

LOVE SOLAR



Sarah Marshall

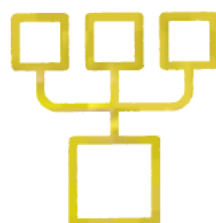
Project Name: Keekle Village Hall post survey CF
12-02-25

Phone: [REDACTED]

Address: Keekle Village Hall, Keekle Terrace, CA25 5RQ

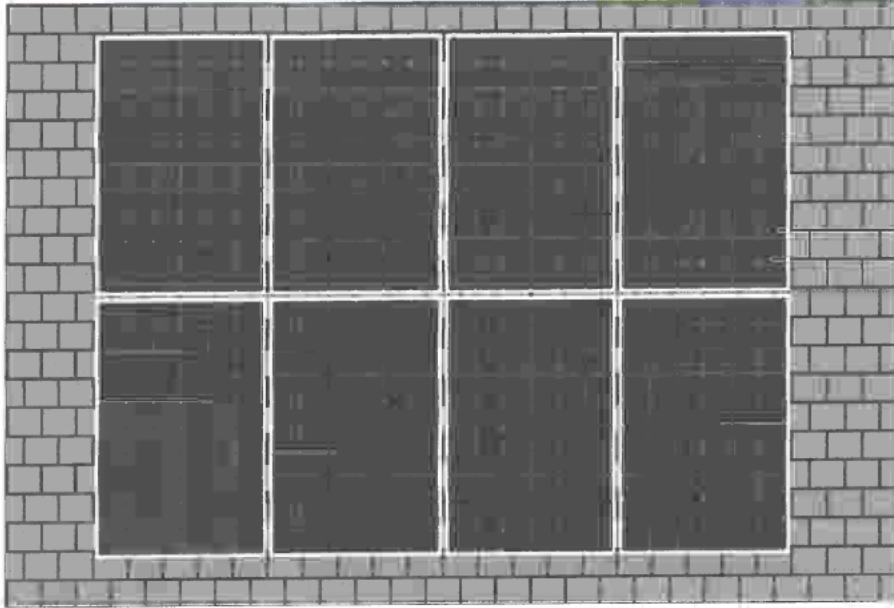
Date Created: 12th February 2025

Designer: Calvin Freed

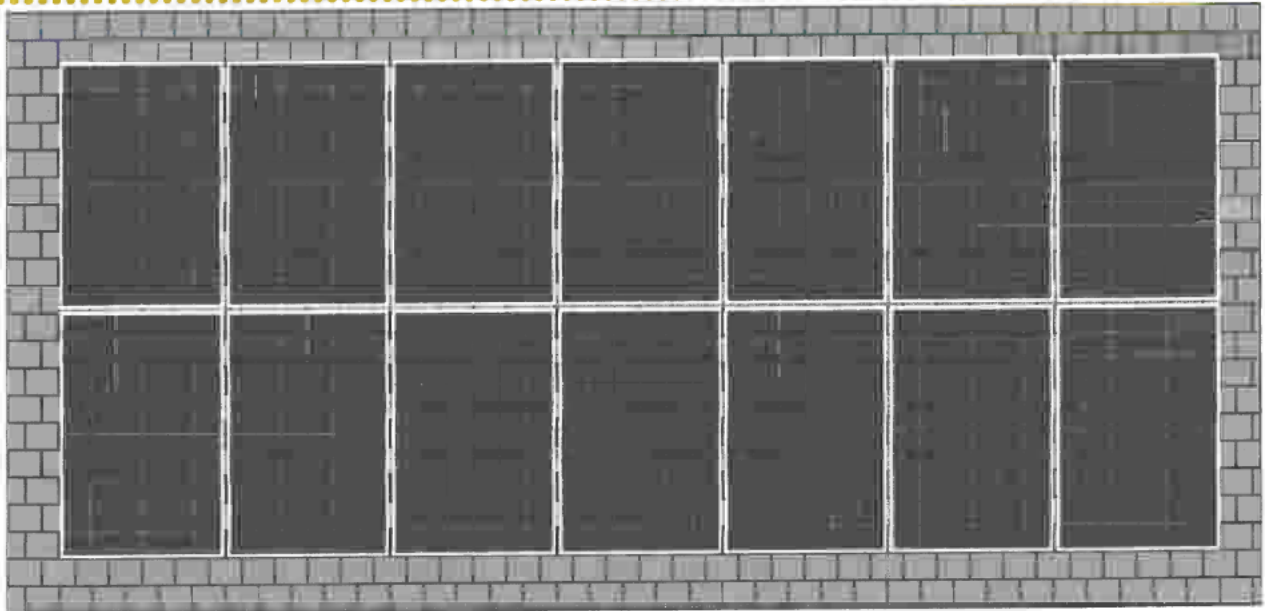


Roof Layout

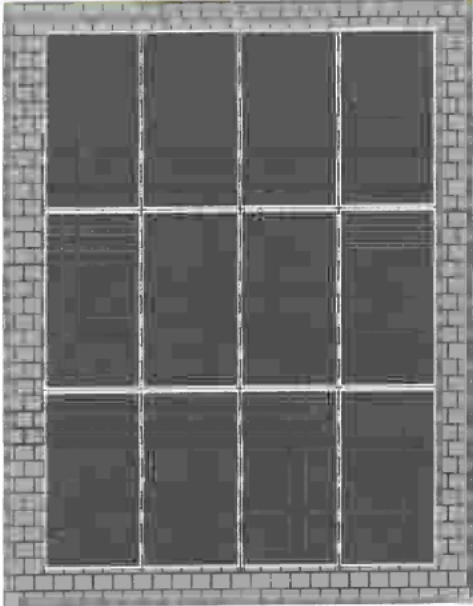
Roof 1 (kitchen)







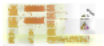










Roof 2 (main hall)



Roof 3 (over entrance)



Component list

| Item | Quantity |
|--|----------|
|  *HTH* Longi HiMo6 Explorer 435W Black White Mono solar panel | 22 |
|  *HTH* Longi HiMoX6 530W Black White Mono solar panel | 12 |
|  Sigenergy 1ph 12.0kW inverter | 1 |
|  **NET** Emlite Bi-directional Meter ECA2.n* | 1 |
|  Label sheet | 1 |
|  Fire Safety | 1 |
|  Battery Hazard Warning Label Pack | 1 |
|  - | 1 |
|  - | 1 |
|  AC isolator - IMO - 63A 4-pole | 2 |
|  Sigenergy 8.0kWh | 2 |
|  MC4 4mm Connector Pair | 8 |
|  100m reel of 4mm2 solar cable | 1 |
|  50m reel of 4mm2 solar cable | 1 |
|  Fastensol black universal clamp | 82 |



