Thame Green Living

Wed 18th October 2023

The Barns Centre, Thame

Home and Community Energy EXPO

Solar PV : Batteries : Heat Pumps

Ask the experts : Homeowner stories : Quick wins

RENEWABLE THAME

Launch of *Renewable Thame*

With a big thank you to our sponsors

ENERGY my way

Kubota

VEHICLE HIRE

Welcome and outline for the evening

Wendy Duckham
Thame Green Living

Home and Community Energy EXPO

Event Programme

18.45	**Doors open and stands available**	
19.15	**Welcome** and outline for the evening	**Wendy Duckham**
19.20	**Energy Quick Wins** Tips, tariffs, smart meters, EPCs, carbon footprints	**John Scott**
19.30	**Launch of "Renewable Thame"** Energy Solutions Thame Green Living & Energy My Way Update on Thame Solar Streets	**Wendy Duckham** **John Scott**
19.40	**Cosy Homes Oxford** – a short intro and visit our EXPO stand	**Lina Budde-Manning**
19.45	**My Energy Savings - two local stories:** ➢ Anthony Day - home PV, EV charging and water heating ➢ Andrew Newton - home PV, energy storage and energy efficiency	**Anthony Day** **Andrew Newton**
20.05	**Cosy Thame - Thermal Imaging for your home** – a short intro and visit our EXPO stand	**David Dawson**
20.10	**Demystify the Solar and HP journey** – Energy My Way	**Jason Hobbins**
20.25	**Phoenix Energy Community** - a short intro to a new local group	**Bill Finnegan**
20.30	**Brief next steps**	
20.40	Stands open and speakers available	
21.15	Stands close	

Home and Community Energy EXPO

Energy Quick Wins

John Scott
Thame Green Living

Energy Quick Wins

Save energy, save costs & reduce carbon

A win for our wallets

A win for decarbonisation & air quality

A better future for us and next generations

Some Energy Quick Wins

1 For the simplest savings - waste less & use less

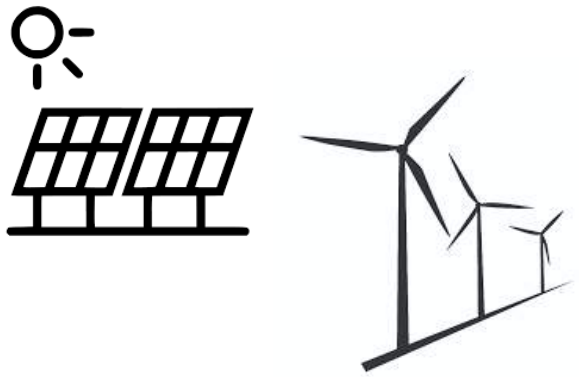
- Turn down your thermostat, wear more clothing, stay comfortable
- Replace traditional light bulbs with LEDs
- Don’t fill the kettle, only boil the water you need
- Seal the draughts - letterboxes, doors and windows
- Top up your loft insulation (at least 270mm, 10”)
- Add foil panels behind radiators, especially on outside walls

- Switch to a ‘green’ electricity supplier for cleaner energy
- Give your home a check-over using a free online tool such as the ‘PlanBuilder’ (see Cosy Homes Oxford stall)
- Get an EPC, an Energy Performance Certificate (see EPC stall)
- Get a thermal imaging check (see Cosy Thame stall)

Make an assessment, understand the issues, prioritise your solutions

Some Energy Quick Wins

2 For further steps, anticipate the opportunities…



- There's much more renewable generation being built, notably wind and solar
- It's clean energy, but its output is variable…
- This is tricky for the grid which must match generation with demand at every moment

- The grid's solution: make *demand* more variable - and reward electricity users for their 'flexibility'
- Renewable generation is cheap to run (the fuel is free!) If there's surplus energy, the market may give it away or pay you to take it
- Negative prices really happen - how do you get them?

Better deals are becoming available through "Flexibility" and "Time of Use" offers

Some Energy Quick Wins

3 How to take advantage of the changing energy world

SMART METERS unlock the world of energy deals
- they're free and are now reliable and convenient
- no more meter readings or estimated bills
- check your top energy uses using the real-time display
- make it easy to switch energy suppliers
- you can be confident your data is securely encrypted

WHY SMART METERS ARE KEY

- the energy market is half-hourly, but we've only had a 'flat' retail tariff
- now smart meters enable us to have access to TOU "Time of Use" tariffs
- if we can be flexible, a smart meter allows us to access low prices
- and for solar PV, to be paid for surplus energy going back into the grid
- we can flex manually (eg when to run a tumble drier) or automatically (eg using automation to control hot water or EV or home battery charging)

Checkout the energy suppliers who offer flexible tariffs - such as Octopus Energy

Some Energy Quick Wins

4 A few further ideas to look into

A SMART METER also gives you access to:

- **National Grid's Demand Flexibility Service** which now pays you to reduce demand when the grid is under stress, in addition to TOU tariffs and negative prices

nationalgridESO

A CARBON FOOTPRINT TOOL

- will calculate your personal CO2 contribution to global warming
- check your home (eg PlanBuilder) and lifestyle (eg Climate Hero)

cosy homes Plan Builder

ClimateHero

HOME AUTOMATION

- is now widely available, eg check out NEST & HIVE thermostats
- smart plugs let you control your devices & link to supporting the grid

equiwatt

ENERGY SMART APPLIANCES

- are government backed as part of smart homes & smart EV charging

Smart & flexible energy is core to our national energy strategy - it's here to stay

Energy Quick Wins

Save energy, save costs & reduce carbon

A win for our wallets ✓

A win for decarbonisation & air quality ✓

A better future for us and next generations ✓

That's it - visit the stalls for more details!

Tonight's slides will be available on the TGL website

Home and Community Energy EXPO

“Renewable Thame”

Thame Green Living partnering with Energy My Way

And an update on Thame Solar Streets

Wendy Duckham & John Scott
Thame Green Living

Thame Green Living

Home and Community Energy EXPO

An update on Thame Solar Streets

A partnership with the installation company IDDEA and the marketing organisation GREEN GROUP UK.

> launched in Thame in 2020

> it offered discounted installation costs, and a

> community fund contribution for each PV installed

> some 20 local properties have had panels installed

> Solar Streets was operating in 25 towns

> IDDEA unfortunately went into administration in 2023: post-Covid they experienced severe difficulties in getting components from China

> There is a statement on TGL's website providing further information

> IDDEA has been sold to new owners: Oakray Limited

Thame Green Living

Home and Community Energy EXPO

“Renewable Thame”

Thame Green Living partnering with Energy My Way

We are delighted to launch a new and broader community partnership

Hear more from Jason Hobbins of Energy My Way later this evening

Renewable Thame offers local residents and businesses discounted solar PV arrays and battery solutions, with the potential of extending this to heat pumps and other technologies where buildings are suitable.

Energy My Way has successfully partnered with other local community groups including Wantage, Kirtlington, & Woodstock.

They have installed solar arrays on local schools, village halls and community buildings.

Renewable Thame offers offers discounted installations and will make a £50 donation to Thame Green Living’s community funds

Thame Green Living

Home and Community Energy EXPO

A short introduction

see the stand later

Lina Budde-Manning

Cosy Homes Oxford

Cosy Homes Oxfordshire provides a holistic, **Whole House Retrofit** service, tailored specifically to your property and goals.

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low carbon hub

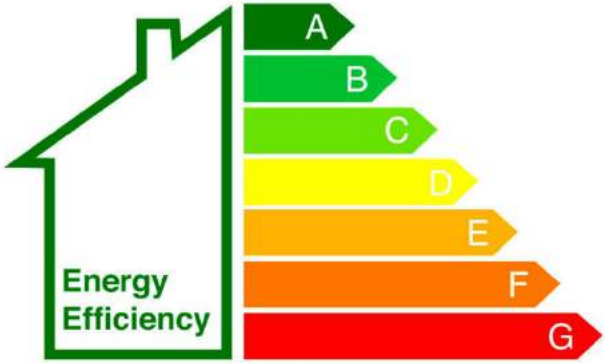
RETROFITWORKS
BUILDING EFFICIENCY TOGETHER

A RetrofitWorks scheme working in partnership with the Low Carbon Hub

Why Retrofit?

Retrofit refers to improvement works to an existing property and can offer many benefits including:

- ❑ Reducing energy bills
- ❑ Reducing your carbon emissions
- ❑ A healthier environment via better air quality and temperature control
- ❑ Improving your EPC rating



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What's the Process?

There are three key stages of our service:

1. Plan Builder Tool
2. Assessment & Whole House Plan
3. Installs Service

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cosy homes **Plan Builder**

Enter your address on Plan Builder and you'll see everything we know about the current energy efficiency and performance of your home, based on existing public data.

