System Overview

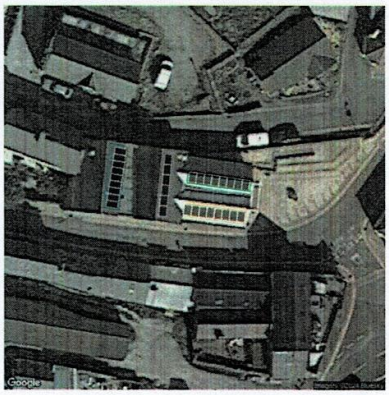
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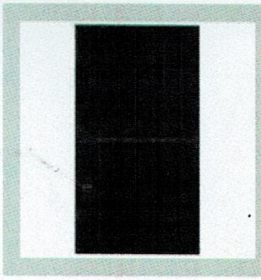
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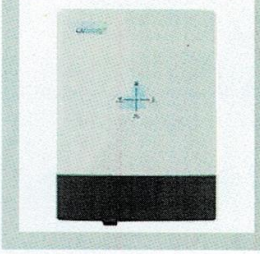




Solar Panels: Jinko Tiger Neo 435W N-Type All Black Mono x 31

No description

Model	
Power	435 watts
Dimensions	1134 x 1762mm



Inverter: GivEnergy 11kW 3ph Hybrid PV Battery Inverter

The 3 phase GivEnergy Hybrid Inverter is a battery inverter and solar inverter in one unit, meaning that the battery is AC and DC coupled.

AC Power	11000 watts
Trackers	2

System components



Battery: GivEnergy 3.4kWh LiFePO4 High Voltage Stackable Battery x 4

GivEnergy's LiFePO4 chemistry is the safest cell technology on the market, offering higher capacity and higher density cells whilst monitoring individ...

Capacity	3.400 kWh
Quantity	4

Mounting



Renusol Metasole mounting system

Renusol Metasol mounting system for sheet metal roofs comes with short, non-continuous rails to provide flexibility and save material along the way.



Fastensol pitched roof mounting system

Fastensol are an excellent value, fully MCS accredited choice for pitched roof mounting systems, suitable for the majority of roof types.

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.

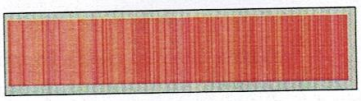
We expect your system to generate

7,430 kWh per year

Installation data	
Installation capacity of PV system – kWp (stc)	13 kWp
Orientation of the PV system – degrees from South	See roof diagrams
Inclination of system (pitch) – degrees from horizontal	See roof diagrams
Postcode region	Zone 7W

Performance Calculations	
kWh/kWp (Kk)	See sunpath diagrams
Shade Factor (SF)	See sunpath diagrams
Estimated output (kWp x Kk x SF)	7430 kWh

Roof diagrams

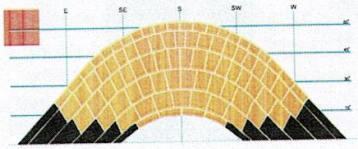


Roof 2 Orientation: -173° Pitch: 30°

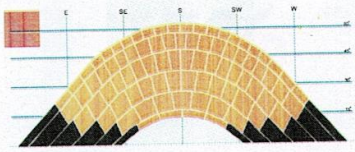


Roof 4 Orientation: -174° Pitch: 30°

Sunpath diagrams



Shade factor: 1.00 Kk: 551



Shade factor: 1.00 Kk: 551

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.

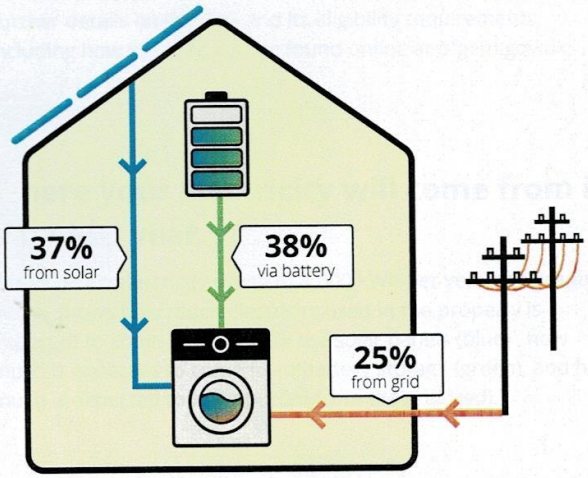
Battery Storage

We have included a 13.6 kWh battery storage unit in this proposal. On sunny days, when your PV array is producing more electricity than you are using in the property, you will be able to store the spare energy and use it at night.

Battery storage systems increase the proportion of electricity generated by a solar PV array that is consumed in the property rather than exported to the grid. Excess solar energy that is not needed during the day can be stored and subsequently used overnight

This leads to financial savings, as you replace expensive imported electricity (at 38p per kWh) with free electricity generated by your solar panels.

Where will your power come from?



