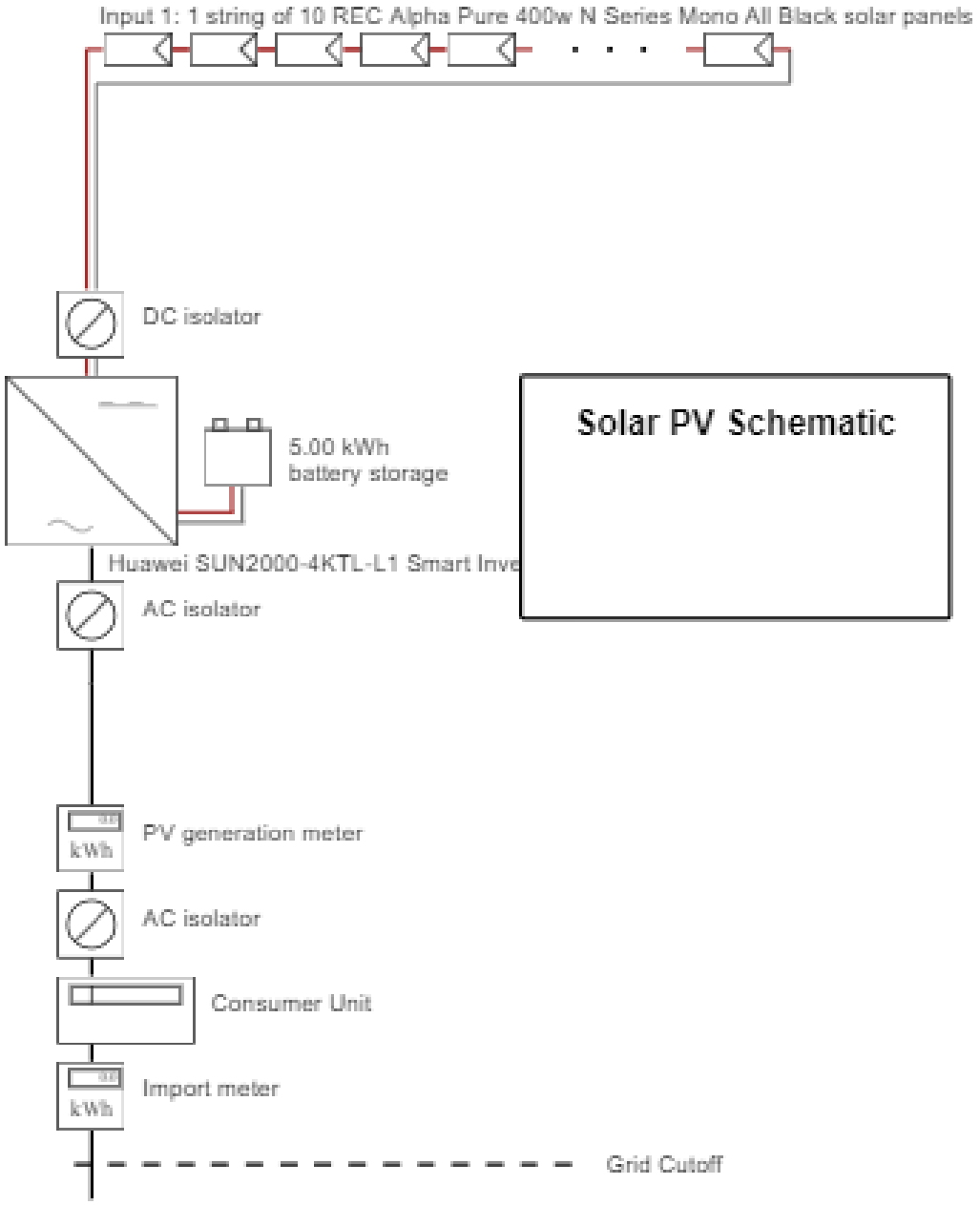
10m of 4mm^2 solar cable has been specified

