Despite throwing money at the problem, people still aren't buying heat pumps

COMMENTARY

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UNDERSTANDING BEHAVIOUR CHANGE IS NECESSARY FOR OVERCOMING BARRIERS TO DECARBONISATION

The government is the main architect of the transition to net zero, but it cannot reach that goal alone. But engaging the public is not always easy to do, and to date ordinary households have not been as involved as they could be. Recent efforts to persuade people to decarbonise their homes have clearly been inadequate. British houses are still poorly insulated and draughty, and the vast majority are still heated with gas.[1]

In their recent report, *Decarbonising Home Energy Through Behaviour Change*[2], the International Public Policy Observatory[3] (IPPO) at UCL review international evidence on green purchase decisions, and argue that the UK needs to change tack and focus on interventions that will actively work toward changing behaviour. Additionally, rather than sticking to the current broad-brush approach, we need to move to one that pays more attention to people's reasoning, processes and contexts.[4]

The review is underpinned by the COM-B theory of behaviour, which says behaviour change relies on three components:

- Capability: the feeling that change is possible (e.g. confidence in products, financial means).
- Opportunity: social and physical opportunities to change behaviour (e.g. supporting infrastructure and opportunities for experiential learning).
- Motivation: the desire or need to change behaviour (e.g. personal ethics, expectation that change will be better).

Recognising this, we need to shift toward a behavioural focused policy that addresses all three components. Interventions need to be targeted and tailored to different groups and where they are along their journey of change to low-carbon home heat, reflecting their life stage, finances and values. The review recommends we do this through:

- Establishing and promoting consistent incentive structures for green purchases.
- Setting up Home Upgrade Agencies to co-ordinate consistent messaging and offer bespoke advice and pathways to householders.
- Running a competition promoting innovative ways to minimise the disruption when installing heat pumps.

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- Capitalising on the additional time available before the phase-out of fossil fuels in home heating in the UK by further prioritising insulation and an attendant programme of activity across society.

IPPO'S REVIEW COMES A TIMELY MOMENT FOR POLICY ON THE DECARBONISATION OF HOME HEAT

All of this matters because the UK is way off track when it comes achieving its commitment of net zero carbon emissions by 2050.[5] While progress towards decarbonisation has been made in many industries, home energy usage and heating stands out as a laggard, despite accounting for 14% of total emissions.[6] The current rate of change means the UK's reliance on gas for heating also looks set to continue. Heat pump sales have not yet reached 100,000 units a year, and as a result of delay after delay to the Future Homes Standard, fossil fuel boilers will continue to be installed in new build homes until 2025.[7]

Part of the lag has been attributed to the prolonged absence of a comprehensive strategy for the decarbonisation of home heat.[8] Until the Heat and Buildings Strategy was published, the UK effectively did not have one. When it eventually arrived, after lengthy delay, it was criticised for failing to have a retrofit strategy for existing homes.[9] Since then, the move away from gas and toward the electrification of heat in existing homes has become increasingly politically divisive. Rumblings in the summer of 2023 that the government might row back on previous green pledges became a reality in the autumn, with the Prime Minister's scrapping of key green pledges. Changes made included cancelling plans for higher minimum energy efficiency requirements in the private rented sector and pushing back the ban on new fossil fuel boilers in off-grid homes from 2026 to 2035.[10]

The broader rhetoric around the decarbonisation of home heat has itself become a roadblock to the uptake of green products. Heat pumps in particular are criticised as being too expensive, noisy and unable to heat a home sufficiently, despite substantial evidence to the contrary. However, government schemes aimed at decarbonising homes, often through providing funding for decarbonisation measures, have repeatedly failed to deliver. Even more recent approaches, such as ECO4, the Boiler Upgrade Scheme and the Great British Insulation Scheme are all underdelivering on their targets.

IPPO RECOGNISES THE IMPORTANCE OF CONTEXT IN HOME HEAT INTERVENTIONS

That IPPO's review applies the theory of behaviour change to help understand heat pump purchases is therefore particularly helpful.[i] Firstly, it highlights to policymakers that the three components for behaviour change (motivation, capability and opportunity) all need to be in play for homeowners to switch to a heat pump. One component is not enough: just because someone wants to install a heat pump or can afford to install a heat pump, does not necessarily mean that they will install one. Evidence presented shows that several mechanisms at once are needed for behaviour change and, consequently, multiple interventions. Being mindful of this could help to explain why, despite several years of government initiatives, penetration of heat pumps is still low. They make up less than 1% of central heating systems in England and Wales.[11] The review provides policymakers with tangible evidence that multiple interventions are needed, and these cannot focus on one component of the behaviour change alone. The review also demonstrates the importance of social context, as well as personal motivation, and why policy makers need to be conscious of how context can be supportive of or disruptive to interventions. One example of this is through highlighting just how far behind the UK is on heat pump installations, compared to countries like Finland. Interestingly, British households are more likely than Finns to be motivated to switch to a heat pump out of environmental concerns. But in Finland, consumer motivation to change is supplemented by capability and opportunity, with heat pumps being seen as cost saving and improving home comfort.