Annual Power Requirement: 7430 kWh

How battery storage reduces your grid dependence

Including battery storage will reduce your grid dependence by an extra 38% compared with a PV-only system. You should only need to buy around 25% of your power from the grid.

75%
total reduction of grid dependence with battery

Estimated PV self-consumption – PV only	
Assumed occupancy archetype	in half the day
Assumed annual domestic electricity consumption	4600 kWh
Expected solar PV self-consumption (PV Only)	1705 kWh
Grid electricity independence / Self-sufficiency (PV Only)	37%
Estimated PV self-consumption – with EESS	
Assumed usable capacity of electrical energy storage device, which is used for self-consumption	13.6 kWh
Expected solar PV self-consumption (with EESS)	3449 kWh
Grid electricity independence / Self-sufficiency (with EESS)	75%

Important note: Rather than using the MCS calculation model we have used an alternative calculation system provided by Easy PV to determine the likely self consumption of your property. This may be because the estimated system output for this solar PV system is over 6000 kWh annually, or has a battery capacity of over 15.1 kWh, or there are other factors that mean this calculation system will be more accurate for your specific solar PV system. We have assumed that your annual electricity consumption is 4600 kWh.

The energy performance and benefits of EESS is impossible to predict with certainty due to the numerous functions a system can be programmed to perform. This estimate is given as guidance only. It should not be considered as a guarantee of performance.

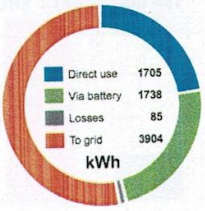
Your energy explained

In addition to the MCS calculation of system output we have run a more detailed model of your system to estimate how much of the electricity generated by the system you are likely to use yourself and how much will go to the grid.

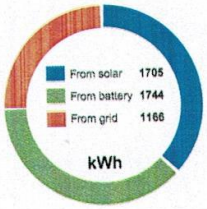
Smart Export Guarantee (SEG) information

The Smart Export Guarantee(SEG) enables Generators to receive payments from electricity suppliers for the electricity they export back to the National Grid, providing specific criteria are met. Your installation will be MCS accredited, which means that you should be able to apply for SEG payments from your electricity supplier. Further details on the SEG and its eligibility requirements, including how to apply, can be found online at ofgem.gov.uk

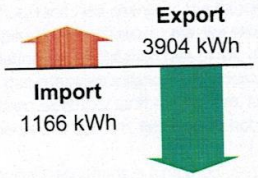
Annual Generation



Annual Consumption

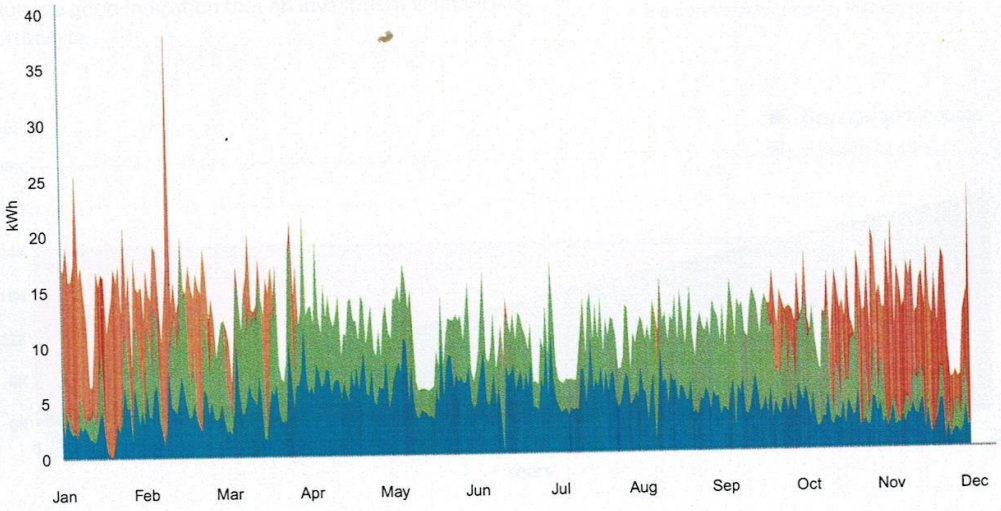


Annual Import/Export



Where your electricity will come from in a typical year

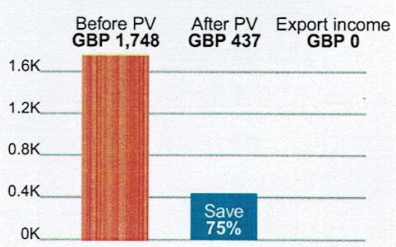
Based on an electricity usage of 4,600 kWh per year, the graph below shows how much electricity used in the property is expected to come directly from the solar panels (blue) , how much is expected to come from battery storage (green), and how much is expected to be imported from the grid (red).



Financial Benefits

Based on our model we expect you to self consume 3,449 kWh of the 7,430 kWh of electricity the system should generate - providing 75% of the annual electricity consumption of 4,600 kWh in the property.