Fastensol black end cap

28



Fastensol portrait slate roof hook

82



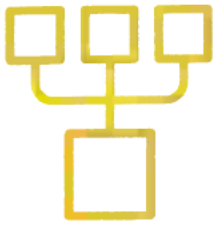
Fastensol rail splice

18

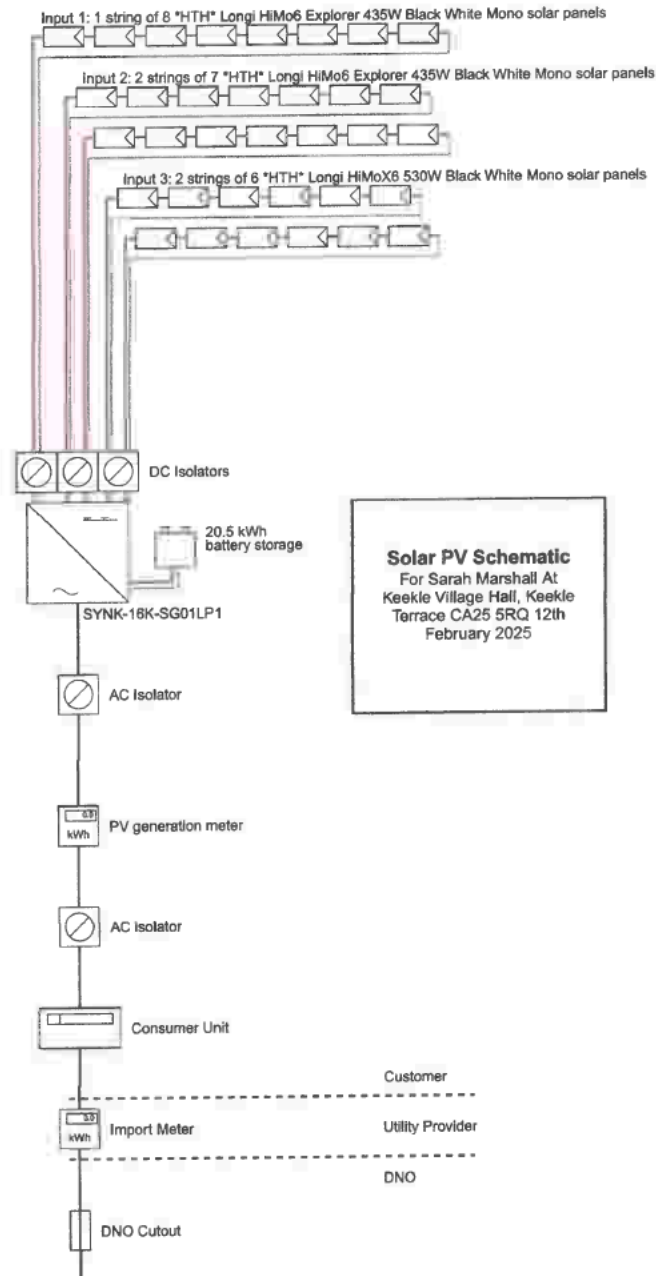


Fastensol silver rail 3550mm

24



Schematic diagram





Performance Estimate

Site details

Client

Sarah Marshall

Address

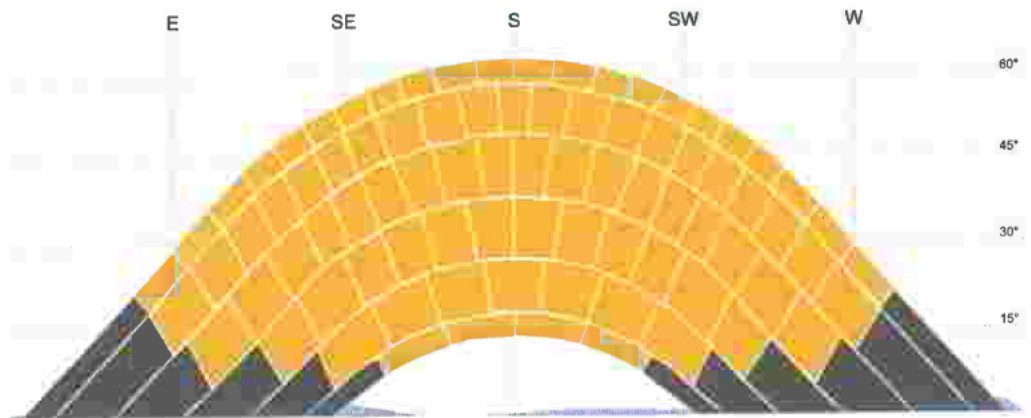
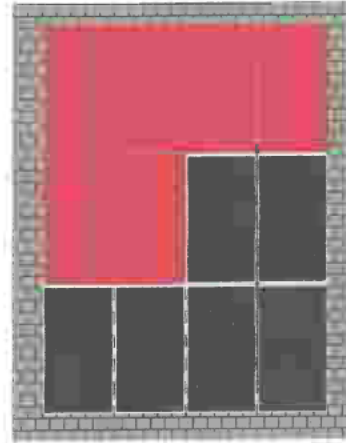
Keekle Village Hall, Keekle Terrace

The sunpath diagram shows the arcs of the sky that the sun passes through at different times of the day and year as yellow blocks. The shaded area indicates the horizon as seen from the location of the solar array. Where objects on the horizon are within 10m of the array, an added semi-circle is drawn to represent the increased shading. Blocks of the sky that are shaded by objects on the horizon are coloured red, and a shading factor is calculated from the number of red blocks. The performance of the solar array is calculated by multiplying the size of the array (kWp) by the shading factor (sf) and a site correction factor (kk), taken from tables which take account of the geographical location, orientation and inclination of the array.