Basics

A mid-century semi-detached house

Roof

Loft with 100mm (4") loft insulation

Walls & Floor

Cavity walls (probably brick) with cavity wall insulation retro-fitted, uninsulated suspended concrete floors

Windows & Doors

100% of windows are double glazing (post-2001)

Heating

Gas boiler (G rated)

Renewables

No photovoltaic solar panels, but there is a roof which may be suitable

Others

100% of lights are low energy (LED or CFL), there are no open fireplaces, and mains gas is available

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Plan Builder Suggestions

filter to recommended (best **fuel bill saving** measures for **£20,000**)

filtered to your selections

Category Filters

- [x] All Categories
- [x] Basics
- [x] Roof
- [x] Walls & Floor
- [x] Windows & Doors
- [x] Heating
- [x] Renewables
- [x] Others

Showing 6 of 22 possible measures (clear filters)

Heating

Multi zone heating controls

£700 0.27 tCO_2

in plan ☆

Heating

Gas combi boiler

£3,179 1.05 tCO_2

in plan ☆

Renewables

Solar photovoltaic panels

£6,520 0.36 tCO_2

in plan ☆

Roof

Thicker loft insulation

£2,313 0.18 tCO_2

in plan ☆

Windows & Doors

Two Part L insulated doors

£5,000 0.08 tCO_2

in plan ☆

Windows & Doors

A rated double glazed casement windows

£12,704 0.12 tCO_2

in plan ☆

£1287 (52%) estimated annual fuel bill saving

1.84 (46%) estimated tonnes CO_2 saved annually

- [x] Multi zone heating controls (more...) £700 remove
- [x] Gas combi boiler (more...) £3,179 remove
- [x] Solar photovoltaic panels (more...) £6,520 remove
- [x] Thicker loft insulation (more...) £2,313 remove
- [x] Two Part L insulated doors (more...) £5,000 remove
- [x] A rated double glazed casement windows (more...) £12,704 remove

Estimated Cost: £30,416

Review

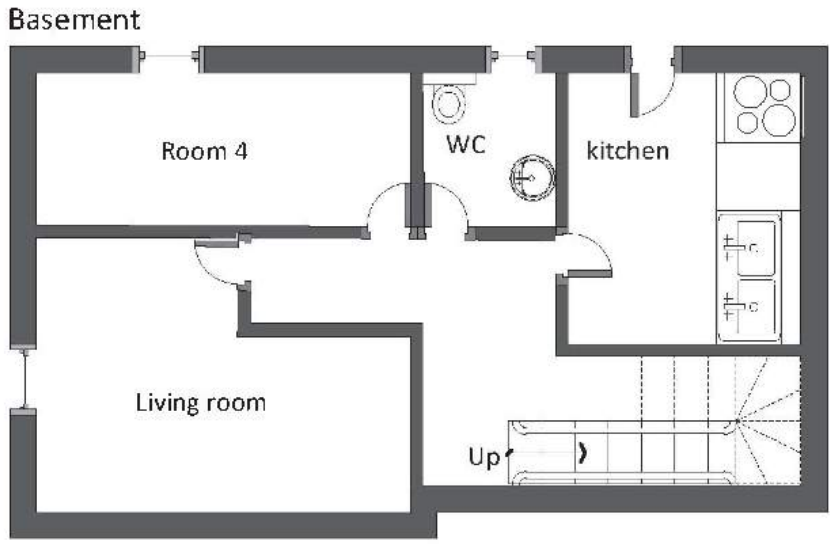
Back a step

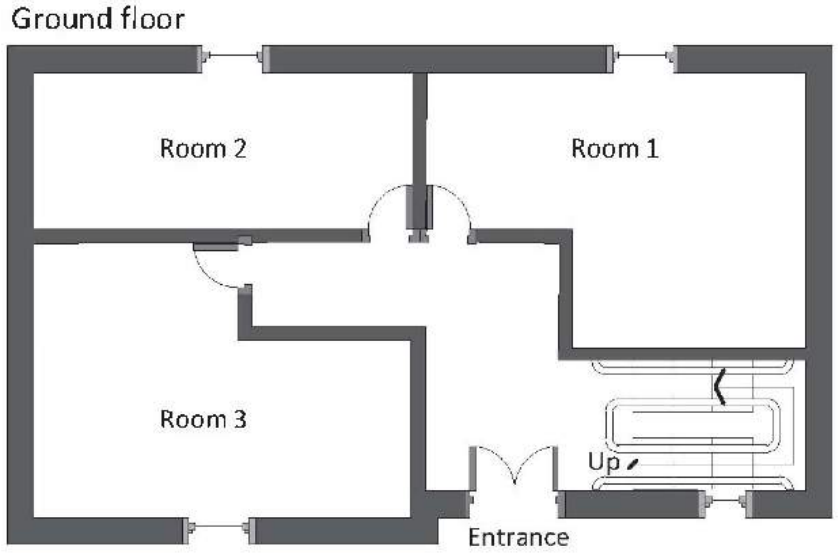
Home Assessment

Assessment

A Retrofit Assessor will carry out a thorough survey to:

- Rigorously check the current make-up of the property
- Highlight any areas of concern e.g. damp
- Produce floor plans (including present ventilation, radiators and other key features)
- Indicate the current energy rating





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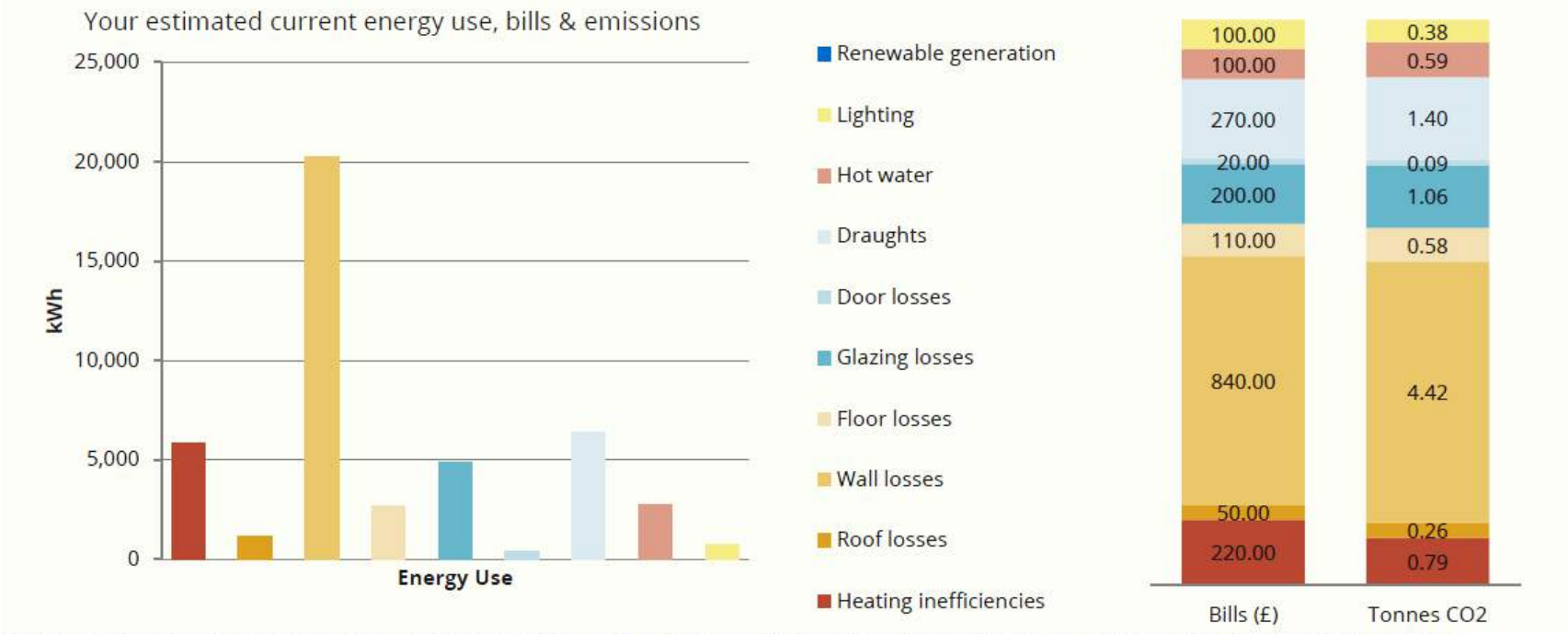
Whole House Plan

Whole House Plan

6: Where you are now

Below is the estimated baseline of your home's energy performance, from which we evaluate improvements:

Net Energy Use estimated annual kWh[1]	Energy Rating 1 to 100 – higher is better	Fuel Bills Annual[1]	Tonnes CO_2 Annual[1]
45248.2	**60 D**	**£4,760**	**8.35**
A kilowatt hour (kWh) is a unit of energy use used by energy suppliers	The national target for all homes by 2035 is EPC **C**[2]	Calculated using our energy survey and the current price cap tariff: may differ from your actual bills	The UK average per home is **3.50**[3]



[1]Figure is net after revenue/adjustments from any renewables, modelled using RdSAP/OA, see SAP reference; [2]Clean Growth Strategy, EPC C is 69 or higher; [3]Catapult - Living Carbon Free

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Whole House Plan

Recommendations

Your Retrofit Coordinator will create a custom Whole House Plan based on several factors:

- Your needs and lifestyle
- What is feasible with the building make-up
- Your budget

This can be broken down into phases to plan for the future.

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Our Installation Service

If you would like to use our installation service, a Retrofit Coordinator will create detailed documents outlining the requirements for the measure.

These will be given to members of our trusted Contractor Network to quote for the works.

If you accept, our Retrofit Coordinators will be on hand to check in at key junctions of the installation to oversee the technical details.

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Client Service Agreement & Building Performace Requirements → BPR sent to contractors for quotes → Works agreed & instalation booked → Quality Assurance & Sign Off

If you have any further questions; want to check out our Plan Builder; or look at any samples of materials; please pop by our stand once the presentations are over.

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Helping to de-mystify Retrofit and support Home-Owners in reaching their goals.

