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Project Name: June 2025 - Queens Hall, High Street, RH17 5EL. Parish Council

Address: Queens Hall, High Street, RH17 5EL

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Designer: Robin Jemmison





Solar Dynamics: Powering a Greener Tomorrow

At Solar Dynamics, we're more than just a solar energy provider—we're your partner in building a sustainable future. With our tailored solutions for homes and businesses, we deliver high-performance, eco-friendly energy systems designed to reduce costs and environmental impact. Our expert team leverages cutting-edge technology and unmatched experience to maximize your solar potential.

Why Choose Solar Dynamics?

- **Industry Expertise:** Decades of experience in the solar industry make us leaders in renewable energy innovation.
- **Customized Solutions:** We design systems that perfectly match your unique energy needs, maximizing efficiency and cost savings.
- **End-to-End Service:** From initial consultation to installation and ongoing support, our team is with you every step of the way.
- **Commitment to Sustainability:** Every system we install contributes to a cleaner, greener planet, helping reduce reliance on fossil fuels.

Our Services

Residential Solar Solutions

Our team works with homeowners to create energy solutions that lower utility bills, add value to homes, and reduce carbon footprints.

- **Tailored Installation:** We assess your home's layout, energy use, and sunlight exposure to create the ideal setup.
- **Long-Term Savings:** With a Solar Dynamics system, you can significantly reduce or even eliminate energy bills.

Commercial Solar Systems

We specialize in scalable, high-efficiency solar systems for businesses that lower overhead and boost sustainability.

- **Increase Profitability:** Reduce operational costs with renewable energy, freeing resources for growth.
- **Corporate Responsibility:** Demonstrate your commitment to sustainability, appealing to eco-conscious consumers.

Our Promise to You

Solar Dynamics combines premium technology, personalized service, and environmental responsibility to ensure every client receives the best in solar energy. Our systems are built to last, so you can count on clean, reliable power for decades.

SOME OF OUR WORK

650kWp Project - Retirement Village Group



230kWp Project - Chailey Heritage Foundation



80kWp - Set Square Creative



250kWp - ERG



75kWp - Local RFC



70kWp - Lingfield School



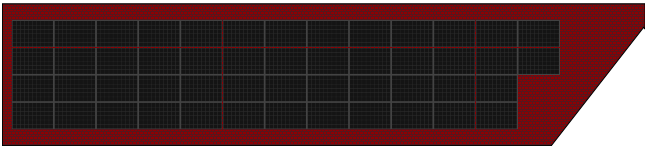
System Overview

Your system comprises **50 JA Solar 455W Dual Glass solar panels** to collect sunlight and turn it into DC electricity.

The panels will be connected to **1 Sigenergy Hybrid 25.0 3TP inverter**, which converts the DC electricity into mains (AC) electricity.

A **Sigenergy Hybrid 3PH 10kWh 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: JA Solar 455W Dual Glass × 50

