



**HEAT
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Department for
Energy Security
& Net Zero

Heat Pump Ready Conference

8 February 2024

Part of the Net Zero Innovation Portfolio

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Welcome

Will Rivers

Heat Pump Ready Stream 3 lead

Carbon Trust



Objectives of today's conference

1. Celebrate successes to date and share learning
2. Consider how we make heat pumps the default choice for the early majority
3. Promote collaboration to develop and scale the solutions

Overview of the day

10:00 – 10:40 Welcome, introduction from the Department for Energy Security & Net Zero and policy update

10:40 – 12:25 Stream 2 rapid project updates (Break at 11:15)

12:25 – 15:15 How do we scale innovation to reach the early majority (lunch at 13:00)

External speakers followed by break-out rooms

- Smart and flexible heat : Improving survey and design : High density deployment
- Up-front cost barriers : Improving the customer journey : Technology and manufacturing

15:25 – 15:50 Feedback from break-out rooms and wrap-up session

15:50 – Informal networking in the rooftop venue

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Heat Pump Ready in context

Deren Olgun

Deputy Director for Energy Innovation Strategy and Portfolio
Department for Energy Security & Net Zero



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Heat Pump Ready

Dr Nicola Lazenby

Innovation Programme Manager

Department for Energy Security & Net Zero



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Boiler Upgrade Scheme

Applications **tripled** in first week following grant increase to £7,500

'Very encouraging': UK heat pump installations grew 20 per cent in 2023



Cecilia Keating

11 January 2024 • 4 min read

SHARE



Heat pumps are hot property in Europe. Does Britain have cold feet?

In France, they outsold fossil fuel boilers last year, with rapid progress in Poland, Germany, Italy and the Nordic countries. In the UK, muddled policy is blamed for a slow rate of installation



Heat pumps are unaffordable despite new grant, say villagers

18 October 2023



Climate



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**WHAT ABOUT
YOU?**

HEAT PUMP READY

Dear FUTURE Me,

By next year's HEAT PUMP
Ready Conference, I WILL....



Made from recycled paper

Perhaps consider...

- The biggest barrier you will overcome in 2024?
- What development or learning you will achieve?
- The stage your innovation will have reached?
- What press release would you like to put out in 2024?

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Heat pump policy update

Dr Matthew Aylott

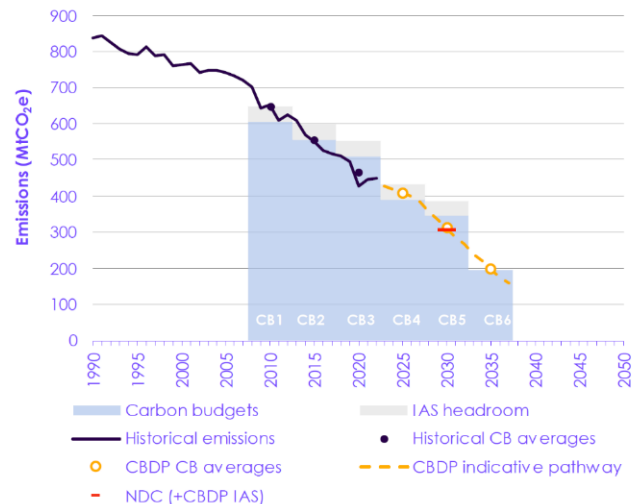
Electrification of Heat Policy Lead

Department for Energy Security & Net Zero



Delivering Net Zero

- The UK Government is committed to delivering our legally binding target to achieve '**Net Zero**' greenhouse gas emissions from across the UK economy by 2050.
- We also have legally binding interim **Carbon Budgets** which the Secretary of State has a responsibility to meet.
- The UK has historically **over-delivered** against its Carbon Budgets, but these will get progressively harder to meet over time.
- Decarbonising heat remains a Government priority, given that heating is responsible for **over a third** of the UK's greenhouse gas emissions but it is arguably the hardest sector to decarbonise.
- We need ambitious action on heat to meet our legal commitments and that is why we remain committed to delivering **600,000 heat pumps** a year by 2028.

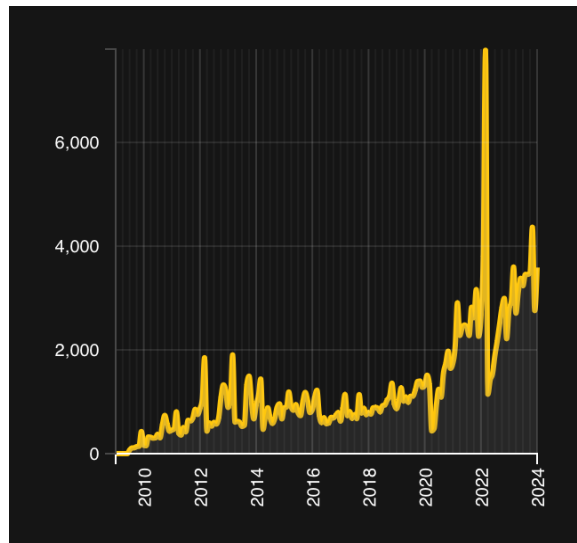


Source: CCC (2023) Progress Report.

Notes: IAS = International aviation and shipping emissions, CBDP = Carbon Budget Delivery Plan (CBDP) pathway, NDC = Nationally Determined Contribution.

Heat Pump Market Growth

- The UK heat pump market continues to grow.
- In 2023, industry estimates that between **60,000-80,000** heat pumps were installed, including nearly 40,000 MCS certified heat pump installations.
- These installations have largely been installed under the **Boiler Upgrade Scheme**, but also with an increasing number under the **Energy Companies Obligation** and **Social Housing Decarbonisation Fund**, in part due to changes in how the schemes have been set up.
- We've still got a long way to go, and require annual compound market growth of **43 per cent** a year to deliver our ambition to scale the market to 600,000 heat pump installations a year by 2028.
- But putting that into context, the market in Germany it grew **59 per cent** in 2022, in the Netherlands it grew **77 per cent**, in Poland it grew **112 per cent** and in Belgium it grew **118 per cent**.



Monthly MCS Certified Heat Pump Installations over time.
Source: MCS (2023) MCS Data Dashboard.



Scaling up heat pump deployment

Funding low carbon heat and energy efficiency

- The Government is committed to providing **£6.6bn** in public funding to decarbonise our homes and businesses between 2021-2025, with further **£6bn** committed from 2025-2028. This includes funding for those who are able to pay, as well as more generous support for those on lower incomes to help with costs of decarbonising.

2021-2025	
Boiler Upgrade Scheme	£450m
Public Sector Decarbonisation Scheme	£1.4bn
Social Housing Decarbonisation Fund	£1.1bn
Home Upgrade Grant	£1.1bn
Green Homes Grant Local Authority Delivery Scheme	£800m
Green Heat Network Fund	£288m
Heat Network Efficiency Scheme	£32m
Heat Pump Investment Accelerator Competition	£15m

2025-2028	
Boiler Upgrade Scheme	£1.55bn
Public Sector Decarbonisation Scheme	£1.17bn
Social Housing Decarbonisation Fund	£1.25bn
Local Authority Retrofit Scheme	£500m
Heat Network Transformation Programme	£530m
Energy Efficiency Grant	£400m
Industrial Energy Efficiency and Decarbonisation	£410m
Industrial Energy Transformation Fund	£225m
Heat Pump Investment Accelerator Competition	£15m

Regulating for low carbon heating

- We intend to introduce the **Clean Heat Market Mechanism** in 2024 to obligate boiler manufacturers increase their sales of heat pumps in proportion to their share of boiler sales, or face a penalty.
- The **Future Homes Standard** and **Future Buildings Standard** will ensure that, from 2025, all new buildings are zero-carbon ready and fitted with low carbon heating, such as heat pumps or clean heat networks. We are also redeveloping Energy Performance Certificates and introducing the new Home Energy Model to replace the Standard Assessment Procedure.
- We will legislate to **end the installation of new and replacement fossil fuel heating installations off the gas grid in England** from 2035. This means that when a coal, LPG or oil heating system comes to the end of its life, the homeowner would need to replace it with a heat pump. We will consult this year on alternative low carbon heating options for homes where it is not practical or where it is prohibitively expensive to install a heat pump.
- We aim to **phase out the sale of new and replacement gas boilers** by 2035, but will again limit this to properties where it is clear a heat pump or alternative low carbon heating technology will work effectively. We will take a decision on the possible roll Hydrogen might have in domestic heating by in 2026.



Reducing low carbon heating costs

The average cost of an air source heat pump installation under the Boiler Upgrade Scheme is **£13,200** (prior to grant) and the spark gap is among the highest in Europe at **3.86**.