My Energy Savings - two local stories

▶ Anthony Day

Andrew Newton

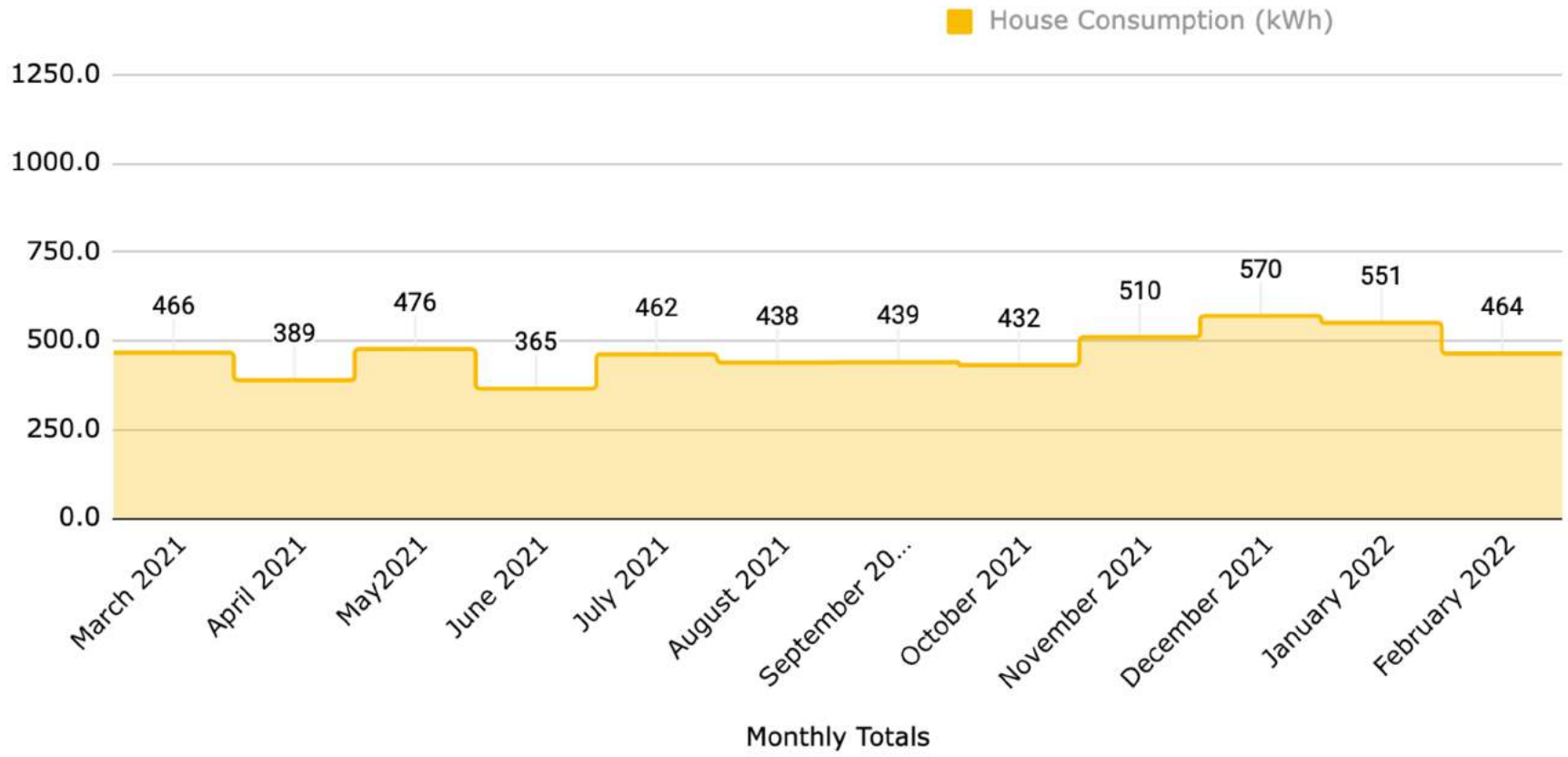
My Energy Reduction & Savings

The personal journey and experiences of Anthony Day, a local Thame resident

Energy Reduction & Savings

A Thame resident's personal journey

Home Electricity Consumption 5,562kWh per annum

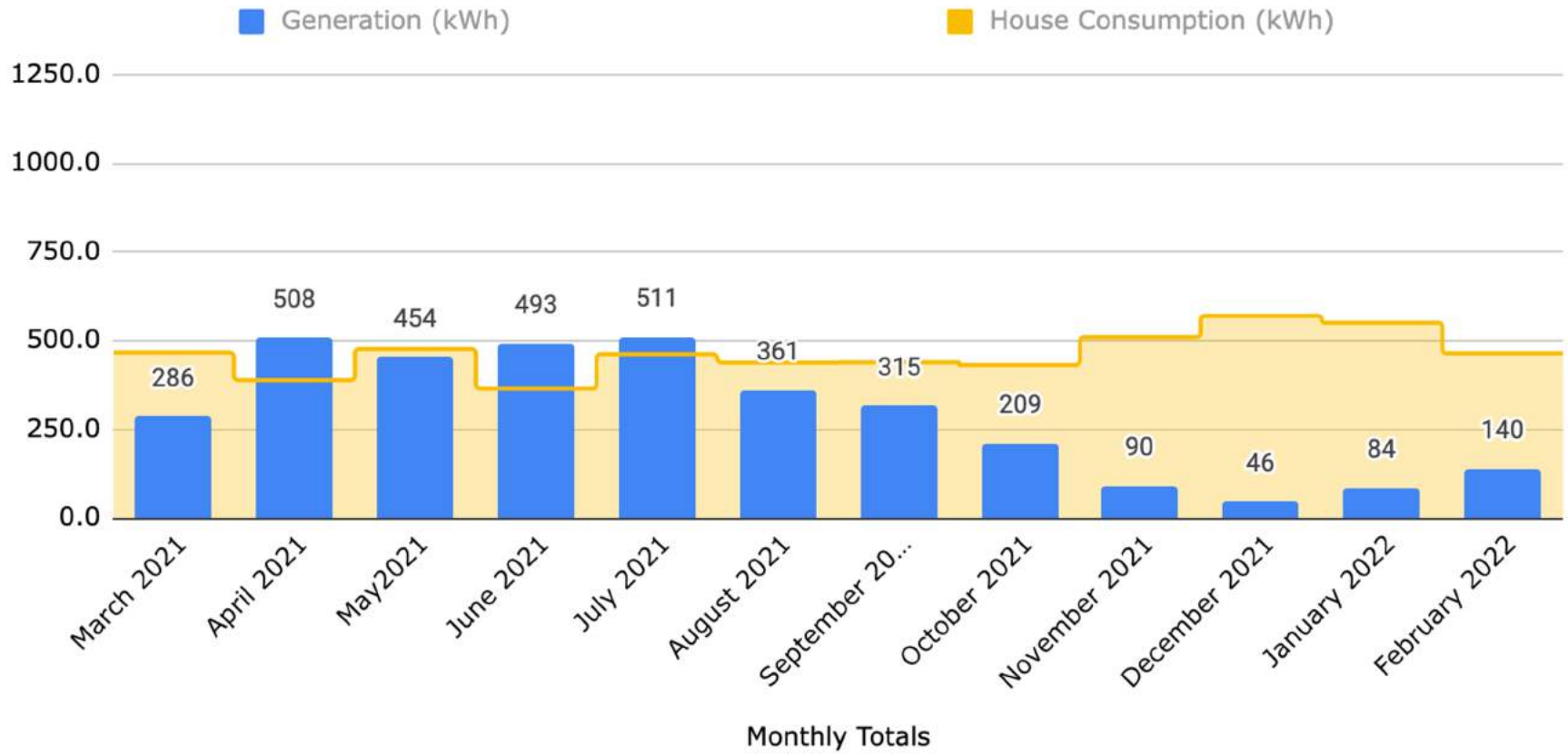


Edwardian, 5 bed detached house, solid brick walls, single glazed sash windows

Energy Reduction & Savings

A Thame resident's personal journey

Solar Generation - 3,498kWh per annum

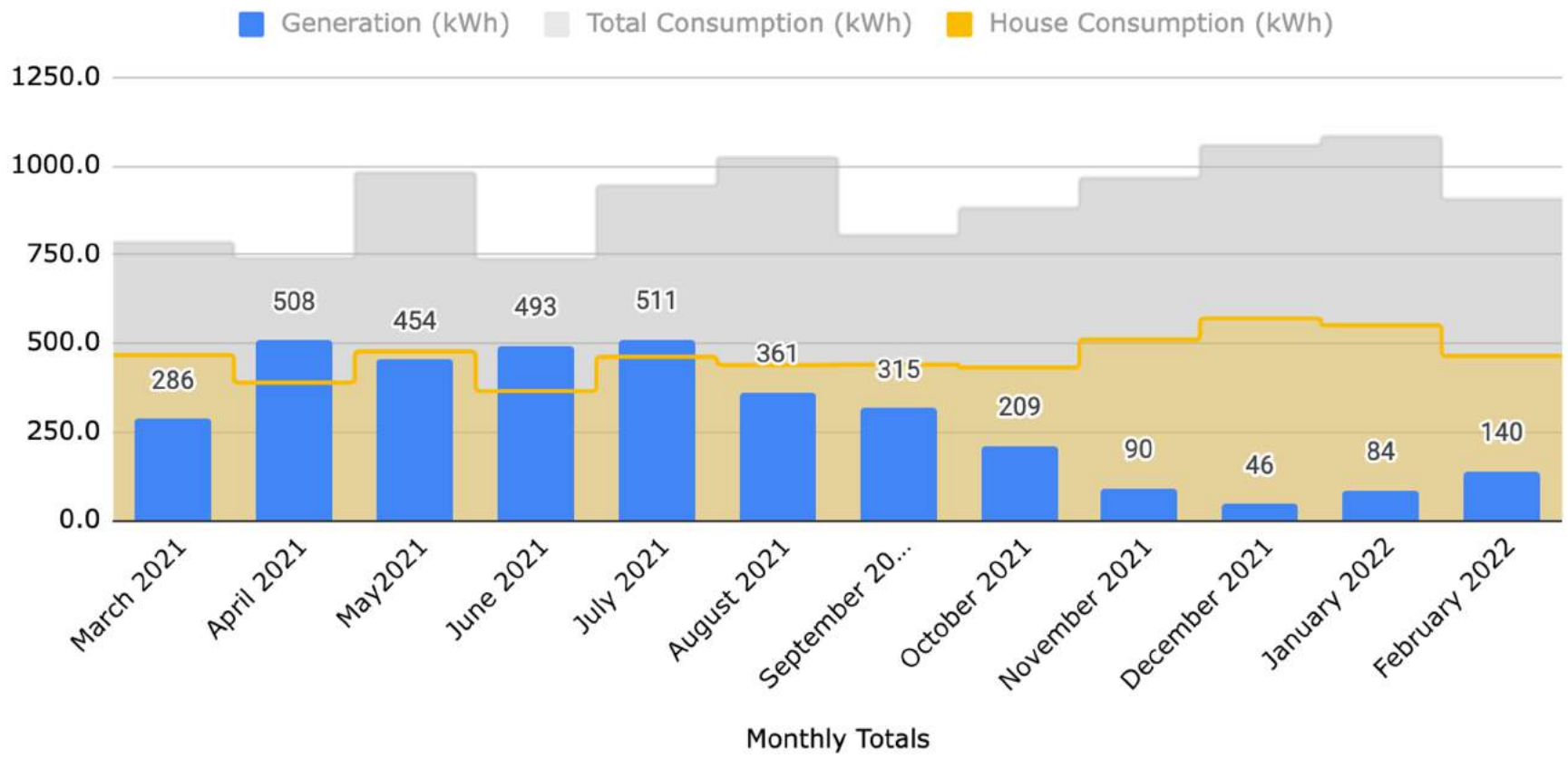


Total Solar PV generation was 63% of House consumption (on an annualised basis) in 2021 with a Typical/Standard size Solar PV Installation (4.4kW array with a 3.6kW Inverter)