Inverter 1

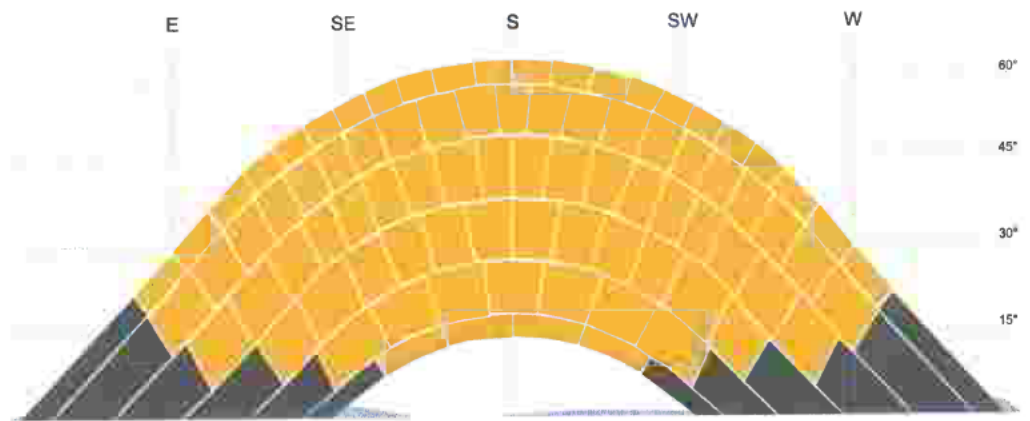
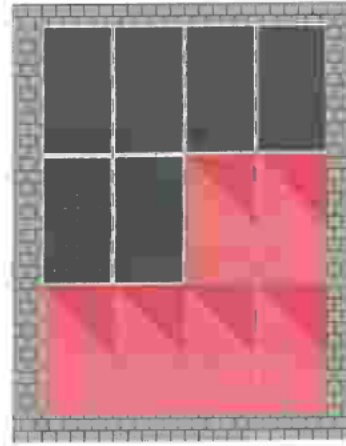
Sigenergy 1ph 12.0kW

Input 1



| A. Installation data | | |
|---|-------|---------|
| Installed capacity of PV system – kWp (stc) | 3.180 | kWp |
| Orientation of the PV system – degrees from South | -5 | ° |
| Inclination of system – degrees from horizontal | 30 | ° |
| Postcode region | 8E | |
| B. Performance calculations | | |
| kWh/kWp (Kk) | 869 | kWh/kWp |
| Shade factor (SF) | 1.00 | |
| Estimated output (kWp × Kk × SF) | 2763 | kWh |

Input 2



A. Installation data

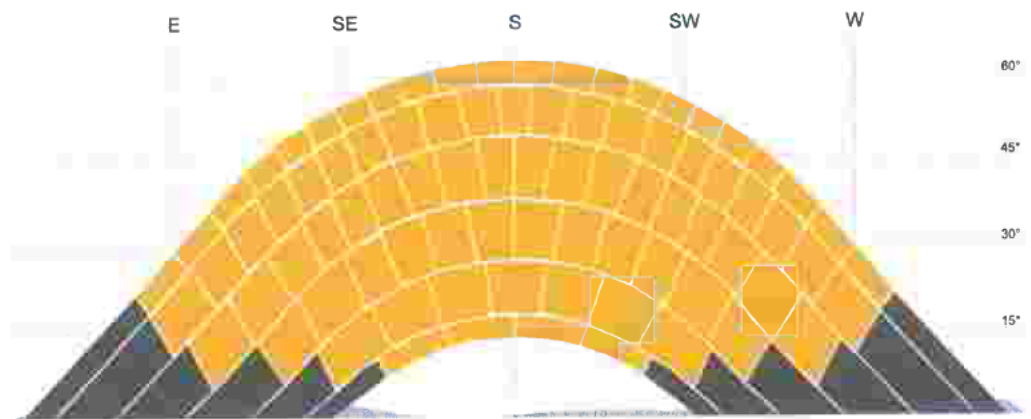
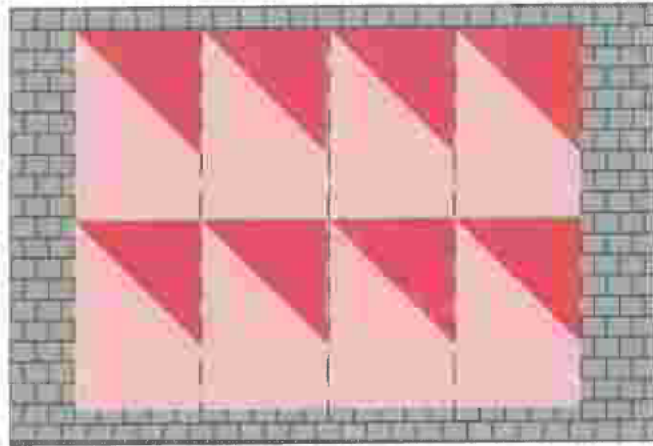
| | | |
|---|-------|-----|
| Installed capacity of PV system – kWp (stc) | 3.180 | kWp |
| Orientation of the PV system – degrees from South | -5 | ° |
| Inclination of system – degrees from horizontal | 30 | ° |
| Postcode region | 8E | |



