

Mr Tok Charles
Spirit Energy
RG30 1BD

17 April 2024



System Summary Page



Proposed
Panel Layout

£2,350
First Year Savings

£85,820
25 Year Savings

25 Year Savings
(Panel Warranty
Period)

How much the client
should save in the
first year

7 years
Payback Period

14.2%
Investment Yield (IRR)

Internal Rate of
Return & Payback
Period

Payback Scenarios

Your payback period is greatly affected by the rate of electricity inflation. Here are some different scenarios...

	Electricity Price	Payback Period	25 Year Savings	Investment Yield (IRR)
1)	5%	7 years	£85,820	14%
2)	10%	6 years	£168,390	19%
3)	15%	5 years	£349,817	24%

How the investment case is affected
by electricity inflation.

Electricity Cost

This is the average expected unit cost for electricity over the next 15 years.

Unit Cost
27.9 p/kWh

Average Electricity Cost next 15 years with the system

Unit Cost
35.2 p/kWh

Average Electricity Cost next 15 years without the system

Assuming 5% electricity inflation rate.

34% Grid Independent

The average cost per kWh that the client will be paying per unit of electricity used on site over the next 15 years

Quotation

Solar PV System Size: 11.31 kWp

Battery Size: 13.5 kWh usable storage capacity

Solar

- 26x JA Solar 435 mono/ all black
- 1 x Solis 8 kW S5 Dual MPPT w/DC & 1 x
- K2 Tile (rosemary)
- Included: Power diverter (eddi by myenergi)
- No EV chargepoint has been included

Battery

- 1 x Tesla Gateway 2
- 1 x Tesla Powerwall

A summary for the proposed PV & Battery system. You can see here that the client also opted for a myenergi power diverter.

Total Price: £19,830

See pages 2 - 3 for more details

This is an estimation for what we think this system would cost from this client's local installers.

Nick

December 2023

★★★★★ Trustpilot

Knowledgeable and flexible: a great partner for a solar PV project

"I am very happy with the outcome of my project with Spirit Energy. My project was pretty complex: Solar PV (AC and DC-coupled), inverter/battery storage and EV charger. Spirit Energy were patient, understood my ambitions and helped me realise my conceptual design and physical layout (with some helpful suggestions too, to make it even better).

I would recommend Spirit Energy to anyone looking for anything beyond a basic PV installation. Very knowledgeable and flexible. Just what I wanted."



The owners of this house have loved their solar system from Spirit so much that they have added to it 5 times over the past 11 years! They also have a Victron battery system capable of full three-phase backup.



Here's a detailed breakdown for the solar PV system proposed for this client.

Solar PV System Design & Breakdown

The total kWp of the panels.

The panel brand, make & size.

The inverters used in the PV system.

The mounting system & brand.

Customer name: Mr Tok Charles

ref: 37513/PV1

The cost for the PV side of the quotation.

11.31 kWp Solar PV System

£13,030 0% VAT

There are various types of bird proofing available, however, this client decided against including it.

PV Panels

26 x JA Solar 435 mono/ all black

Inverter

1 x Solis 8 kW S5 Dual MPPT w/DC & 1 x Solis 3.6kW S6 Dual MPPT w/DC

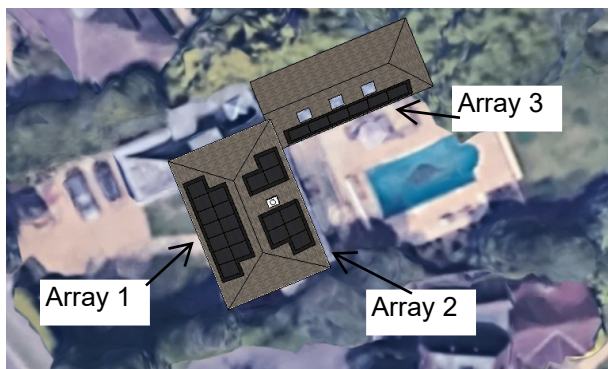
Mounting

K2 Tile (rosemary)

Please let us know if you would like a quote for bird proofing the panel array(s)

This system will require permission from the network operator to connect. Applications typically take up to 11 weeks to be processed, so please account for this lead time if necessary.