Energy Reduction & Savings

A Thame resident's personal journey

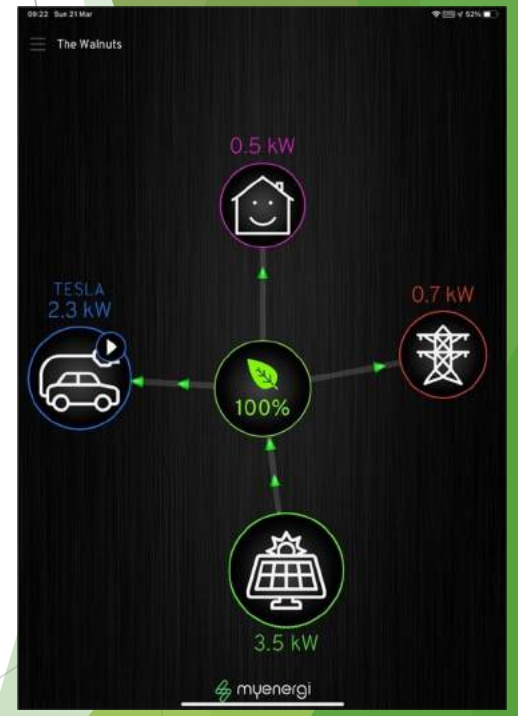
Adding an Electric Vehicle (15,000 miles pa) doubles demand



EV electricity consumption (additional 5,535kWh per annum), but note above avg mileage

Energy Reduction & Savings

A Thame resident's personal journey

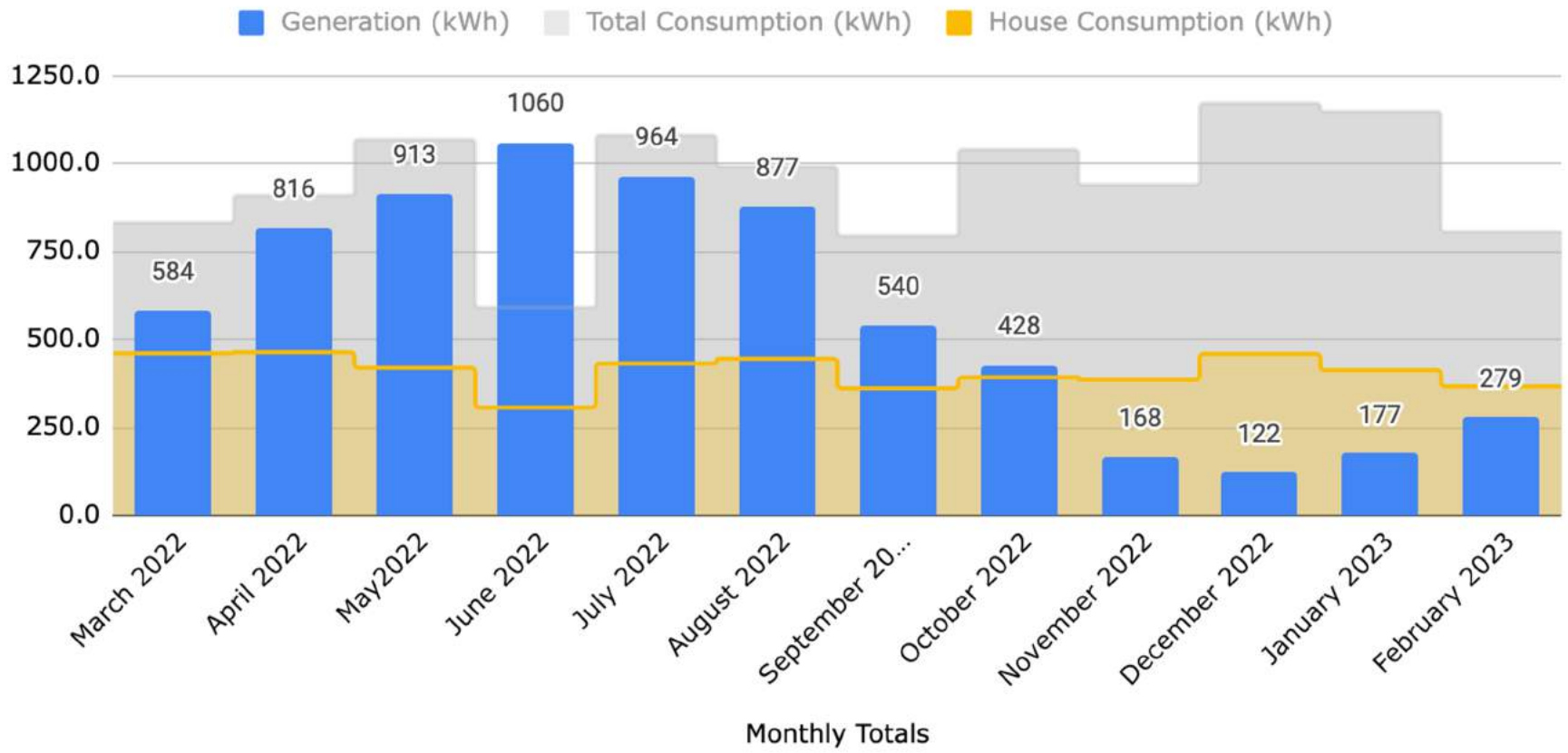


- *All black Solar panels on SE facing roof*
- *Solis Inverter & Zappi EV Charger in the garage*
- *Configured & controlled from a smart phone app*

Energy Reduction & Savings

A Thame resident's personal journey

PV Doubling Up - 8.75kW array (6,928kWh generated in 2022)



Solar generation was 141% of our House consumption (on an annualised basis) in 2022, we have also added solar PV hot water diverter to cover 100% of our hot water needs.

Energy Reduction & Savings

A Thame resident's personal journey

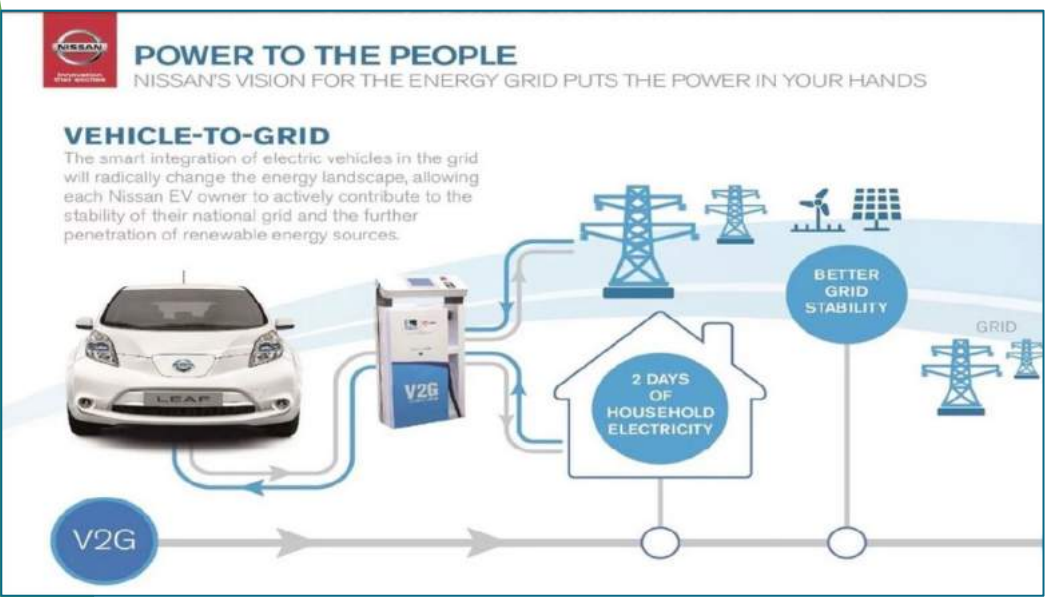
Other Energy Related Measures

- 100% Green Tariff
  - Octopus Energy
- Dual Rate Electricity Tariff
  - 4 hours cheap overnight electricity
- Full LED bulb replacement
- Smart Plugs (scheduled on/off)
- Printer automated shutdown
- New energy efficient fridge
- DSR programme participation

Our household electricity use (excluding hot water heating) reduced by 11.8% (worth £222) primarily due to the measures implemented

Energy Reduction & Savings

A Thame resident's personal journey



Observations

- **Maximising Self-Consumption**
  - We increased self-consumption of excess solar generation by diverting power to heat our hot water tank and charge our EV
  - More cost effective than installing a home battery
- **What's Next?**
  - I want to implement Vehicle to Grid (V2G) bidirectional charging, allowing me to support the grid (VPP) and run our house from our EV overnight and in a blackout
- **Return on Investment**
  - On track to be 11 years, less if electricity prices stay high

My Energy Savings - two local stories

Anthony Day

▶ **Andrew Newton**

Solar and Battery Storage, a good investment?

