

Heat as a Service: An Introduction

The challenge

In order to meet the UK's climate change targets, we will have to decarbonise how we use heat at home. Consumers were open to previous changes in heating because they were better than what they had.

In the 1970s, only around a quarter of homes had central heating; now practically everyone has because it is cleaner, safer and more convenient than past alternatives. Even fewer homes had showers; now almost every home has one or more, because consumers are willing to pay for and accept minor installation disruption for a pleasant bathing experience.

Low carbon heating solutions can be as good as or better than existing systems. However there are three challenges to address before we will get widespread uptake (even if the costs are comparable).



Comfort

People will want to be able to get the experiences they wish for from their heating: warm homes, hot showers and so on. This is especially hard because there are many low carbon options and the best solution varies with the home and the area it is in. For instance, heat pumps might suit well-insulated homes best; district heating might be best in dense urban areas; and repurposing the gas grid to distribute hydrogen will decarbonise heating for homes that are connected to it.

Control

People will want to be able to control how much they spend getting the heating they want, but everyone wants something different. We have surveyed thousands of consumers about how they use their heating. Some are willing to spend time adjusting their heating to match the times they are home. Others prefer to save the effort and spend more money making sure their homes are warm when they are in.

Convenience

People will want it to be easy to install a low carbon system. Today around a third of people replace their existing heating system when it breaks. Low carbon heating is not really a viable alternative if they have to spend weeks preparing their home before they can restore their heating.

What is Heat as a Service and how could it help solve these challenges?

Heat as a Service is a new model for how businesses sell heating.

Consumers who buy Heat as a Service choose how much to spend on the experience they want - feeling warm and comfortable when and where they want in their homes - instead of paying for kilowatt hours of energy. Once a service provider understands a consumer, the service provider can help them pick the best low carbon system for their situation, and help them prepare their home, so it is easy to install when they want to replace their existing. The logic is that consumers care more about their experiences than how they are delivered. After all, when you enjoy a great meal, you don't ask what type of oven it was cooked in.

Our field trial gave consumers the chance to buy Warm Hours instead of kilowatt hours.

Learning from other sectors

Decarbonising heat is difficult as the energy sector needs to combine building renovations with network upgrades in different ways to deliver high-quality low carbon experiences. Other sectors have already discovered how to marshal complex supply chains to deliver experiences that consumers want to pay for. They have done this by developing processes to reveal what consumers are willing to pay and how well their offerings perform.

Telecoms operators sell consumers bundles of texts, minutes and data at different prices. Broadband providers sell speed, reliability and customisable entertainment packages. They have discovered that many are prepared to pay for unlimited service offers.

Warm Hours are simply hours chosen by a customer to keep designated rooms warm at a specified temperature. Trialists discovered how many hours they wanted and what temperatures they liked around their home by using a digital system to control the temperatures in each room. They were offered three Heat Plans: Fixed, FlexiTime and Unlimited.

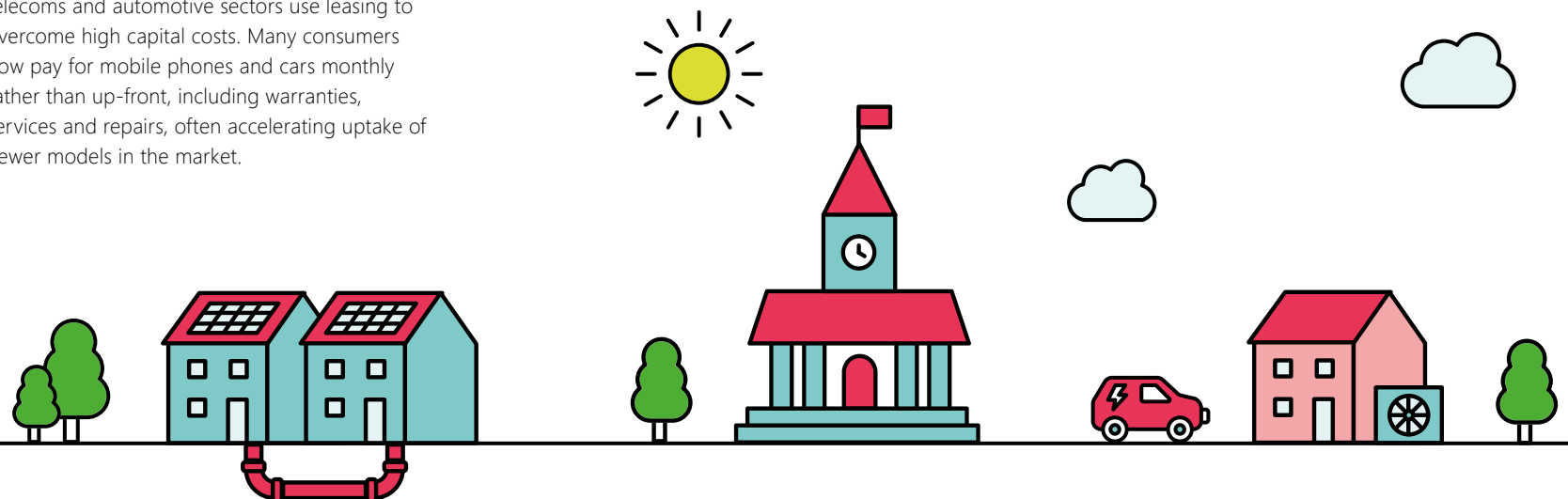
The field trial generated unique insights about how people used their heating and how much they were willing to pay to buy Heat as a Service. You can read more about what we learned in our 'Field Trial Learnings' Insight Report.

