



GARY RAINS

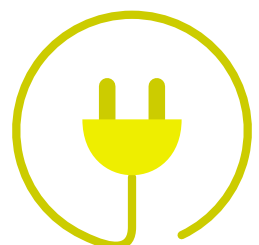
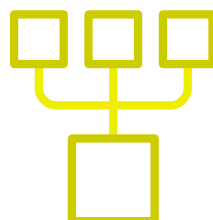
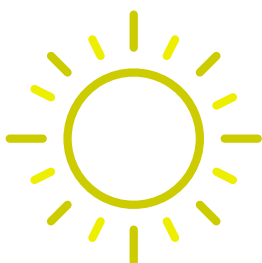
Project Name: GARY RAINS - LITTLE GABLES (FOX SYSTEM)

Phone: 07976 057 211

Address: LITTLE GABLES, WRANGLING LANE, GREAT BUCKLAND, KENT, DA13 0XF

Date Created: 30th July 2024

Designer: Mark Brown



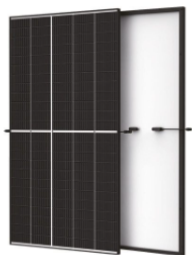
System Overview

Your system comprises 13 Trina Vertex S+ 450W Dual Glass N-Type Black White Mono solar panels to collect sunlight and turn it into DC electricity.

The panels will be connected to 1 Fox ESS H1 G2 5.0kW 1ph Hybrid Inverter inverter, which converts the DC electricity into mains (AC) electricity.

A Fox ESS EP5 5.18kWh Li-ion Battery battery storage system will allow you to store excess energy from sunny days, so that you can use your generated electricity at night too.

We include all the isolators, wiring and meters needed to connect the system safely to your electrical system. Your system will be installed and certified by our trained installation team.



Solar Panels: Trina Vertex S+ 450W Dual Glass N-Type Black White Mono x 13

The dual glass design of the Trina Vertex S+ offers high reliability in harsh conditions, better trapping light for high power output.

Model	TSM-450-NEG9R.28
Power	450 watts
Dimensions	1134 x 1762mm



Inverter: Fox ESS H1 G2 5.0kW 1ph Hybrid Inverter

No description

AC Power	5000 watts
Trackers	2

System components



Battery: Fox ESS EP5 5.18kWh Li-ion Battery

No description

Capacity 5.180 kWh

Quantity 1



Mounting: Renusol console flat roof mounting system

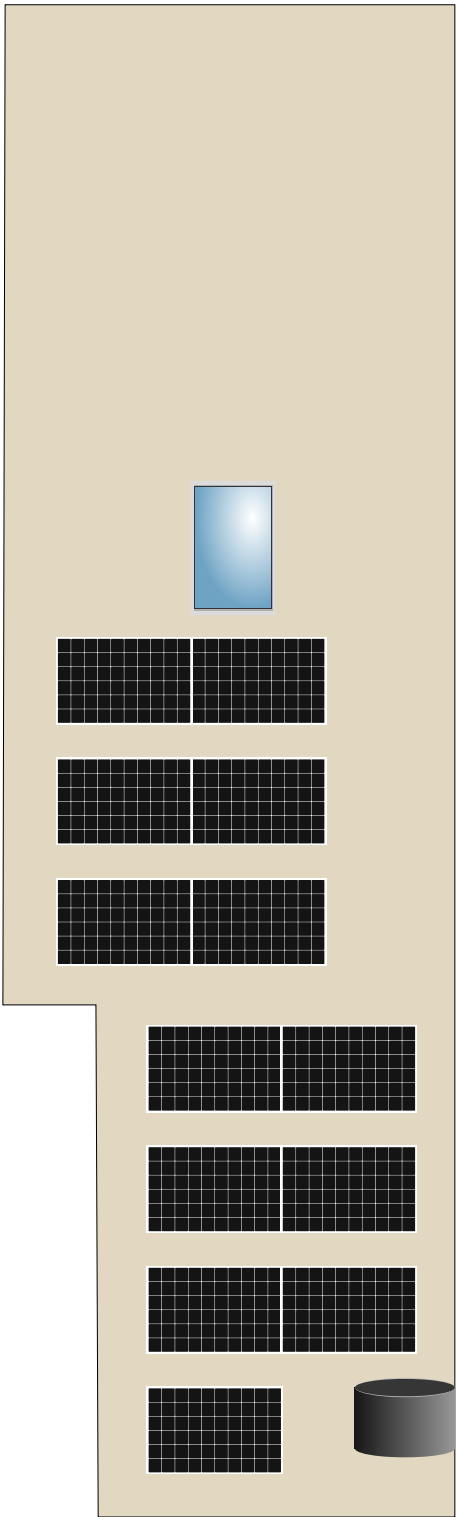
Renusol is a German engineered PV roof mounting system. It is extremely versatile and compatible with the most popular roof coverings used in the UK.