Yet contexts cannot easily be lifted and dropped from other countries. While there may be lessons for the UK here in how to mobilise capability and opportunity, the interventions used in Finland to motivate heat pump purchases cannot simply be adopted and replicated by the UK and expected to work. Policies need to be tailored to the environment they are in. Finland's reliance on fossil fuels for instance, is different from that of the UK. The fossil fuel types used for heating are firstly more varied and, more importantly, Finland does not have the same discrepancy in running costs between fossil fuels and electricity. This is in stark contrast to the dominance of gas in UK heating systems, at much cheaper cost than electricity. Even if all three components of behaviour change are present, context can disrupt the action of actually changing behaviour.

[i] Heat pumps are a key product in driving down domestic energy emissions as they are incredibly efficient, operating at about three times the efficiency of a top rated gas boiler. *Source* https://www.boilerguide.co.uk/compare/types/boiler-vs-heat-pump

It is also welcome to see the authors try to find some positives in the pushback of the gas boiler ban to 2035, seeing it as an opportunity for stimulating other behaviour changes, rather than just a setback. The next 10 years can be used constructively, prioritising home decarbonisation through future-proofing measures like insulation or solar panels. Past nationwide campaigns of social change like the digital switchover or even the previous home energy transition, the move from town gas to natural gas, provide good examples of an attendant programme and how government at all levels can work with industry, the workforce and civil society to make substantial change. They do note that future-proofing measures such as insulation need to be seen as an addition to low-carbon heating rather than a replacement. Heat pumps do not require a set amount of insulation, although their performance will be optimised in a better insulated setting.

However, insulation itself is also a high-value, high-commitment green purchase, and as our work shows, insulation generates its own set of barriers to uptake – most prominently, an absence of trust in the industry.[12] Improving the fabric and fit of one's home may be a stepping stone to installing a heat pump in future for consumers, but it could also be used by government as a ladder to build trust in home decarbonisation. Building this trust could involve creating a "one stop shop" for independent advice and guidance on how to decarbonise. This would complement IPPO's suggestion of Home Upgrade Agencies, which could not only provide independent information but also use data to tailor the advice and support. Trust could be further improved with a badging or accreditation scheme for installation fitters and heat pump installers, and by publicising local "success stories" where households have installed products like insulation or heat pumps and had a positive experience.

THE REVIEW IS LIMITED BY THE AVAILABLE EVIDENCE AND COULD HAVE ADDRESSED A BROADER RANGE OF TECHNOLOGIES

The review is naturally limited by the literature that has been published and, more specifically, the number and quality of studies that have been done on heat pump specific behaviour change. Case studies provide valuable insight into the end-to-end process. However, the key source of UK case studies in the review are from a government-sponsored Electrification of Heat trial. More than a third of participants in the trial had an annual household income of over £50,000 and participants did not have to cover the costs involved (the actual heat pump, additional measures and labour). Given personal finances and the physical capability to make a high-value green purchases are a considerable factor, the findings may not be generalisable. In particular, it is unclear how such findings relate to households with middle incomes, who do not qualify for government schemes or grants, but are unlikely to be able to afford the expense of a heat pump.

Alert to this sort of issue, IPPO emphasise the importance of incentive structures responding to differing household contexts, ensuring those on middle incomes are not left out of funding opportunities. Rather than the current "one size fits all" approach, there should be a sliding scale of income based incentives. Incentives need not be limited to government grants, but could also include low-interest loans and green mortgages.

Additionally, while heat pumps are a good illustration of the model at work, it would also have been interesting to see the model applied to other home energy decarbonisation measures such as solar panels. Solar panels are also high-value, high-commitment green purchases, but the context surrounding them is different. They are, firstly, a much more familiar technology to much of the public. Additionally, rather than replacing an energy source (such as gas for heating), solar panels provide an additional energy source, making the gas-electricity price discrepancy much less relevant.

THERE ARE A NUMBER OF POLICIES THAT GOVERNMENT CAN PURSUE, BUT IT IS MOST LIKELY TO BE ATTRACTED TO THE CHEAP ONES

With the upcoming general election, there is an opportunity for whoever forms the government to refocus policy and improve our progress towards decarbonising home heating. However, this is unlikely to be achieved without sufficient pressure on policymakers to bring the decarbonisation of home heat to the top of their agendas. The difficulty is that while reaching net zero by 2050 may be a legally binding commitment and climate change is a concern among voters, decarbonisation of home heat is not a doorstep issue.