n-type Double Glass Bifacial Modules

Model	JAM54D41 LB
Power	455 watts
Dimensions	1134 × 1762mm

Inverter: Sigenergy Hybrid 25.0 3TP

25kW Hybrid Inverter

AC Power	40000 watts
Trackers	4

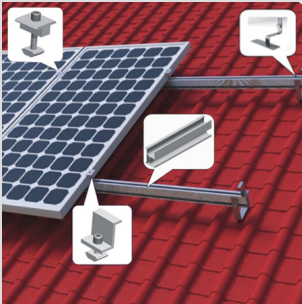
System Components



Battery: Signenergy SigenStor 5kW

5kWh Battery Module

Capacity	5.000 kWh
Quantity	2



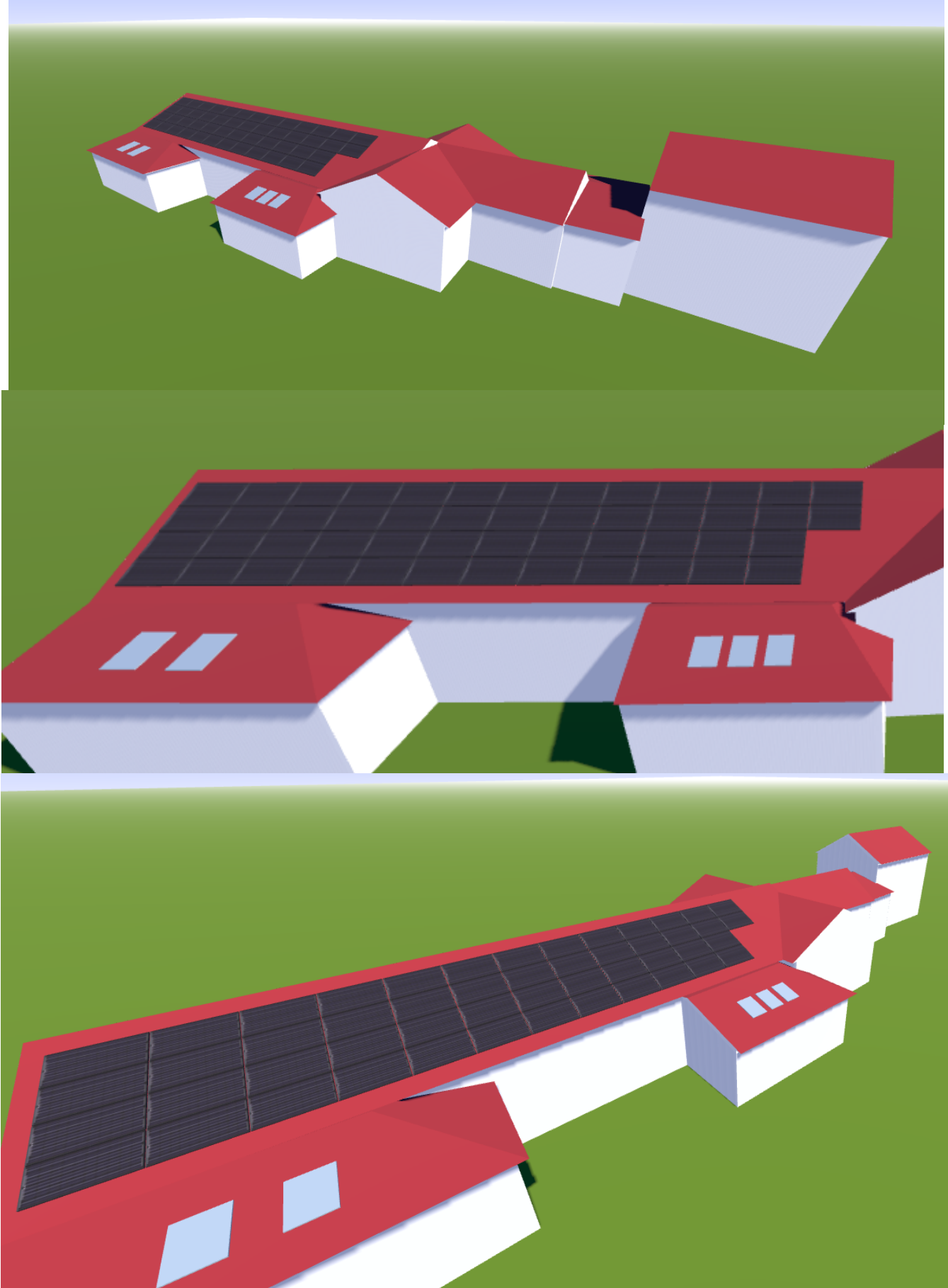
Mounting: Fastensol pitched roof mounting system

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

Designed for	Plain Tile roofs
Colour	Not specified

Roof Layout

Roof South



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

5,176

kg CO₂
each year

47% will be supplied by solar, saving

2,434

kg CO₂
each year

13,617 kWh will be exported, saving

2,819

kg CO₂
each year

Total savings

5,253

kg CO₂
each year

Your yearly CO₂ reduction of 5,253 kg is equal to...



a car ride of 18,762 miles



CO₂ absorbed by 241 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.

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.

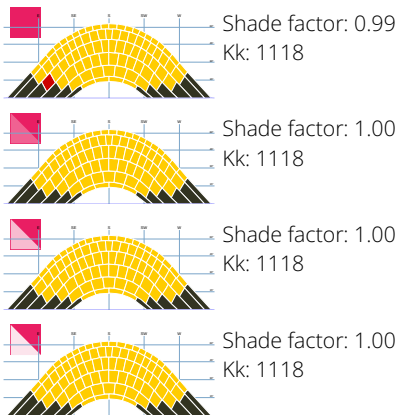
We expect your system to generate
25,373 kWh per year

Installation data	
Installation capacity of PV system – kWp (stc)	23 kWp
Orientation of the PV system – degrees from South	8°
Inclination of system (pitch) – degrees from horizontal	30°
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)	25373 kWh

Roof diagram



Sunpath diagrams



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.