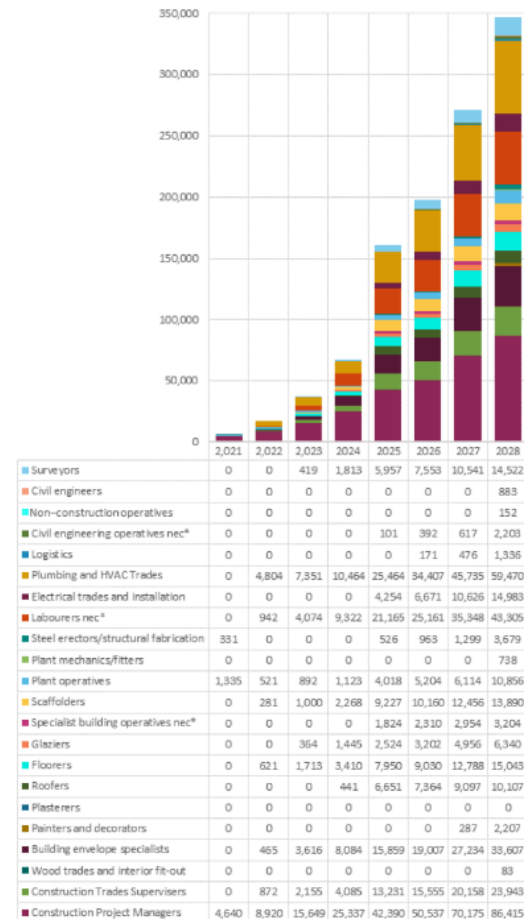
- We have **zero-rated VAT** on energy saving materials, like heat pumps, until at least April 2027.
- We're encouraging cost reduction through our **innovation programme**, stimulating investment in new tech and financing models.
- We plan to introduce new legislation that would require all electric heating technologies – capable of being used flexibly – sold by 2026/27 to be **smart**, which would enable greater flexibility and lower their running costs.
- We're **reviewing electricity market arrangements**, to support more locational pricing of electricity and to ensure wholesale gas prices don't set the price of electricity as they do today.
- And before the end of 2023/2024 we will publish plans for **rebalancing electricity and gas costs**, as the majority of social and environmental levies currently apply to electricity rather than gas.



Developing supply chains and infrastructure

According to the CITB ([link](#)), we will require nearly **350,000** additional FTE's across the built environment by 2028, including **10,000s** of new heating engineers and electricians to fit low carbon heating technologies. We are also reliant on imports for **70 per cent** of our heat pumps, and need to leverage more investment in building a resilient electricity network that can cope with **double** or **triple** the demand by 2050.

- We're providing funding to help boiler installers re-train to install heat pumps or become heat network engineers through the £5m **Heat Training Grant** and have introduced a new **Low Carbon Heating Technician Apprenticeship**.
- We are supporting changes to **installation standards** and ensuring consumers can be confident in finding **competent installers**, by requiring all grant funded installations are undertaken by certified installers.
- We're providing £30m as part of the **Heat Pump Investment Accelerator Competition** to build and strengthen local manufacturing supply chains. And we are also supporting wider investment in clean heat through investment zones, R&D tax credits, capital allowance scheme and export finance.
- Bringing forward investment in network infrastructure and smart grid management, through the **RIIO-ED2** price control framework and taking action to reduce connection times and costs through our **Connections Action Plan**.



Investing in public engagement

Awareness of low carbon heating technologies remains low; only **32 per cent** know a lot or fair amount about low carbon heating systems according to our latest Public Attitudes Tracker published in Summer 2023.

- We are investing millions of pound in a **marketing campaign** across TV, print media and online to promote heat pumps.
- We launched a **Heat Pump Suitability Tool** ([link](#)) to help consumers understand whether their home is suitable for a heat pump and what the costs of switching might be; this is currently being re-developed.
- We have published heat pump **user guides** ([link](#)) and **case studies** ([link](#)) to help raise consumer awareness.
- Announced in August 2023 and backed by £20 million of government funding, we're running 36 **pilot services** to trial new ways to get expert advice out to those that need it most, with more than 125,000 households to benefit across England. This includes special energy cafes, 'green doctor' and a retrofit bus.





Future Milestones



Key Dates

Jan

Early 2024: Permitted Development Rights Consultation for Heat Pumps published.

Early 2024: Research published on (1) heating appliance costs and cost reduction, and (2) heating investment trigger points.

Early 2024: Boiler Upgrade Scheme Consultation Response published.

March 2024: Future Homes Standard and Home Energy Model Consultations close.

Before end of 2023/24: F-Gas Regulation Consultation opens.

Before end of 2023/24: Energy Price Rebalancing Consultation opens.

Spring 2024: Funding awarded to successful Heat Pump Investment Accelerator Competition applicants.

Spring 2024: Electrification of Heat Demonstration Project Final Performance Report and Final Project Report published.

Summer 2024: Launch new Heat Pump Suitability Tool.

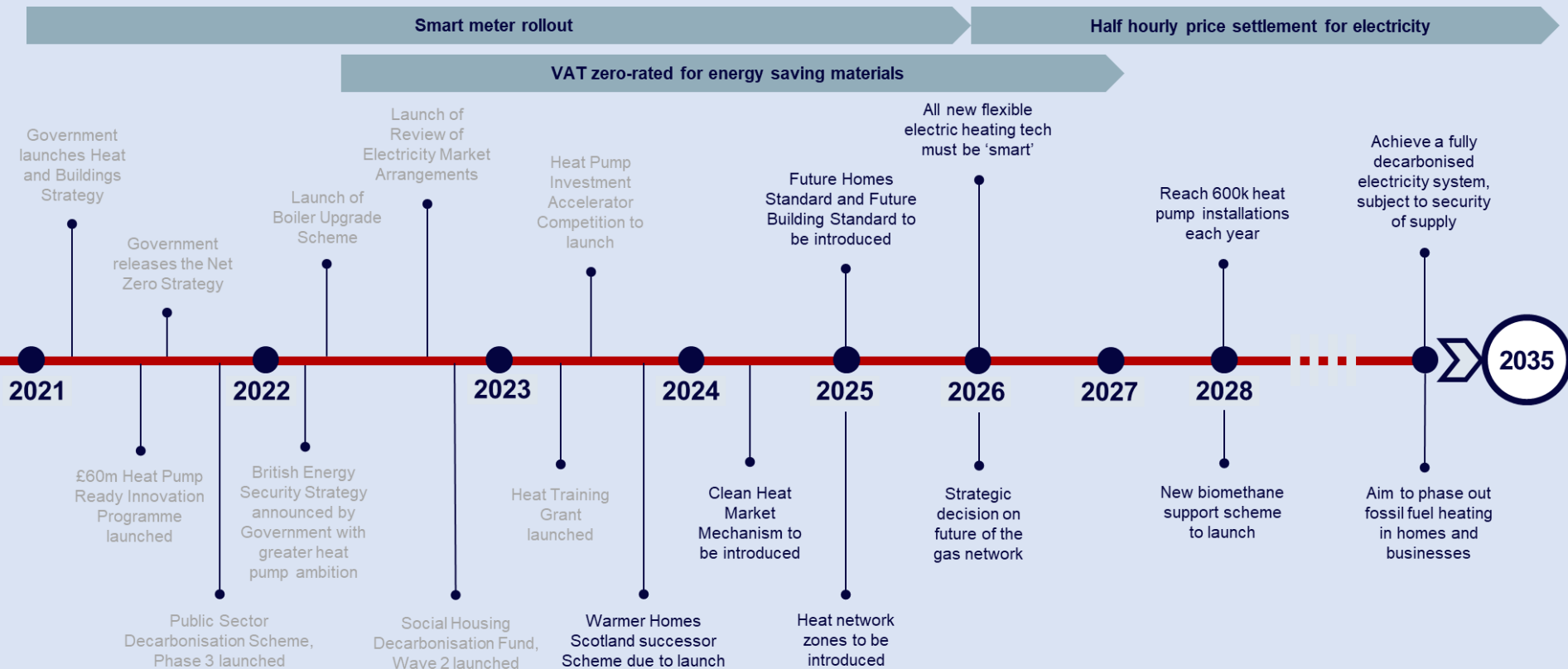
Before end of 2024: Research published on (1) cooling, and (2) legionella risk in low temp heating.

Before end of 2024: Alternative Heating Technologies Consultation for Off Gas Grid Properties opens.

Dec

Our 2035 delivery plan

Timings are indicative and subject to change

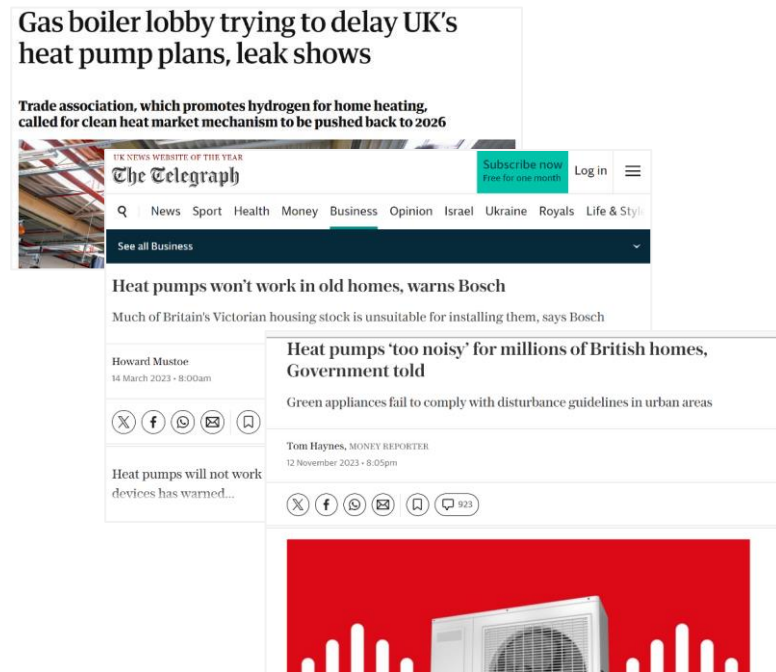




Challenges

Challenges facing Government and Policymakers

- **Misinformation:** Lobbying has polarised opinion and there is lots of misinformation in the media around whether heat pumps work in the UK's climate and with the UK's housing stock, how efficient they are and how noisy they are.
- **Cost of living crisis:** Anything that increases household costs, energy bills, or shifts costs to those least able to pay is politically challenging at present.
- **Resistance to interventionism:** Polling suggests the public is wary of anything being 'forced' on them, as seen by concerns raised by some about the Ultra Low Emissions Zone expansion in London. The Prime Minister wants consumers to have choice.
- **Complex to decarbonisation:** Up to 20 per cent or nearly 6 million homes are currently unsuitable for a heat pump, due to high heat losses, limited space, or because costly upgrades might be necessary.
- **Change of Government:** With a general election on the horizon before January 2025, there is political uncertainty.