My experience over the last 12 months

Andrew Newton

System Design & Predicted Performance

6.3kW 16 panel array – East & West Configuration

East – 6x395W panels

West – 10x395W panels with optimisers

GivEnergy 5kW Inverter

GivEnergy 8.2kW Battery

Solar Generation
4913kWh

House Consumption
3700kWh

Solar to House
1307kWh (35% house usage)

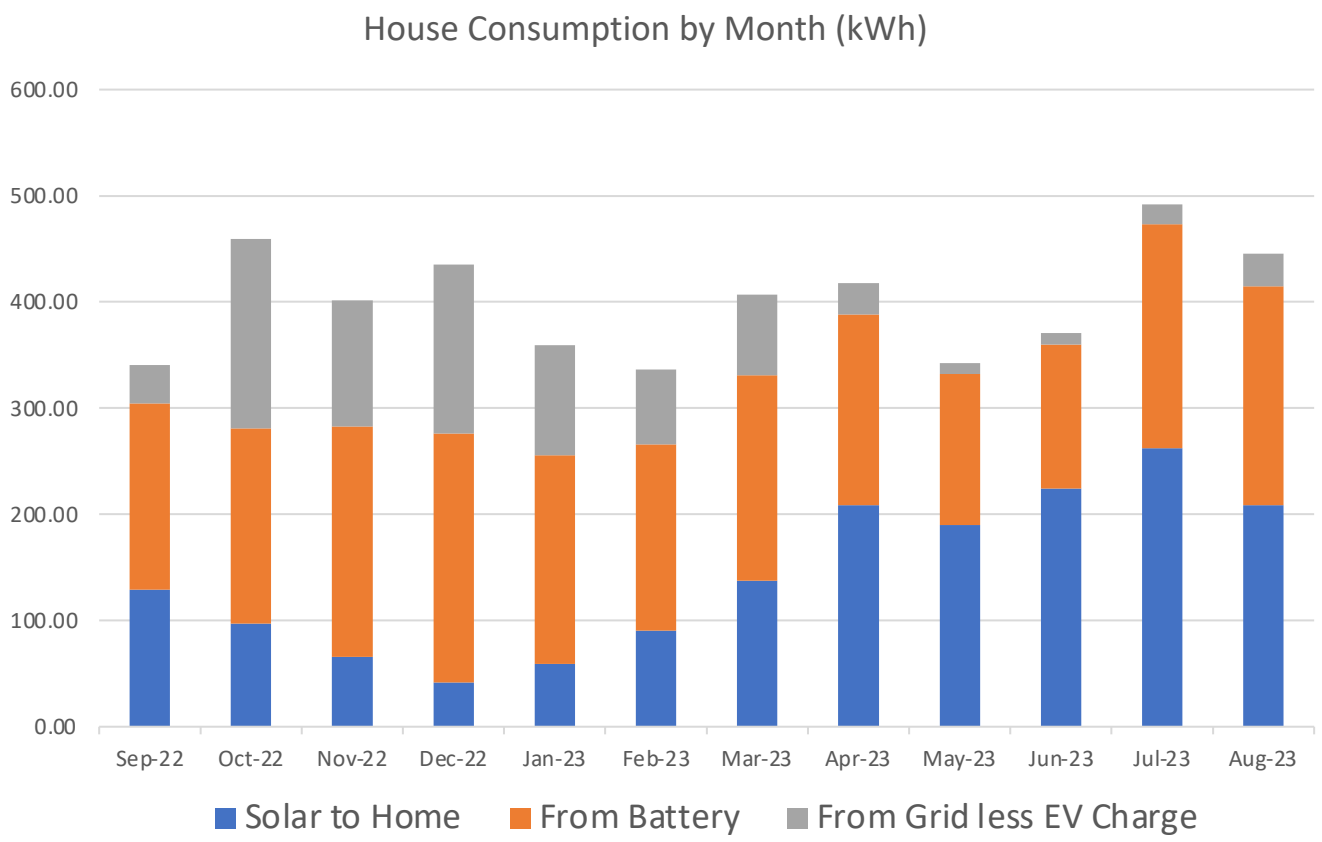
Battery to House
1226kWh (33% house usage)

Grid Export 2230kWh (45% of generation)
Grid Import 1178kWh (32% house usage)

Octopus Go EV tariff

Annual Performance

Sept 2022 to Aug 2023



Actual vs Predicted Results

(variance over predicted in brackets)

House Consumption
4800kWh (+1100kWh)

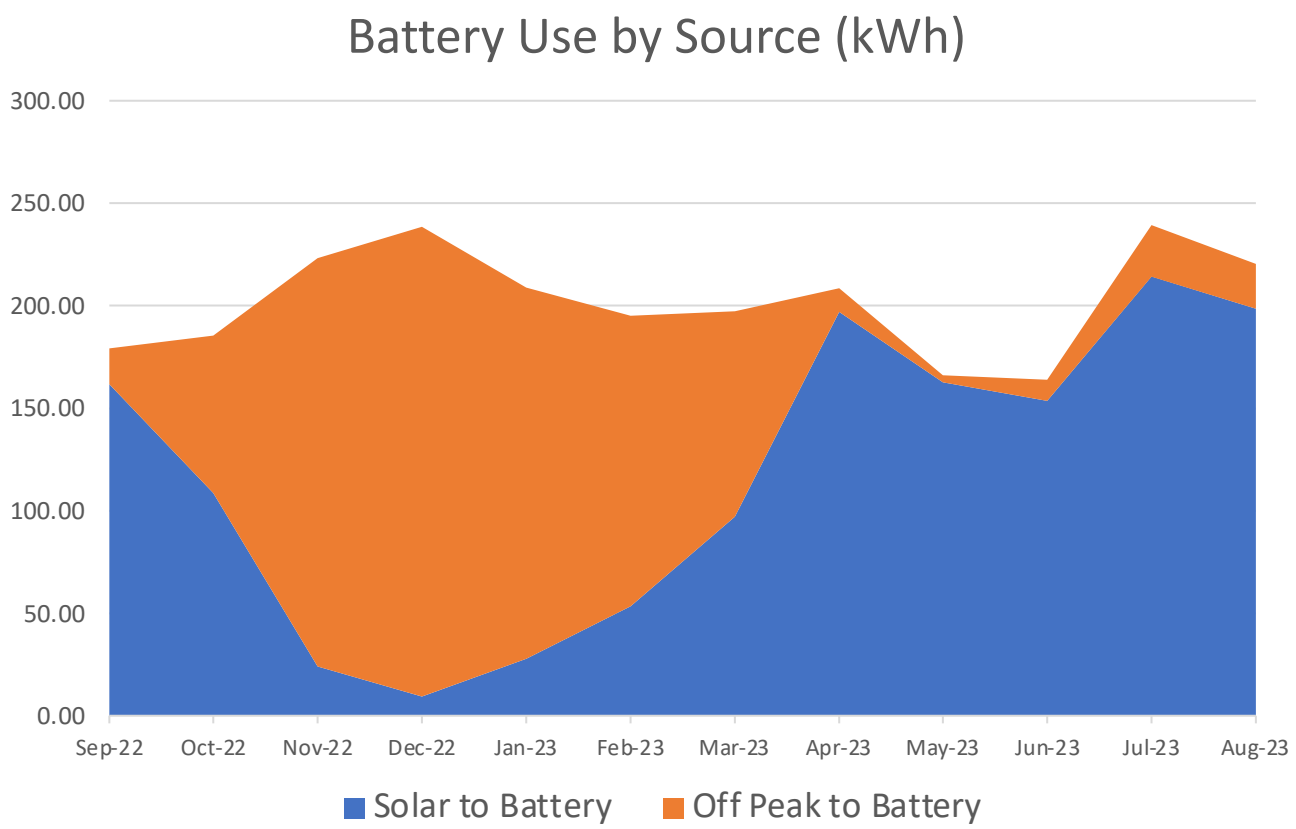
Solar to House
1715kWh (+408kWh)

Battery to House
2250kWh (+1024kWh)

Grid Import
842kWh (-336kWh)

Maximising use of the Storage Battery

Sept 2022 – Aug 2023



Octopus Go EV tariff (Sept 2023)
Off-Peak Rate 4hrs @9.5p/kWh 00:30 to 04:30
Peak Rate 20hrs @31p/kwh

Battery supplied 2250kWh
47% of all house consumption

Consistent battery use over seasons

Primarily solar charge in summer
1408kWh

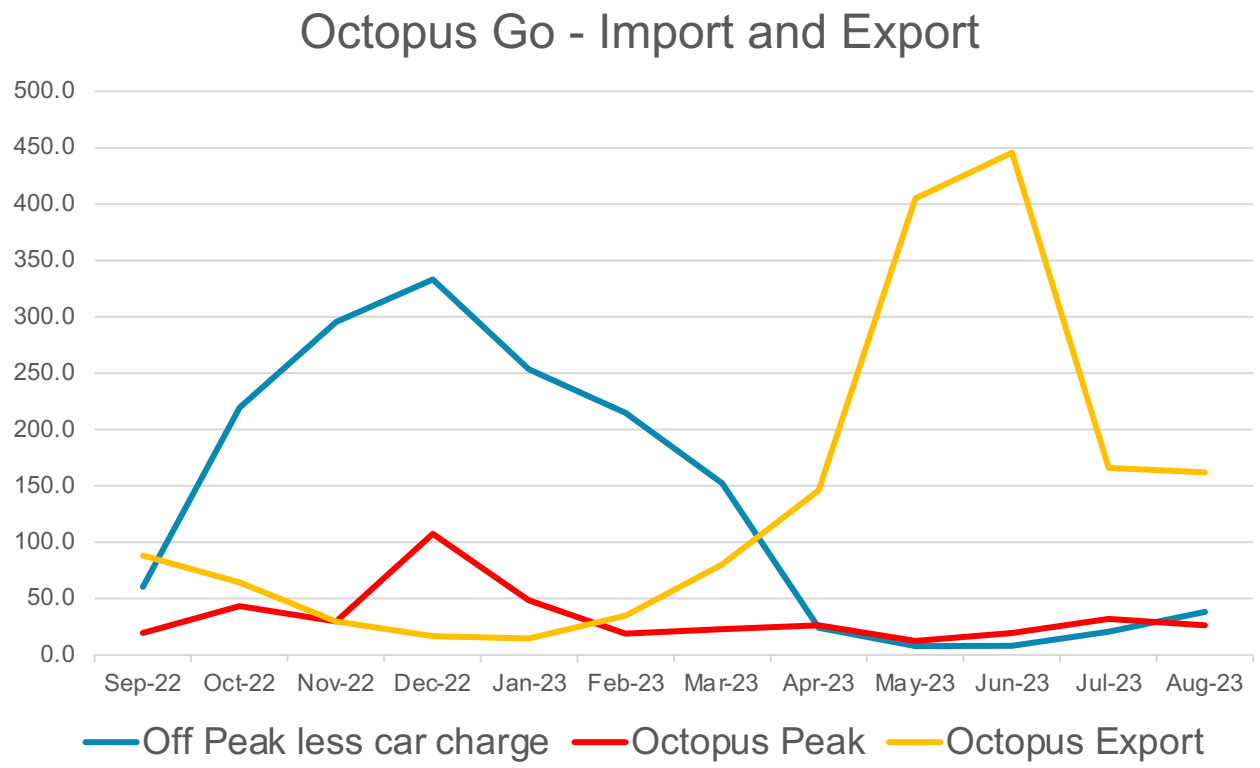
Primarily off-peak charge in winter
1018kWh

