Empowering Sustainable Homes

Exploring initiatives for energy-efficient living

What we will cover

- Self-Funding
- Government Fully Funded Schemes for Warm Homes
- Eco4 Funding for Energy Efficiency
- Solar PV Systems for Sustainable Homes
- Battery Storage Solutions
- Tariffs and Incentives for Renewable Energy

But I don't have the money

Lender Grants, Mortgages

Lloyds Bank

- **Eco Home Reward**:
- Offers £2,000 cashback for installing a heat pump.
- Solar Panels & Battery Storage: £1,000 cashback for each.
- Available for Lloyds mortgage customers applying for a new mortgage, additional borrowing, or switching to a new deal.

Barclays Greener Home Reward

- **£2,000 cashback** for heat pumps.
- **£1,000 cashback** for solar panels and battery storage.
- Must use a TrustMark-approved installer.
- Cashback is paid 30 days after installation.

Halifax Green Home Incentives

- **£2,000 cashback** for heat pumps.
- **£1,000 cashback** for solar panels and battery storage.
- Available for Halifax mortgage customers applying for a new mortgage, additional borrowing, or switching to a new deal.

Santander Green Home Mortgage

- Offers cashback incentives for purchasing energy-efficient homes.
- Available for homes with an EPC rating of A or B.

Government Boiler Upgrade Scheme

- Provides **up to £7,500** towards the cost of installing a heat pump.
- Available to homeowners in England and Wales.

Octopus

- Additionally, **Octopus Energy** offers 0% finance on solar and battery installations, which can be combined with cashback incentives from banks

https://ferribysustainability.co.uk/2025/04/20/funding-your-sustainability-journey/

Shouldn't I put the money in the bank?

Consider it as an investment

Solar alone (8kWp) offers the highest return (8.5% per year).

Adding a battery reduces export earnings but increases self-use, making returns more stable.

A smaller solar array + battery (Scenario 3) performs similarly to an ISA

ISAs provide liquidity, while solar investments lock in long-term savings.

https://ferribysustainability.co.uk/2025/04/20/funding-your-sustainability-journey/

Rate of return over 10 years:

Scenario 1: Full 8kWp Solar Array (£10,000) **Rate of Return: 85% (8.5% per year)**	Annual Savings: ~£1,560 (self-consumption + export) Total Savings Over 10 Years: ~£18,500 (assuming rising electricity/export rates)
Scenario 2: 8kWp Solar + 5kWh Battery (£14,600) **Rate of Return: 44% (4.4% per year)**	**Annual Savings:** ~£1,776 (higher self-consumption, lower export) **Total Savings Over 10 Years:** ~£21,000
Scenario 3: Reduced 5.5kWp Solar + Battery (£10,000) **Rate of Return: 65% (6.5% per year)**	**Annual Savings:** ~£1,400 (lower generation, higher self-use) **Total Savings Over 10 Years:** ~£16,500
Scenario 4: ISA at 5% Interest (£10,000) **Rate of Return: 62.9% (6.29% per year)**	**Total Growth Over 10 Years:** ~£16,289

But I don't have the money

Sustainable investments increase the value of the property

- Every kW of solar production adds 3 points to your EPC.
- A 6kWp array could add 16 points to the EPC
  - almost two letters improvement.
- A combination of solar, smart heating and ceiling and loft insulation could take the property from E to B rating.
- This can improve resale value by between 4% and 14%

	EPC related value increase		
House value	4%	9%	15%
£180,000	£7,200	£16,200	£27,000
£250,000	£10,000	£22,500	£37,500
£330,000	£13,200	£29,700	£49,500

https://ferribysustainability.co.uk/2025/04/20/funding-your-sustainability-journey/

Is it worth taking a loan?