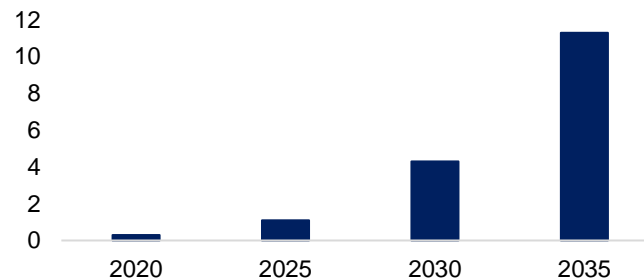


Summary

Summary

- We remain committed and are putting in place policies which will deliver **600k installations of heat pumps a year by 2028**.
- Not every home will be suitable for a heat pump. Up to 20 per cent or nearly 6 million homes may require **alternative low carbon heating**.
- We intend to take a strategic decision on the future of the gas grid in 2026, but the cost and competing demands for **hydrogen** from other sectors could limit its role in domestic heating.
- We're supporting industry in **overcoming barriers** to the deployment of low carbon heating, by tackling rising electricity prices, investing in supply chains, funding training and innovation, and improving consumer awareness.

Cumulative UK Domestic Heat Pump Deployment (millions)



*Illustrative Heat Pump Deployment
(High Electrification Scenario) – Net Zero Strategy*



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Stream 2 – Rapid Projects

Project Updates

08 February 2024

Part of the Net Zero Innovation Portfolio

Running Order

Theme	Organisation Name	Project Name	Presenter
Improving the survey, design and installation process	Build Test Solutions	MEASURED	Richard Jack
Improving the survey, design and installation process	Green Energy Options (geo)	AI Smart Heat Pathway	Thomas Whiffen
Innovation in heat pump manufacturing & technology	Ventive Ltd	Modular Heat Pumps for Cell Based Microfactory Assembly	Tom Lipinski
Smart and flexible home energy systems	GenGame Ltd	Total Home Optimisation Management (THOM)	Tom Moore
Smart and flexible home energy systems	Switchee Ltd.	Digitising the Customer Journey of Heat Pumps in Social Housing	Ian Hutton
Smart and flexible home energy systems	Wondrwall Limited	Intelligent heat sourcing to net zero	Mark Lufkin
Tea/Coffee Break			
Improving the customer journey	EDF Energy R&D	Catalyst – Accelerating the heat pump journey	Andrew Lawrence
Improving the customer journey	Q-Bot Ltd	Free Heat Pump Home Survey and Design Tool	Maddy Clifford
Improving the customer journey	The MCS Service Company Limited	EST MCS Heat Pump Consumer Journey	Inga Jirgensone
Improving the customer journey	Thermly (formerly: VIA Analytics Limited)	Thermly	Philip Jackson
Financial models to support heat pump deployment	City Science Corporation Limited	Advanced Modelling for Heat as a Service	Maia Priestley
Financial models to support heat pump deployment	Hometree Finance (formerly: Home Infrastructure Technology Limited)	Green Homeowner Loan	Matthew Boyes

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Project overview

The project found that across 50+ houses BS EN 12831 heat loss calculations were only accurate for 30%(!) Heat loss (HTC) measurement is a practical way to calibrate heat loss sizing accurately to a particular house

Project Partners: Build Test Solutions, Veritherm, Elmhurst Energy

Learnings

- **Project Aim:** Establish the benefits of heat loss measurement for heat pump installs
- **Key Learning:** Heat loss measurement: increases accuracy, tends to reduce costs, reduces risk of undersizing, was valuable to residents (said they'd pay £250+)
- **Next steps after HPR:** Promote the use of heat loss measurement in heat pump installation. Support the introduction of heat loss measurement into standard & guidance plus heat loss design software. Continue to simplify user journey to remove barriers to the use of heat loss measurement.
- Visit measuredheatloss.com for project findings, testimonial videos & to sign up for training.

AI Smart Heat Pathway

Project Partners:



Project Aim

Improve the customer journey for interested households seeking a heat pump by:

1. Recommending the appropriate heat pump size;
 2. Remotely identifying 'hard to treat' homes; and,
 3. Provide 'hard-to-treat' homes with a pathway to becoming heat pump ready;
- All from widely available smart meter and smart thermostat data.

Project Overview

- **Phase 1: Data Gathering:** from over 100 homes with available data.
- **Phase 2: Data Processing:** SPERL, Vaillant and geo approaches to size heat pump.
- **Phase 3: Evaluation and scale up:** Evaluate tools against needs and tailor appropriately.

AI Smart Heat Pathway

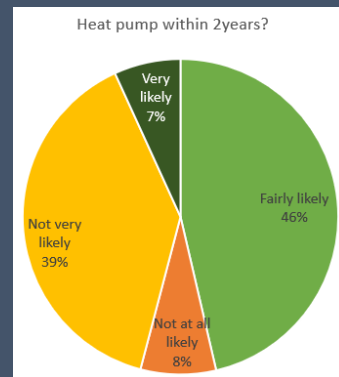
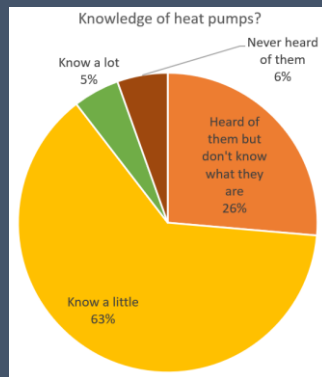
Key Learnings:

Data based approach is possible. Smart metering and smart thermostats provide sufficient data, however reduced gov't targets reduce applicability.

Public interest in heat pumps, whilst sufficient to overwhelm the assessor and installer base, is still a small proportion of the population at large

The main reasons for households not switching to heat pumps in the next few years are:

- >High perceived costs of install
- >Perception that their property is not suitable
- >Insufficient knowledge of the technology



Next steps after HPR:

- Extended our project to maximise Phase 3, refining the tools to meet market needs.

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Ventive Modular Heat Pumps for Cell Based Microfactory Assembly

Total Home Optimisation Management (THOM)



Project overview

Create a heat pump specialist Home Energy Management System (HEMS) supported by a full-package solution to help customers understand and maximise the benefits to their home, while reducing costs and carbon.

Project Partners: GenGame, Chameleon Technology, Evergreen (Homely), University of Salford, TalkTalk, EnAppSys

Learnings

- **Project Aim:** Simplify homeowner onboarding, deliver home energy management system (HEMS) alongside other low-carbon technologies, appropriately size heat pumps automatically, prove viability of heat pump and HEMS for demand-side load control application.
- **Key Learning(s):** Flexibility can be achieved without compromising comfort; Thermal performance can be understood from smart meter data; Heat pump readiness can be determined prior to installation; Prelearning a home's characteristics helps configuration from day one.
- **Next steps after HPR:** Further validation of heat pump sizing; Supply chain for thermal performance upgrades (retrofit); Include energy efficiency as part of initial analysis/survey; Deploy prelearning.

Digitising the Customer Journey of Heat Pumps in Social Housing

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Project overview

Exploring a data-driven approach to improve the heat pump experience in social housing. We aim to overcome barriers including understanding of actual performance and awareness of best practice to help both residents & landlords get the most from their heat pumps.

Project Partners: Switchee, Daikin, Leeds Beckett University

Learnings

- Residents do not know whether they are using their heat pumps “well”
- Tailored advice delivered in context can be very effective
- Some residents are suffering fuel poverty and simply cannot afford to use their heat pumps in an efficient manner
- Landlords do not know whether heat pumps are delivering the expected benefits
- Heat pump diagnostic data can benefit residents, but the lack of a standard access protocol across manufacturers is a barrier to adoption

Intelligent heat sourcing to net-zero

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wondrwall®

INTELLIGENT LIVING



Project overview

Shift heat pump energy consumption to maximise the self-consumption of solar generation, use low-cost, low-carbon offpeak energy when insufficient solar and provide support for grid flexibility.

Project Partners: Wondrwall, Daikin

Learnings

- **Project Aim:** Significantly reduce running costs for low-carbon homes (goal: £1500-2000 annually).
- **Key Learnings:** Things take longer than expected when getting different companies to collaborate. The system works and delivers savings. There is considerable interest in this solution. DNO limitations can be an issue and while the solution benefits the DNO, these benefits are not recognised. SAP / HEM only recognises the benefits in a limited way (but getting better).
- **Next steps after HPR:** Ongoing testing of the system to get a full 12 months of data. Understand the impact of behaviour and research options to influence this. Full commercial release of the solution with a goal to achieve joint sales of 1,000 units in the first year.

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Q&A



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Break

Catalyst

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Project overview

This one-stop app guides and accelerates the user through the heat pump sales, survey, installation and aftercare processes. It reduces the time, cost and complexity for both the customer and installation company.

Project Partners:



Learnings

- **Project Aim:** Delivering a digital solution to streamline the end to end Heat Pump journey.
- **Key Learnings:** That persuading installers and social housing tenants to connect a heat pump is challenging. Heat pumps have potential to comfortably and cost effectively respond to TOU tariffs. That much in the way of design calculations plus administrative phone & email comms can be automated. That MCS are open to evolving their accredited heat loss methodology given additional evidence.
- **Next steps after HPR:** Prioritisation of features for optimisation. Adapt WoW and plan a soft launch with target customers. Agree consortium commercial terms. CIBSE technical memorandum authoring.

Free Heat Pump Home Survey and Design Tool

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Project overview

Development of a simple and free-to-use app to help homeowners confidently match a heat pump and complementary retrofit measures to their property.