Meanwhile, manufacturers apply sales and usage data to improve mobile phones and cars. Supermarkets use loyalty cards to learn how much shoppers value different products.

Other sectors have also introduced new ways for consumers to buy the things they want. The telecoms and automotive sectors use leasing to overcome high capital costs. Many consumers now pay for mobile phones and cars monthly rather than up-front, including warranties, services and repairs, often accelerating uptake of newer models in the market.

Heat as a Service could unlock:

- **Improved consumer experiences:** Trialists preferred the idea of paying a fixed price for Heat as a Service than for units of fuel. They found Warm Hours easier to understand than kilowatt hours. Half chose one of the three Heat Plans, improving their control of what they spent getting the level of comfort they wanted.
- **Increased willingness to pay and loyalty:** Trialists who bought Heat Plans enjoyed knowing they would get the comfort they wanted for a predictable price. On average, they paid more for Heat as a Service than they were paying for their energy. Two thirds said they would be more likely to recommend their supplier if they offered Heat Plans.
- **Higher quality low carbon systems:** Manufacturers could use data about how consumers use their heating, what they value and prioritise, and what outcomes they seek to design more appealing low carbon products. Trialists revealed their preferences by spending different amounts of money and heating different numbers of rooms to different temperatures for different amounts of time.
- **Homes that are more ready for low carbon heating:** Many consumers experience problems like damp, drafts and overheating. Trialists were enthusiastic about using data to solve such problems, for instance by replacing radiators that were too small to heat the room they were in. They liked the idea of spreading the cost of these energy performance improvements over time. Tailored retrofits could help consumers prepare their homes for low carbon heating before they replace their heating system.
- **Accelerated uptake of low carbon heating:** 58% of trialists who had bought a Heat Plan were open to a low carbon alternative when replacing their gas boiler. This compares with around 33% of owner-occupiers in the general population. This rose to 85% of trialists if their Heat as a Service provider could guarantee they would get the level of comfort they wanted for a price they were willing to pay.
- **Reduced energy demand and increased flexibility:** Energy service providers have commercial incentives to use as little energy as possible and learn how to give consumers the warmth they want without using electricity at peak times.



Discover more

Energy Systems Catapult created a 'Living Lab' of 100 homes to test Heat as a Service during the Winter 2017/18 field trial. We discovered a great deal about people's expectations from their heating system, how they use their heating and the types of services that they would most value. You can discover more about what we learned in our 'Field Trial Learnings' Insight Report.

The Catapult is at the forefront of thinking and experimentation around Heat as a Service. Our 'Living Lab' continues, enabling energy service providers, product manufacturers and consumers to interact with each other to test new products, services and business models.

We would be delighted to work with you as you think about how you might shape your product or service offering to thrive in future market, policy and regulatory conditions. Please email us at ssh@es.catapult.org.uk



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References

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**Energy Systems Catapult supports innovators
in unleashing opportunities from the transition
to a clean, intelligent energy system.**

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