At an electricity tariff of £0.38/kWh, that's a saving of **£1,311** on your electricity bill - down from £1,748 at present! Your new bill could be **just £437 per year.**



Overall, your savings and benefits are expected to be around £1,311 in the first year after the system is installed.

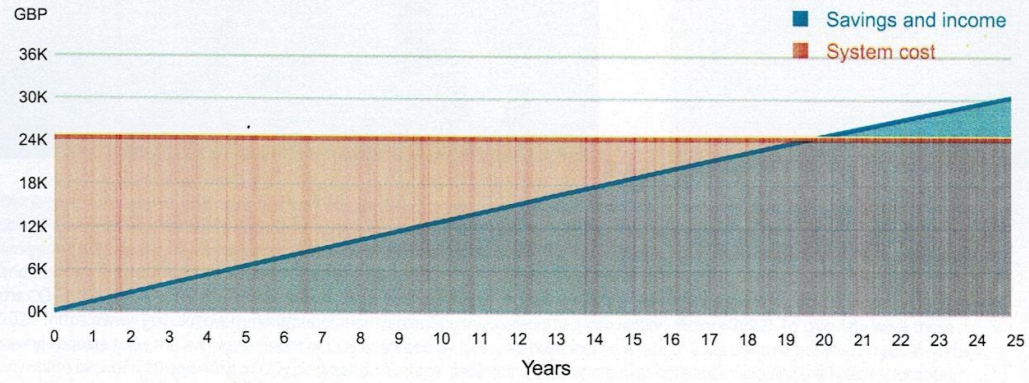
Payback

Using a more detailed model that also takes account of longer term factors such as inflation, gradual degradation in panel output over time and financial discount rates[1], **we expect the system to pay for itself in 16 years.**

Over a projected 25 year lifetime, we expect the system to have a **Net Present Value of £10,126.** A positive net present value is a good indication that an investment is financially worthwhile.

Disclaimer: Nothing in life is certain. Cloudy periods, growing trees, and even pigeon droppings can affect the output of your array. No-one really knows how electricity tariffs will change in the future, or what inflation will be in 10 years time. We have based our calculations on an inflation rate of 4%, electricity price that rises with inflation, a discount rate[1] of 4%, an import electricity tariff of 38p/kWh, and export payments of 0.0p/kWh. Returns are not guaranteed.

[1] Financial discounting is a method used to calculate the worth of future money in today's terms.



Environmental Benefits

Your new PV system will supply your property with clean, green electricity - and in sunny periods some will also be exported back to the grid.

Overall you'll be making a big contribution to reducing CO_2 not just by lowering the carbon intensity of your own electricity, but by putting low-carbon electricity back in the grid for others to use too.

Your current electricity supply produces

977 kg CO_2 each year

76% will be supplied by solar, saving

740 kg CO_2 each year

3,947 kWh will be exported, saving

838 kg CO_2 each year

Total savings

1,578 kg CO_2 each year

Your yearly CO_2 reduction of 1,578 kg is equal to...



a car ride of 5,634 miles



CO_2 absorbed by 72 trees

Disclaimer: We calculate and compare the likely annual CO_2 emissions for your home based on your generation and usage with the solar PV system detailed in this document versus estimates for a property like yours using energy from the grid. Your actual CO_2 emissions will depend on lots of factors, like how much energy your solar panels generate, how much of this energy you use directly and how much energy you continue to use from the grid. To calculate what these savings equate to in miles driven, we base this on the CO_2 emissions of an average sized diesel car as outlined in the UK government's 'Greenhouse gas reporting: conversion factors 2022' (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022). To calculate what these savings equate to as the average amount of CO_2 absorbed by trees, we base this on a rate of 25kg per tree per year. Trees absorbs anywhere between 10 and 40kg of CO_2 per year on average, depending on a whole host of factors including the species, location, planting density, and age.

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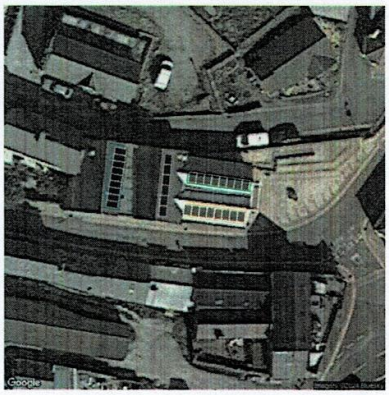
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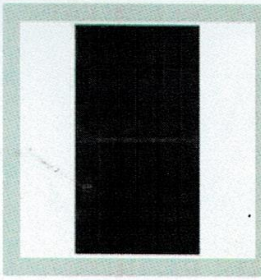
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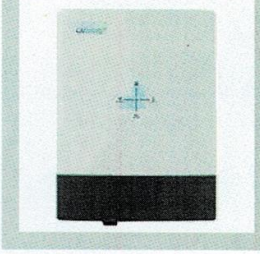




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