Savings 2250kWh of Peak rate Electricity usage

£1513 in savings, 7-8yrs Return on Investment (based on actual electricity prices in last 12 months)

Reduction in Electricity Bills

Sept 2022 to Aug 2023



December highest peak, due to very low solar generation & battery capacity used up

92% Reduction in Peak rate grid usage over the last year

Impact on next 12 months
(Sept 2023 rates)

Off-Peak 1627 kWh@9.5p = £154.56

Peak 406 kWh@31.0p = £125.86

Export 1653 kWh@4.1p = -£67.77

£212.65*

Compare with Price Cap @30p/kWh

House Usage ~4200 kWh

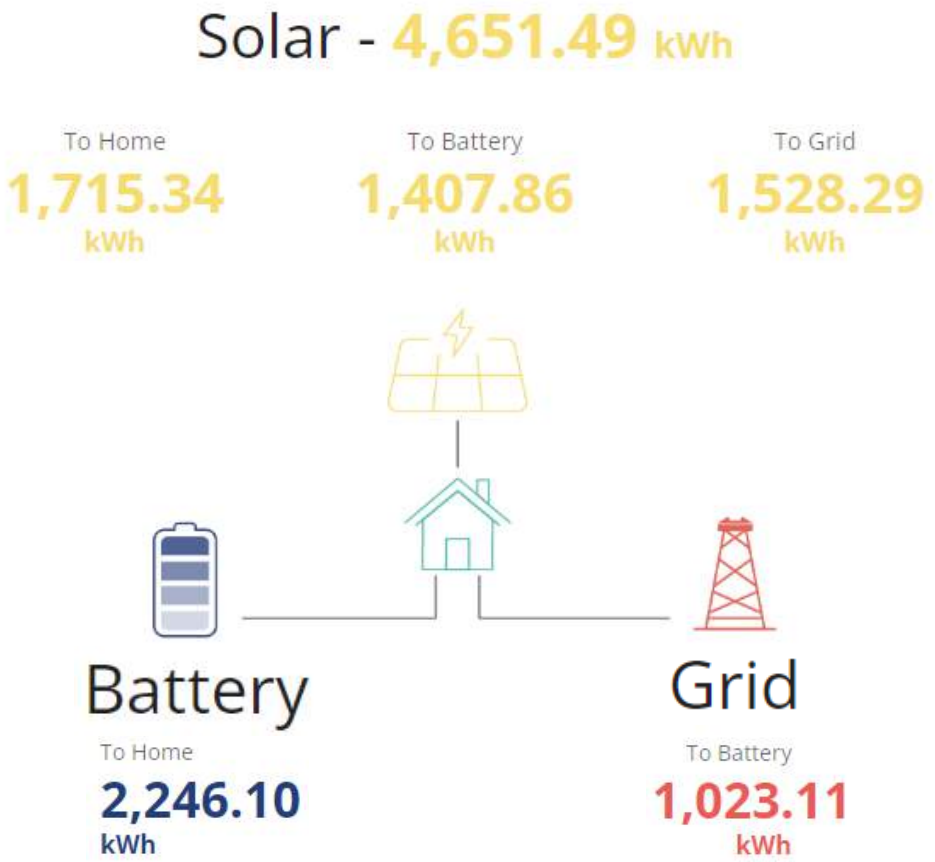
Total Electricity Bill = **£1,260***

80% reduction in electricity cost

* excludes standing charge, Sept 2023 prices

Annual Results – How did it work out?

Sept 2022 – Aug 2023



Key Takeways

- Increase use of high energy appliances when sunny
- Battery reduces solar export and enables use of solar all day
- Good alignment with solar generation & battery capacity key
- Select your tariff carefully and keep reviewing
- Payback can be 7-12 years depending on electricity cost
- Battery provides flexibility in maximizing use of new tariffs

Get in Touch
andrew.solarthame@gmail.com

Questions?