B. Performance calculations

| | | |
|----------------------------------|------|---------|
| kWh/kWp (Kk) | 869 | kWh/kWp |
| Shade factor (SF) | 1.00 | |
| Estimated output (kWp × Kk × SF) | 2763 | kWh |

Input 3



A. Installation data

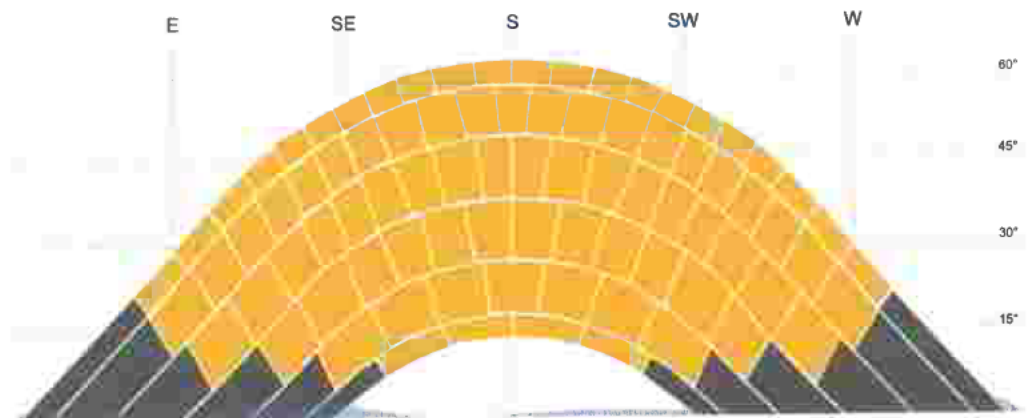
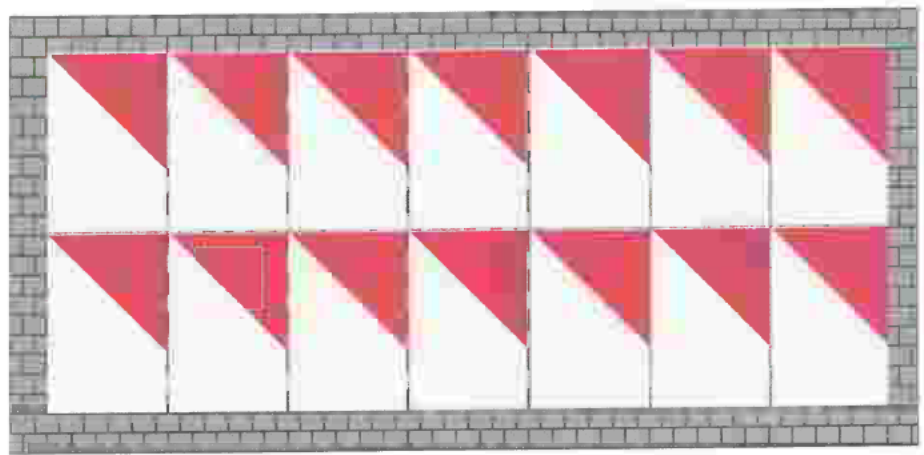
| | | |
|---|-------|-----|
| Installed capacity of PV system – kWp (stc) | 3.480 | kWp |
| Orientation of the PV system – degrees from South | -5 | ° |
| Inclination of system – degrees from horizontal | 40 | ° |
| Postcode region | 8E | |



B. Performance calculations

| | | |
|----------------------------------|------|---------|
| kWh/kWp (Kk) | 879 | kWh/kWp |
| Shade factor (SF) | 1.00 | |
| Estimated output (kWp × Kk × SF) | 3059 | kWh |

Input 4



A. Installation data

| | | |
|---|-------|-----|
| Installed capacity of PV system – kWp (stc) | 6.090 | kWp |
| Orientation of the PV system – degrees from South | -5 | ° |
| Inclination of system – degrees from horizontal | 30 | ° |
| Postcode region | 8E | |



