

Your Solar Proposal

Thanks for choosing Microgen Energy Ltd to provide a design for a solar PV system at Hilderstone, Stone. We're delighted to supply the attached proposal for a 251.24 kW solar array.

We expect your system to generate 203,444 kWh of clean electricity every year, and save 42,123 kg CO₂ of carbon.

There are full details on the following pages. We hope you enjoy the read!

Kind regards,

stuart ward

Microgen Energy Ltd

This proposal is for:

Andrew Barnett

Hilderstone
Stone
ST15 8sl

Prepared

20 February 2025

Valid for

30 days



251.24 kW PV System



£178,622.64 inc VAT: Expected payback 2 years. Estimated first year savings £51,267.89



203,444 kWh/yr: Annual CO₂ savings of 42,123 kg

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System Overview

Your system comprises **571 Jinko Tiger Neo 440W solar panels** to collect sunlight and turn it into DC electricity.

The panels will be connected to **2 Solis 110kW 5G 3 Phase inverters** and **1 SolaX X3 G4 15.0 FIT AC inverter**, which convert the DC electricity into mains (AC) electricity.

A **SolaX Triple 5.8kWh TP58 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.

Satellite Image



Solar Panels: Jinko Tiger Neo 440W × 571

No description

Model	JKM440N-54HL4R-B
Power	440 watts
Dimensions	1134 × 1762mm



Solis 110kW 5G 3 Phase × 2

Solis 110kW 5G 3 Phase 10x MPPT

SolaX X3 G4 15.0 FIT AC

The SolaX X1 G4 FIT is the perfect retrofit ac charging solution for triple power batteries.

System Components



Battery: SolaX Triple 5.8kWh TP58

With a 10-year warranty and 90% depth of discharge, the new Triple Power battery is a flexible, practical, high-performance energy storage.

Capacity	Primary: 5.800 kWh, Secondary 5.800 kWh
Quantity	1 × Primary, 3 × Secondary

Mounting



Fastensol mini rail mounting system

Fastensol mini rail systems are an excellent value, fully MCS accredited choice for pitched roof mounting systems, suitable for sheet metal roofs.



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.

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.

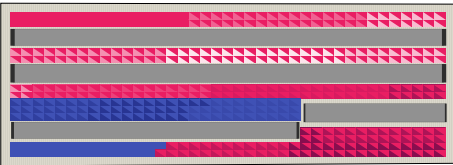
The degree of shading

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
203,444 kWh per year

Installation data	
Installation capacity of PV system – kWp (stc)	251 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 6
Performance Calculations	
kWh/kWp (Kk)	See sunpath diagrams
Shade Factor (SF)	See sunpath diagrams
Estimated output (kWp x Kk x SF)	203444 kWh

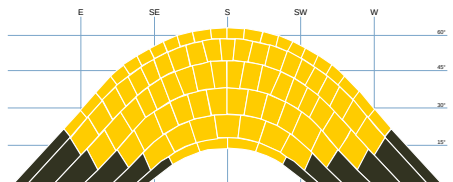
Roof diagrams



Stringing diagrams indicate which solar panels are connected to which inverter inputs.

Full sunpath and stringing diagrams for this system are given on the following page.

Sunpath diagrams

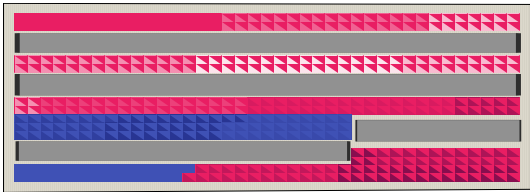


Sunpath diagrams indicate where the sky as seen from the solar array is blocked by neighbouring buildings, chimneys, trees, or other obstructions.

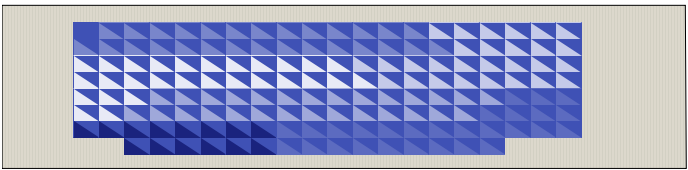
Important note: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of sunlight from location to location and from year to year. This estimate is based upon a model that takes account of meteorological data at your location and makes an allowance 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.