Proposed Layout



Installation Data

	Array		
	1	2	3
Panel Output (kWp)	5.22	3.48	2.61
Orientation (from south)	87°	93°	3°
Slope	35°	35°	35°
Losses	0%	5%	12%
Annual Output (kWh)	4,181	2,594	2,252

A breakdown for each panel array with the:

- Size in kWp
- Orientation
- Pitch
- Shade losses
- Modelled annual output

Goods and Services

Solar PV Equipment Included		
Modules	x 26	£2,320
Inverter	x 2	£1,564
Mounting Kit		£1,898
Electrical Equipment		£1,398
eddi by myenergi		£437
Goods Total ex VAT		£7,617
VAT @ 0%		£0

Services Included	
Scaffolding	✓
System Design	✓
Installation	✓
Testing & Commission	✓
Structural Survey	✓
MCS Registration	✓
Services Total ex VAT	£5,413
VAT @ 0%	£0

A price breakdown for what we expect this client's local installers to quote.

Total inc VAT £13,030

A summary of the services that we expect the client's local installers to provide, with the total cost.

Here's a detailed breakdown for the battery storage system proposed for this client.

Battery Storage System Design & Breakdown

Client name: Mr Tok Charles

ref: 37513/PV1

Recommended Battery Storage System

£6,800 0% VAT

The battery system quoted.

The specification for the system.

Warranty details for the system.

System components	1 x Tesla Gateway 2 1 x Tesla Powerwall
System specification	13.5 kWh usable storage capacity 5 kW maximum continuous charge/discharge rate
Battery warranty	10 years unlimited cycles, 80% retained capacity



Solar self-consumption



Energy independence



Real time monitoring

TESLA
POWERWALL
CERTIFIED INSTALLER



Goods and Services

Equipment Included

1 x Tesla Gateway 2	✓
1 x Tesla Powerwall	✓
Electrical Equipment	✓
Battery Total ex. VAT	£5,190
VAT @ 0%	£0

Services Included

System Design & Grid Application	✓
Installation, Testing, Commissioning	✓
Building Regulations Sign Off	✓
Services Total ex. VAT	£1,610
VAT @ 0%	£0

Total Cost (inc VAT)

£6,800

A breakdown for the services that we'd expect the client's local installers to include.

The kit pricing breakdown for what we expect this client's local installers to quote.

System Summary

Solar PV System	Panels: 26 x JA Solar 435 mono/ all black Inverter: 1 x Solis 8 kW S5 Dual MPPT w/DC & 1 x Solis 3.6kW S6 Dual MPPT w/DC Mounting: K2 Tile (rosemary)
Optional PV Extras	Included: Power diverter (eddi by myenergi)
EV Charge Point	No EV chargepoint has been included
Battery Inverter/Charger	1 x Tesla Gateway 2
Battery Storage	1 x Tesla Powerwall

Cost inc 0% VAT

£19,830

Retro-fit Installation: Inclusions/Exclusions

✓	AC Cabling (Supply & Run)	Our quotation is for surface mounted cabling. Whilst we will endeavour to make cabling as discreet as possible, our Quotation does not allow for extensive chasing of cables. Cable routes will be agreed with the Client at the Technical Survey; we reserve the right to add a Variation to the system cost if significant trunking and / or cable chasing is required to achieve the client's preferred cable route.
✓	Data Cabling (Supply & Run)	
✓	DC Cabling	Assumes the max DC cable length is no more than 10m and externally run. Internal DC cable run and containment is not accounted for in the quote.
✗	Moling & Trenching	To be provided by others if required. Our quotation includes no allowance for groundworks.
✗	Planning	If the installation is on a domestic flat roof, a groundmounted array, situated in a conservation area, or within the curtilage of a listed building planning permission is required.
✗	Bonding upgrade if required	To be determined during the technical survey. If an upgrade is needed we would ask for this to be done by others.
✓	Insurance by Spirit of Equipment delivered to Site prior to installation	Note that it is the Client's responsibility to store and insure all Equipment that is delivered to Site prior to installation, from the date on which it is delivered. Delivery to Site shall be agreed between Spirit Energy and the Client in advance of delivery.
✓	Acceptance of delivery of Equipment to Site prior to installation	Please note as per our T&C, we require inspection by the Client of all Equipment delivered to Site as soon as it is delivered, and request pictures of any transit damage within four hours of delivery. On request, we can provide Site Management (to include acceptance of delivery) at a cost of £350 + VAT per half day (up to 4 hours), or
✓	Scaffolding & Access	Scaffolding & Access