Designed for Other roofs

Colour Not specified

Roof Layout

FLAT ROOF



System Performance

We have made an estimate of the annual energy generation of your system. This takes into account the following factors that affect the output of a solar array.

The location of the system

Sunlight is weaker near the poles than near the equator. We use data from a meteorological model of the intensity of sunlight over the course of the year in different locations all over the world.

The orientation of the system

Solar panels that face south receive a little more sunlight than panels that face east or west. However, in diffuse light the orientation of the panels makes little difference, so the effect is less marked than many people imagine.

The degree of shading

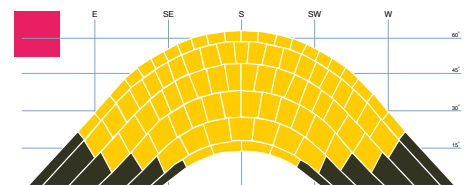
If you have trees, neighbouring buildings or nearby high ground that will shade your PV array, the output of the system will be reduced. We have used a 'sunpath diagram' that estimates how often sunlight will be blocked from reaching the panels.

Roof diagram

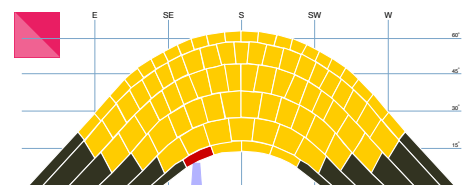


FLAT ROOF Orientation: 35° Pitch: 0°

Sunpath diagrams



Shade factor: 1.00 Kk: 938



Shade factor: 0.99 Kk: 938

**We expect your system to generate
5,462 kWh per year**

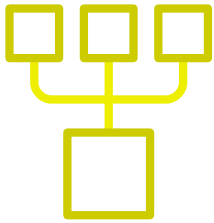
Installation data

Installation capacity of PV system – kWp (stc)	6 kWp
Orientation of the PV system – degrees from South	35°
Inclination of system (pitch) – degrees from horizontal	0°
Postcode region	Zone 2