B. Performance calculations

| | | |
|----------------------------------|------|---------|
| kWh/kWp (Kk) | 869 | kWh/kWp |
| Shade factor (SF) | 1.00 | |
| Estimated output (kWp × Kk × SF) | 5292 | kWh |

Performance Summary

| A. Installation data | | |
|---|------------------------------|-----|
| Installed capacity of PV system – kWp (stc) | 15.93 | kWp |
| Orientation of the PV system – degrees from South | See individual inputs | |
| Inclination of system – degrees from horizontal | See individual inputs | |
| Postcode region | 8E | |
| B. Performance calculations | | |
| kWh/kWp (Kk) | See individual inputs | |
| Shade factor (SF) | See individual inputs | |
| Estimated output (kWp × Kk × SF) | 13877 | 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.



Equipment and Services

Equipment Costs

22 x *HTH* Longi HiMo6 Explorer 435W Black White Mono solar panel

12 x *HTH* Longi HiMoX6 530W Black White Mono solar panel

82 x Fastensol black universal clamp

28 x Fastensol black end cap

82 x Fastensol portrait slate roof hook

18 x Fastensol rail splice

24 x Fastensol silver rail 3550mm

Sigenergy 1ph 12.0kW inverter

2 x Sigenergy 8.0kWh

2 x AC isolator - IMO - 63A 4-pole

8 x MC4 4mm Connector Pair

100m reel of 4mm² solar cable

50m reel of 4mm² solar cable

NET Emlite Bi-directional Meter ECA2.n*

Label sheet

Fire Safety

Battery Hazard Warning Label Pack

Flexible slate flashing

Total equipment cost

£11,184.25

Services Costs

Installation Labour

Scaffolding NOT INCLUDED IN ESTIMATE

AC/Electrical work (ESTIMATE)

MCS, DNO notification & application

Site survey, project management & administration

| | |
|---------------------|-----------|
| Total services cost | £5,525.01 |
|---------------------|-----------|

Totals

| | |
|------------------|------------|
| Total before tax | £16,709.26 |
|------------------|------------|

| | |
|-----------|-------|
| VAT at 0% | £0.00 |
|-----------|-------|

| | |
|---------------------|------------|
| Total including tax | £16,709.26 |
|---------------------|------------|



Financial

Generation

The system is expected to generate 13877 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 326069 kwh, of which 277158 kWh will be consumed on site and 48910 kWh exported.



Payback

After adjusting projected costs and benefits for inflation, and applying a discount rate of 4%, the initial system cost of £16,709.26 is expected to be recouped after 4 years.



Net Present Value

The total present value of future benefits and costs, using a discount rate of 4% per year, is £284,363.42. The cost of the PV system is £16,709.26. The net present value of the project is therefore £267,654.16. A positive net present value is a good indication that the project is financially worthwhile.



IRR

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



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 | 25.00 p/kWh <small>increases at 12% above inflation per year</small> |
| System size | 15.93 kWp <small>degrades at 0.5% per year</small> |
| 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.