A breakdown for what we'd expect the client's local installers to include / exclude in their proposal.

Here is the energy modelling for the system design.

The tariff that we propose the customer move onto post installation.

Tariff Modelled With: Octopus Flux

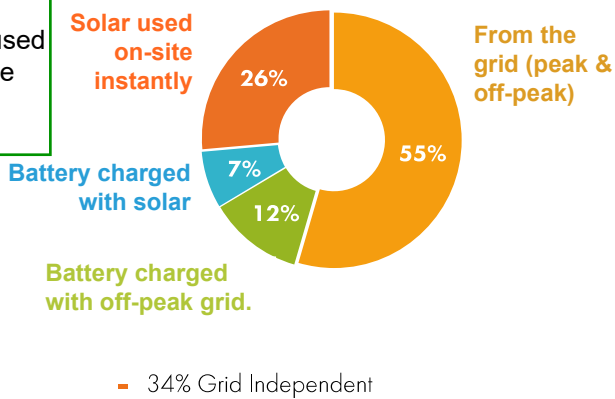
System Performance

The estimated annual system generation.

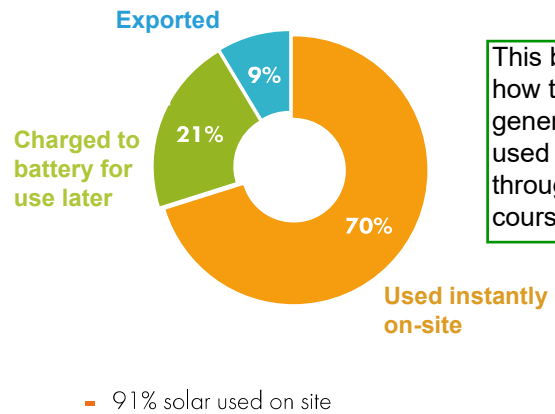
Annual Electricity Usage: 24,000 kWh/year

Annual Solar PV Generation: 9,028 kWh/year

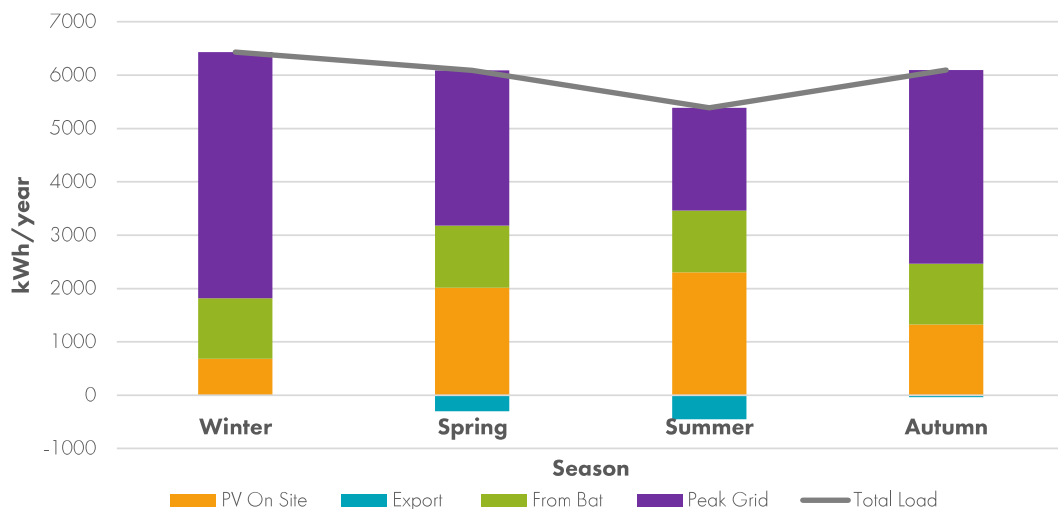
How is your house powered?