Self funded

£6000 system, 60% self consumption

Breakeven: year 7

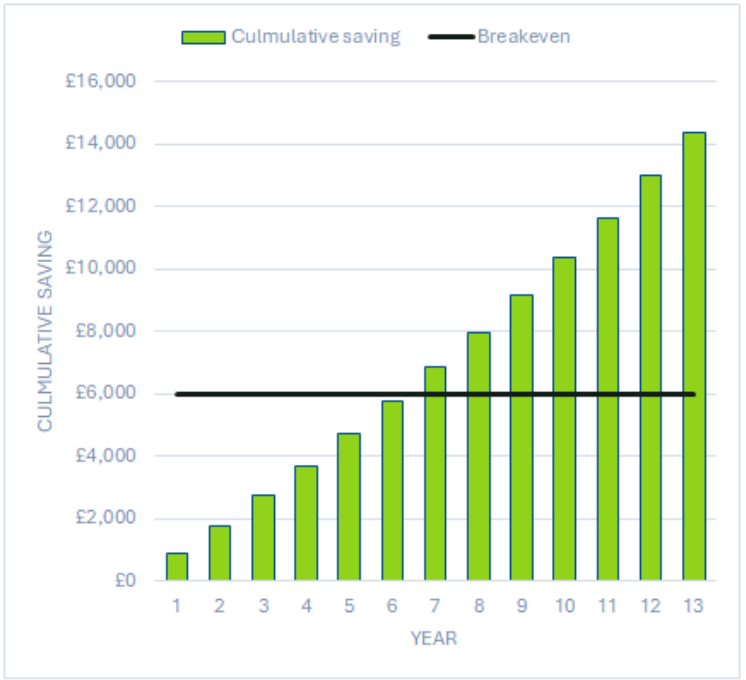
£	0.26	Current cost per kWh
£	0.15	Export tariff per kWh
	5%	Average electricity increase
	4.5	Solar array output kWp
	900	Specific yield kWh/kWp
	4,050	Estimated annual output kWh
	60%	Percentage solar used domestically
	3,600	Estimated annual household consumption
£	6,000	System cost
	0%	Loan % APR
	-	Loan duration
£	-	Loan interest (0% APR over 0 years)
£	**6,000**	**Total cost**

2025 typical system costs

System size	Solar Only	Solar + battery
4.3 kWp (5kWh battery)	£ 6,000	£ 8,500
6kWp (5kWh battery)		£ 10,000
9kWp (5kWh battery)	£ 8,500	£ 11,000

Breakeven analysis

Year	Annual saving	Export payments	Culmulative saving	
1	£631.8	£243	£875	
2	£663.4	£243	£1,781	
3	£696.6	£243	£2,721	
4	£731.4	£243	£3,695	
5	£768.0	£243	£4,706	
6	£806.4	£243	£5,755	
7	£846.7	£243	£6,845	Breakeven achieved
8	£889.0	£243	£7,977	Breakeven achieved
9	£933.5	£243	£9,154	Breakeven achieved
10	£980.1	£243	£10,377	Breakeven achieved
11	£1,029.1	£243	£11,649	Breakeven achieved
12	£1,080.6	£243	£12,972	Breakeven achieved
13	£1,134.6	£243	£14,350	Breakeven achieved
	£7,946.71	**£2,430.00**		
		Gross saving at 13 years	£14,350	
		Net saving after capital	**£8,350**	
		ROI	139%	



Is it worth taking a loan?