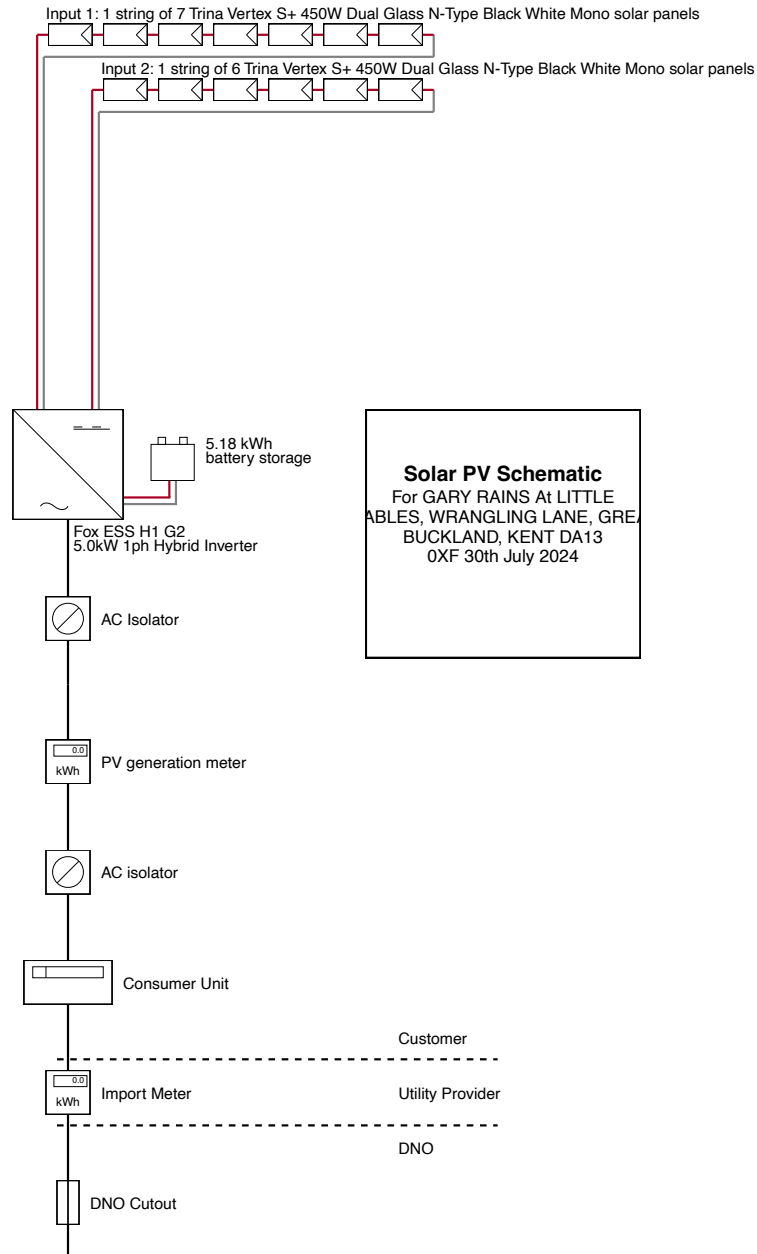
Performance Calculations

kWh/kWp (Kk)	See sunpath diagrams
Shade Factor (SF)	See sunpath diagrams
Estimated output (kWp x Kk x SF)	5462 kWh

Important note: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of sunlight from location to location and from year to year. This estimate is based upon a model that takes account of meteorological data at your location and makes an allowance for losses due to shading of the panels. This is a complex calculation however, and no model can be 100% accurate. It should not be considered a guarantee of performance. If shading is present on your system that will reduce its output to the factor stated. This factor was calculated using industry standard shading methodology and we believe that this will yield results within 10% of the actual energy estimate stated for most systems.



Schematic diagram





Equipment and Services

Equipment Costs

13x Trina Vertex S+ 450W Dual Glass N-Type Black White Mono solar panel	£1,083.88
Fox ESS H1 G2 5.0kW 1ph Hybrid Inverter inverter	£906.25
NET Emlite Bi-directional Meter ECA2.n*	£50.02
Label sheet	£2.61
2x AC isolator - IMO - 32A 4-pole	£40.60
Fox ESS EP5 5.18kWh Li-ion Battery	£1,571.80
4x MC4 4mm Connector Pair	£12.41
50m reel of 4mm2 solar cable	£43.50
13x Renusol console	£895.38
26x Console mounting bar	£169.65
13x Console mounting clips - pack of 4	£65.97
26x Console elongation bar - set of 2	£211.12
Total equipment cost	£5,053.19

Services Costs

Installation, Commissioning and Monitoring Setup	£2,392.50
DNO application, MCS certification, Building Control Notification & Handover pack	£350.00
Total services cost	£2,742.50

Grants

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Totals

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Total before tax	£7,795.69
VAT at 0%	£0.00
Total including tax	£7,795.69



Financial

Generation

The system is expected to generate 5462 kWh per year initially, decreasing gradually as the solar cells degrade. Over the 25 year term of this financial projection the total generation is expected to be 128341 kwh, of which 115507 kWh will be consumed on site and 12834 kWh exported.

128
MWh

Payback

After adjusting projected costs and benefits for inflation, and applying a discount rate of 4%, the initial system cost of £7,795.69 is expected to be recouped after 5 years.

5
years

Net Present Value

The total present value of future benefits and costs, using a discount rate of 4% per year, is £32,527.89. The cost of the PV system is £7,795.69. The net present value of the project is therefore £24,732.20. A positive net present value is a good indication that the project is financially worthwhile.

£24732.
2

IRR

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

21.5
%

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	2%
Cost of electricity	£0.36 /kWh increases with inflation
System size	5.85 kWp degrades at 0.5% per year
Discount rate	4%
Projection length	25 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 2 percent.