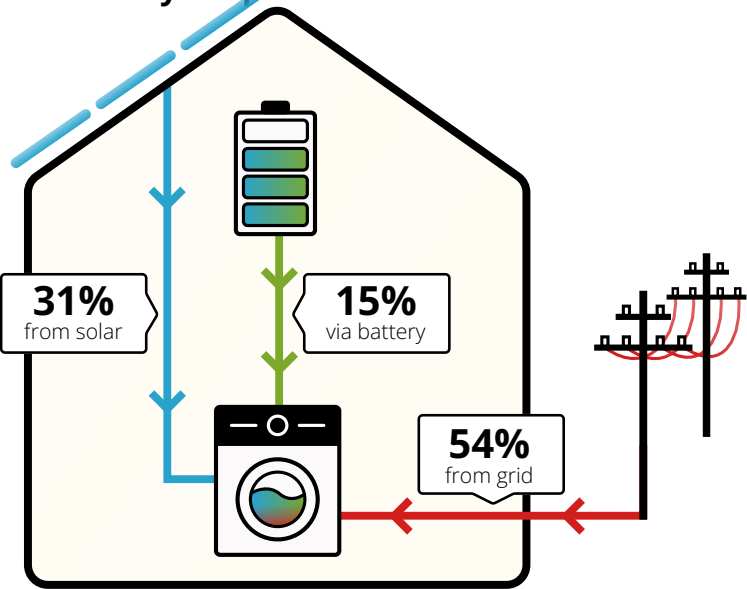
Battery Storage

We have included 10 kWh of battery storage 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 with electricity generated by your solar panels.

Where will your power come from?



Annual Power Requirement: 25373 kWh

How battery storage reduces your grid dependence

Including battery storage will reduce your grid dependence by an extra 15% compared with a PV-only system. You should only need to buy around 54% of your power from the grid.

 **46%**
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	25000 kWh
Expected solar PV self-consumption (PV Only)	7853 kWh
Grid electricity independence / Self-sufficiency (PV Only)	31%
Estimated PV self-consumption – with EESS	
Assumed usable capacity of electrical energy storage device, which is used for self-consumption	10 kWh
Expected solar PV self-consumption (with EESS)	11597 kWh
Grid electricity independence / Self-sufficiency (with EESS)	46%

Important note: We have used a model of your system running at high resolution over the course of a year to determine the likely self-consumption of your property and performance of the battery system. The energy performance and benefits of battery systems are impossible to predict with certainty due to the numerous functions battery systems 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.

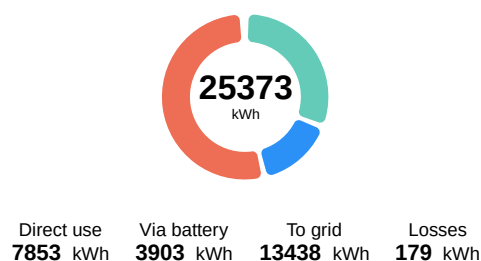
Smart Export Guarantee (SEG) information

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](https://www.ofgem.gov.uk)

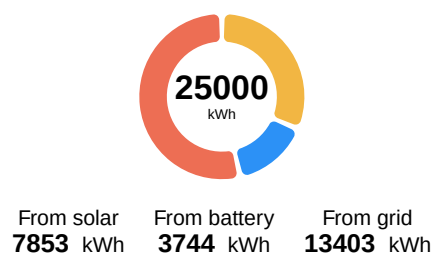
Where your electricity comes from in a typical year

Based on an electricity usage of 25,000 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).