Where will the solar generation be used?



How is your house powered seasonally?



Note the 'discharge from the battery' includes energy charged via an off-peak tariff

Seasonal Averages

	Daily Solar Generation	Daily Grid Independency	Daily Export
Winter	8.88 kWh	28%	0 kWh
Spring	32.77 kWh	52%	3.26 kWh
Summer	38.88 kWh	64%	4.91 kWh
Autumn	18.4 kWh	40%	0.37 kWh

These are average figures for a day in each season.

System Financial Benefits Breakdown

This shows where the annual savings will come from. E.g. 17% of annual savings will be from stored solar.

1) Solar Used Direct	69%
2) Stored Solar	17%
3) Off-Peak Charging	9%
4) Export Income	5%

100%

This table shows where the financial benefits are going to come from.

Here is the financial modelling for the system design.

System Financials

The modelling below is based off our estimated price for what an equivalent system would cost from your local installer.

Where the savings will come from in the first year.

First year total savings

Expected Bill Savings	Expected Export Income	Total
£2,230	+ £120	= £2,350

Payback Period & Savings

Payback Period	Savings (25 Yrs)
7 years	£85,820

Avg cost per unit of electricity used in the house over the next 15 years with and without the system. Installation cost is included in this.



27.9 p/kWh

vs



35.2 p/kWh

Expected average cost per kWh with solar and battery system installed vs expected average cost per kWh over without system installed (average over first 15 years).

Net Present Value & Value Created by System

Net Present Value (NPV)	Value Created
£82,241	£62,411

NPV is the present value of future cashflows generated by the system. It is effectively what the system is worth on the day of the installation. There may be a need to replace equipment during the 25 year time period. No allowance has been made for this. Standard discount rates have been used with a 10% round trip loss assumed for battery storage.

Value Created = NPV - System Cost

NPV & value created. The NPV can be added on to the house value.