Voltage drop

Voltage drop at maximum power point at 40°C will be around

0.85 V (0.42 percent)

Schematic Diagram



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Performance Estimate

Site Details

Client

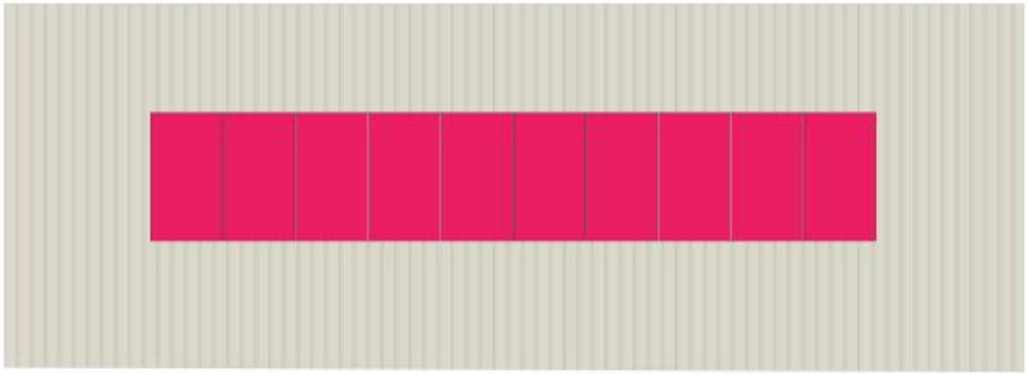
Address

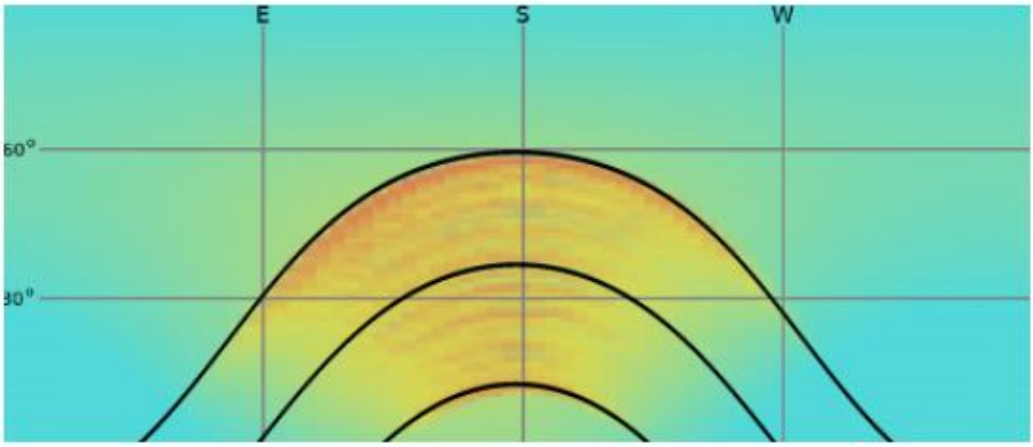
The sunpath diagram shows the arcs of the sky that the sun passes through at different times of the day and year as yellow blocks. The shaded area indicates the horizon as seen from the location of the solar array. Where objects on the horizon are within 10m of the array, an added semi-circle is drawn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

Inverter 1

Huawei SUN2000-4KTL-L1 Smart Inverter SP

Input 1





A. Installation data		
Installed capacity of PV system - kWp (stc)	4.000	kWp
Orientation of the PV system - degrees from South	-17	°
Inclination of system - degrees from horizontal	30	°
B. Performance calculations		
kWh/kWp (Kk)	826	kWh/kWp
Shade factor (SF)	1.00	
Estimated output (kWp x Kk x SF)	3304	kWh

Performance Summary

A. Installation data		
Installed capacity of PV system - kWp (stc)	4	kWp
Orientation of the PV system - degrees from South	See individual inputs	
Inclination of system - degrees from horizontal	See individual inputs	
B. Performance calculations		
kWh/kWp (Kk)	See individual inputs	
Shade factor (SF)	See individual inputs	
Estimated output (kWp x Kk x SF)	3376	kWh

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Financial

Generation

The system is expected to generate 3376 kWh per year initially, decreasing gradually as the solar cells degrade. Over the 30 year term of this financial projection the total generation is expected to be 100524 kwh, of which 60314 kWh will be consumed on site and 40210 kWh exported.

101 MWh

Payback

After adjusting projected costs and benefits for inflation, and applying a discount rate of 4%, the initial system cost of €x,xxx is expected to be recouped after 09 years.