Loan at 6% APR over 10 years

£6000 system, 60% self consumption

Breakeven: year 9

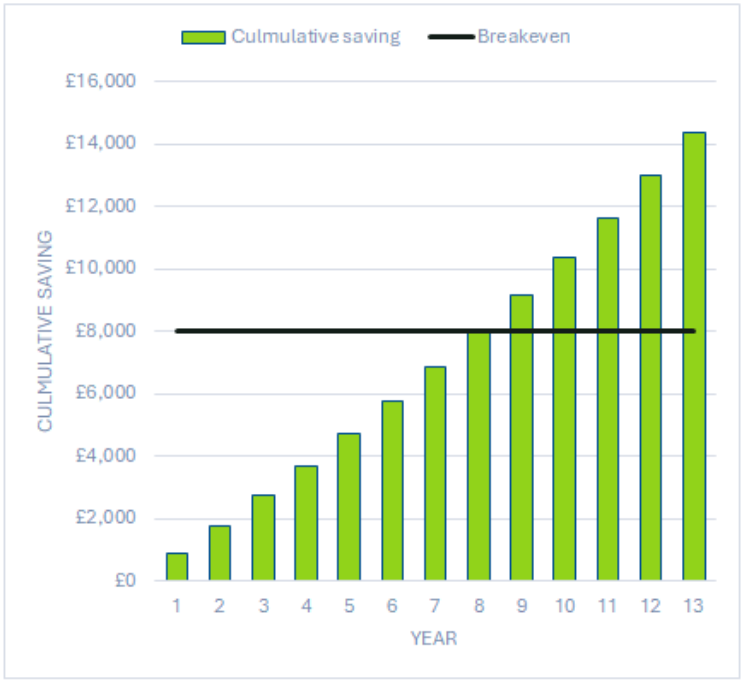
£	0.26	Current cost per kWh
£	0.15	Export tariff per kWh
	5%	Average electricity increase
	4.5	Solar array output kWp
	900	Specific yield kWh/kWp
	4,050	Estimated annual output kWh
	60%	Percentage solar used domestically
	3,600	Estimated annual household consumption
£	6,000	System cost
	6%	Loan % APR
	10	Loan duration
£	1,993	Loan interest (6% APR over 10 years)
£	7,993	**Total cost**

2025 typical system costs

System size	Solar Only	Solar + battery
4.3 kWp (5kWh battery)	£ 6,000	£ 8,500
6kWp (5kWh battery)		£ 10,000
9kWp (5kWh battery)	£ 8,500	£ 11,000

Breakeven analysis

Year	Annual saving	Export payments	Culmulative saving	
1	£631.8	£243	£875	
2	£663.4	£243	£1,781	
3	£696.6	£243	£2,721	
4	£731.4	£243	£3,695	
5	£768.0	£243	£4,706	
6	£806.4	£243	£5,755	
7	£846.7	£243	£6,845	
8	£889.0	£243	£7,977	
9	£933.5	£243	£9,154	Breakeven achieved
10	£980.1	£243	£10,377	Breakeven achieved
11	£1,029.1	£243	£11,649	Breakeven achieved
12	£1,080.6	£243	£12,972	Breakeven achieved
13	£1,134.6	£243	£14,350	Breakeven achieved
	£7,946.71	**£2,430.00**		
		Gross saving at 13 years	£14,350	
		Net saving after capital	£6,357	
		ROI	106%	



Government Fully Funded Schemes for Warm Homes

Overview of Warm Homes Initiative

A government program designed to improve energy efficiency in homes and reduce fuel poverty.

- Launched this spring, it aims to upgrade over 1 million homes by 2030, making them warmer, healthier, and more affordable to heat.

It provides government-funded grants for energy performance improvements and low-carbon heating solutions, administered by local authorities

Supporting Low-Income Households

- The initiative is designed to improve living conditions for low-income families by making homes more energy efficient and affordable.

- **East Riding of Yorkshire**
  - Funding: £1,500,000
- **Kingston upon Hull, City of**
  - Funding: £3,402,806

https://www.gov.uk/government/publications/warm-homes-local-grant-successful-local-authorities/

Eligibility Criteria and Application Process

To qualify for the Warm Homes Initiative, households must meet **one or more** of the following criteria:

- Energy Performance Certificate (EPC) rating between D and G.
- Receiving benefits such as Universal Credit or Housing Benefit.
- Living in a deprived area, as defined by government data.
- Be in England
- Be privately owned (either by you or your landlord)
- Have an Energy Performance Certificate (EPC) of D, E, F or G – if you do not know your home's EPC, you can find it out when you apply
- Your household income must usually be £36,000 a year or less. If you earn more than that, you might still be eligible if either:
  - you live in a certain postcode area
  - someone in your household is getting certain benefits

Apply for the Warm Homes: Local Grant to improve a home

Eligibility checker

- https://www.gov.uk/apply-warm-homes-local-grant

Benefits and Impact on Households

BENEFITS

Up to £15,000 for energy performance upgrades	• Insulation • Draughtproofing • Solar PV • Battery storage.
Up to an additional £15,000 for low-carbon heating, e.g air source heat pump	• In addition to £7,500 Boiler Upgrade Scheme
Warm Homes Discount,	• Provides £150 off electricity bills for eligible households.