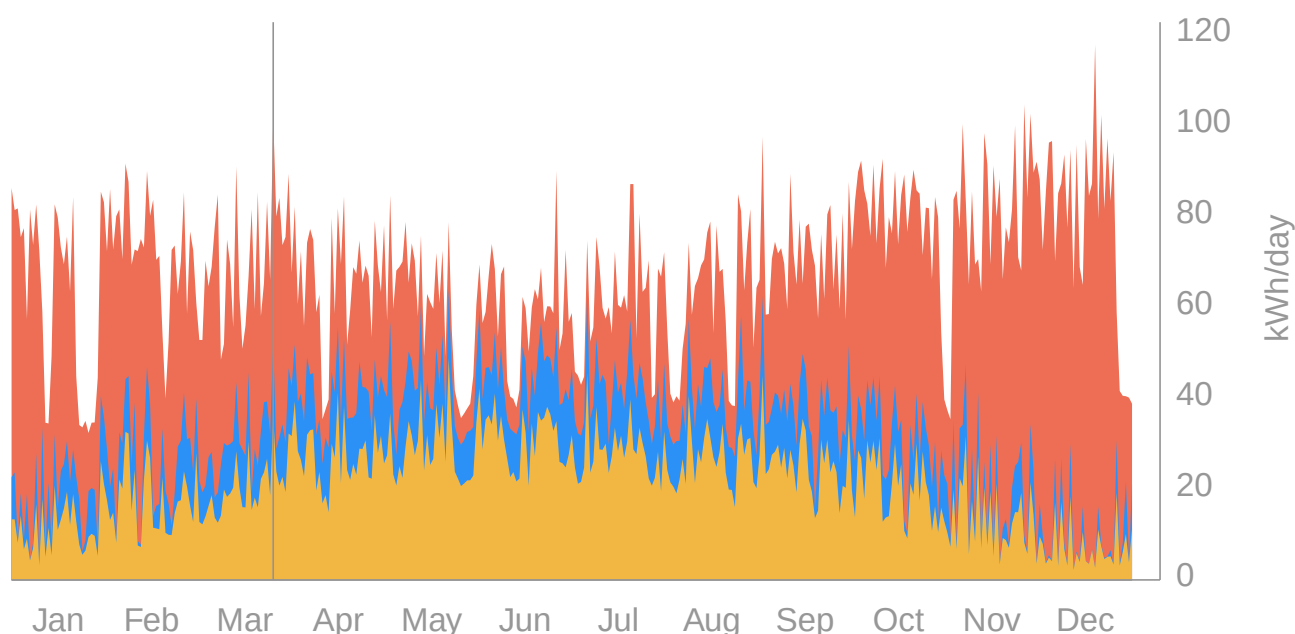
Annual Generation



Annual Consumption



Annual Import/Export



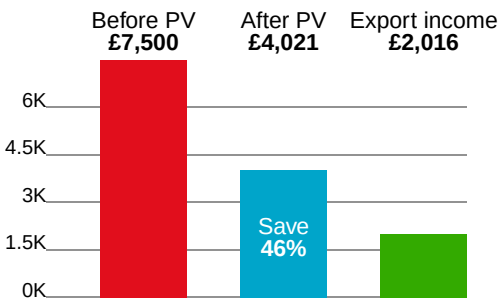
Financial Benefits

Based on our model we expect you to self consume 11,597 kWh of the 25,373 kWh of electricity the system should generate - providing 46% of the annual electricity consumption of 25,000 kWh in the property.

At an electricity tariff of 30.00 p/kWh that's a saving of £3,479 on your electricity bill - down from £7,500 at present! Your new bill could be just £4,021 per year.

13,438 kWh of excess solar energy will be exported to the grid. If you are paid by your supplier at 15.00 p/kWh you will receive an additional £2,016 in income from them.

Overall, your savings and benefits are expected to be around £5,495 in the first year after the system is installed.



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.