Financial Model: 25 Years

Year	Solar PV Output (kWh)	Battery Lifecycles Used (Total to date)	Bill Now (Est) No solar or batt.	Forecast Bill With Solar and Battery (Estimate)			Total Saving	Saving Breakdown [Note that Total Saving = {1} + {2} + {3} + {4}]				Cumulative Savings	Present value @ 3% disc. Rate
				Import Cost	Export Income ⁽¹⁾	Nett		Bill Now - Forecast Bill	Solar Used Direct ⁽²⁾	Stored Solar ⁽³⁾	Off-Peak Charging ⁽⁴⁾		
					5%			100%	69%	17%	9%		
1	9,028	378	£5,880	£3,650	£120	£3,530	£2,350		£1,624	£405	£202	£2,350	£2,343
2	8,982	756	£6,174	£3,860	£125	£3,735	£2,439		£1,693	£414	£208	£4,789	£2,424
3	8,938	1134	£6,483	£4,081	£130	£3,951	£2,532		£1,765	£423	£214	£7,321	£2,509
4	8,893	1512	£6,807	£4,315	£136	£4,179	£2,628		£1,840	£432	£220	£9,948	£2,597
5	8,848	1890	£7,147	£4,561	£141	£4,419	£2,728		£1,919	£441	£226	£12,676	£2,687
6	8,804	2267	£7,505	£4,820	£147	£4,673	£2,832		£2,001	£451	£233	£15,508	£2,781
7	8,760	2645	£7,880	£5,093	£154	£4,940	£2,940		£2,086	£461	£240	£18,448	£2,879
8	8,716	3023	£8,274	£5,381	£160	£5,221	£3,053		£2,175	£471	£247	£21,501	£2,980
9	8,673	3401	£8,687	£5,685	£167	£5,518	£3,170		£2,268	£481	£254	£24,671	£3,085
10	8,629	3779	£9,122	£6,005	£174	£5,830	£3,291		£2,364	£492	£261	£27,962	£3,194
11	8,586	4157	£9,578	£6,357	£182	£6,176	£3,402		£2,465	£492	£263	£31,364	£3,292
12	8,543	4535	£10,057	£6,729	£189	£6,539	£3,518		£2,570	£492	£265	£34,882	£3,393
13	8,501	4913	£10,560	£7,119	£197	£6,922	£3,638		£2,680	£493	£268	£38,520	£3,499
14	8,458	5291	£11,088	£7,530	£206	£7,324	£3,763		£2,794	£493	£270	£42,283	£3,609
15	8,416	5669	£11,642	£7,963	£215	£7,748	£3,894		£2,913	£494	£272	£46,177	£3,723
16	8,374		£12,224	£9,186	£224	£8,963	£3,262		£3,038			£49,438	£3,109
17	8,332		£12,835	£9,668	£233	£9,435	£3,401		£3,167			£52,839	£3,232
18	8,290		£13,477	£10,175	£243	£9,931	£3,546		£3,302			£56,385	£3,360
19	8,249		£14,151	£10,708	£254	£10,454	£3,697		£3,443			£60,082	£3,492
20	8,208		£14,858	£11,268	£265	£11,004	£3,855		£3,590			£63,936	£3,630
21	8,166		£15,601	£11,858	£276	£11,582	£4,019		£3,743			£67,955	£3,774
22	8,126		£16,381	£12,479	£288	£12,191	£4,190		£3,903			£72,146	£3,923
23	8,085		£17,201	£13,131	£300	£12,831	£4,369		£4,069			£76,515	£4,078
24	8,045		£18,061	£13,818	£313	£13,505	£4,555		£4,243			£81,070	£4,239
25	8,004		£18,964	£14,540	£326	£14,214	£4,750		£4,424			£85,820	£4,407

A full cashflow table.

Note that financial benefits are modelled on the basis that you are currently on a flat tariff of 24.5p per kWh and you switch to a tariff similar to the Octopus Flux tariff once the system is installed.

These are optional extras that most installers will offer

Solar System Add-ons

zappi by myenergi

Charge your EV with a dedicated EV charge point designed to use solar generation.

- <https://www.spiritenergy.co.uk/kb-ev-charging-myenergi-zappi>



eddi by myenergi

Heat your hot water for free using excess solar generation.

- <https://blog.spiritenergy.co.uk/homeowner/eddi-excess-solar->



Bird Protection

Protect your panels from unwanted visitors. We have two types of proofing, mesh & SolaSkirt. Ask your Technical Designer for more details & a quote.

- [Solar Panel Bird-Proofing: Protecting Your PV System from Pigeons \(spiritenergy.co.uk\)](https://www.spiritenergy.co.uk/solar-panel-bird-proofing-protecting-your-pv-system-from-pigeons)

SolaSkirt



Mesh



This is a brief list for things to check for when you choose an installer.

What to look for in an installer?

Checklist	Spirit Energy
MCS Certified?	Yes
MCS Battery Certified?	Yes
Tesla Certified?	Yes - top 5 Tesla installers in the UK
In-house installers or do they subcontract?	Fully in-house, many with over 5 years of experience
Good quality reviews?	Yes
Have they been around for a long time or just popped up recently?	Spirit Energy has been installing since 2010
Have they laid out costs clearly and broken everything down?	Yes
When you call, do you get straight through to a technical advisor?	Yes
Full technical & structural survey?	Yes
Do they get an external auditor to do a structural report as well?	Yes
DNO applications included?	Yes
Planning applications offered for flat roof installations?	Yes
Fully detailed website with a knowledge bank?	Yes
Workmanship and kit warranty?	Ideally 5 year workmanship, 10 years on kit & 25 years on panels.
Do they take care of every aspect of the installation?	Yes
Do you know who you're dealing with? Have you had a conversation with them down the phone?	Yes
Is there a dedicated after sales support team?	Yes