Roof diagrams

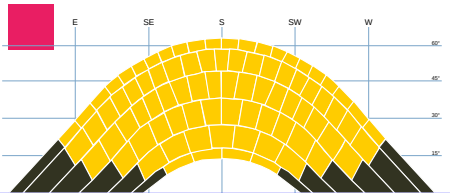


Roof 1 Orientation: -73° Pitch: 30°

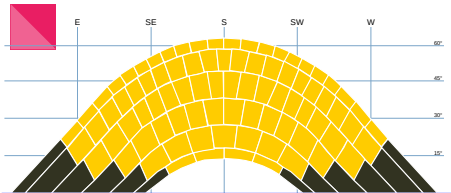


Roof 2 Orientation: -72° Pitch: 30°

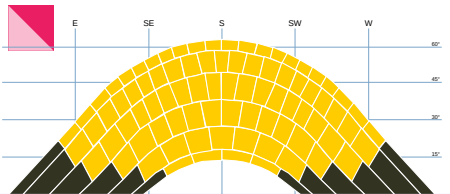
Sunpath diagrams



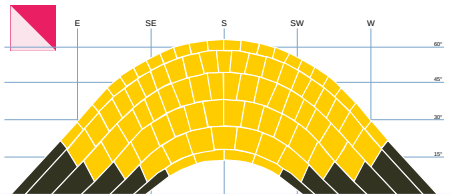
Shade factor: 1.00 Kk: 805



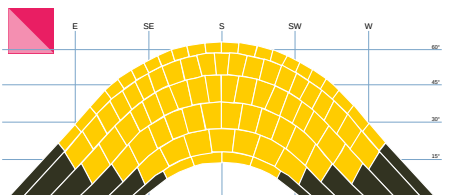
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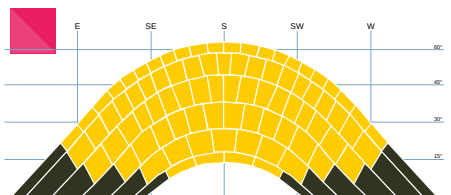
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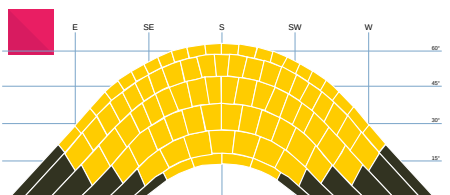
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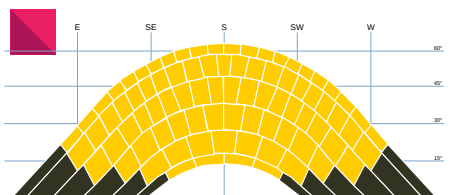
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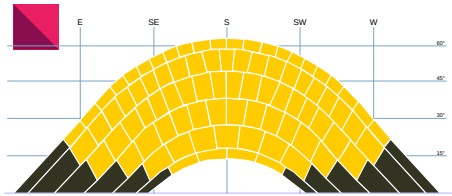
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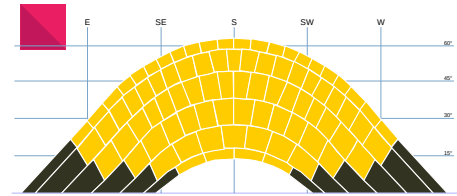
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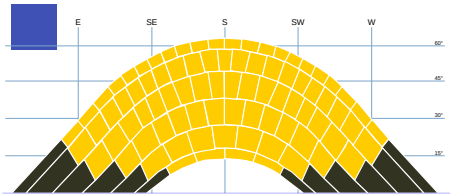
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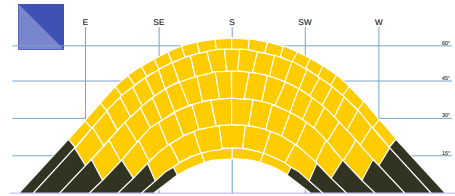
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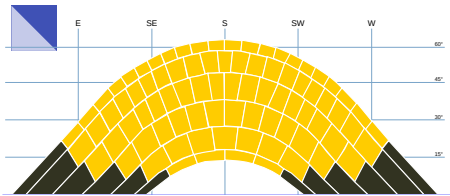
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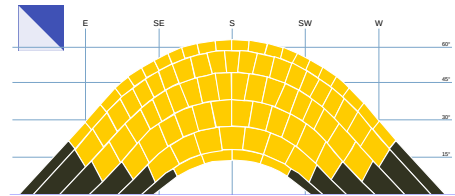
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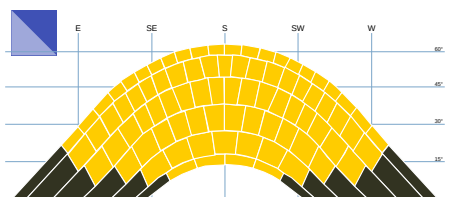
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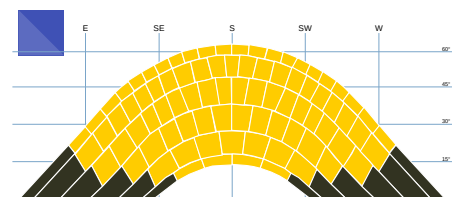
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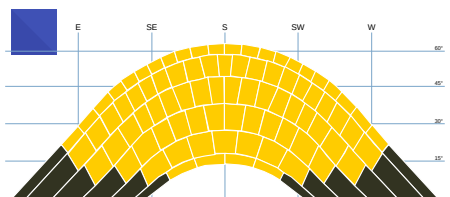
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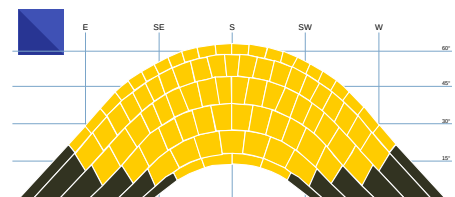
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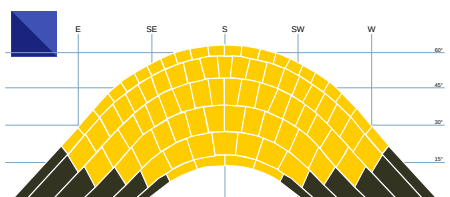
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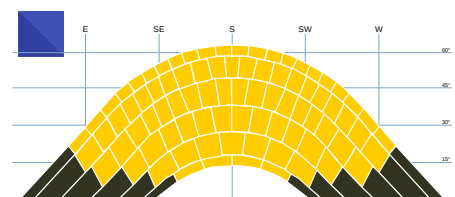
Shade factor: 1.00 Kk: 805



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Shade factor: 1.00 Kk: 805

Your Energy Explained

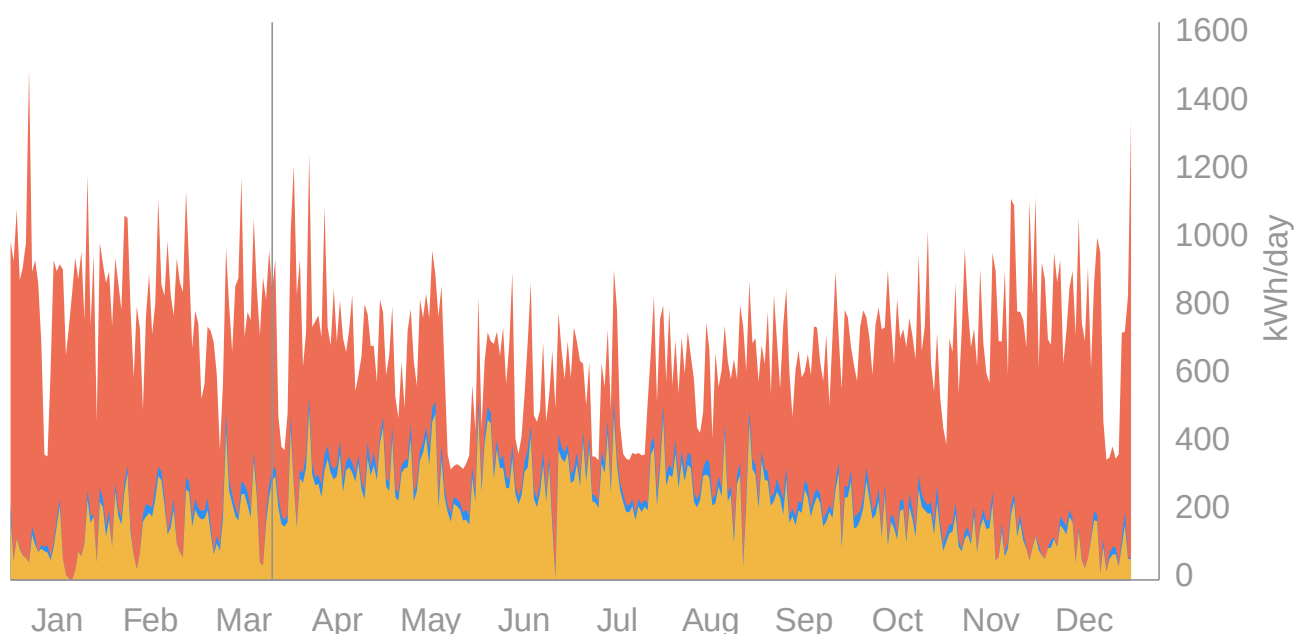
In addition to the MCS calculation of system output we have run a more detailed model of your system to estimate how much of the electricity generated by the system you are likely to use yourself and how much will go to the grid.

Smart Export Guarantee (SEG) information

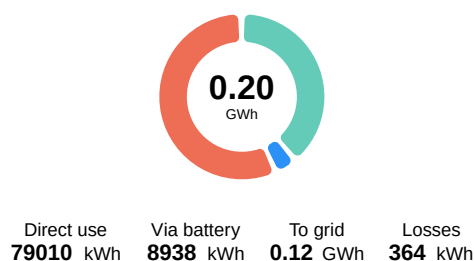
The Smart Export Guarantee (SEG) enables Generators to receive payments from electricity suppliers for the electricity they export back to the National Grid, providing specific criteria are met. Your installation will be MCS accredited, which means that you should be able to apply for SEG payments from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

Where your electricity will come from in a typical year

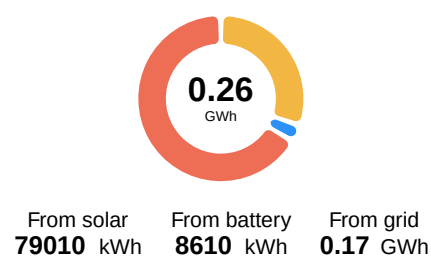
Based on an electricity usage of 261,301 kWh per year, the graph below shows how much electricity used in the property is expected to come directly from the solar panels (orange), how much is expected to come from battery storage (blue), and how much is expected to be imported from the grid (red).



Annual Generation



Annual Consumption



Annual Import/Export



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 CO₂ 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

54,102 kg CO₂ each year

34% will be supplied by solar, saving

18,210 kg CO₂ each year

115,496 kWh will be exported, saving

23,913 kg CO₂ each year

Total savings

42,123 kg CO₂ each year

Your yearly CO₂ reduction of 42,123 kg is equal to...



a car ride of 150,440 miles



CO₂ absorbed by 1,932 trees

Disclaimer: We calculate and compare the likely annual CO₂ 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 CO₂ 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 CO₂ emissions of an average sized diesel car as outlined in the UK government's 'Greenhouse gas reporting: conversion factors 2024' (<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024>). To calculate what these savings equate to as the average amount of CO₂ absorbed by trees, we base this on a rate of 22kg per tree per year. Trees absorb anywhere between 10 and 40kg of CO₂ per year on average, depending on a whole host of factors including the species, location, planting density, and age.

Quote

MICROGEN ENERGY LTD.
BIOGAS - COMBINED HEAT AND POWER - SOLAR ENERGY - HEAT PUMPS

Andrew Barnett
Hilderstone
Stone
ST15 8SL

Quote reference: 1079841
Quote date: 20/02/2025
Quote by: stuart ward
Quote validity: 30 days

Description of goods and services	Price
Goods	
251.24kW PV system comprising 311 Jinko 440W solar panels, 2 three phase Solis Three Phase PV inverters, an AC SolaX FiT inverter and 4 x 5.8kWh of battery storage	
SolaX X3 G4 15.0 FIT AC inverter + 4 x SolaX Triple Power 5.8kWh Battery - TP58	
Total goods and services	£148,852.20
System cost	£148,852.20
Total before VAT	£148,852.20
VAT at 20%	£29,770.44
Total payable including VAT	£178,622.64
25% Grant	-£37,213.05
Effective cost	£141,409.59

Order Form

To proceed with this order please sign below to acknowledge that you have read and accept the information contained within this quote document and our terms and conditions.

Customer signature

Customer name

Date
