



GREEN ENERGY ENGINEERING

49kW SOLAR SYSTEM

ADDRESSED TO:

MCPA

49 Parkstead Drive
Manchester
England M9 5QN
United Kingdom

Prepared by Carl Hutchinson on 10th January 2024
Last updated on 17th January 2024

CONTACT

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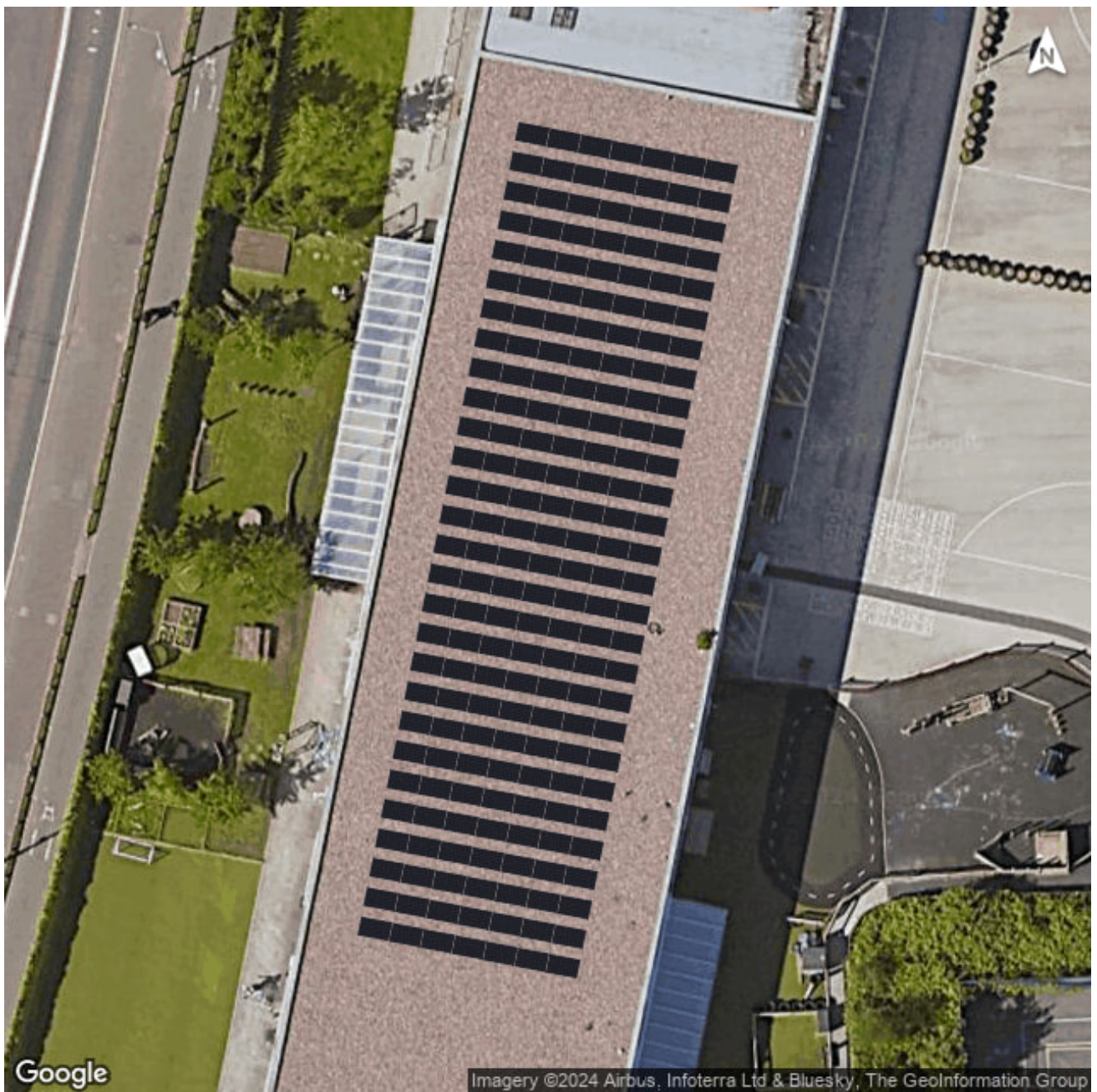
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PROPOSED PANEL LAYOUT