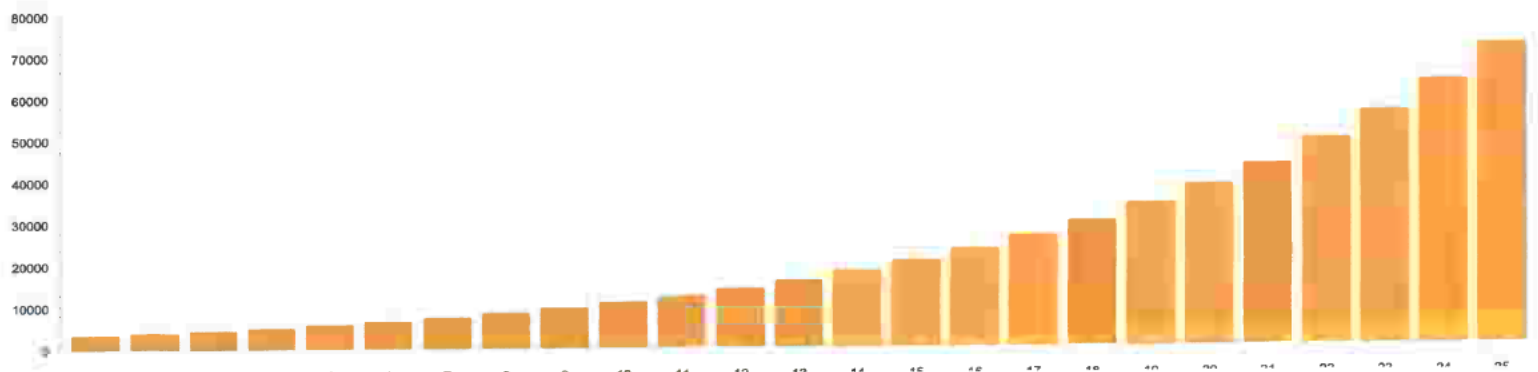
| | Export payments | Electricity savings | Total |
|---------|-----------------|---------------------|-------|
| Year 1 | 333 | 3147 | 3481 |
| Year 2 | 378 | 3570 | 3948 |
| Year 3 | 429 | 4050 | 4478 |
| Year 4 | 486 | 4593 | 5080 |
| Year 5 | 552 | 5210 | 5762 |
| Year 6 | 626 | 5910 | 6536 |
| Year 7 | 710 | 6704 | 7414 |
| Year 8 | 805 | 7604 | 8409 |
| Year 9 | 913 | 8625 | 9539 |
| Year 10 | 1036 | 9784 | 10820 |
| Year 11 | 1175 | 11098 | 12273 |
| Year 12 | 1333 | 12588 | 13921 |
| Year 13 | 1512 | 14279 | 15790 |
| Year 14 | 1715 | 16196 | 17911 |
| Year 15 | 1945 | 18371 | 20317 |
| Year 16 | 2206 | 20839 | 23045 |
| Year 17 | 2503 | 23637 | 26140 |
| Year 18 | 2839 | 26812 | 29651 |
| Year 19 | 3220 | 30413 | 33633 |
| Year 20 | 3653 | 34497 | 38150 |
| Year 21 | 4143 | 39130 | 43273 |
| Year 22 | 4700 | 44385 | 49085 |
| Year 23 | 5331 | 50346 | 55677 |
| Year 24 | 6047 | 57108 | 63154 |
| Year 25 | 6859 | 64777 | 71636 |



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 4 years.

| | Discounted benefits | Cumulative benefits | Discounted costs | Cumulative costs | Cashflow |
|---------|---------------------|---------------------|------------------|------------------|----------|
| Year 1 | 3411 | 3411 | 0 | 16709 | -13298 |
| Year 2 | 3714 | 7125 | 0 | 16709 | -9584 |
| Year 3 | 4045 | 11170 | 0 | 16709 | -5539 |
| Year 4 | 4404 | 15574 | 0 | 16709 | -1135 |
| Year 5 | 4796 | 20371 | 0 | 16709 | 3661 |
| Year 6 | 5223 | 25593 | 0 | 16709 | 8884 |
| Year 7 | 5687 | 31280 | 0 | 16709 | 14571 |
| Year 8 | 6193 | 37473 | 0 | 16709 | 20763 |
| Year 9 | 6743 | 44216 | 0 | 16709 | 27507 |
| Year 10 | 7343 | 51559 | 0 | 16709 | 34850 |
| Year 11 | 7996 | 59555 | 0 | 16709 | 42846 |
| Year 12 | 8707 | 68262 | 0 | 16709 | 51553 |
| Year 13 | 9481 | 77744 | 0 | 16709 | 61035 |
| Year 14 | 10325 | 88069 | 0 | 16709 | 71359 |
| Year 15 | 11243 | 99311 | 0 | 16709 | 82602 |
| Year 16 | 12243 | 111554 | 0 | 16709 | 94845 |
| Year 17 | 13331 | 124885 | 0 | 16709 | 108176 |
| Year 18 | 14517 | 139402 | 0 | 16709 | 122693 |
| Year 19 | 15808 | 155210 | 0 | 16709 | 138501 |
| Year 20 | 17214 | 172424 | 0 | 16709 | 155714 |
| Year 21 | 18744 | 191168 | 0 | 16709 | 174459 |
| Year 22 | 20411 | 211579 | 0 | 16709 | 194870 |
| Year 23 | 22226 | 233805 | 0 | 16709 | 217096 |
| Year 24 | 24203 | 258008 | 0 | 16709 | 241299 |
| Year 25 | 26355 | 284363 | 0 | 16709 | 267654 |

