

RESEARCH SUMMARY

How to ensure a successful transition to heat pumps for households at risk of fuel poverty

The Warm Homes Plan commits £15 billion to upgrade up to five million homes by 2030, with an ambition to lift up to one million homes out of fuel poverty. Heat pumps are set to play a prominent role. This research for the Committee on Fuel Poverty examined the lived experience of low-income households with heat pumps and the factors that determine whether bills rise or fall. The findings underpin eight recommendations to help ensure that heat pumps deliver warm and comfortable homes and lower fuel bills for households at risk of fuel poverty.

01 / What are the lived experiences of households at risk of fuel poverty with heat pumps?

Experiences varied widely

29 in-depth interviews, January to February 2026



- Comparison to their previous heating system shaped overall experience and satisfaction.** Satisfaction was often high, compared to poor previous heating systems. Those replacing electric, oil or solid-fuel heating were consistently positive; those replacing a working gas boiler were more equivocal.
- Self-reported satisfaction did not reliably indicate that a system was performing well.** In some cases, low heat pump efficiency meant that the household remained at risk of fuel poverty, despite the householder expressing overall satisfaction and improved comfort.
- Faults were common, with no clear route to resolution.** Households reported being passed between installer, manufacturer and landlord with no clear route to resolution. Owner-occupiers were particularly exposed and unsupported once warranties expired.
- Handover was the most consistent area of criticism.** Typically rushed and focused on technical manuals. Where confidence developed, it came from self-directed learning. Maintenance and servicing visits were valued for providing ongoing support.
- Understanding of heat pump controls was limited.** Most households interacted only with the room thermostat, so parameters set at commissioning determined how the system ran for its lifetime.
- Households preferred simple, predictable tariffs.** Effective use of time-of-use tariffs was confined to highly engaged households; some who tried them felt that their bills increased.



02 / What determines whether the transition to a heat pump raises or lowers fuel bills?

Secondary analysis of more than 1,100 monitored UK installations shows a wide performance gap between the highest- and lowest-performing heat pumps, equivalent to several hundred pounds a year for a typical home.

About the data

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| