

Innovation in Home Energy

Emma Fletcher MRICS - Low Carbon Homes Director

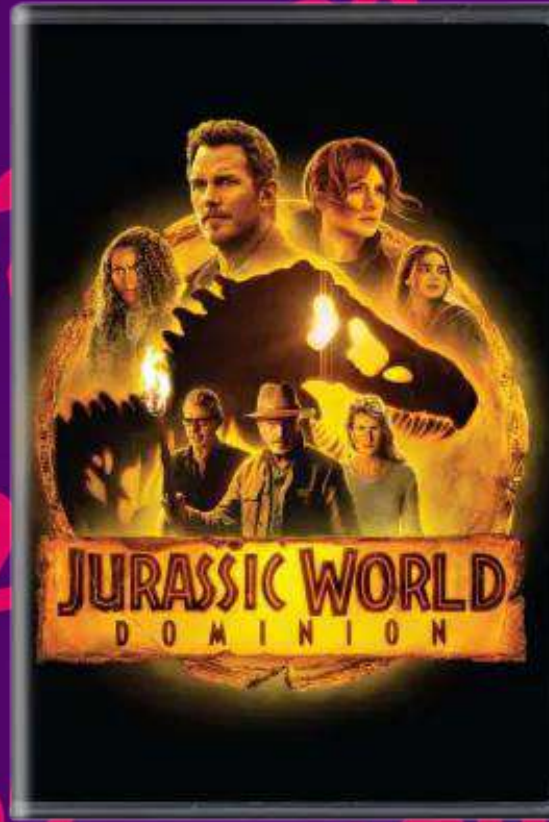


2022

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5 Secretaries of State for Housing, Communities and Local Government since 2022

7 Ministers of State since 2022

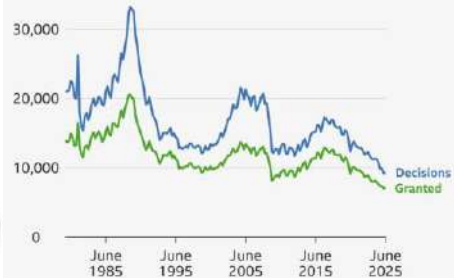
Awaab's Law

EPC C by 2030:
Changes to Minimum
Energy Efficiency Standards
Big Changes for the Private: Rented Sector

Delay to Future Homes Standard causes challenges for housebuilders

Planning approvals for housing at record lows

Total decisions and permission granted for housing developments, England by quarter, Apr 1979 - Jun 2025



Source: Ministry of Housing, Communities and Local Government **BBC**



Planning approvals for new homes at record low, figures show

Future Homes Standard 2025

Over One Million PRS Homes Could Breach Decent Homes Standard by 2035



Labour must resist housebuilders' pleas to weaken green standards, experts say



Renters' Rights Bill 2025

Decent Homes Standard set for reform for social & private rentals

New homeowners stand to benefit from rooftop solar and cheaper bills, with the Future Homes Standard being published this Autumn.

56% of all UK homes have an EPC rating of D or below.

Warm Homes: Social Housing Fund Wave 3 £1.29 Billion - 144 projects

England	Homes below EPC C in 2023	Average number of homes per year	
		Upgraded in last 10 years 2013-2023	Upgrades required to meet 2030 target
Owner occupied	8,360,000	372,900	1,194,300
Private rented	2,517,000	91,600	359,600
Local authority	475,000	59,300	67,900
Housing association	713,000	57,800	101,900
England	12,065,000	581,600	1,723,600



In 2023 BRE estimated that the **NHS is spending over half a billion pounds a year** treating cold-related ill-health caused by EPC F and G banded homes.



The government's plan to spend £39 billion over 10 years on building affordable homes has been hailed as 'the most ambitious affordable housing programme in decades'

200 million new devices by 2030

2023-30
device
growth



2x

9x

5x

2x

8x

5x

3x

2x



8x

5x

6x

5x

7x

4x

8x

9x



2x

3x

2x

2x

2x

4x

2x

2x

2023

2030 2023

2030 2023

2030 2023

2030 2023

2030 2023

2030 2023

2030 2023

2030



We use **technology** to drive the green energy revolution – making it **cheaper and faster** for citizens and the planet.



All on the back of Kraken



INDUSTRY NEWS

Kraken Technologies expands into water and broadband



70 Million +
customer accounts

27+ Countries
are home to Kraken

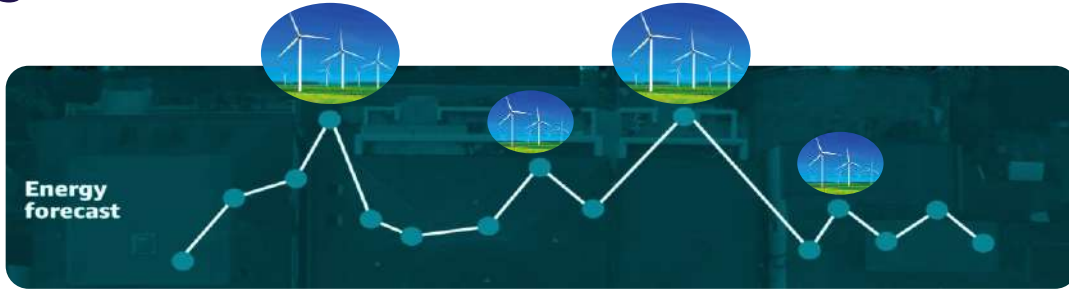
300K+
connected devices

50GW+
contracted power



octopusenergy

Our next generation of EV tariffs - **Intelligent Octopus** smart charges your EV when the grid is the greenest



- **6 hours** of smart charging every night at a **super low rate** (11:30pm to 5:30am @ 7p per kWh)
- Charging of your EV takes place when the price of **energy is the cheapest**
- Customer via the **Octopus Energy App** can set their charging preferences or bump charge at any time



But what if it were possible to decarbonise our homes and not have an energy bill at all....?



Your energy account

1st Sep 2022 - 30th Sep 2022

On 21st Sep 2022

Your balance was zero:

£0.00

1. Your Zero Bill home

You still have **92%** of your annual quota left

Electricity imported

31st Aug 2022 - 28th Sep 2022

472 kWh

Electricity exported

31st Aug 2022 - 28th Sep 2022

732 kWh

As of 30th Sep 2022

Your balance is zero:

£0.00



ZERO BILLS

Now 10 YEARS guaranteed!

SOLAR
PANELS

HEAT PUMP

BATTERY



Zero Bills homes come in all shapes and sizes



Persimmon
Together, we make your home



Bellway



ST.MODWEN



VERTO



Urban&Civic plc



HOPKINS HOMES **TILIA HOMES**



Citra



Hill

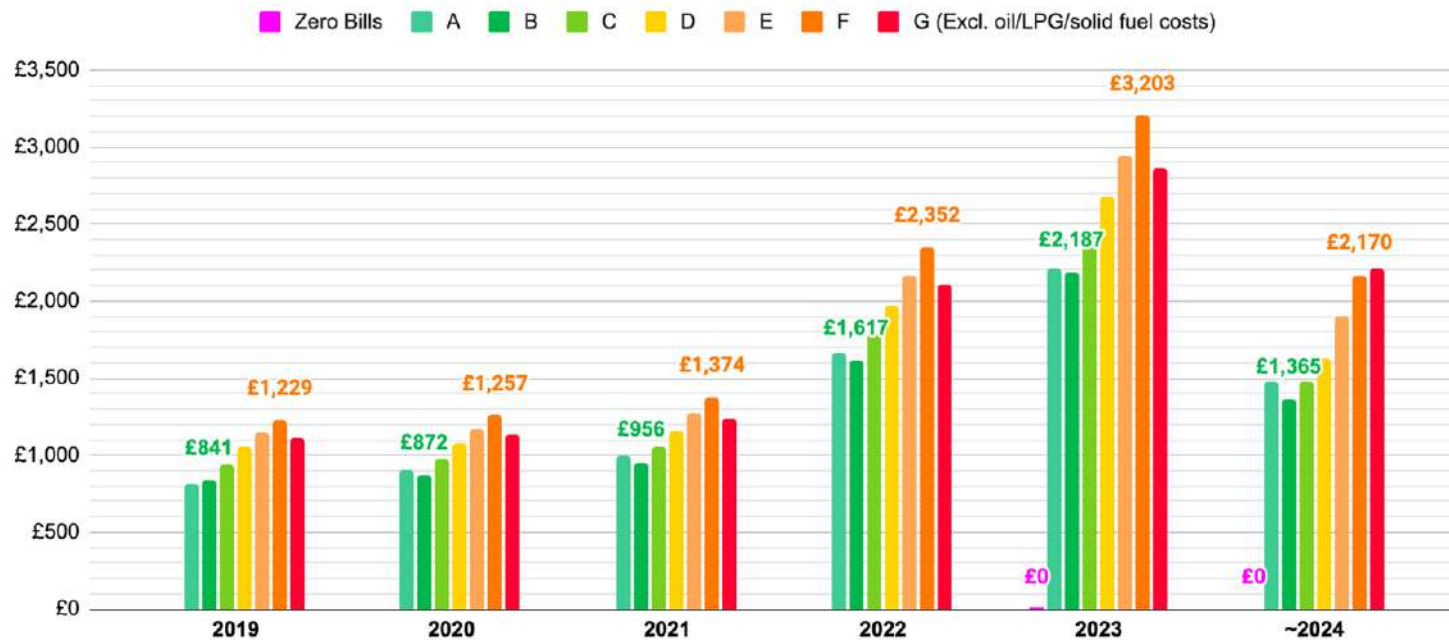
Unlocking volume with the UK's biggest housebuilders

Including the launch of the UK's biggest Zero Bills development in Newport, Essex



EPC A/B homes have lower bills – but potential to go further

Octopus Energy mean dual fuel customer energy bill, by EPC rating, over the past 6 years



Spotlight: UK Single Family Housing 2025

31 MARCH 2025

What are the options?

The Future Homes Standard

The FHS, set to be implemented in 2025, will form part of UK Building Regulations and will be the new minimum compliance standard for new homes.

In practice, the FHS will mean improved building fabric performance and low-carbon, fossil fuel free heating systems. It aims to future-proof homes so they will not require any energy related retrofit as the national grid decarbonises. This is part of the broader effort to meet the UK's net-zero carbon targets by 2050. Exact details are still to be confirmed, but housebuilders should expect to have to include more insulation in the building fabric, heat pumps for heating and hot water and potentially rooftop solar panels.

Whilst this is likely to mean higher build costs over the current regulatory minimum standard, the scale of technology adoption should reduce costs over time, particularly for the heat pump market.

the Octopus Zero Bills model

One of the new homes equipped with solar panels, domestic scale batteries, and heat pumps, guaranteeing zero energy bills for at least five years. This innovative tariff leverages green technology to eliminate energy costs, making sustainable living more affordable.

Octopus Energy aims to collaborate with developers to build 100,000 Zero Bills homes by 2030. Estimated additional costs are between £10,000 - £20,000 per unit to fund the heat pump, batteries and PV panels.

The Passivhaus standard is a

rigorous, voluntary standard for environmental quality in buildings, providing assurance of health and wellbeing whilst reducing energy consumption. It results in high levels of internal comfort and constant fresh air, delivered using very little energy and therefore lower bills.

Key features include high levels of insulation, airtight construction, and mechanical ventilation with heat recovery. Although some housebuilders state a 10-15% cost premium to build to Passivhaus standards, this is usually pricing in inexperience and risk, rather than additional materials and time on site.

For developers who are used to building to Passivhaus standards, the premiums are more predictable and much lower, usually around the 5% mark and sometimes less than £10,000 per unit.

SPOTLIGHT
Savills Research

UK Single Family Housing

A RECORD YEAR, WITH
£2.5BN INVESTED

OPERATIONAL CAPITAL MARKETS

Website Social

savills

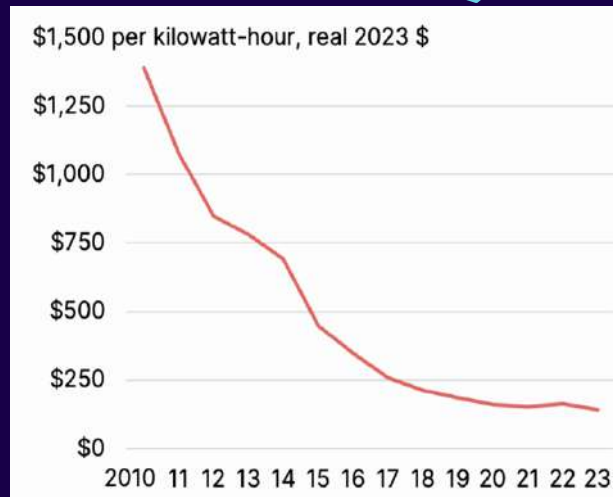
All-electric homes are the future & costs are decreasing every year

The average cost of solar PV has reduced **9x** since **2012**, halving last year alone



Source: Nat Bullard/Bloomberg NEF

The average cost of batteries has reduced **10x** since **2010**, with CATL forecasting \$56/kWh this year



Source: Nat Bullard/Bloomberg NEF

Octopus Capital

We provide award-winning finance to support the entire lifecycle of real estate lending and investment.



How to benefit from the discounts

Schemes delivering 4+ additional criteria qualify for 1.25% discount. Schemes delivering 6+ additional criteria qualify for 2% discount.

We can assist with the following

- Houses and flats
- Mixed-use Schemes (less than 20% commercial)*
- Build-to-rent
- Affordable housing

*Subject to eligibility

Expanded criteria for Greener Homes Alliance Phase 2

The second phase of the Alliance introduces an enhanced criteria to help developers make an even greater impact. Developers can choose from ten criteria, earning greater discounts as they meet higher sustainability standards.

To be considered, projects must meet:

- ✓ All homes to be fossil fuel free
- ✓ Average SAP score 85+

Additional criteria:



Developer to be a supporter of Lighthouse Charity



Real Living Wage paid to all workers on-site



On-site affordable > 25% units, or in line with local plan



Use of MMC in fabric of building (categories 1-5)



>90% of waste avoids landfill



Portable water usage reduced to <110L/p/d



Regeneration of Brownfield Sites



> 50% of new homes 'Zero Bills' ready



Biodiversity Net Gain > 20% via onsite/offsite



Average SAP 92+ (EPC A)

Affordable housing



NewArch Homes is a registered provider of social housing.

We are regulated by the Regulator for Social Housing to provide affordable homes for those who may be unable to afford to buy or rent one on the open market.

NewArch Homes is funded through long-term investment from investors who are motivated to deliver good quality housing. This investment is managed by Octopus Investments Ltd, who also manage NewArch Homes.

Our goal is to build homes to high quality and energy efficiency standards. This means that our homes cost less to heat, and that the ongoing operation of our homes has a lower impact on the environment.



NewArch

Building homes and communities for people who need them most



ZERO BILLS

UPGRADE TRIALS

5 Years Zero Bills



130 years old!



2 weeks old!



70 years old!



HEAT PUMP READY
Department for Energy Security & Net Zero
Part of the Heat & Zero Ambition Programme
www.gov.uk/government/organisations/department-for-energy-security-and-net-zero



Our first
Zero Bills Home
Retrofit Project





**CLARION
HOUSING**

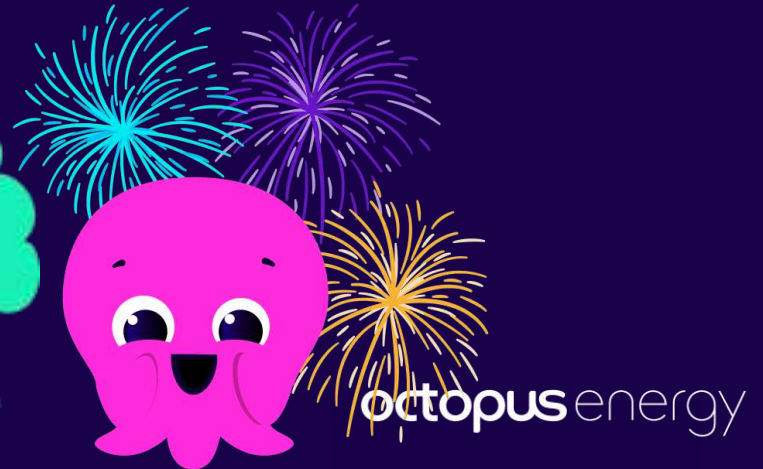
- ❖ Kent: Snodlands, North of Maidstone
- ❖ 10 x Post War / 1950's
- ❖ (£) Clarion + part Govt Heat Pump Readiness
- ❖ Zero Bills for 5 years
- ❖ Daikin Heat Pumps
- ❖ On Roof Solar (120%)



1. Landlord installs battery and solar



2. Tenant becomes an Octopus customer on Tenant Power tariff



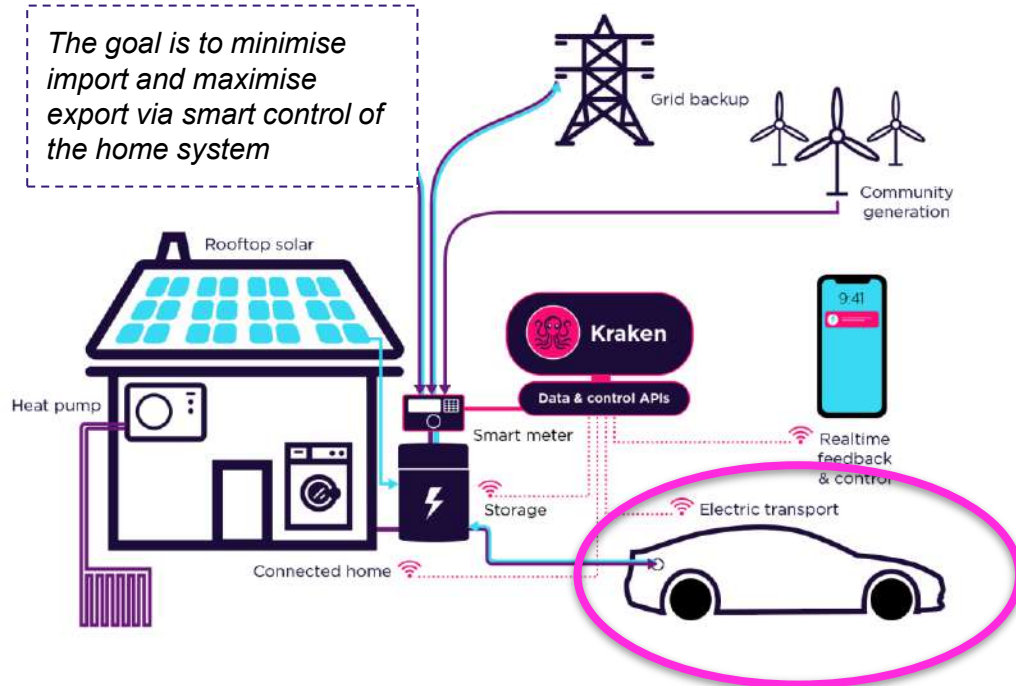
3. Tenant lives happily in the home with % discount on all monthly electricity bills



4. Landlord receives an export payment from the solar AND flexibility payment from the battery to be paid as agreed - monthly, annually etc

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Could adding the car to the home unlock Zero Bills in retrofit?



Combine **Air Source Heat Pump (ASHP), Solar PV, Smart Meter, domestic battery and domestic electric car** to eradicate energy bills





Power pack is currently compatible with:

Nissan Leaf

Nissan e-NV200

Mitsubishi Outlander PHEV

And we're working hard on more integrations!

Octopus Power Pack: the UK's first Vehicle-to-Grid tariff

Get free EV charging with our groundbreaking vehicle-to-grid (V2G) tariff

Add Octopus Power Pack to your regular tariff. We'll set up your V2G charger to automatically manage your charging and discharging in the greenest way possible, so you can fill up for free.

A typical V2G driver could **save £880 per year compared to Flexible Octopus**, and **£180 compared to Intelligent Octopus Go**.

What is the Power Pack Bundle?

Octopus, BYD, and Zaptec have teamed up to help drivers unlock the full potential of V2G technology, launching later this year. For those who believe in the power of clean energy, and want to be part of the energy transition from day one.

We're calling it the Power Pack Bundle. One monthly payment gets you:

- A BYD Dolphin on lease, enabled with Vehicle-to-Grid technology
- A Zaptec Pro charger
- Guaranteed free home charging for your entire lease

You can save up to **£620 a year** compared with charging at home on a standard variable home energy tariff. See [eligibility criteria](#) and [full charging T&Cs here](#).



Vehicle-to-Grid enabled car

Lease a BYD Dolphin, with upgraded tech that's ready to export energy back to the grid.



Free charging for your entire lease

Up to 12K miles/year on Octopus Energy's Power Pack tariff, matched to your lease mileage



Home charger installed by Octopus

Innovative V2G enabled Zaptec Pro with a standard installation by expert engineers.



Servicing, maintenance and repairs

We'll keep your car in top condition. Service, maintenance and repairs are included.



Cosy Heat Pump Series | Cosy 6 & Cosy 9

Cosy Heat Pump



Cosy units are built with ZBH, the customer & installer in mind - easy to install, space efficient & practical in it's application.



Cosy 6
1- 4 Bed Home



Cosy 9
5 Bed Home

Control Hub (x1)



The Cosy Control Hub sends information back and forth from your heat pump to your app. You'll control your heating through the Octopus mobile app, but the Hub itself has handy light indicators so you can check things like connection and heat status.

Pods (x3)



Cosy Pods are room sensors that let you monitor the temperature and humidity in each area of your home for smarter, more efficient heating.



Cosy Heat Pumps | Octopus Energy App



Fixed

Weather Compensated

Hot Weather Flow Temperature: 36.0°C

Cold Weather Flow Temperature: 57.0°C

Save



Kitchen HUMIDITY 37%

19.8°C

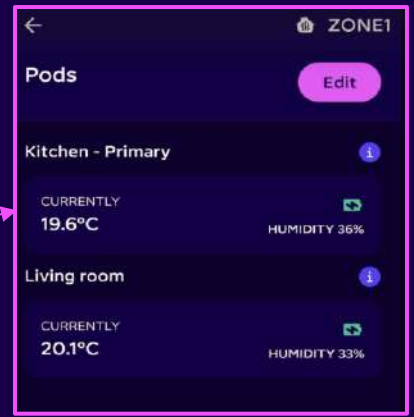
19.5°C TARGET TEMP

Boost

Schedule Off On

ZONE1 schedule

Cosy 6 stats



ZONE1

Pods Edit

Kitchen - Primary

CURRENTLY 19.6°C HUMIDITY 36%

Living room

CURRENTLY 20.1°C HUMIDITY 33%

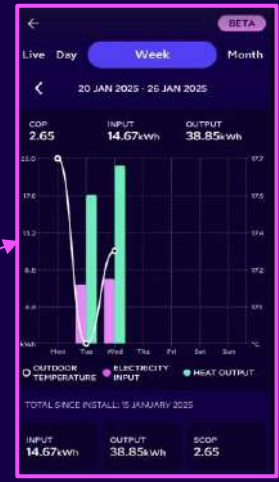


ZONE1 schedule

19.0°C 06:00 - 09:00

19.0°C 09:00 - 10:00

18.0°C 19:00 - 22:00





Cosy Heat Pumps | Installations





Get Cosy Package | Cosy Heat Pump, Hub & Control

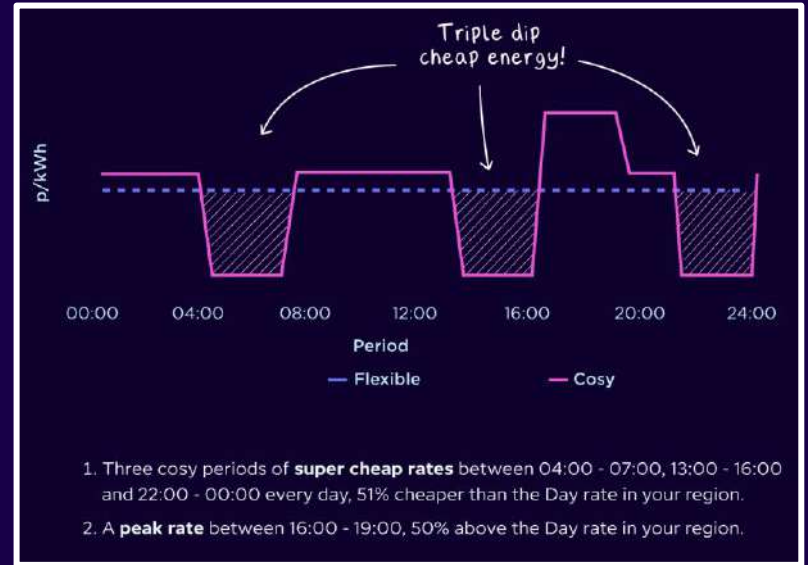
Cosy Heat Pump



Control Hub



Automatic Time of Use Heat Pump Management





Cosy 12 | Same size but bigger on the inside



Cosy 12

Cosy 9

Same size here



Bigger in here

Supporting communities

Welcome to the
Octopus
Fan Club,
Halifax!