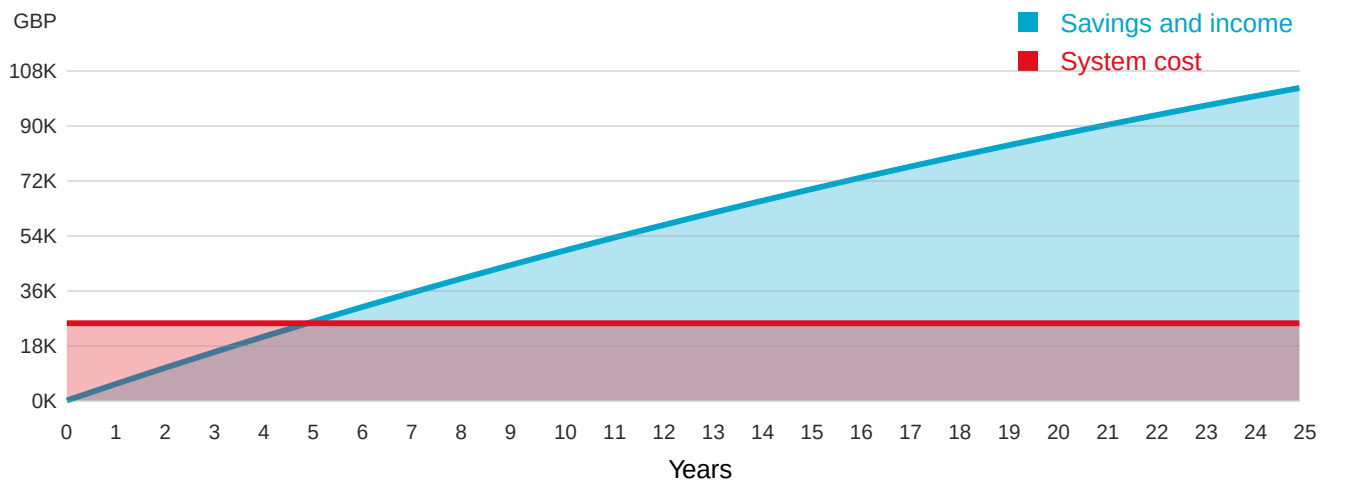
We have based our calculations on an inflation rate of 2%, electricity price that increases with inflation, a discount rate¹ of 4%, an import electricity tariff of 30.00 p/kWh, and export payments of 15.00 p/kWh. Returns are not guaranteed.

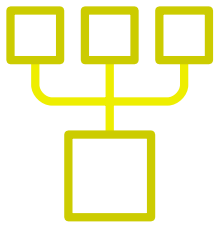
¹ Financial discounting is a method used to calculate the worth of future money in today's terms.

Payback

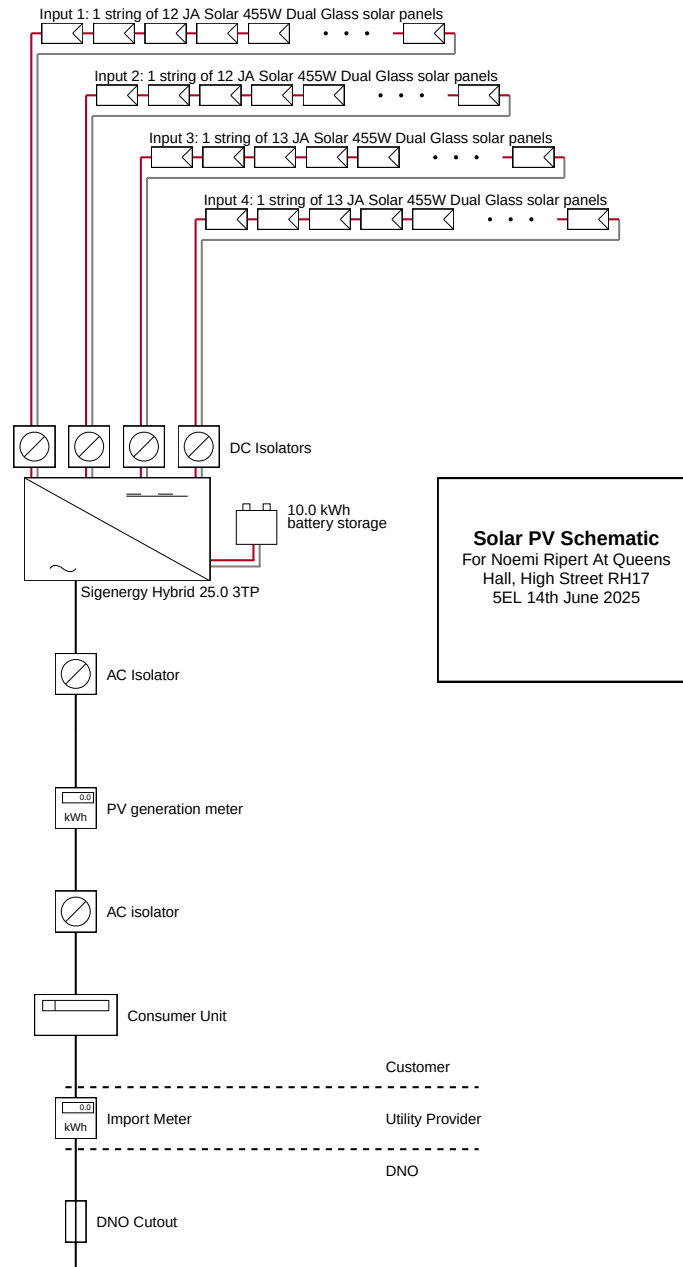
Using a more detailed model that also takes account of longer term factors such as inflation , gradual degradation in panel output over time and financial discount rates¹, we expect the system to pay for itself in 5 years.