With that being said, an election could be as much as a year away, and it will not do for the government to remain inactive in the meantime. Some of IPPO's suggested policy measures are more likely than others to get a hearing in Westminster. While the government has said it is committed to reaching net zero and has stuck to, for example, heat pump installation targets, it has failed to stump up the necessary cash. As such, low-cost mechanisms, such as those that focus on building awareness of and confidence in heat pumps, are likely to be of greatest interest. One of the greatest difficulties for government is getting so-called "able to pay" households to actually spend money on green purchases like insulation and heat pumps. Creating credible messengers and improving the availability of heat pump demonstrations are therefore likely to be particularly attractive to the government. Our own research on credible messengers indicates that they are those who do not have a vested or financial interest in whether the product is used or not.[13] Different credible messengers are needed, to align with the different stages of decarbonisation households are in. Friends and family with experience of green technologies can be really important for raising awareness of green technologies and providing confidence that they work. Local authorities or Home Upgrade Agencies, however, are likely better placed for providing actual advice on products and funding. Cheaper than grants for heat pumps, these are especially efficient ways to convert already motivated consumers to a sale.

Using the next 10 years to ramp up other behaviour change, such as encouraging greater insulation, would also be wise. There is already a nationwide understanding of the need for better insulated homes, not just for reduced bills but for health.[14] As such, it may be an easier win for government.

ENDNOTES

[1] Nikola Bowers, Craig Smith, and Tony Wilkins, "Energy Efficiency of Housing in England and Wales - Census 2021," Office for National Statistics, October 25, 2022, https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2022; "Type of Central Heating in Household - Census Maps," Office for National Statistics, January 5, 2023, https://www.ons.gov.uk/census/maps/choropleth/housing/type-of-central-heating-in-household/heating-type/mains-gas-only.

[2] International Public Policy Observatory, 2023, How to Overcome Barriers to Consumer Green Purchase Decisions, URL: https://theippo.co.uk/home-energy-behaviour-change-barriers-green-purchases-evidence-review/

[3] Home | IPPO (theippo.co.uk)

[4] Carol Vigurs and Jeremy Williams, "The Behaviour Change Wheel: A New Method for Characterising and Designing Behaviour Change Interventions" (International Public Policy Observatory, December 13, 2023), http://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-6-42.

[5] Tom Dooks, "CCC Assessment of Recent Announcements and Developments on Net Zero," *Climate Change Committee* (blog), October 12, 2023, https://www.theccc.org.uk/2023/10/12/ccc-assessment-of-recent-announcements-and-developments-on-net-zero/.

[6] "A Guide to the Decarbonisation of Heat in the UK," Energy Systems Catapult, accessed March 4, 2024, https://es.catapult.org.uk/guide/decarbonisation-heat/.

[7] Jillian Ambrose, "UK Government Backs Plan to Ban Gas and 'Hydrogen-Ready' Boilers," *The Guardian*, December 13, 2023, sec. Business, https://www.theguardian.com/business/2023/dec/13/uk-government-backs-plan-ban-gas-hydrogen-ready-boilers-newbuilds-2025.

[8] Business, Energy and Industrial Strategy Committee, "Decarbonising Heat in Homes," 2022.

[9] Business, Energy and Industrial Strategy Committee.

[10] Niamh O Regan and Gideon Salutin, "The Government's Rowing Back on Net Zero Will Cost Families More – Thousands More, in Fact," Social Market Foundation., September 21, 2023, https://www.smf.co.uk/commentary_podcasts/the-governments-rowing-back-on-net-zero-will-cost-families-more-thousands-more-in-fact/; Niamh O Regan, "The Green (s)Crap: SMF Responds to Government Weakening of MEES," *Social Market Foundation.* (blog), July 28, 2023, https://www.smf.co.uk/commentary_podcasts/the-green-scrap-smf-responds-to-mees/.

[11] "Census 2021: How Homes Are Heated in Your Area," Office for National Statistics, January 5, 2023, https://www.ons.gov.uk/census/maps/choropleth/housing/type-of-central-heating-in-household/heating-type/mains-gas-only.

[12] Niamh O Regan, "Insulating Britain: Examining the Barriers and Motivations to Decarbonising Our Homes," Social Market Foundation., November 24, 2023, https://www.smf.co.uk/publications/insulate-britain/.

[13] O Regan.

[14] "Better Home Insulation Could Mean People Live Longer, Study Suggests," Sky News, January 25, 2023, https://news.sky.com/story/better-home-insulation-could-mean-people-live-longer-study-suggests-12794748; O Regan, "Insulating Britain."