IMPACTS

- Lower Energy Bills
  - Households can save £200–£600 per year through improved insulation and efficient heating. Reduces worry about unexpected heating costs, making budgeting easier and improving overall mental well-being.
  - More Disposable Income – Lower energy bills mean families can redirect savings toward essentials like food, education, and leisure.
- Increased Home Comfort & Improved Health
  - Better insulation and modern heating systems eliminate cold spots and damp, for a warmer, healthier living environment.
  - Reducing exposure to cold and damp conditions lowers the risk of respiratory illnesses and cardiovascular issues, particularly for vulnerable individuals.
- Future-Proofing Homes
  - Upgrades increase property value and ensure homes meet future energy efficiency standards, protecting homeowners from rising energy costs.
- Greater Energy Independence Solar panels and battery storage reduce reliance on volatile energy markets, offering more control over household energy use.
- Environmental Contribution
  - By switching to low-carbon heating, households help reduce national carbon emissions, supporting the UK's net-zero goals.

Eco4 Funding for Energy Efficiency

Are you eligible?

Check if you're eligible for a Government grant

If you own/rent a property that is heated with electricity and receive income-related benefits you are very likely to qualify for a government grant.

- You are a Homeowner, Landlord or a Private Tenant
- You receive income-related benefits
- You have Electric Storage Heaters

Check Now

Homeowners, Landlords or Private Tenants

Eligible homeowners, landlords/landlady's, or private tenants may be entitled to the Governments ECO4 energy grants.

Local authority grants

Local Authority Flexible Eligibility grants and Health grants are based on the same Government funding. If you're not receiving any benefits but the Council declares you as eligible in accordance with their Statement of Intent, you may be eligible for the grant.

Eco4 Funding

https://eco4.org.uk/

Receiving Income Benefits

Do you receive any of the following income benefits?

- Child Tax Credits (CTC)
- Child Benefits – depends on income threshold*
- Jobseekers Allowance (JSA)
- Employment & Support Allowance (ESA)
- Income Support (IS)
- Pension Credit Guarantee Credit
- Universal Credit (UC)
- Warm Home Discount Scheme Rebate
- Working Tax Credit (WTC)
- Housing Benefit
- Pension Credit Saving Credit

NOT receiving any Benefits?

If you are not receiving any benefits you may still qualify under The LA Flex Funding scheme (Local Authority Eligibility Flexibility). This programme is designed to help homeowners who are not currently receiving any type of aid but are still grappling with a tight budget.

Runs from **April 2022 to March 2026**

Requires medium and large energy suppliers to fund energy efficiency improvements for **low-income and vulnerable households**

- British Gas
- Octopus Energy (including former Bulb and Co-Op Energy customers)
- EDF Energy
- E.On
- OVO Energy (including Boost and SSE)
- Scottish Power
- Shell Energy
- So Energy

Types of Projects Eligible for Funding

Insulation Upgrades

- Loft insulation – Reduces heat loss through the roof.
- Cavity wall insulation – Improves thermal efficiency in homes with cavity walls.
- Solid wall insulation – Helps older homes retain heat.
- Underfloor insulation – Minimizes heat loss through flooring.
- Room-in-roof insulation – Enhances energy efficiency in attic spaces.

Heating System Improvements

- First-time central heating – Installs modern heating systems in homes without central heating.
- Boiler replacements – Upgrades inefficient boilers to energy-efficient models.
- Air source heat pumps – Provides low-carbon heating solutions.
- Electric storage heaters – Improves heating efficiency in homes using electric systems.
- Heating controls – Smart thermostats and controls for better energy management.