Over a projected 25 year lifetime, we expect the system to have a **Net Present Value of £76,999**. A positive net present value is a good indication that an investment is financially worthwhile.





Schematic diagram



Performance Summary

A. Installation data		
Installed capacity of PV system – kWp (stc)	22.75	kWp
Orientation of the PV system – degrees from South	See individual inputs	
Inclination of system – degrees from horizontal	See individual inputs	
Postcode region	2	
B. Performance calculations		
kWh/kWp (Kk)	See individual inputs	
Shade factor (SF)	See individual inputs	
Estimated output (kWp × Kk × SF)	25373	kWh

Important Note: The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure is given as guidance only for the first year of generation. It should not be considered as a guarantee of performance.

Shading will be present on your system that will reduce its output to the factor stated. This factor was calculated using the MCS shading methodology and we believe that this will yield results within 10% of the actual energy estimate stated for most systems.



Equipment and Services

Equipment

50 x JA Solar 455W solar panels

Fastensol pitched roof mounting system

Sigenergy Hybrid 25.0 3TP inverter

2 x Signenergy SigenStor 5kW

Electrical and ancillary items

Delivery of materials

Consumables and ancillary equipment

Services

DNO/Witness Testing

Scaffolding

Roofing & Installation Services

Totals

Total before tax £25,274.55

VAT at 0% £0.00

Total including tax £25,274.55



Financial

Generation

The system is expected to generate 25373 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 596191 kwh, of which 285138 kWh will be consumed on site and 302356 kWh exported.

596
MWh

Payback

After adjusting projected costs and benefits for inflation, and applying a discount rate of 4%, the initial system cost of £25,274.55 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 £102,273.95. The cost of the PV system is £25,274.55. The net present value of the project is therefore £76,999.40. A positive net present value is a good indication that the project is financially worthwhile.

£76,999.
40

IRR

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

20.8
%

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	30.00 p/kWh increases with inflation
System size	22.75 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.

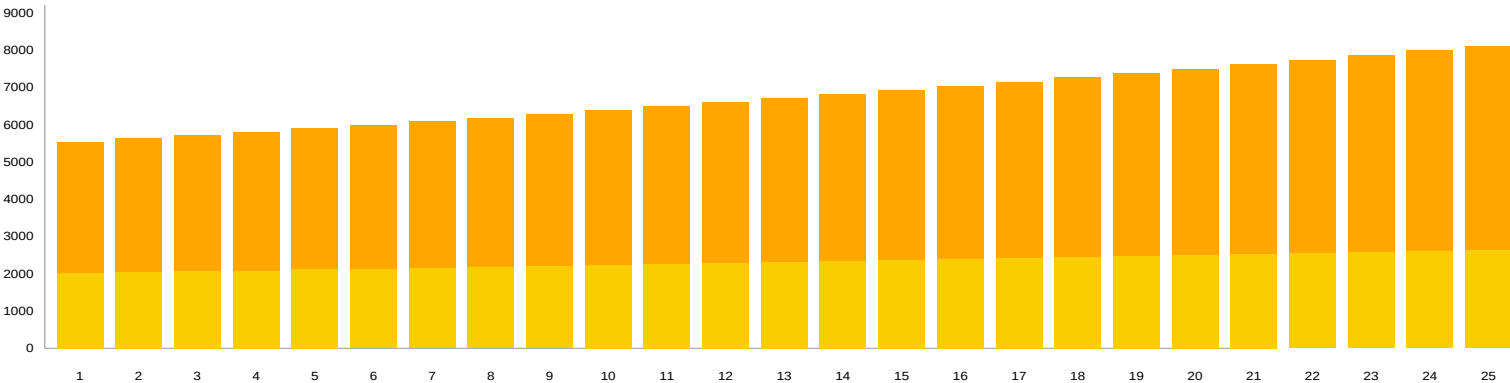
		Export payments	Electricity savings	Total
Year 1	2027	3512		5539
Year 2	2050	3577		5627
Year 3	2073	3644		5717
Year 4	2097	3712		5809
Year 5	2120	3781		5902
Year 6	2144	3852		5996
Year 7	2168	3924		6092
Year 8	2193	3997		6190
Year 9	2218	4072		6289
Year 10	2243	4147		6390
Year 11	2268	4225		6493
Year 12	2293	4304		6597
Year 13	2319	4384		6703
Year 14	2345	4465		6811
Year 15	2372	4549		6921
Year 16	2399	4633		7032
Year 17	2426	4720		7145
Year 18	2453	4808		7261
Year 19	2481	4897		7378
Year 20	2509	4988		7497
Year 21	2537	5081		7618
Year 22	2566	5176		7741
Year 23	2594	5272		7866
Year 24	2624	5370		7994
Year 25	2653	5470		8123



