

---

### About Nesta

Nesta is the UK's innovation agency for social good. We have worked for over 20 years to design, test and scale new solutions to society's biggest problems, changing millions of lives for the better.

### Background

Heat pumps will play a crucial role in the UK's move to net zero and away from using gas and other fossil fuels. The UK Government has set ambitious targets for scaling up heat pump uptake, from around 35,000 installations per year last year to 600,000 per year by 2028. One barrier to achieving this is securing enough demand for heat pumps, given their high upfront costs. Our research examined how likely people might be to choose a heat pump to replace their boiler, and how offering different incentives - including subsidies, loans and lowering running costs - changed their choices.

### Nesta and the Behavioural Insights Team's research

Between 11 March - 5 April 2022 the Behavioural Insights Team collected an online sample of UK homeowner occupiers, all of whom owned a gas boiler. This sample was demographically representative of the UK homeowner population in terms of age, gender, income and region.<sup>1</sup> We tested how different incentives would affect the uptake of heat pumps. Participants were shown 3 (of 8) heat pump offers with different characteristics and asked to choose between a heat pump and gas boiler.

### Key findings

#### 1. There is substantial demand for heat pumps, but not everyone is convinced.

In our experiment, 12% of people chose a heat pump over a boiler even when there were no incentives, paying the full price (around £10.5k) upfront for a heat pump. This would suggest that around 200,000 people per year would be willing to buy a heat pump even without subsidies (this is based on the fact that around 1.7 million homeowners replace their heating system every year).

#### 2. Subsidies are the most effective incentive for heat pumps, but only just.

In our experiment, offering a £5,000 subsidy - the same as the new Boiler Upgrade Scheme - increased the number of people willing to buy a heat pump by 10 percentage points, to 22%.

Almost as effective was providing a zero interest loan, so that home owners paid for their heat pump monthly over 12 years, rather than the whole cost upfront (heat pumps typically last between 15 and 25 years). This increased uptake by 9 percentage points, to 21%.

Lowering running costs was also an attractive incentive. Reducing the running costs of a heat pump by £40 a month (which government could do by shifting existing levies on electricity on to gas, along with increased heat pump efficiency) increased uptake by 7 percentage points.

---

<sup>1</sup> Source: [ONS Income](#) and the [English Housing Survey](#).

### **3. Combining financing with lower running costs is an attractive offer.**

We also tested how these incentives worked in combination with each other. Combining lower running costs with either subsidies or low cost financing had a positive interaction effect in our experiment, so they result in even more people being willing to choose a heat pump.

A zero interest loan combined with lower running costs increased uptake for a heat pump by 24 percentage points, to 38% in total. That is equivalent to around 650,000 home owners choosing a heat pump every year, and would be sufficient to exceed the UK government's target of 600,000 per year by 2028.

This is significant, because it would cost government much less than further subsidies, but be almost as effective.

## **Recommendations**

### **1. Lower the running costs of heat pumps by removing levies on electricity.**

The most reliably effective option in our experiment is to lower the running costs of heat pumps, which would significantly increase demand for heat pumps in all scenarios. The quickest way to do this is to remove the levies which currently make up around 25% of electricity bills. If the levies are shifted on to gas, this would cost government nothing and further incentivise a switch away from fossil fuels. Measures to promote the efficiency of heat pumps and allow time-of-use electricity tariffs will also help lower running costs.

### **2. Encourage low cost loans as a long term successor to subsidies.**

Offering low cost finance to smooth the cost of a heat pump over several years is an effective way to boost heat pump uptake. It would work especially well in conjunction with lower running costs, as in recommendation 1 above. The UK Infrastructure Bank could be well placed to enable low cost loans, although it may need a small amount of additional funding from government. This policy would be significantly cheaper than subsidies, especially once heat pump uptake rises.

### **3. Focus on the supply of heat pumps as well as demand.**

This research shows there is already significant demand for heat pumps, and scope for increasing it enough to meet the UK Government's targets this decade. However, the heat pump market will also need to scale up its supply capacity, particularly by increasing the supply of skilled heating engineers to install heat pump systems in homes. The heat pump engineer workforce will need to grow ten-fold in the next eight years. Governments across the UK should focus as much on this skills and supply challenge as on increasing demand for heat pumps.

**For more information, please contact [andrew.sissons@nesta.org.uk](mailto:andrew.sissons@nesta.org.uk)**