Come and have a chat or get in touch

andrew.solarthame@gmail.com

Thame Green Living

Home and Community Energy EXPO

A short introduction

see the stand later

David Dawson

Cosy Thame

Thermal Imaging for your home

SAVE Money

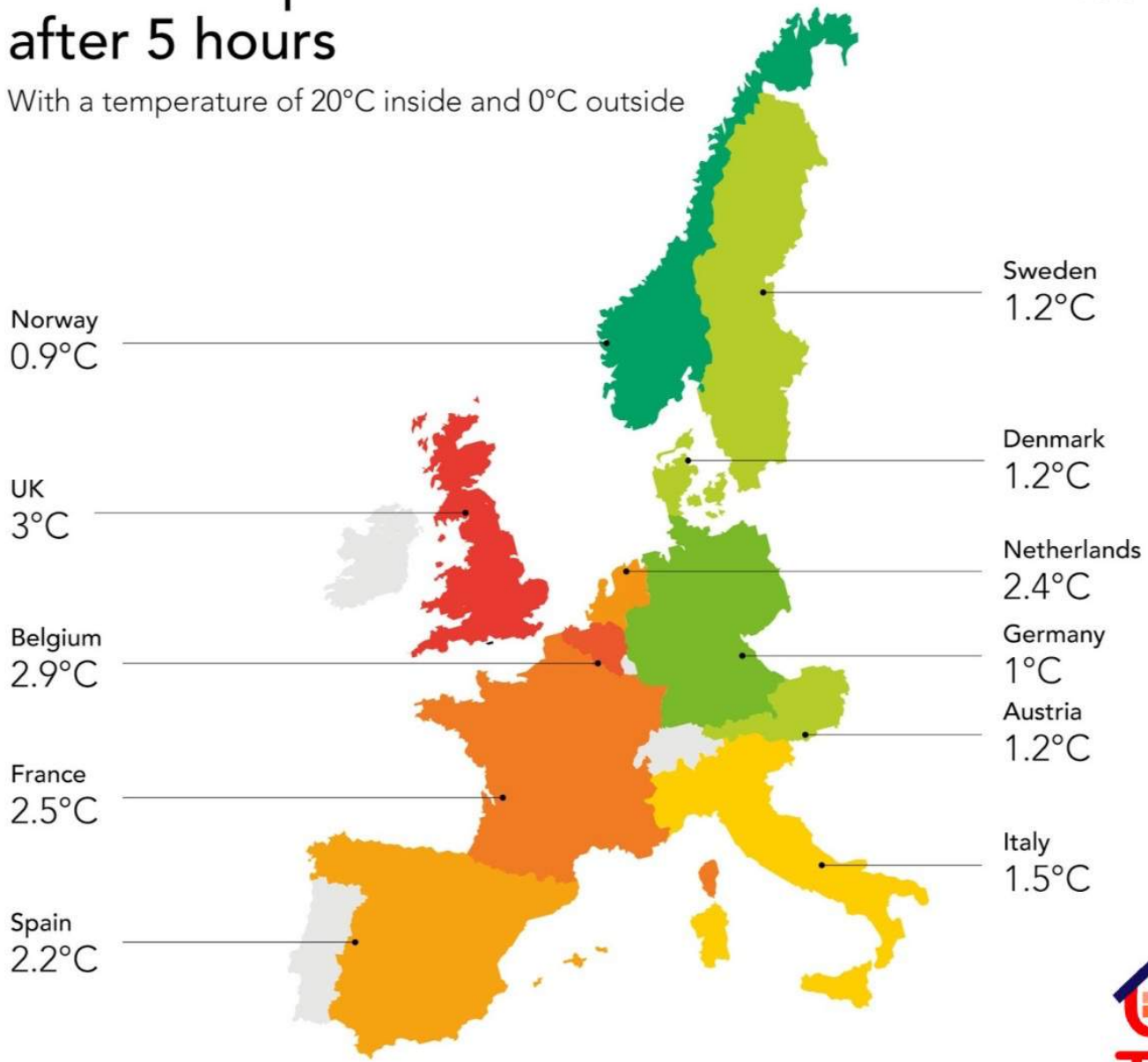
SAVE Energy

STAY Cosy

Home temperature loss after 5 hours

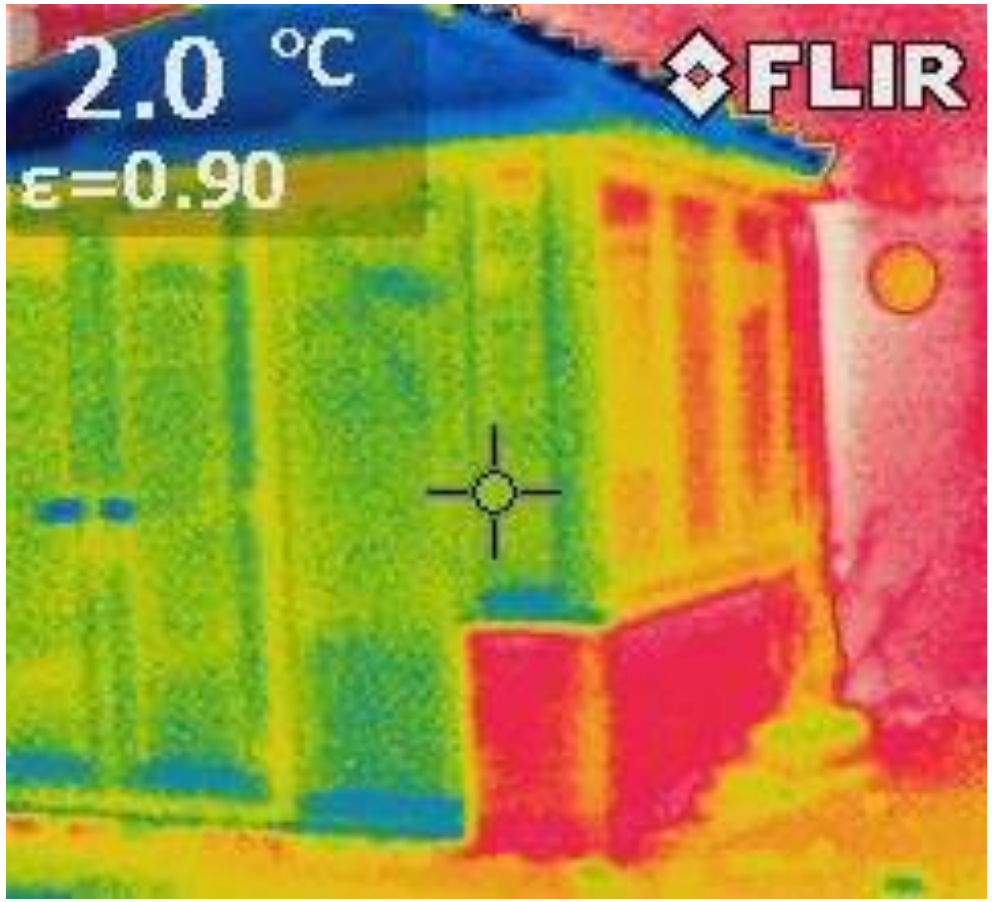
tado°

With a temperature of 20°C inside and 0°C outside



Based on a sample of over 80,000 European homes

COSY THAME



COSY THAME

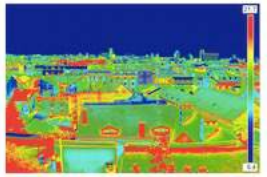
COSY THAME - INSULATION OF HOMES AND BUSINESSES

The Cosy Thame project is all about encouraging and enabling everyone to look at their home or business premises and work out how to insulate it from the cold. Keep the heat in and keep the fuel bills low.

Introducing COSY THAME

Thame Green Living has launched COSY THAME to encourage people to reduce heat loss from their homes, save energy, and reduce their carbon footprint.

A Thermal Snapshot is an infrared picture of your home taken with a special camera.



We take these snapshots in winter when there's a good contrast in temperature between inside and outside - about 14c.

It shows the temperature of surfaces. The red

The owners can then decide how to stop

https://bit.ly/CosyThame

COSY THAME

Thame Green Living

Home and Community Energy EXPO

Demystify the Solar and HP journey

Jason Hobbins

Energy My Way Ltd, Chalgrove

Thame Green Living & EnergyMyWay

- Installation partner for *Renewable Thame*
- Installing renewables in since 2008
- Formerly the solar partner for community group for Wantage, Kidlington, Haddenham, Kirtlington
- Local company with directly employed team
- Come and talk to us

ENERGY my way

The Renewable Journey

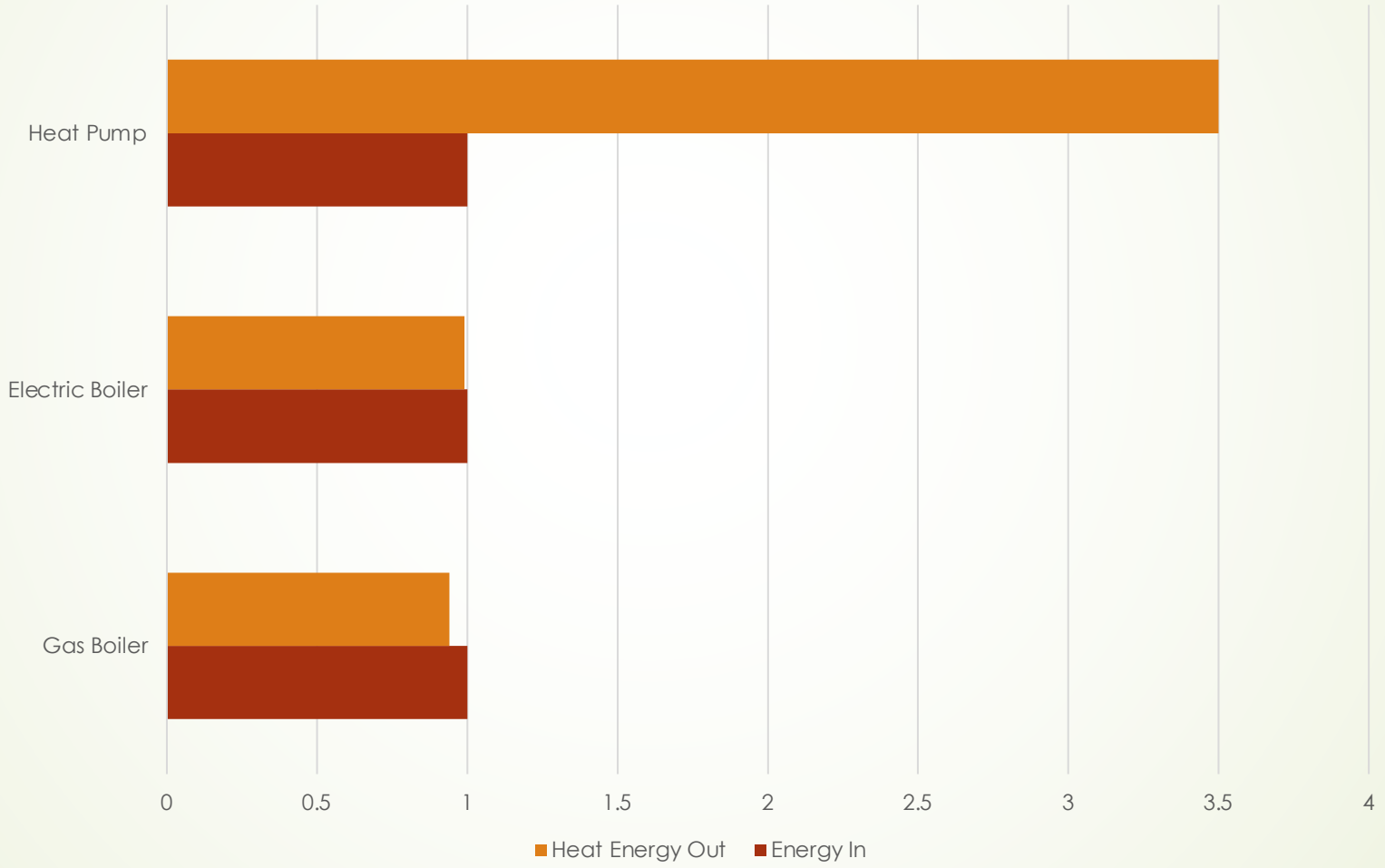
- FIT Scheme 2010-2019 saw a dramatic growth in solar
- Replaced by Smart Export Guarantee
- Price of solar has fallen
- Energy prices have increased
- 10% had batteries in 2021, now it's 90%
- Next step on the renewable journey…

ENERGY my way

Why are we talking about Heat Pumps?

- Carbon reduction targets
- Reduce reliance on mains gas
- Target of 600,000 heat pump installations per year
- Financial incentives
- Efficiency

Boiler & Heat Pump Efficiencies



Air Source Heat Pumps
v
Ground Source Heat Pumps

- I'm going to be talking about ASHP
- Cost
- Availability of land
- Financial incentives
- Comparable efficiency

Boiler Upgrade Scheme

- £7,500 grant
- Payable to the installer
- Installer completes the application
- EPC confirming loft insulation meets minimum required levels & any cavity walls are filled
- Use an MCS accredited installer

Is a Heat Pump right for my house?

- Heat Pumps are not appropriate for all houses
- Lower flow temperature
- Designed for well insulated houses
- Fabric first
- Get an up-to-date EPC
- Use a simple online estimating tool
- Importance of a heat loss report
- Expect to have to change radiators
- Microbore pipework

What is Microbore & Why is it a Problem?

Installation Considerations

- 1m from neighbours fence without planning consent
- Noise – 46dB
- Space around heat pump
- Condensation – up to 8Ltr/hr
- Install Heat Pump remote to the house
- More space is required inside the house
- Prepare for disruption

Future of Heat Pumps

- High Temperature Heat Pumps
  - Lower efficiency
  - Higher running costs
- Bivalent/Hybrid systems
  - Will they qualify for BUS?