You could save half
on your electricity
when the wind blows



octopus energy



Glastonbury's 'biggest fan': UK festival gets an eye-catching 28 metre wind turbine



KensaUtilities
A KENSA GROUP COMPANY

Heat the Streets

Low carbon alternative
to the gas network

Making people-powered energy a reality

A screenshot of the Youunity website. The header includes the Youunity logo and navigation links: Energy producers, Take Action, Funding, and Community Power Tariff. The main content area features the text 'energising community energy' next to a photograph of wind turbines at sunset with a person's silhouette in the foreground.



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Octopus Fan Club

Currently for postcodes: BD22, CF81, DN31, DN32, DN33, DN34, DN35, DN36, HX2, LN11, LN12, LN13, NP24, PE24, PE25 and YO43



octopus
FAN CLUB

20%

off your unit rate whenever your turbine is spinning and you're using electricity

50%

off your unit rate when the wind picks up and the green electrons are really flowing

100%

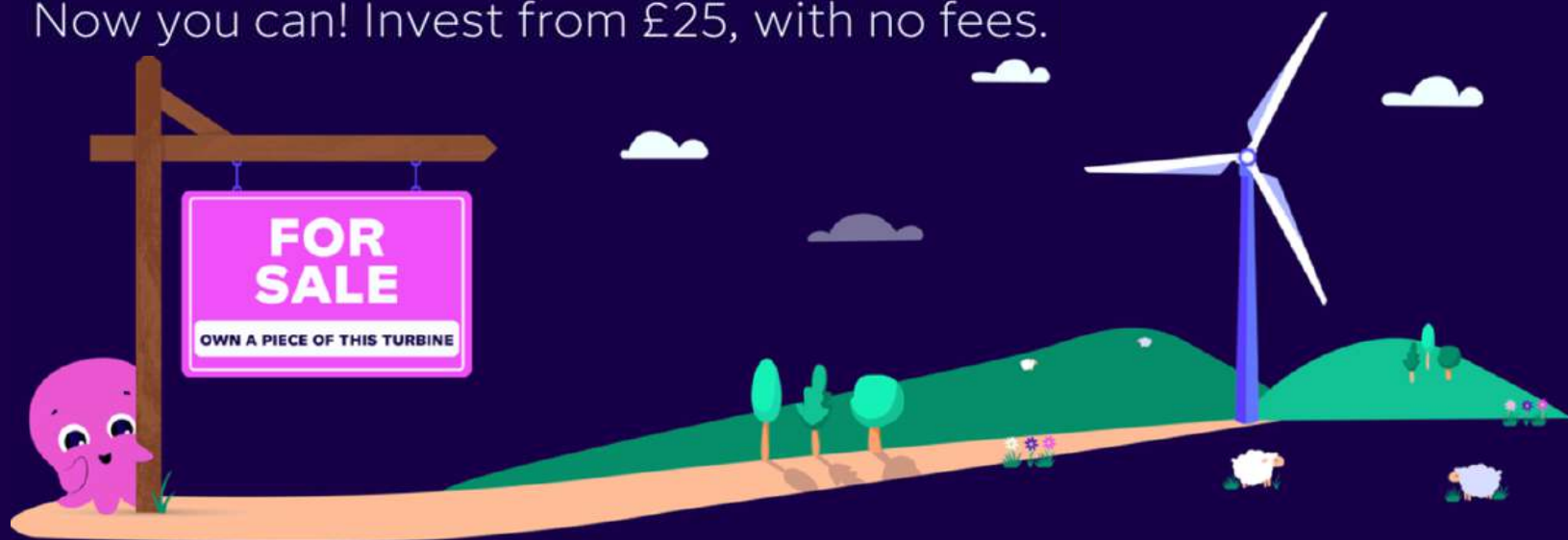
renewable energy from your local fan



Invest in British green energy with the Collective

A third of Brits say they'd like to invest in green energy.

Now you can! Invest from £25, with no fees.



As with any investment, there are risks that come with investing through the Octopus Energy Collective. It's important you fully understand these so you can decide if investments on the Collective are right for you.

List your green energy project on the Collective



the
collective
octopus energy



Projects we're looking for

We're interested in UK-based green energy projects which have a minimum capacity of 1 MW and are either ready to build, under construction, or already generating.

This could look a little different for each project, but here's what to expect:

- 1 Register your interest** — Fill out our form, and we'll check if your project could be a good fit for the Collective.
- 2 We'll review the details** — Our team will assess your project, and if it looks like a match, we'll work with you to figure out the best way forward.
- 3 List on the platform** — Your project becomes available to investors on the Collective.



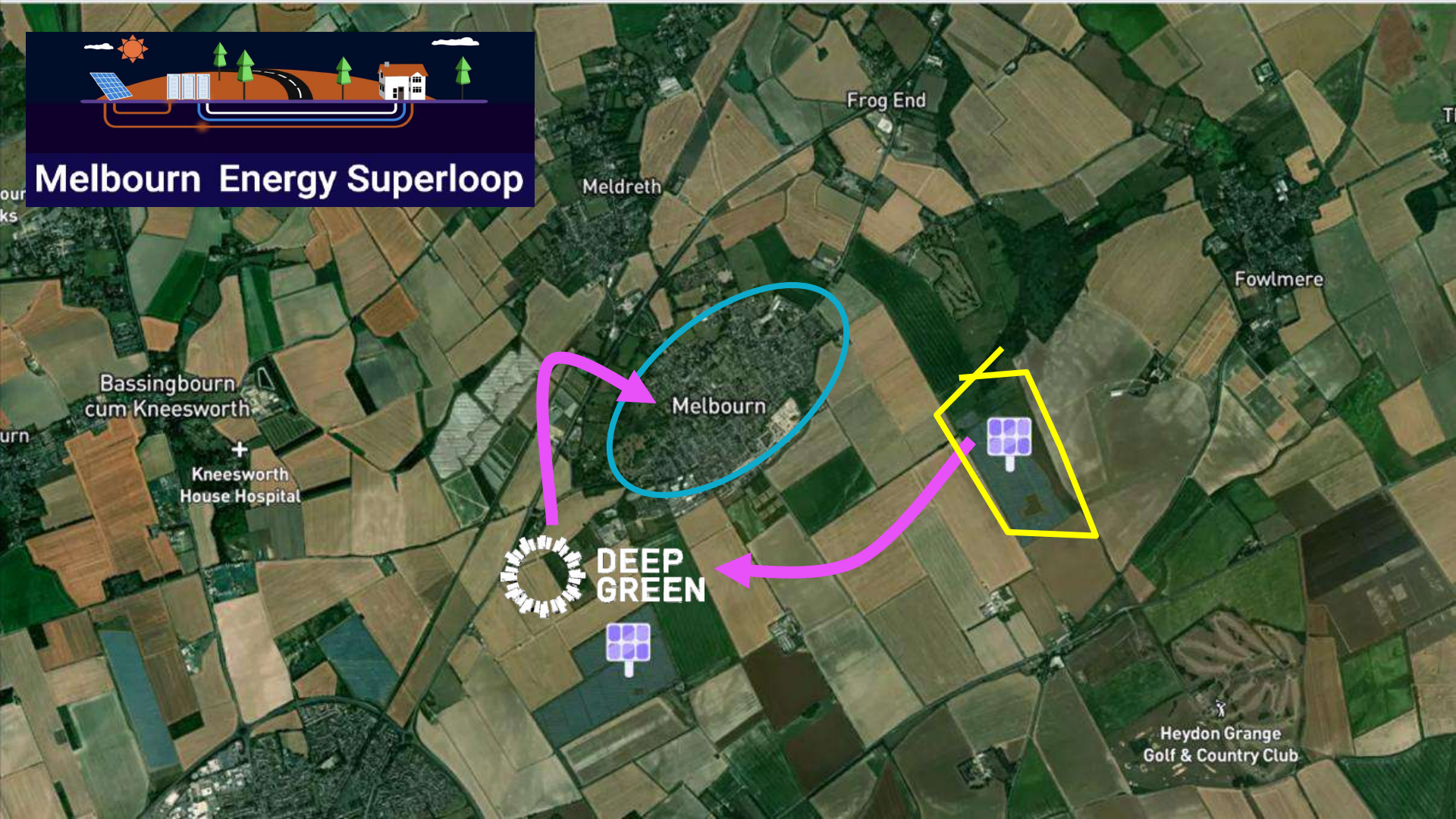


Futureproof your home with the Melbourn Energy Superloop





Melbourn Energy Superloop



Frog End

Meldreth

Fowlmere

Bassingbourn cum Kneesworth

Kneesworth House Hospital

Melbourn

DEEP GREEN

Heydon Grange Golf & Country Club

Phil Steele - Our Future Technologies Evangelist



octopus labs

This is a beta Octopus Labs system that we're delighted to invite you to try. As an Octopus Labs system please request help via agile@octopus.energy not our main hello address and nor via phone.

GivEnergy API V1 > Home Batteries > GIV-AC3.0 - CE2241G226

GivEnergy® GIV-AC3.0 - CE2241G226

STATE CHARTS HISTORY

Generation	Consumption	Battery	Grid
Generating at 1722W	Consuming at 3379W	Discharging at 1904W	Importing at 19W
Today: 7.3kWh	Today: 32.8kWh	SOC: 87%	Current: 6.6 A
Total: 3781kWh	Total: 13621.9kWh	Temperature: 24 °C	Frequency: 50.04 Hz
Power PV1 PV2: 1722W 0W		Today In Out: 10.8kWh 4.5kWh	Voltage: 243 V
Current PV1 PV2: 71A 0A		Total In Out: 3304.2kWh 3304.2kWh	Today In Out: 32.9kWh 0.2kWh
Voltage PV1 PV2: 241.5 V 0 V			Total In Out: 12072.9kWh 1613.6kWh