49 Parkstead Drive, Manchester
England M9 5QN



PANEL STRINGS & COMPONENT MARKINGS

SYSTEM DETAILS

–

Your custom design

System size¹

49 kW_{DC} (STC)

Estimated annual production²

37,153 kWh

Solar panel

196 × 250W JA Solar Smart Module - JAM6(SE)-60-250
1650 mm × 991 mm · Monocrystalline · [Datasheet](#)

Inverter

1 × Solis S5-GC36K · 36000W
Three phase · 98.7% max. efficiency · [Datasheet](#) · [Manual](#) · [Warranty](#)

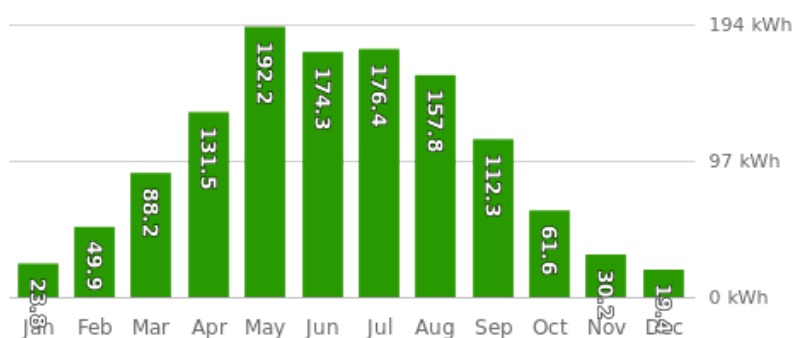
System efficiency³

87%

DAILY PRODUCTION PER MONTH

–

How much electricity will my system generate per day, on average?



UTILITY COSTS

–

Average monthly bill

£1,830.42

WITH SOLAR

£1,458.89 ↓ 20%
First year average

Annual bill

£21,965.00

£17,506.68 ↓ 20%
Estimated annual savings £4,458.32

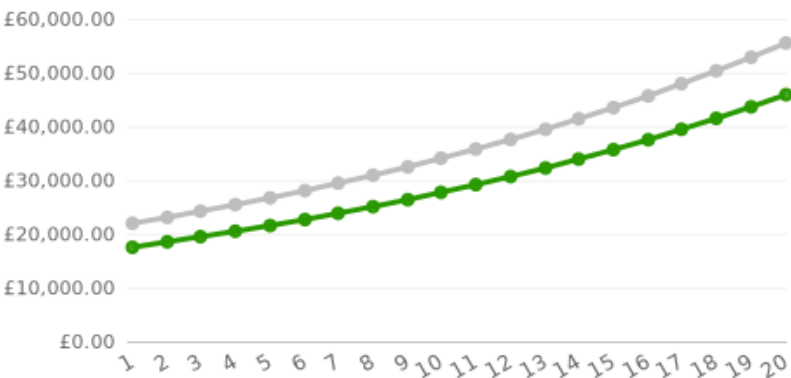
FINANCIAL ANALYSIS

Your historical electricity bills were used to help size your solar system. Based upon the system size suggested, the expected electricity bill savings over a 20 year period are provided below.

In addition, the first-year electricity bill savings you can expect are provided together with a chart of the monthly solar system output you can expect.

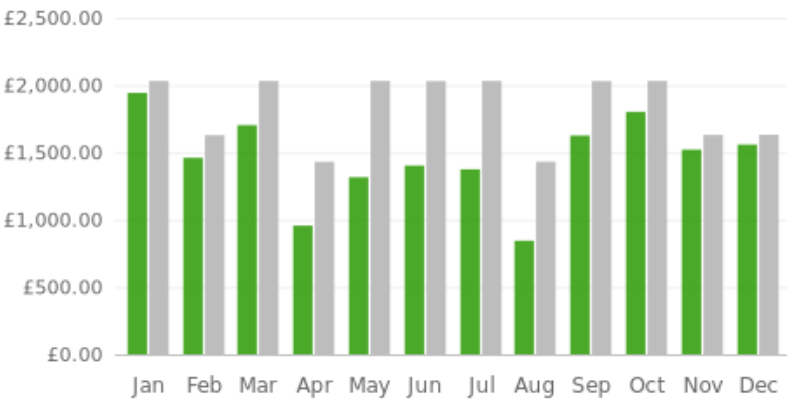
ANNUAL ELECTRICITY BILL OVER TIME⁴

- Electricity bill without solar
- Electricity bill with solar



MONTHLY ELECTRICITY BILL COMPARISON⁴

- Electricity bill without solar
- Electricity bill with solar



ENVIRONMENTAL ANALYSIS

Your solar system will generate significant environmental benefits. These come primarily from avoided power plant emissions.