Total Export Payments over 25 years



Electricity savings over 25 years

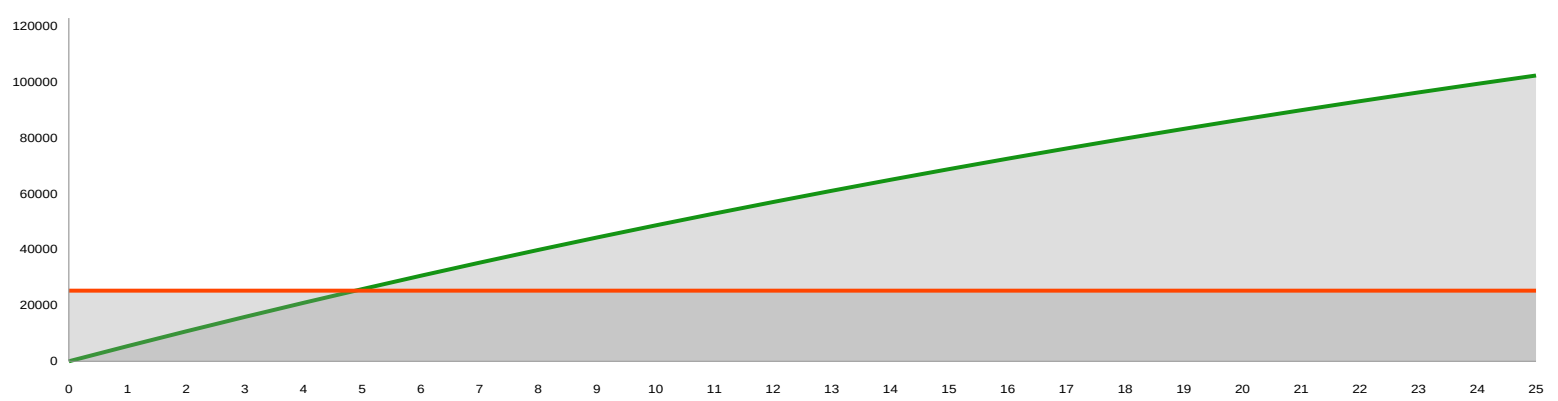


The bottom line

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	5428	5428	0	25275	-19846
Year 2	5294	10723	0	25275	-14552
Year 3	5164	15886	0	25275	-9388
Year 4	5036	20923	0	25275	-4352
Year 5	4912	25835	0	25275	561
Year 6	4791	30627	0	25275	5352
Year 7	4673	35300	0	25275	10025
Year 8	4558	39858	0	25275	14584
Year 9	4446	44304	0	25275	19030
Year 10	4337	48641	0	25275	23367
Year 11	4230	52871	0	25275	27597
Year 12	4126	56998	0	25275	31723
Year 13	4025	61023	0	25275	35748
Year 14	3926	64949	0	25275	39674
Year 15	3830	68778	0	25275	43504
Year 16	3736	72514	0	25275	47239
Year 17	3644	76158	0	25275	50883
Year 18	3555	79713	0	25275	54438
Year 19	3468	83180	0	25275	57906
Year 20	3383	86563	0	25275	61288
Year 21	3300	89863	0	25275	64588
Year 22	3219	93082	0	25275	67807
Year 23	3140	96222	0	25275	70947
Year 24	3063	99285	0	25275	74011
Year 25	2988	102274	0	25275	76999



We are Solar Dynamics

MCS Certification No: NIC-600541
Company Registration No: 13162795

APPROVED CONTRACTOR



Thank you

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