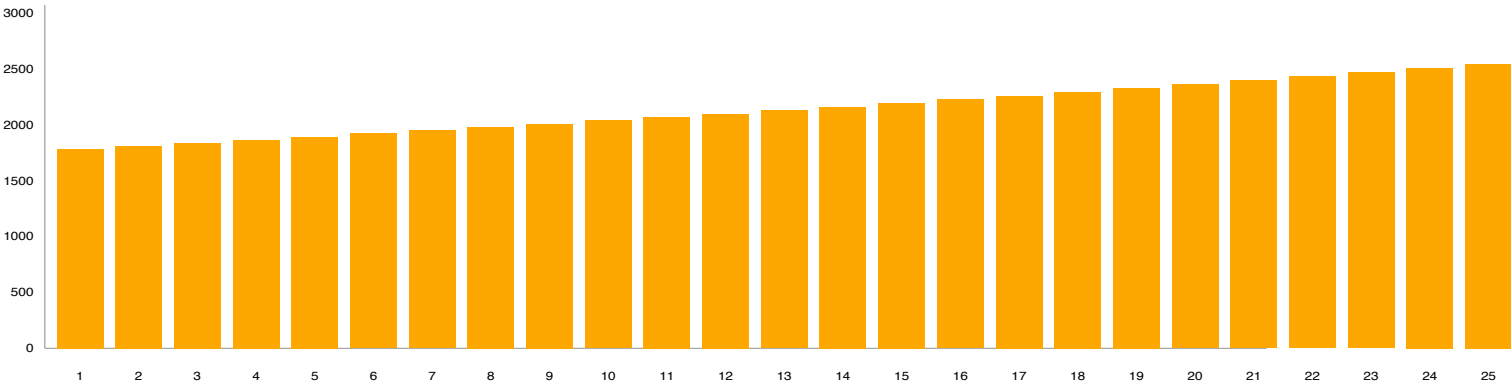
	Export payments	Electricity savings	Total
Year 1	0	1783	1783
Year 2	0	1809	1809
Year 3	0	1836	1836
Year 4	0	1864	1864
Year 5	0	1892	1892
Year 6	0	1920	1920
Year 7	0	1948	1948
Year 8	0	1977	1977
Year 9	0	2007	2007
Year 10	0	2037	2037
Year 11	0	2067	2067
Year 12	0	2098	2098
Year 13	0	2129	2129
Year 14	0	2161	2161
Year 15	0	2193	2193
Year 16	0	2226	2226
Year 17	0	2259	2259
Year 18	0	2293	2293
Year 19	0	2327	2327
Year 20	0	2361	2361
Year 21	0	2397	2397
Year 22	0	2432	2432
Year 23	0	2469	2469
Year 24	0	2505	2505
Year 25	0	2543	2543

£0

Total Export Payments
over 25 years

£53532

Electricity savings
over 25 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 5 years.

	Discounted benefits	Cumulative benefits	Discounted costs	Cumulative costs	Cashflow
Year 1	1747	1747	0	7796	-6048
Year 2	1702	3450	0	7796	-4346
Year 3	1659	5108	0	7796	-2687
Year 4	1616	6724	0	7796	-1071
Year 5	1574	8299	0	7796	503
Year 6	1534	9833	0	7796	2037
Year 7	1495	11327	0	7796	3532
Year 8	1456	12784	0	7796	4988
Year 9	1419	14202	0	7796	6407
Year 10	1382	15585	0	7796	7789
Year 11	1347	16931	0	7796	9136
Year 12	1312	18244	0	7796	10448
Year 13	1278	19522	0	7796	11726
Year 14	1246	20768	0	7796	12972
Year 15	1214	21981	0	7796	14186
Year 16	1182	23164	0	7796	15368
Year 17	1152	24316	0	7796	16520
Year 18	1122	25438	0	7796	17643
Year 19	1094	26532	0	7796	18736
Year 20	1065	27597	0	7796	19802
Year 21	1038	28635	0	7796	20840
Year 22	1011	29647	0	7796	21851
Year 23	985	30632	0	7796	22837
Year 24	960	31592	0	7796	23797
Year 25	935	32528	0	7796	24732