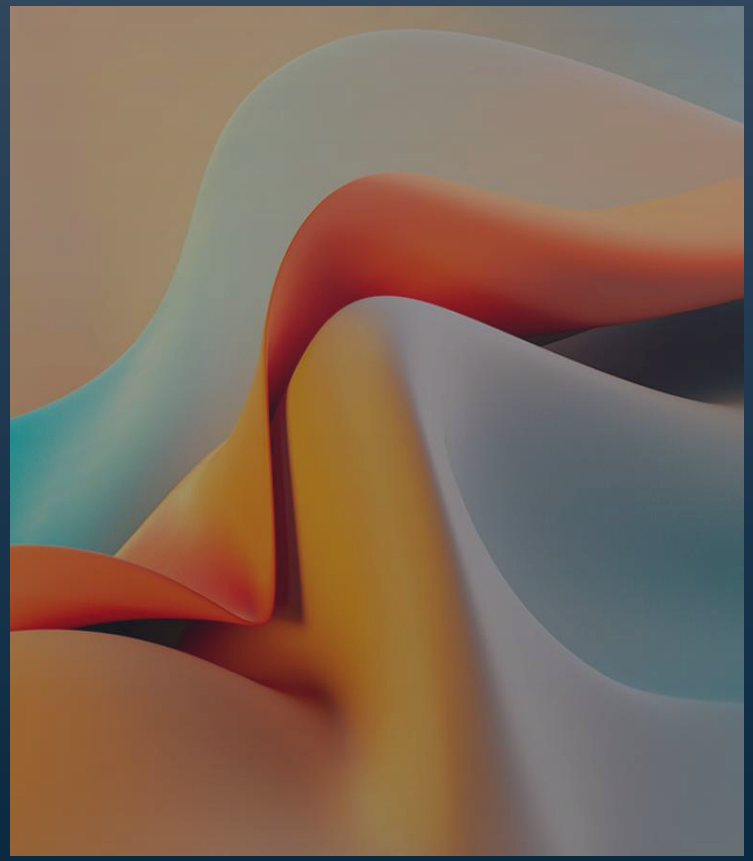
Renewable Energy Solutions

- Solar panels – Helps households generate their own electricity.
- Battery storage – Stores excess solar energy for later use.

Window & Door Upgrades

- Double or triple glazing – Reduces heat loss and improves insulation.
- Draught-proofing – Prevents cold air from entering the home.

Steps to Access Eco4 Funding



Eligibility

- Households may qualify if they:
  - Receive certain benefits, such as Universal Credit, Pension Credit, or Housing Benefit.
  - Live in private housing (own or rent) with an EPC rating of D, E, F, or G.
  - Live in social housing with an EPC rating of E, F, or G.
  - Are eligible under Local Authority Flexible Eligibility (LA Flex), even if they don't receive benefits.

Benefits

- ECO4 provides funding for:
  - Insulation (loft, cavity wall, solid wall).
  - Heating system upgrades, including heat pumps and boiler replacements.
  - Solar panels and other renewable energy solutions.
  - Home energy assessments to identify efficiency improvements.

Impact on Households

- Lower energy bills – Improved efficiency reduces heating costs.
- Better home comfort – Warmer, healthier living conditions.
- Reduced carbon footprint – Supports the UK's net-zero goals.
- Financial relief – Grants cover installation costs, making upgrades accessible.
- ECO4 is a key driver in making homes greener, more affordable, and future-proof. Let me know if you need more details!

- Submit Application
  - After identifying eligible projects, homeowners must prepare and submit an application outlining their plans and requirements.
- Work with Certified Contractors
  - Homeowners should collaborate with certified contractors to ensure that all work done meets the funding compliance requirements.

Battery Storage Solutions

Home Batteries

Energy Independence

- Store excess solar energy and use it when needed, reducing reliance on the grid.

Access cheap rate tariffs

- Suppliers offer best tariffs to homes with battery, solar, heat pump or EV

Cost Savings

- Charge the battery when electricity is cheap and use it during peak hours to lower bills.

Backup Power

- Provides electricity during power outages, keeping essential appliances running.

