THE FINANCIAL WEIGHT OF THE BATTERY, VS SOLAR ALONE

3×

Battery shift adds ~£1,383 / yr on top of the ~£415 / yr solar earns alone.

— **The battery does roughly three times the financial work of the solar array, on its own.** Solar earns ~£415 / yr from export. The 30 kWh battery adds another ~£1,383 / yr by shifting cheap overnight power into peak hours. Total install saving: **£1,798 / yr modelled**.

The kit was right.
The order was the regret.

THE HOUSEHOLD

- 19th-century five-bed home, Berkshire (RG8)
- 8 kWp solar array, installed first
- Gas heating, all-electric loads

AT A GLANCE

Annual consumption	**Double UK Average**
Solar export (pre-battery)	**2,766 kWh / yr**
Tariff	**Dual-rate**
Bill before battery	**~£1,638 / yr**

THE STARTING STATE

An 8 kWp array, earning its modest export return. The other half of the system was still unbuilt.

01 / INSTALLED

8 kWp on the roof.

Generates, the household self-consumes some, and exports the rest at the SEG rate.

02 / EARNING

~£415 / yr from export.

2,766 kWh exported in 2025 at 15p / kWh. Real, but capped at what leaves the house in daylight.

03 / UNREACHED

Most of the load is overnight.

Solar can't reach it. The household had no model of what a battery on the cheap overnight window could earn against the same load.

04 / WHAT WE DID

The analytical work the household couldn't do for themselves.

THE DATA

17,520 readings.

A full year of the household's actual half-hourly meter data. Not a profile, not an average, not a synthetic load.

THE MODEL

Dispatch v. tariff.

A dispatch model run against Octopus's published Jan-26 dual-rate tariff. Every charge and discharge accounted for in cost terms.

THE STRESS TEST

Three sizes, two strategies.

Stress-tested against three battery sizes and two charging strategies. The configuration below is what survived.

THE RECOMMENDATION

Solar alone, against solar plus a 30 kWh battery on night-charge dispatch.

		RECOMMENDED · CHOSEN INSTALL
CONFIGURATION	**Solar only** The starting state, 2025	**Solar + 30 kWh battery** Three modules · night-charge dispatch · 2026
BATTERY CAPACITY	–	**30 kWh** · three modules
BATTERY COST	–	£8,444
ANNUAL SAVING	**~£415** SEG export of 2,766 kWh at 15p / kWh	**£1,798** Battery shift on a dual-rate tariff, plus higher solar self-consumption
PAYBACK	–	**5.5** years, against the £8,444 install

TWO STRATEGIES, BOTH MODELLED

Different households weigh money and carbon differently. We model both, and present the trade-off. For this household, night-charge returns £122 / yr more; solar-first cuts ~67 kgCO2 / yr more. The financial line was their priority; the call was theirs to make.

THE INVERTER IS THE BINDING CONSTRAINT

The 7.2 kW inverter caps overnight charging at ~43 kWh per six-hour window. A larger battery would not earn more, because it could not be filled cheaply in time. This is why a three-module configuration is the sweet spot, not a four- or five-module one. Sizing follows the tariff window, not the wallet.

THE 10-YEAR VIEW

What ten years actually returns.

PAYBACK PERIOD

5.5 years

Against the £8,444 install at the modelled £1,798 / yr saving.

BATTERY WARRANTY

10 years

The manufacturer's underwritten window. Batteries of this class typically operate for longer.

NET SAVING, TO YEAR 10

~£9,500

£1,798 / yr × 10, minus the £8,444 install. Undiscounted, modelled.

NOTE ON HORIZON

The 10-year horizon is where the warranty ends, not where the battery does. Lithium home-storage systems of this class commonly operate for 12 to 20 years in practice. Any saving past year 10 is unmodelled upside on top of the £9,500.

THE OPERATIONAL REALITY

"One app, not three."

Solar, battery, and tariff arrived from three contractors with three apps. The household's most-felt operational insight, post-install: insist on integration before signing, not after. The kit works; the management of it is the friction.

05 / WHAT THIS MEANS

Where the saving actually comes from.

THE FINANCIAL WEIGHT

3×

The battery's annual contribution is roughly three times the solar array's standalone export earnings (~£415 on its own in 2025).

Solar is one half of the system. The battery is the other half, and it does more of the work.

Solar earns from what leaves the house. Export at 15p / kWh, on what the household can't self-consume during the day. Real, but capped.

The battery earns from what stays. Charge at 6.67p overnight, discharge at 27.75p during peak. A 21p differential applied across the household's daily shifted load is where the real saving lives.

06 / THE TAKEAWAY

How we approached this home, and what it shows about the method.

> *We started with solar as that's what we've heard about in the papers. I didn't quite realise how suited our house was to a battery set up as well.*

— **Verified customer · RG8** 19th-century five-bed · install completed Feb 2026

This household arrived at the right system. They got there by route, not by model. The principles below are how we approached this home; they are also how we start every one, so the next household doesn't have to learn the answer by installing half of it first.

We don't sell, fit, or resell hardware. We charge a fixed advisory fee and take no commission from any installer or manufacturer. The figures here are independent because nothing in how we are paid depends on the answer.

1

Run the model on the meter, not on assumptions.

17,520 half-hourly readings of the household's actual load. Not a profile, not a synthetic year, not a postcode average. The recommendation only holds if the data underneath it does.

2

Independent figures, not installer ones.

We don't sell solar panels or batteries. The £1,798 / yr is what the model returned, not what a commission needed it to be. Where the numbers favoured a smaller install, we said smaller.

3

Size to the tariff window, not the spec sheet.

The 7.2 kW inverter caps overnight charging at ~43 kWh per six-hour window. We model the window first; battery sizing follows. Three modules is the sweet spot here precisely because four wouldn't fill.

TALK TO US

Curious what the numbers look like for your home?

angus@hometransition.co.uk →

Visit the site →

METHODOLOGY

Figures modelled from the household's own half-hourly meter data against Octopus's published Jan-26 dual-rate tariff. Savings are undiscounted and indicative; a different home, tariff, or usage pattern returns different numbers. We model every home from its own meter, not from this one.