Conclusion:

Heat Pumps are a brilliant solution, but they need to be installed in the right house if homeowners are going to get the most benefit from them

Thank You

Thame Green Living

Home and Community Energy EXPO

A short introduction

see the stand later

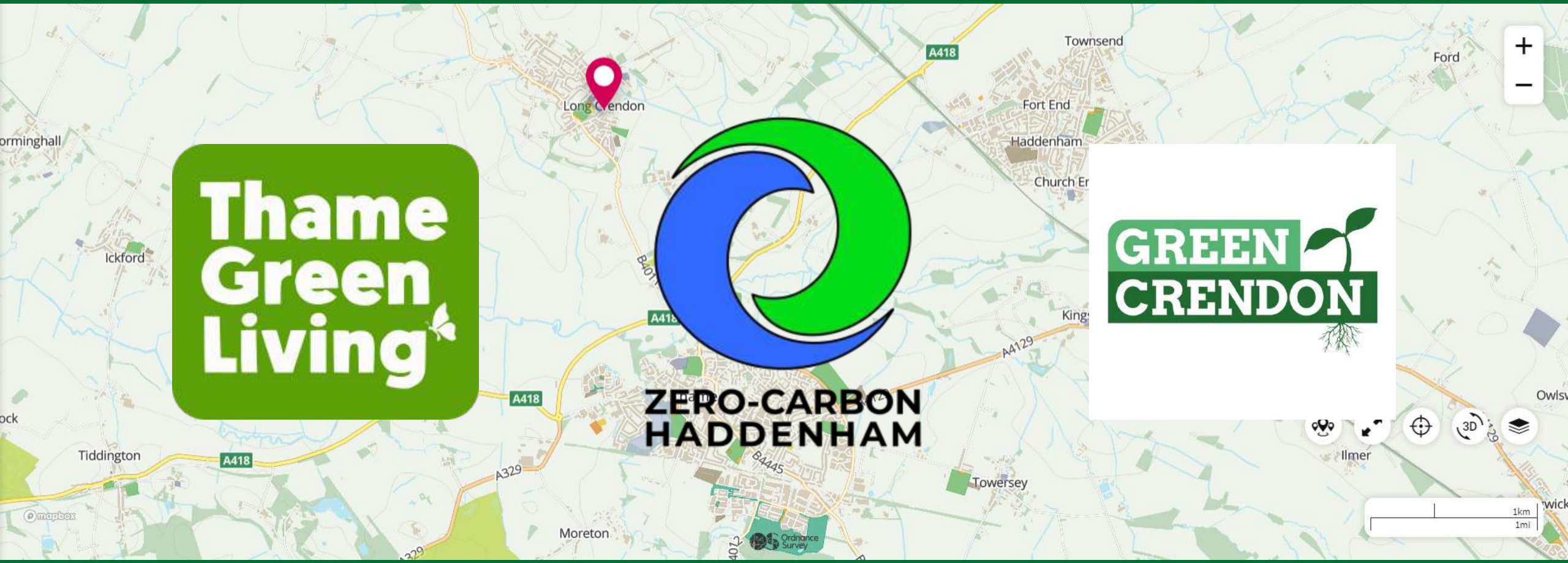
Bill Finnegan

Phoenix Energy Community

HADDENHAM . THAME . LONG CRENDON . LOCAL VILLAGES


PHOENIX
ENERGY COMMUNITY

PHOENIX
ENERGY COMMUNITY



PHOENIX
ENERGY COMMUNITY

2035 VISION

Everyone in our communities has an energy efficient home, and all organisations have energy efficient buildings, powered by fully renewable resources.

Enabled by:

- resilient locally generated renewable energy
- collaborative retrofit solutions
- engaged and energy literate community

Guiding principles:

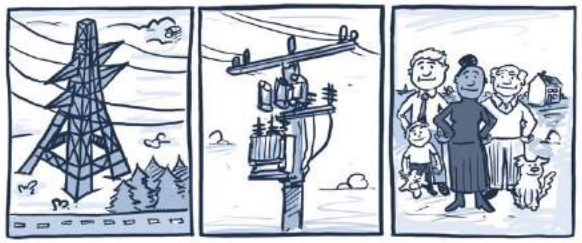
- **Equity**: everyone should benefit from this community-based energy transition.
- **Affordability**: local projects should provide low-cost energy to community members.
- **Collaboration**: working together - beyond individual households and organisations - to make our communities better.

Local Energy Oxfordshire

FUTURE LOCAL ENERGY SYSTEMS

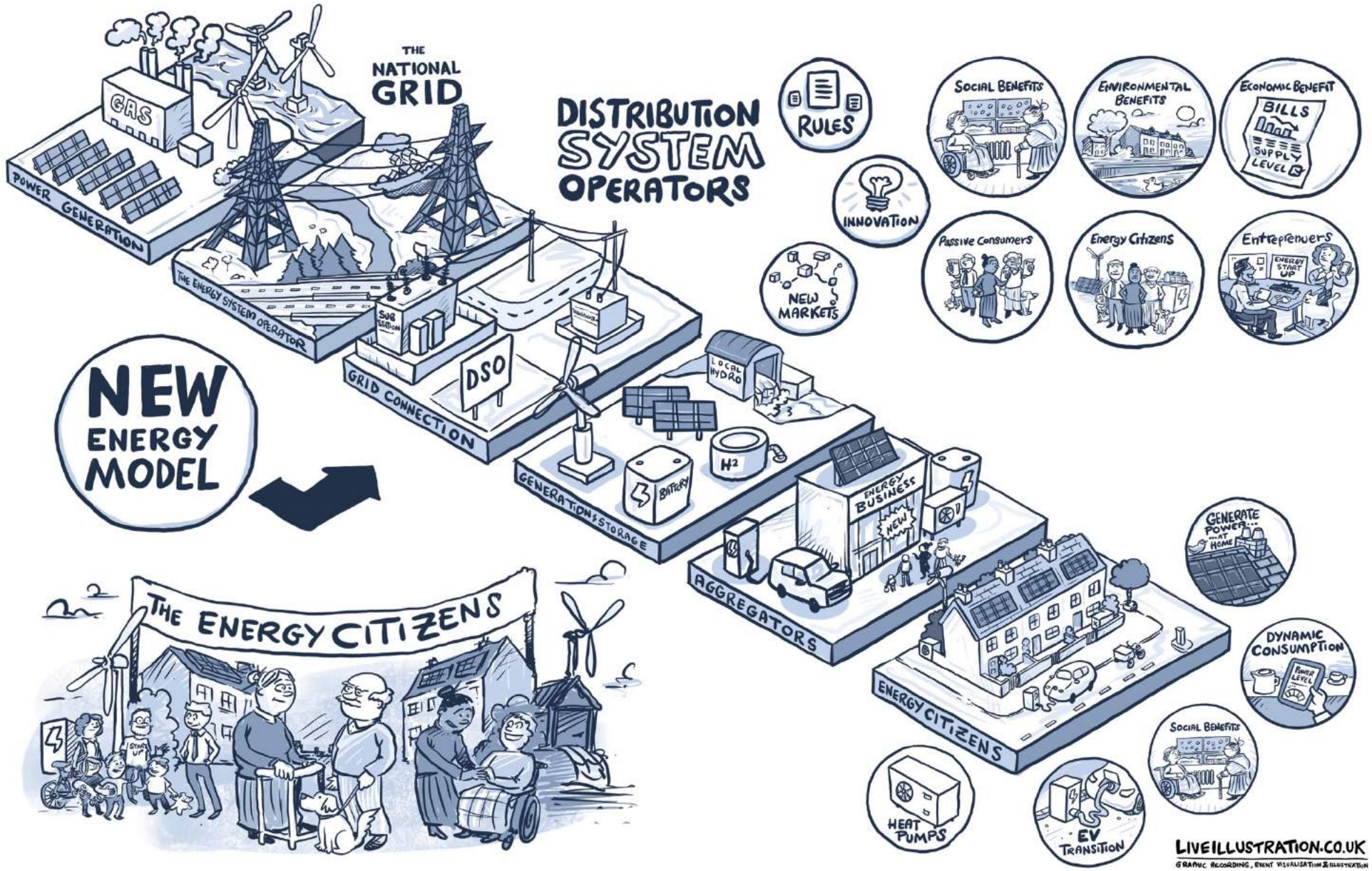
SMART, GREEN & FAIR

LOCAL ENERGY SYSTEMS



THE FUTURE OF ENERGY

A NEW RELATIONSHIP



PHOENIX
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SURVEY

Answer 10 short questions about your energy set up and use, and have the chance to win the use of an EV for 24 hours!

https://forms.gle/id3VVCWN3M64zsn36

There's a lot that needs to be done, and we'll be working with all associated councils and organisations to achieve it. But primarily we want to make sure that we prioritise projects that YOU - the people in the community - most care about. To help us, please complete the short survey to let us know a little bit about your current energy set up and use, and what's most important to you going forward.

Click HERE for the energy survey - and the chance to win a great prize

Many thanks to our sponsor 3BHire for making this great prize available.

3B VEHICLE HIRE

PHOENIX
ENERGY COMMUNITY

https://www.facebook.com/phoenixenergycommunity

https://thamegreenliving.org.uk/project/

Thame Green Living

Home and Community Energy EXPO

An Opportunity for Questions & Brief Next Steps

Wendy Duckham

Thame Green Living

RENEWABLE THAME

ENERGY my way

Kubota

VEHICLE HIRE

Thame Green Living

Home and Community Energy EXPO

THANK YOU FOR JOINING US

Enjoy the stalls, talk to the speakers, do the Phoenix energy survey

RENEWABLE THAME

ENERGY my way

Kubota

VEHICLE HIRE


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Living


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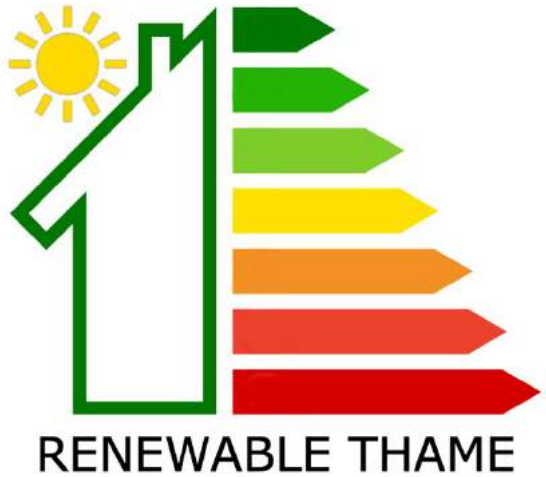
ENERGY
my way


Kubota


3
VEHICLE HIRE


cosy homes
oxfordshire


COSY
THAME


RENEWABLE THAME