Learnings

- **Project Aim:** Deliver a straight-forward way for a customer to find and install a suitable heat pump for their home.
- **Key Learnings:**
 - Balance of a simple user interface for homeowners against capturing enough information to make sensible heat pump suggestions is a challenge.
 - Coverage of installation partners with capacity taking time.
- **Next steps after HPR:** Agree commercial terms with all partners and soft launch.

MCS & Energy Saving Trust Consumer Journey

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Project overview

Guiding consumers from their first engagement through to receiving quotes for installation under the combination of the MCS & Energy Saving Trust brands.

Project Partners: MCS & Energy Saving Trust

Learnings

- **Project Aim:** Increase the uptake of low-carbon technologies by streamlining the customer journey in a single platform. Give customers confidence in the process by combining Energy Saving Trust's impartial advice with quotations from MCS certified contractors.
- **Key Learnings:** Even with the lessons from our existing programmes, the consumer journey is still complex to map. We've made improvements in customer journey – i.e. by using our property database, carefully considering the potential drop-off points.
- **Next steps after HPR:** We will run a regional pilot to test the consumer journey, home survey process, business model and marketing approach to tune the offer before ramping up to a national launch.

Energy Saving Trust

About Go Renewable

How it works

The Go Renewable process is simple and can be completed at your own pace.

1 Tell us about your home

Answer some questions about your home with our free online assessment. This will take you no longer than 10 minutes to complete. We will assess your home and show you the renewable technologies we predict your home will be suitable for.



2 Review your options

Once you have told us about your home, we'll use this information to recommend your renewable energy options, along with estimated installation costs and potential savings. Decide if you want to progress or save your results to come back to later.



3 Sign up to Go Renewable

Whether you are ready to take the next step or just looking at your options, sign up to create your Go Renewable hub. You will need to do this to start the process, or you can save your home's renewable energy options for you to come back to at any time.



Please note your personal data will not be shared, please see our [privacy policy](#) here.

4 Book your home surveys

When you're ready, arrange for one of our experts to carry out a professional survey of your home for a one-off fee of £250. The results are yours to keep and you'll also get an updated energy performance certificate.



Usually, you'd need to get multiple surveys from different installers to quote for the work. This survey is comprehensive and can be used for all your quotes – saving you time and money.

5 Receive and compare quotes

Get quotes from MCS certified installers in your area directly to Go Renewable. All quotes are free and there's no obligation to accept, we recommend you receive at least 3 quotes for your chosen technology.



6 Book your home installation

Once you've chosen a quote, speak to your installer directly within Go Renewable to agree the cost of the work and install your technology.



Not sure on which technology is right for your home?

Find out which renewable technologies our experts recommend for your home.

[Assess my home](#)

Already know which technology is right for you?

Tell us the technology you'd like to install and follow the steps to arrange your professional home survey.

[Select a technology](#)

About Energy Saving Trust

Energy Saving Trust is an independent organisation working to address the climate emergency. We empower millions of householders every year to make better energy choices.



About MCS

MCS is an industry-led quality assurance scheme that creates, sets and maintains the standards for the certification of products, installers and their installations. Membership of MCS demonstrates quality, competency and compliance.



Are you an installer?

As an MCS certified installer, you can join Go Renewable and start providing quotes for the renewable technologies your business is certified to install.

[Find out more](#)


Looking for help?

Whether you are looking to install renewables in your home or an installer looking to join Go Renewable, we are here to help.

[Contact us](#)

Energy Saving Trust

Suitability summary

[Home](#)
[Property summary](#)
[Suitability summary](#)

Select suitable technologies for your plan

The technologies below have been checked for suitability in your home. You can select any suitable, or maybe suitable, technologies to include in your plan.

Continue to see details of each selected technology before proceeding to your plan.

▶ I need some help with this page

	<p>Solar photovoltaic panels</p> <p>Suitable</p> <p>Solar panels, also known as solar photovoltaics (PV), convert sunlight to electricity that can power your appliances, charge a battery and be sold to the grid.</p>	<input checked="" type="checkbox"/>
<p>More information</p>	<p>▼</p>	
	<p>Air source heat pump</p> <p>Maybe Suitable</p> <p>An air source heat pump transfers energy from the outside air to heat your property and hot water.</p>	<input checked="" type="checkbox"/>
<p>More information</p>	<p>▼</p>	
	<p>Ground source heat pump</p> <p>Maybe Suitable</p> <p>A ground source heat pump transfers energy from the ground to heat your home and hot water.</p>	<input checked="" type="checkbox"/>
<p>More information</p>	<p>▼</p>	



Project overview

Development of a prototype digital platform (customer journey)

Project Partners: VIA Analytics Limited and Daedalus Environmental Limited

Learnings

- **Project Aim:** Develop and test a prototype digital platform offering end to end customer journey – what is a heat pump, what will it cost, what are benefits, who can install it? Develop to the stage that it can be rolled out late 2023 and 2024 in pilot areas.
- **Key Learning Points:** Test, test and test again (in a B2C context). The industry can meet technical challenges but we need to do so much better on engaging the market and understanding customers. This industry is very good at talking amongst itself about what is needed, and thinking it knows what people want. We have found a very different reality in our customer engagement and research.
- **Next steps after HPR:** Research, testing and platform development will probably never end! Next steps towards commercialisation – testing and rollout in a pilot location (highly targeted) in partnership with local authority and partners.

OUR SOLUTION

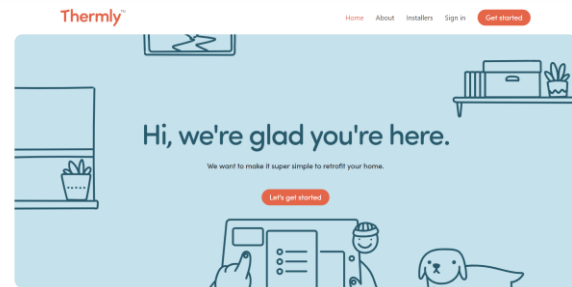
Digital platform

Power to homeowners

Using data, independent intelligence and the desire to make it engaging, entertaining and enjoyable, to make informed retrofit decisions

Easy for installers

Thermly brings these newly informed and enthusiastic customers to installers, saving them time, effort and money



How it works

Three, extremely simple, steps.



Get ready.
Answer a bunch of super easy questions – taking up about 5 minutes of your day. If your home is ready for a heat pump, we'll instantly tell you, and we'll also tell you why.

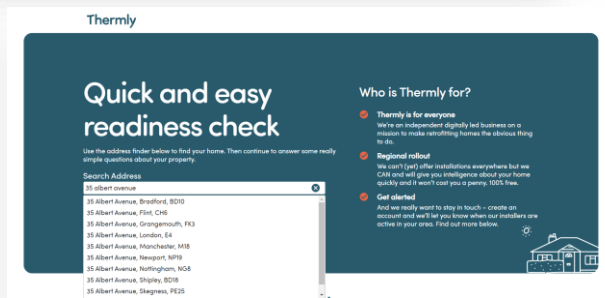


Get set...
Keen to keep going? Great, we just need a bit more information to make things more accurate. It'll take about 30 more minutes of your time. 40 if you're drinking tea.



Go!
Simply use Thermly to select your preferred, trusted and capable local installer and book a survey. After that, you can access the required finance (if you need it) and book an installation. Marvellous.

Let's go!



Somerset Heat Pump Project

Installer Network Invitation



Time: 08:00 – 10:00

Date: 23 February 2024



Yeovil Town Football Club

Huish Park Stadium, Lufton Way, Yeovil, Somerset, BA22 8YF



Advanced Modelling for Heat as a Service

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Project Overview

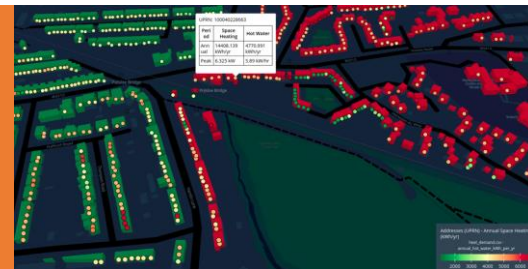
This project aims to transform our understanding of domestic heat and provide scalable heat pump financing and deployment in the UK. It prototypes, deploys and tests a modular Heat as a Service (HaaS) solution enabling decarbonisation pathways and financing models.

Learnings

Project Aims: To develop a platform which can deliver de-risked HaaS style contracts. To create a toolset which is attractive to building portfolio managers now, but offer clear paths to the adoption of HaaS style contracts. To evaluate our in-home monitoring solution across both technical requirements and user acceptability.

Key Learnings: We now have a clear path for how we could start to recommend HaaS style contracts to both building portfolio managers and tenants. However, there are many existing barriers to the public up-taking HaaS style contracts such as: supply chain constraints and no return on investment for landlords.

Next steps after HPR: We are now moving to the next stage of testing our platform. We have also developed strong networks with stakeholders through this project and our sister GHFA project. Moving forward we will build on these further and collaborate openly to support the development of the industry through exploring pilots, data sharing, financing models, etc.