09 years

Net Present Value

The total present value of future benefits and costs, using a discount rate of 4% per year, is €46,687.00. The cost of the PV system is €x,xxx. The net present value of the project is therefore €32,461.18. A positive net present value is a good indication that the project is financially worthwhile.

€32,461.15

IRR

The Internal Rate of Return is a useful measure for comparing the relative profitability of investments.

9.2%

Disclaimer

Our financial model calculates the benefits of a solar PV installation (such as savings in electricity, or payments for exported electricity) and costs (the initial purchase cost, and any future maintenance costs if entered), over the projected lifespan of the system. Values are corrected for inflation, system degradation, and discount rate - a measure that accounts for the fact that a promise of a monetary sum in the distant future is usually considered less valuable than the promise of the same sum in the near future.

A model is only as accurate as the assumptions it makes. You should consider whether the values chosen are appropriate for your situation. There are many variables that dictate the financial return of a solar installation and we cannot forecast how they may change in the future. This financial projection shows a likely scenario for future financial returns. Actual returns may vary significantly from this forecast.

Assumptions

Inflation rate	4%
Cost of electricity	€0.22 /kWh increases with inflation
System size	4 kWp degrades at 0.5% per year
Discount rate	4%
Projection length	30 years

Income and savings

The projected income from the system over the project lifetime in payments for generated and exported electricity, along with electricity savings, are shown in the table and graph below.

These figures assume an inflation rate of 7 percent.

	Export payments	Electricity savings	Total
Year 1	189	545	734
Year 2	202	583	785
Year 3	216	623	839
Year 4	231	667	897
Year 5	247	713	960
Year 6	264	762	1026
Year 7	282	815	1098
Year 8	302	872	1174
Year 9	323	933	1255
Year 10	345	997	1343
Year 11	369	1067	1436
Year 12	395	1141	1536
Year 13	422	1220	1642
Year 14	452	1305	1756
Year 15	483	1395	1878
Year 16	517	1492	2009
Year 17	552	1596	2148
Year 18	591	1707	2298
Year 19	632	1825	2457
Year 20	676	1952	2628
Year 21	723	2088	2811
Year 22	773	2233	3006
Year 23	827	2388	3215
Year 24	884	2554	3438
Year 25	945	2731	3677
Year 26	1011	2921	3932
Year 27	1081	3124	4205
Year 28	1156	3341	4497
Year 29	1237	3573	1
Year 30	1	2	4

€17648

Total Export Payments

over 30 years

€50983

Electricity savings

over 30 years

The bottom line

The table and graph below show the discounted costs for the project (including the initial capital required for the installation), against the total discounted benefits from income and savings on electricity bills.

The system pays for itself in 09 years.

	Discounted benefits	Cumulative benefits	Discounted costs	Cumulative costs	Cashflow
Year 1	737	737	0	10684	-9947
Year 2	746	1483	0	10684	-9201
Year 3	756	2239	0	10684	-8445
Year 4	765	3004	0	10684	-7680
Year 5	775	3779	0	10684	-6906
Year 6	784	4563	0	10684	-6121
Year 7	794	5357	0	10684	-5327
Year 8	804	6161	0	10684	-4523
Year 9	814	6975	0	10684	-3709
Year 10	824	7800	0	10684	-2884
Year 11	835	8634	0	10684	-2050
Year 12	845	9480	0	10684	-1205
Year 13	856	10335	0	10684	-349
Year 14	866	11202	0	10684	517
Year 15	877	12079	0	10684	1395
Year 16	888	12967	0	10684	2283
Year 17	899	13866	0	10684	3182
Year 18	911	14777	0	10684	4093
Year 19	922	15699	0	10684	5015
Year 20	933	16632	0	10684	5948
Year 21	945	17578	0	10684	6893
Year 22	957	18535	0	10684	7850
Year 23	969	19503	0	10684	8819
Year 24	981	20485	0	10684	9800
Year 25	993	21478	0	10684	10794
Year 26	1006	22484	0	10684	11799
Year 27	1018	23502	0	10684	12818
Year 28	1031	24533	0	10684	13849
Year 29	1044	25577	0	10684	14893
Year 30	1057	26634	0	10684	15950