Below is a summary of environmental benefits your solar system will provide.

TREES PLANTED EQUIVALENT

–

675 trees per year⁵

Each tree icon represents 70 trees



AVOIDED EQUIVALENT FUEL

–

11220 litres of petrol per year⁵

Each fuel can icon represents 1130 litres of fuel

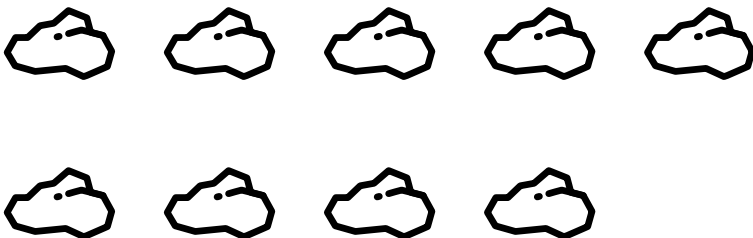


AVOIDED COAL BURNT

–

12752 kg of coal per year⁵

Each coal lump icon represents 1280 kg of coal



ADDITIONAL INFORMATION

Storeys
2

-

ASSUMED VALUES

-

DC Array Power Tilt Azimuth

49kW 10° 12°

Azimuth measured clockwise from South

System efficiency³

87%

AC system size

36kW

Export limit

No export limit

Monthly electricity usage

10,000kWh (Jan)	8,000kWh (Feb)
10,000kWh (Mar)	7,000kWh (Apr)
10,000kWh (May)	10,000kWh (Jun)
10,000kWh (Jul)	7,000kWh (Aug)
10,000kWh (Sep)	10,000kWh (Oct)
8,000kWh (Nov)	8,000kWh (Dec)

Utility rate inflation

5% per annum

Self-consumption rate

60%

Daily supply charge

£1.00

Current electricity price

£0.20

Smart Export Guarantee [read more](#)

£0.00

System lifetime

20 year

PV degradation

JA Solar Smart Module

JAM6(SE)-60-250

97% for the first year

-0.65% per year to year 25

ASSUMPTIONS AND DISCLAIMER

¹ The Standard Test Condition rating (STC) assumes a standard set of optimal operating conditions (25°C cell temperature, 1000 W/m² and an air mass of 1.5). The STC rating is most often used by manufacturers to classify the power output of PV modules. To calculate the system's energy production for any future year, the expected degradation in system performance is included (See "PV degradation", in table below).

² Energy Output is calculated based on historical solar irradiance at the given location. A typical meteorological year is selected using statistical methods. Factors including panel tilt, orientation (azimuth), and system efficiency are taken into account.

³ System efficiency is estimated to account for losses caused by a variety of factors. These factors include intermittent shading, cable losses, dirt, scheduled downtime, manufacturer tolerances, inverter efficiency for DC to AC (this does not affect off-grid DC only systems), battery round trip efficiency, and other factors.

⁴ Utility electricity price inflation is adjusted based on the given location.

⁵ United States Environmental Protection Agency. 2017. Greenhouse Gases Equivalencies Calculator - Calculations and References. [ONLINE] Available at: <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#kilowatt>.

Note The system design may change based on a detailed site audit. Estimated savings are based on past electrical usage and utility rates provided by the customer where applicable. Actual system production and savings will vary based on final system design, configuration, utility rates, applicable subsidies and your energy usage post-solar installation. Utility rates, charges and fee structures imposed by your utility are not affected by this proposal and are subject to change in the future at the discretion of your utility. The production calculations in this report are based on historical climate data for the site location and represent typical estimates of future solar production.

WARRANTY

Product	Type	Standard warranty	Downloads
Solis S5-GC36K 36000W	Inverter	5 years	Warranty file