Green Homeowner Loan

HEAT
PUMP
READY



Project overview

Build and launch a novel consumer lending product that is specifically designed for heat pump installers to offer at the point of sale

Learnings

- **Project Aim:** (1) Conduct research with both installers and consumers; (2) Develop, build and test the loan platform in two phases; (3) Work with institutional lenders to develop a scalable funding structure; (4) investigate and test alternative financing structures (such as leasing)
- **Key Learnings:** (1) Consumer interest is strong, as long as the retrofit *makes financial sense*; (2) consumers want a trusted partner to take them on the journey (which requires patience) and (3) they want support post-installation; (4) obtaining a low cost of finance requires very large scale and a targeted product from a sector specialist; (5) the regulatory environment is very challenging indeed, and incumbent lenders seem uninterested in expanding into this sector
- **Next steps after HPR:** (1) Full launch of GHL (Q2, subject to FCA), (2) Launch Heat Pump Lease (“Heating Plan”), (3) Secure very large (£ hundreds of millions) funding agreement with institutional lender, (4) Continue research (post-installation, and also segmentation into homeowner archetypes), (5) Expand installer network, including (6) Acquiring heat pump installers across the UK

**HEAT
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Q&A



**HEAT
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How heat pump type-of-use tariffs can halve fuel bills

Grainne Regan

Head of Heat, Ovo Energy



Powering heat pumps into the future

How innovation in flexibility and time-of-use can transform the market for heat pumps



81% increase in demand post EV and heat transition

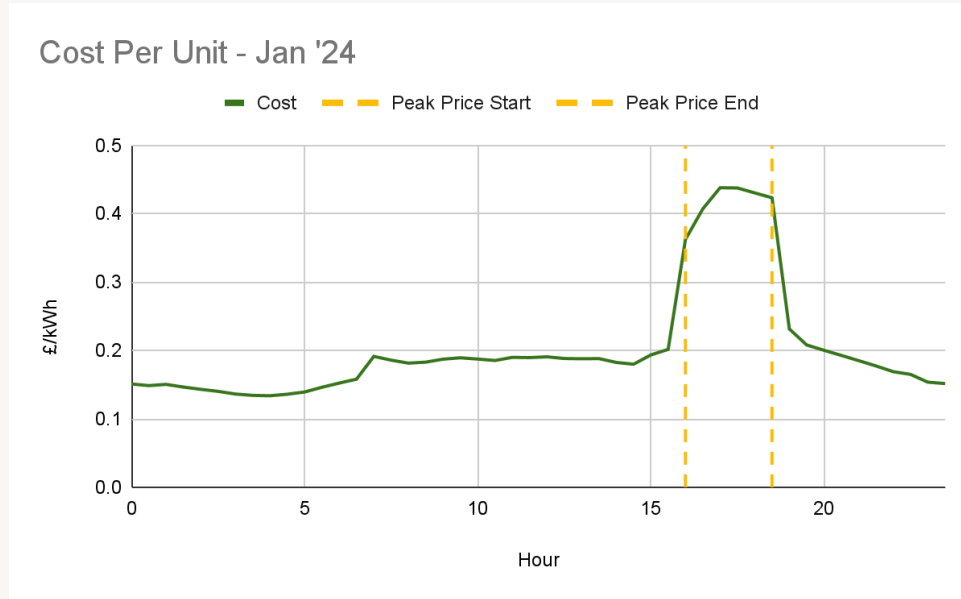


Assuming 100% transition to EV and electric heat



UK electricity consumption is notoriously “peaky”

Jan '24 - Averaged over GSPs

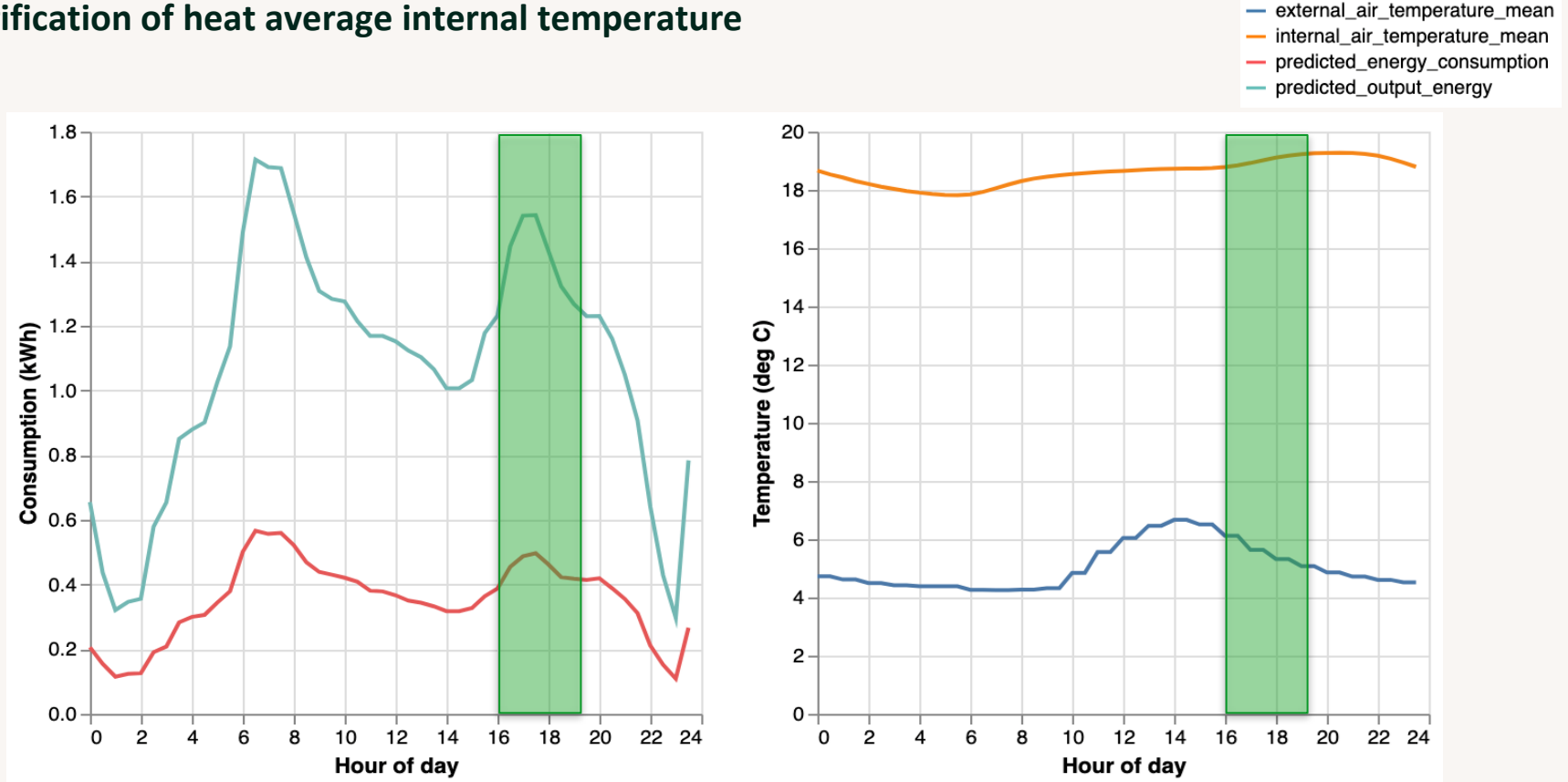


- **Peak pricing occurs from 4pm-7pm**
Avg price of 42p/kWh
- **Lowest prices from 11pm-7am**
Avg price of 15p/kWh
- **Difference of ~ 27p/kWh**
- **This shape changes month by month**
- **Peak periods also coincide with peak ASHP Heating**



With heat pumps consuming more in this peak period

Electrification of heat average internal temperature



Step 1: Heat Pump Plus

Integrating with the heat pump and helping overcome concerns about running costs

- Integration with Vaillant to allow us to access consumption data
- Customer credited for electricity used to power heat pump
- Discounted rate of 15p/kWh - unlocking £450 savings a year
- Exclusively available to Vaillant customers with a connected aroTHERM ASHP



Step 2: Smart control

- Working with customers to heat their home in a way that works for them and the grid
- Managing temperature, consumption, comfort levels and heat pump consumption
- Intelligent control, similar to what we're doing for electric vehicles currently



Step 3: Interoperability

- Multi-asset set ups
- Controlling and optimising generation, storage and consuming assets at a whole home level, minimising grid demand and maximising value for the customer



**HEAT
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What installers need to improve heat pump survey, design and installation

Emma Bohan
IMS Heat Pumps

Unfortunately Emma was unable to attend the conference.



**HEAT
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Engaging whole neighbourhoods for high- density heat pump deployment

Lisa Treseder
Kensa Group

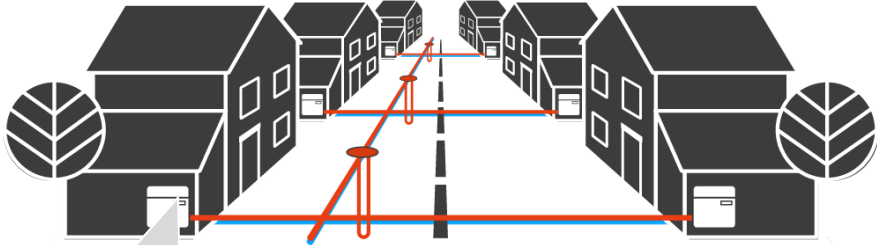


Heat the Streets

21st Century version of the gas network



85% of UK homes currently heated with natural gas



Home owner is responsible for a white box (GS heat pump)





"I read a notice and...didn't sort of give it too much thought, but then as more communications were fed through, and there were leaflets also put through my door...I became more interested."

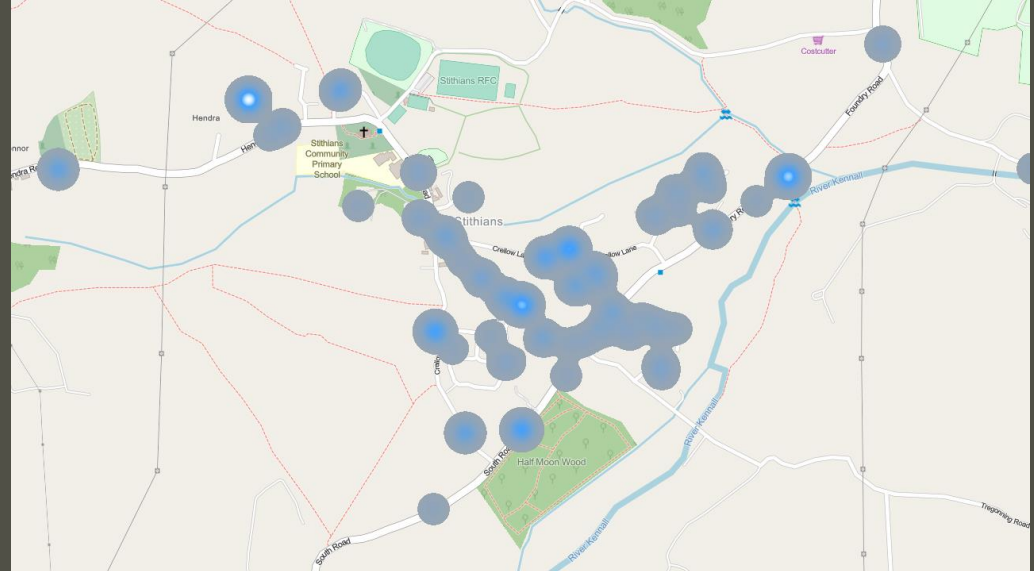
"If you've got a problem, they'll come in and explain something to you or sort it out. Even if it's something small they don't mind, and they'll come and they're all very helpful and very friendly."

"Our neighbour said she was keen on it...we knew about it, but you know, her saying about it as well sort of reinforced the idea."



Talk to your neighbours

- So far, 200 people have expressed an interest in being part of the heat network. These are spread fairly evenly across the village.
- The best way for you to increase your chances of getting an installation is to encourage your neighbours to sign up.
- We will be looking for clusters and whole streets for installation



Consumer advocates

“My career is in accountancy, I looked at the service charge, I put it in an Excel spreadsheet and I worked it through and, for me, the maths stacks up”



Potential Pitfalls



- Generating conversations in the community can come with risks
- Not all conversations will be positive
- Social media is probably not your friend
- You will have a lot of stakeholders, contractors and employees on the ground. You can't manage all of the messaging and you will be blamed if there are inconsistencies

facebook

Facebook helps you connect and share with the people in your life.

**HEAT
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READY**

Lunch



HEAT PUMP READY

Breakout groups

1. Smart and flexible heat pumps - [Laura Glover](#)
2. Improving survey and design - [Anthony Dale](#)
3. High-density deployment - [Claire Parkinson](#)

4 questions

1. What innovation is needed?
2. What good is already happening?
3. How do we scale these innovations to reach the early majority?
4. What collaborations are needed to scale the necessary innovation?



Workshops

Smart and flexible heat pumps (ROOM 5)		Improving survey and design (MAIN ROOM)			High density deployment (ROOM 4)
Adam Fudakowski	Luis Yara	Akos Revesz	Inga Jirgensone	Paul Spence	Ameera Dabbous
Adam Stiles	Mark Lufkin	Alec Aujla-Jones	Issy Urquhart	Philip Jackson	Andreas Fechs
Andrew Lawrence	Matthew Jones	Alex Hobley	Jack Jarvis	Ren Kang	Casey Cole
Bill Jenkinson	Poppy Mullins	Amity Wilson	James Hardingham	Richard Jack	Chris Ricketts
Cara Holmes	Rajat Gupta	Anastasia Turpetko	Jane Wilson	Sally Fenton	Dale Hoyland
Daniel Cook	Robert Morrison	Barbara Hansen-Duncan	Julien Aliphath	Thomas Whiffen	Gareth Robertson
Deepak John	Tom Lipinski	Bethany Taylor	Mark Hewitt	Tim Bailey	Jack Vannucci
Deren Olgun	Will Jones	David Shewan	Micheil Page	Tom Moore	Lucas Haynes
Grainne Regan	Will Rivers	Eimear Moloney	Mohammed Irshad	Tyler Phelps	Maia Priestley
Jaya Jassi	Zack Gill	Emily White	Natasha Randhawa	Vivek Seth	Matthew Boyes
Joe McQuillen		Farhana Begum	Nathan Gambling		Nick Banks
Jonathan Siviter		Griff Thomas	Noel Salmon		Nicola Lazenby
Kishan Kansara		Ian Hutton			Richard Barwick

**HEAT
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Addressing up-front cost barriers to reach the early majority

Cara Holmes
Citizens Advice



Overcoming the up-front cost barrier to heat pump adoption



Cara Holmes
Net Zero Homes

Barriers to heat pump adoption

Cost is not the only barrier to heat pump adoption!

Our research identified issues with:



A lack of personalised **advice**



Upfront **costs**



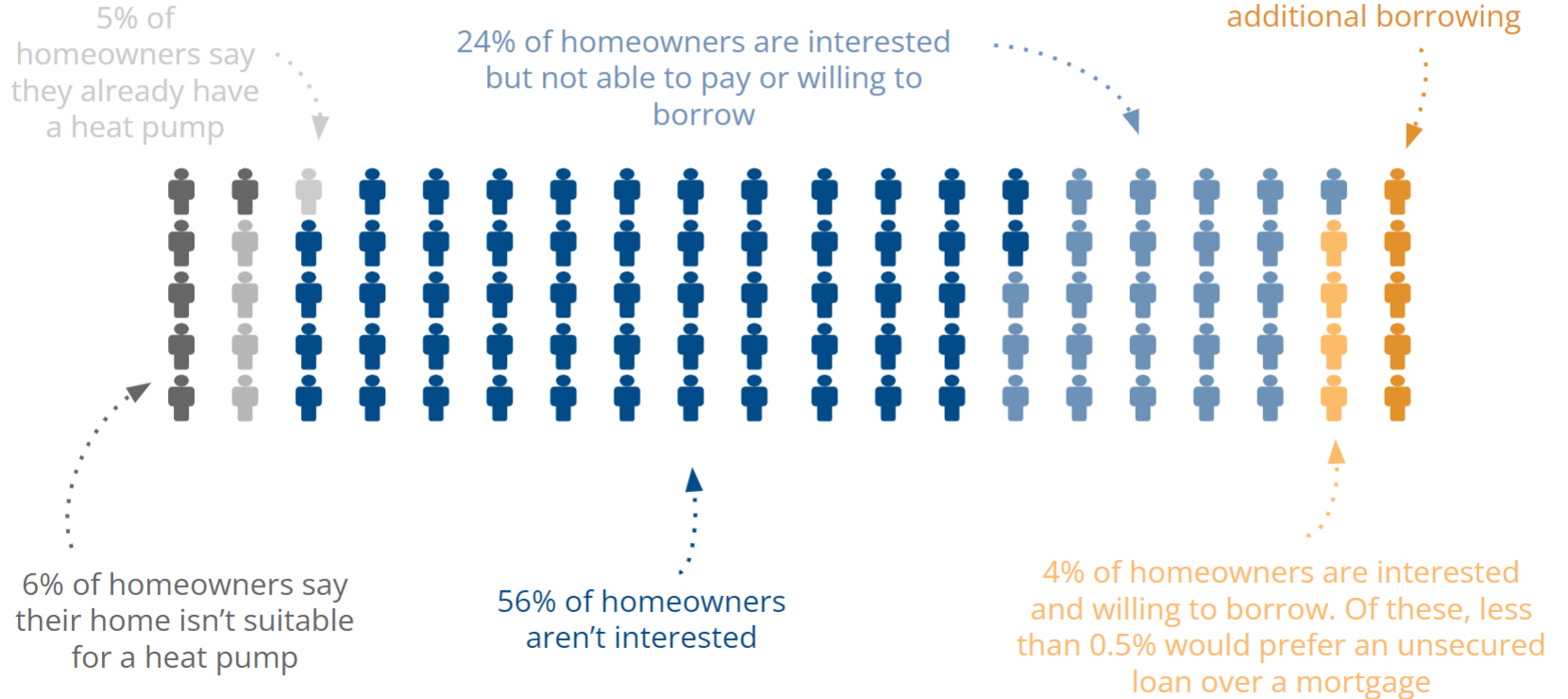
A lack of incentives to reduce ongoing **running costs**



Insufficient consumer **protections**

And underpinning all of this is a general **lack of interest** in home retrofit measures and low carbon heat in particular.

Who are the early majority?



Note: these figures exclude the 17% of homeowners who aren't sure a) whether they have a heat pump or b) whether they are interested in a heat pump

Not interested

This is the largest consumer segment, representing over 1 in 2 homeowners.

When asked why they weren't interested cost was a significant issue with 49% saying heat pumps were too expensive and 24% saying they are waiting for the prices to come down.



Challenges and opportunities for this group:

- More likely to own their homes outright, making mortgage borrowing unattractive
- More likely to be older, with lower levels of disposable income making borrowing in general potentially difficult
- Lower levels of household income mean many may qualify for ECO

Interested, unwilling

The second largest segment, representing almost 1 in 4 homeowners.

They are interested in heat pumps, but can't afford the upfront cost and are unwilling to extend their mortgage or take out an unsecured loan.



Challenges and opportunities for this group:

- Many currently heating their homes with oil, LPG or solid fuel meaning they are likely to benefit more than most from a heat pump
- Can't always cover their essentials and have low levels of disposable income, making loans or increased mortgage payments unattractive

Able to pay

Approximately 5% of homeowners are interested in a heat pump and are able to afford the upfront cost of a heat pump without additional borrowing.

Prices quoted were Energy Saving Trust average estimates and did not include any discount through the BUS.



Challenges and opportunities for this group:

- High levels of savings
- High household income and disposable income makes borrowing an attractive option
- Think their homes retain heat well so may not need additional fabric measures
- Energy affordability not an issue, so may be less likely to be convinced by money saving arguments

Willing to borrow

4% of interested homeowners are not able to afford the upfront cost, but are willing to borrow for a heat pump.

Mortgage borrowing is by far the most preferred option, with only 1 in 10 of those willing to borrow preferring an unsecured loan.



Challenges and opportunities for this group:

- Unsecured loans are incredibly unpopular
- Many in this group have a low LTV increasingly the likelihood of being approved to release equity or extend a mortgage
- However, many have lower levels of disposable income so could struggle to afford significant monthly payments



Conclusion



There is interest there if we can mobilise it, with 1 out of every 3 homeowners who expressed an opinion being interested in a heat pump.



Financing will be a big part of the transition to clean heat (given only 5% of homeowners have the necessary funds).



Likely that the range of options for financing will need to increase to suit different financial situations.



As the market grows may need to explore more innovating funding options via energy retailers or the bundling of products and services to enable demand flexibility

Thank you

Cara Holmes

cara.holmes@citizensadvice.org.uk



**HEAT
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Addressing common problems in the customer journey

Paul Spence

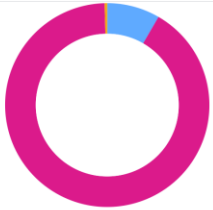
Independent installer and Heat Pumps UK Moderator



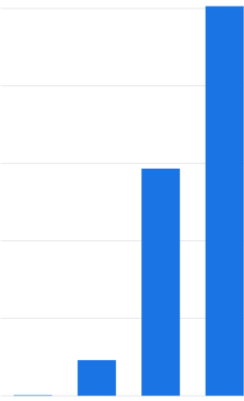
04:07

Insights
Heat pumps

Growth Engagement



Age



13-17 18-24 25-34 35-44

04:07

Insights
Heat pumps

Growth Engagement

13-17 18-24 25-34 35-44

Top countries

Jan 09, 2024 - Feb 06, 2024

United Kingdom

Ireland

China

Germany

France

Top towns/cities

Jan 09, 2024 - Feb 06, 2024

London

Birmingham

Leeds

Bristol

Bradford

04:08

Insights
Heat pumps

Growth Engagement

14,452 active members
Jan 09, 2024 - Feb 06, 2024



Popular days

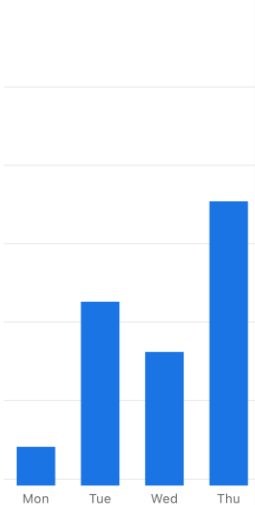
Jan 09 Jan 14 Jan 18 Jan 23

04:08

Insights
Heat pumps

Growth Engagement

Popular days



Popular times

Monday Tuesday Wednesday

04:09

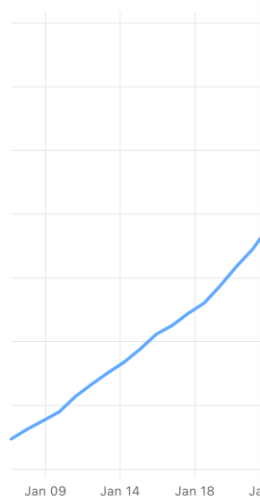
Insights
Heat pumps

Growth Engagement

Last 28 days

Total members

Jan 09, 2024 - Feb 06, 2024
14512 members ↑10%



196 member requests

Jan 09, 2024 - Feb 06, 2024

04:09

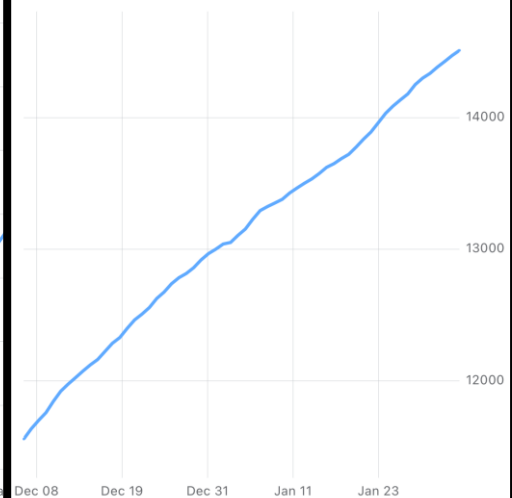
Insights
Heat pumps U.K.

Growth Engagement Membership

Last 60 days

Total members

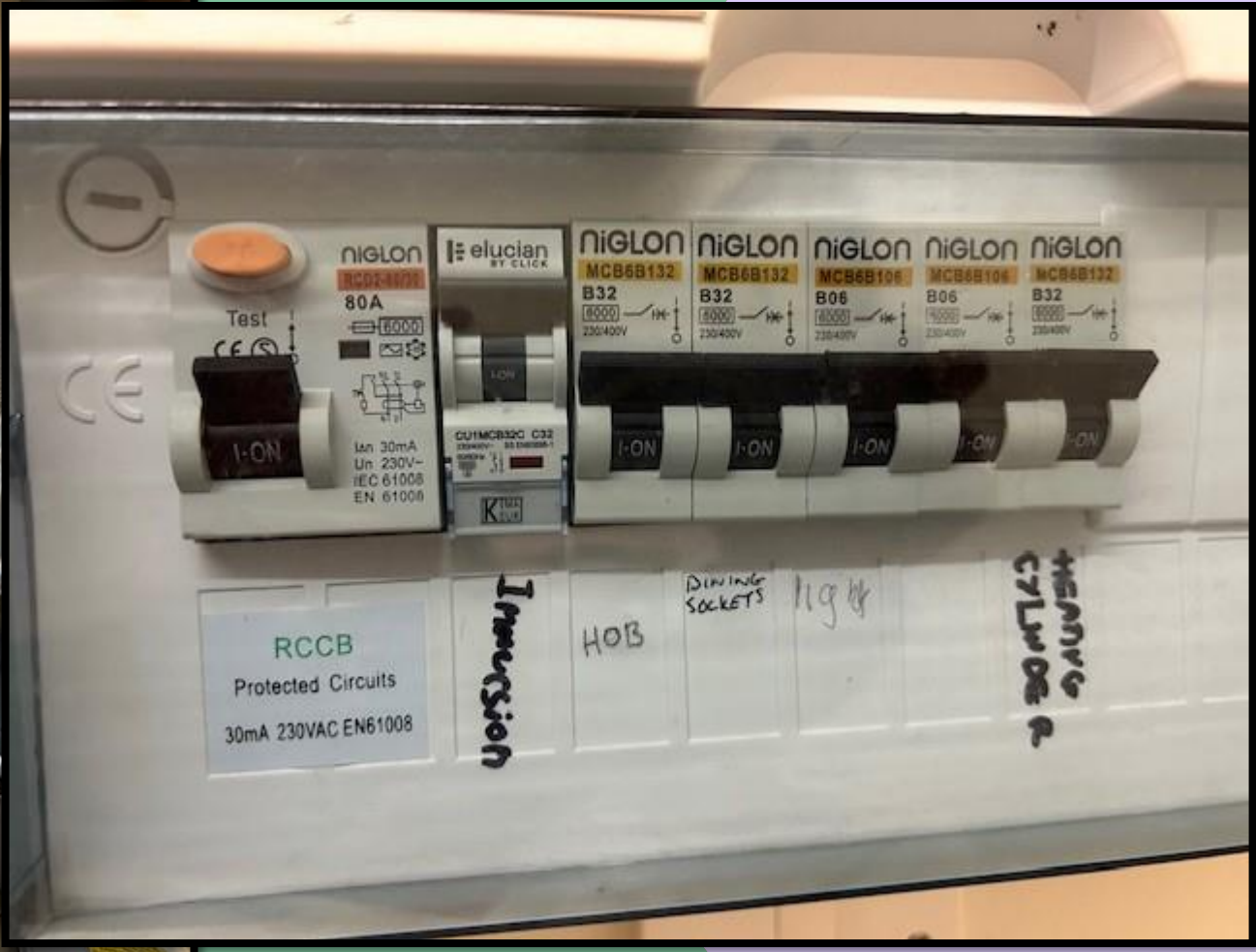
Dec 08, 2023 - Feb 06, 2024
14512 members ↑26%



448 member requests

Dec 08, 2023 - Feb 06, 2024





08:53

Energy information

System View

DAY WEEK MONTH YEAR

September 2023

Heating Domestic hot...

Energy efficiency

8.4

39.0 kWh

Electric energy consu...

290.1 kWh

Environmental yield

329.1 kWh

Heat generated

Energy efficiency

9.5

20.9 kWh

Electric energy consu...

176.7 kWh

Environmental yield

18:11

Energy information

System View

DAY WEEK MONTH YEAR

October 2023

Heating Domestic hot...

Energy efficiency

7.2

213.9 kWh

Electric energy consu...

1,337 kWh

Environmental yield

1,551 kWh

Heat generated

4G

Energy information

System View

DAY WEEK MONTH YEAR

November 2023

Heating Domestic hot...

Energy efficiency

5.7

484.0 kWh

Electric energy consum...

2,284 kWh

Environmental yield

2,768 kWh

Heat generated

17:05



Energy information



System View >

DAY

WEEK

MONTH

YEAR

📅 2023

Select range



Heating



Domestic hot...

Energy efficiency

[Learn more](#)

5.2

4,511 kWh

Electric energy consum...