Grid Support

- Helps balance demand by storing energy when supply is high and releasing it when needed.

Reduced Carbon Footprint

- Enables greater use of renewable energy, cutting household emissions.

Arbitrage

- Buy cheap, sell high

Costs

Small (4–5kWh): £2,000–£4,000

- Fox ESS LV5200, 5.2kWh lithium battery, £2,000–£2,500

Medium (9–10kWh): £8,000–£9,500.

- GivEnergy 9.5kWh, £4,500–£5,000

Large (16kWh+): £12,000+

- Tesla Powerwall 3, 13.5kWh, £7,995.
- 11.5 kW continuous power

Installation

- £1500 - £3000; less if done with solar

- Brand – Premium brands like Tesla tend to be more expensive.
- Installation – Costs vary based on inverter requirements and electrical setup.
- Battery Type – Lithium-ion batteries are standard, but LFP (Lithium Iron Phosphate) options are gaining popularity.
- Government Incentives – 0% VAT applies to retrofitted solar batteries in the UK.

What size should I buy

Bidirectional charging…

- V2G/V2H
  - Plug your house into your EV
  - Instant 40kWh – 80kWh battery
- Have a small (5kWh) home battery for when the car isn't available

- Match Battery Size to Daily Energy Use
  - Small (4–5kWh) – Suitable for low-energy households or those wanting partial backup.
  - Medium (9–10kWh) – Ideal for average homes with solar panels, covering evening and nighttime use.
  - Large (15kWh+) – Best for high-energy households, off-grid setups, or those needing full backup power.
- Consider Solar Generation
  - If you generate 5kWh per day, a 5kWh battery ensures maximum self-consumption.
  - If you generate 10kWh per day, a 10kWh battery allows greater energy independence.
- Factor in Peak vs. Off-Peak Tariffs
  - Larger batteries let you store cheap off-peak electricity for use during expensive peak hours.
  - Smaller batteries may still provide some savings, but won't fully optimize time-of-use tariffs.
- Plan for Future Expansion
  - Modular systems (like Pylontech or Fox ESS) allow battery capacity upgrades over time.
  - Fixed-capacity systems (like Tesla Powerwall) require choosing the right size upfront.
- Backup Power Needs
  - If you want full home backup, ensure the battery can cover essential loads during outages.
  - Some systems allow partial backup, powering only critical appliances.

Tariffs and Incentives for Renewable Energy

Smart Tariffs

Charge your battery and EV when electricity is cheapest (e.g., overnight) and use stored energy during peak hours.

Supplier	Tariff Name	Rates	Time Periods	Eligibility
Octopus Energy	Intelligent Octopus	7.5p/kWh (off-peak)	11:30pm – 5:30am	EV owners, smart meter required
Octopus Energy	Octopus Flux	30.31p/kWh (peak), 22.73p/kWh (other times)	4pm – 7pm (peak)	Solar & battery owners
Scottish Power	EV Saver	7.2p/kWh (off-peak)	Midnight – 5am	EV owners, smart meter required
OVO Energy	OVO Drive Anytime	10p/kWh (flat rate)	Anytime	EV owners, smart meter required
EDF Energy	GoElectric Overnight	8p/kWh (off-peak)	Midnight – 5am	EV owners, smart meter required

Live: https://app.netzero.energy/ and https://global.solaxcloud.com/blue/#/overview

Haven energy use 2025

Live: https://app.netzero.energy/ and https://global.solaxcloud.com/blue/#/overview

Panel Q&A

Get your questions ready

Quiz answers - Let's see how you did

Thank you everyone

Speakers

Social Club team

Supporters

Attendees

Next steps

- Don’t be a silent majority
  - Over 80% of UK voters are concerned or very concerned about climate change.
  - We all need to talk about it more. Tell your friends, tell your neighbours. Make some noise.
  - Let your MP and councillors know.
  - Call out the climate deniers and misinformed

- Be a force for change
  - Do it for you , your home, your neighbours, and the people you don’t know but who will benefit in future by your choices.

Thank you