SolarSharing

You have donated

⚡ 241.15 kWh

🎁 £ 36.17

SolarSharing participants have donated

⚡ 2,881.31 kWh

🎁 £ 432.2

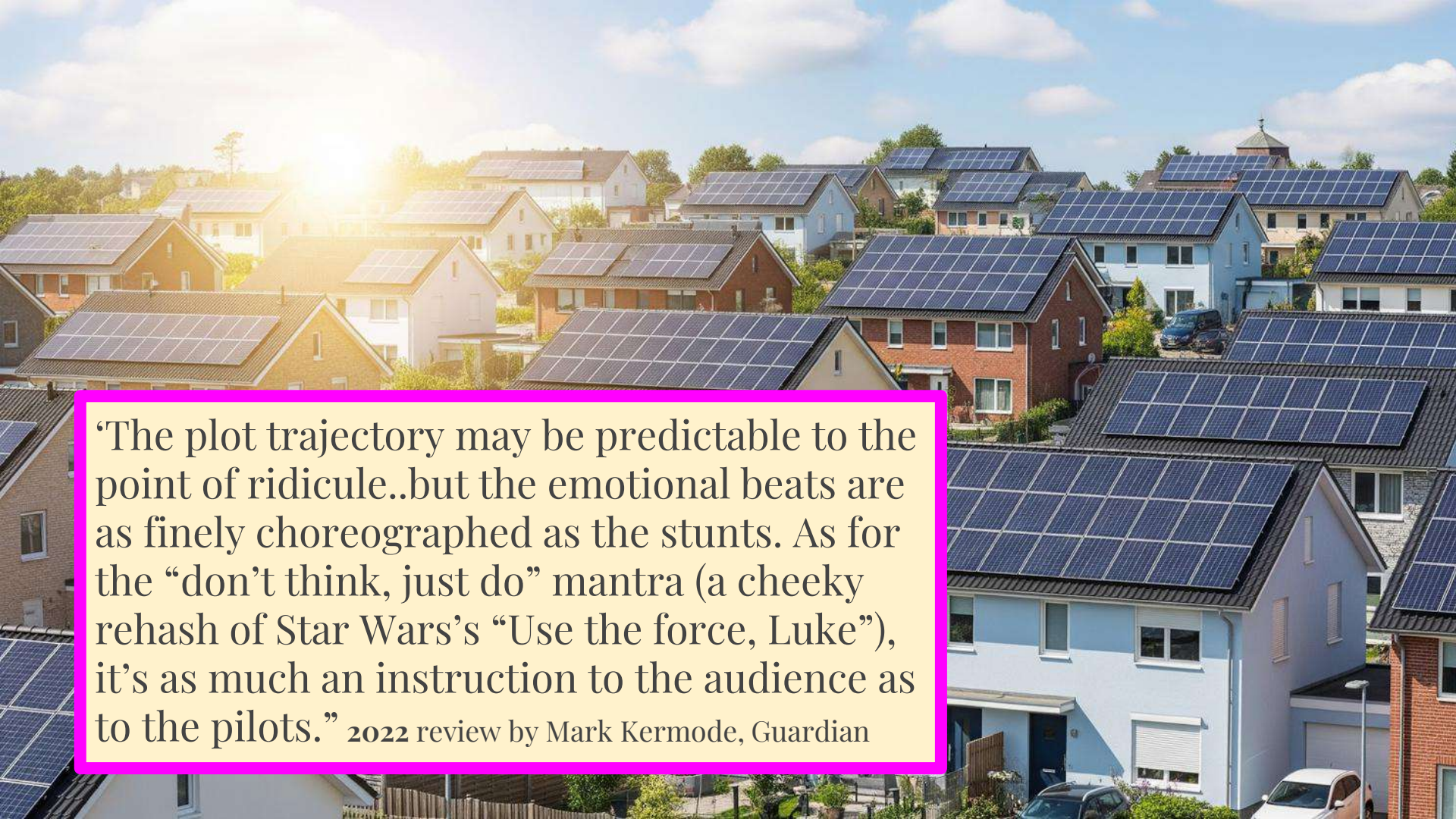
at 15p per kWh



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Welcome to the Octopus Smart Energy forum

Topic	Replies	Views	Activity
Agile, looking ahead for the next few days	1.8k	26.9k	1d
Power Hour Free Electricity	1.3k	11.2k	Dec 2022
Ripple Energy Limited	1.2k	15.0k	1d
Smart UPS or Battery Pack for use with Agile? and EcoFlow 800W balcony solar system	1.1k	6.9k	19h

An aerial photograph of a suburban neighborhood where every house has solar panels installed on its roof. The houses are in various colors, including white, brick, and light blue. The sun is shining brightly from the upper left, creating a lens flare effect. A church steeple is visible in the background. A white car is parked in the foreground on the right.

‘The plot trajectory may be predictable to the point of ridicule..but the emotional beats are as finely choreographed as the stunts. As for the “don’t think, just do” mantra (a cheeky rehash of Star Wars’s “Use the force, Luke”), it’s as much an instruction to the audience as to the pilots.’ **2022** review by Mark Kermode, Guardian



Thank you!

Love & Power

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