18,822 kWh

Environmental yield



23,333 kWh

Heat generated



HEAT PUMP READY

Breakout groups

1. Financial models to address cost barriers - **Will Jones**
2. Improving the customer journey - **Claire Parkinson**
3. Heat pump technology & manufacturing - **Akos Revesz**

4 questions

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Workshops

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Adam Stiles	Natasha Randhawa	Adam Fudakowski	Jane Wilson	Alec Aujla-Jones	Mark Hewitt
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Dale Hoyland	Philip Jackson	Anastasia Turpetko	Julien Aliphath	Andreas Fechs	Micheil Page
Daniel Cook	Thomas Whiffen	Anthony Dale	Lucas Haynes	Bill Jenkinson	Nicola Lazenby
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Emily White		Casey Cole	Matthew Boyes	Deren Olgun	Poppy Mullins
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Gareth Robertson		David Shewan	Nathan Gambling	Issy Urquhart	Richard Jack
Griff Thomas		Emma Bohan	Rajat Gupta	Jack Vannucci	Robert Morrison
Kishan Kansara		Ian Hutton	Richard Barwick	Joe McQuillen	Tom Lipinski
Matthew Jones		Inga Jirgensone	Sally Fenton	Jonathan Siviter	Tyler Phelps
		Jack Jarvis	Tim Bailey	Laura Glover	Vivek Seth
		James Hardingham	Zack Gill	Luis Yara	Will Rivers

**HEAT
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READY**

Break



**HEAT
PUMP
READY**

Feedback on thematic discussions

Collaboration & Learning Managers



**HEAT
PUMP
READY**

Reasons to be cheerful in 2024



HEAT
PUMP
READY

More support for up-front costs than ever before

The
Standard



NEWS SPORT BUSINESS LIFESTYLE CULTURE GOING OUT HOMES & PROPERTY COMMENT

NEWS | UK

Heat pumps to be installed for same or less price than gas boilers

Heat pump grant boosted by 50% to improve slow take-up across England and Wales

Extra £2,500 now available for low-carbon air source heat pumps to take installation cost below a gas boiler



How to get a £2,000 greener home reward with this mortgage lender

 nationwide



0% Green Additional Borrowing Mortgage

Apply to borrow between £5,000 and £15,000 and pay 0% interest on what you've borrowed for the first 2 or 5 years. All we ask is that you use 100% of the loan for energy efficient home improvements. Eligibility criteria and conditions apply.

[Full details and apply](#)

The benefits of a heat pump from us



Interest-free options

Spread the cost into manageable monthly payments with our 0% APR finance options. No upfront payment required.²



No hidden installation costs

The price we quote includes everything, including radiators and cylinder, and there's no hidden installation costs.



Payment terms to suit you

You can choose between making an upfront payment, paying in full, or spreading the costs with interest-free monthly payments.

A well-installed, flexible heat pump is the lowest-cost heating option in 2024 – by a long way!



Energy Electric Vehicles Home & Heating About Us Help

Get your heat pump through OVO.

Save up to £450 a year compared to a gas boiler.¹

Get one installed through our exclusive partnership with Heat Geek. When you do, you'll unlock our **free add on: Heat Pump Plus**. It gives you a cheaper rate of electricity to power your heat pump.

Prices start from £500 – including the £7,500 [Boiler Upgrade Scheme grant](#). Register your interest and we'll let you know when we're installing in your area.

[Register your interest](#)

	Annual heat demand (heating and hot water)	Efficiency	Annual energy use	Avg energy price	Gas standing charge	Total annual heating cost	Annual saving vs gas
Gas boiler - Flexible tariff	9,250 kWh	83%	11,213 kWh	7.42p/kWh	29.6 p/day	£940	N/A
Heat pump - Flexible tariff	9,250 kWh	300%	3,083 kWh	28.62p/kWh	29.6 p/day	£991	-£51
Heat pump - Cosy tariff	9,250 kWh	300%	3,083 kWh	22.90p/kWh	29.6 p/day	£814	£126

New report: Solar PV + Heat Pump combos saved Europeans up to 84% on household energy bills in 2022

9 MARCH 2023

HEAT
PUMP
READY

Automated optimisation of whole home energy systems is rapidly becoming normal



Why Choose Homely?

- Weather service, nearby weather station.
- Room temperature
- Humidity
- Light intensity

50mm

Heating Schedule

Time	Outside Temp (°C)	Flow	Return (°C)	COP
00:00 - 00:30	2.0	32.5	37.6	
00:30 - 01:00	1.5	31	3.83	
01:00 - 01:30	1.0	30	3.64	
01:30 - 02:00	0.0	30	3.61	
02:00 - 02:30	1.0	-	-	
03:00 - 03:30	2.0	-	-	
04:00 - 04:30	2.5	32	3.93	
04:30 - 05:00	2.7	32.5	3.90	
05:00 - 05:30	3.0	33	3.90	
05:30 - 06:00	3.4	35	3.72	

It takes all that information, runs it through complex algorithms designed by some incredible math minds, and creates a perfectly optimised heating schedule for each unique day.

0:51 / 3:53

YouTube

VISSMANN
ONE BASE

Seamless system networking with digital services



The advantages at a glance

- + **Comfort**
Control the home energy system conveniently via app – at any time, from anywhere
- + **Efficiency**
Particularly efficient, cost-effective operation through networking and optimisation of energy flows
- + **Safety**
Automatic notification of system irregularities, together with online troubleshooting capability
- + **Future viability**
Future integration of all desired digital services, upgrades and product extensions such as PV with electricity storage and wallbox for e-mobility



- 1 Electric charging point
- 2 Vitovolt photovoltaic system
- 3 Mains connection
- 4 Vitocharge VX3 power storage unit
- 5 Vitocell DHW cylinder
- 6 Vitocal air source heat pump indoor unit
- 7 Vitocal heat pump outdoor unit
- 8 Vitoair FS mechanical ventilation system
- 9 ViCare app
- 10 ViGuide service centre

Public perceptions of heat pumps are starting to shift

'Greener, cheaper, much warmer' - heat pump owners laud their new system

Report finds users even in Victorian properties and older rural homes are noticing cheaper bills and warmer homes



Heat pumps: more than 80% of households in Great Britain 'satisfied with system'

Exclusive: England, Scotland and Wales survey reports similar response to people with gas boilers



📷 Air source heat pumps are proving a Photograph: KBlimages/Alamy



This is Why Heat Pumps May NOT Be The Future

2.2M views · 2 years ago

Skill Builder

Heat pumps explained. Roger rants about air source heat pump disadvantages, the green homes grant, types of heat pumps and ...



Skill Builder V Heat Geek | Heat Pump Argument

176K views · 1 year ago

Skill Builder

Roger catches up with the Heat Geek team to discuss the sticky subject of air source heat pumps. Follow Heat Geek ...



Heat Geek Gives His Verdict on John's Nightmare Heat Pump

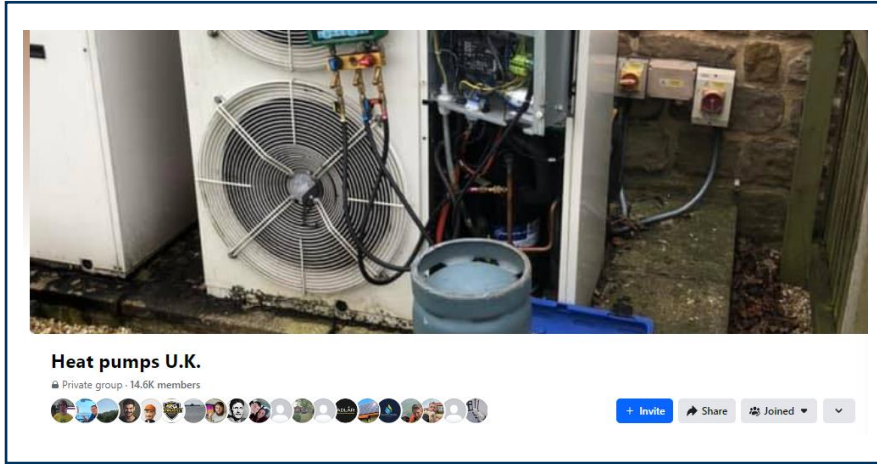
492K views · 2 months ago

Skill Builder

Roger is back with John, the troubled heat pump owner, to see if Adam from @HeatGeek can help him.

**HEAT
PUMP
READY**

Communities of practice are thriving – good practice is spreading fast for installers and customers



#lessismore Heat Geek #nopanacea

The seven SI units: $\frac{\text{J}}{\text{kg} \cdot \text{K}}$ is a measurement of - calculated by energy/time
 $\frac{\text{J}}{\text{kg} \cdot \text{K}}$ is a measurement of - calculated by power x hours

Heat Geek
@HeatGeek · 48.3K subscribers · 114 videos
A channel created to help spread knowledge of the more in-depth world of heating. For sav...
heatgeek.com and 2 more links
Subscribed

Home Videos Shorts Live Playlists Community

Created playlists

- Heat Geek Learning (5 videos)
- Heat Geek Podcast (9 videos)
- Reduce Your Energy Bills (8 videos)
- Experiments (2 videos)
- On Site (4 videos)
- Industry Chats (4 videos)
- Renewables - Consumer Advice (17 videos)
- Toolbox Talks (5 videos)
- Heat Geek Enlightenment (39 videos)

Heat Pump Ready in 2024

1. Futurebuild: Heat Innovation Takeover 5th March 2024
2. Utility Week Live May 2024
3. Installer Show June 2024
4. Heat Pump Ready videos
5. Heat Pump Ready podcasts
6. Heat Pump Ready blogs with Installer, Elemental and Unlock Net Zero
7. Project evaluation and case studies
8. Guidance notes: 'Everything we learnt from Heat Pump Ready about... '
9. Wave 2 projects

**HEAT
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READY**

Thank you!

Please join us at the rooftop venue to continue your conversations with your Heat Pump Ready colleagues

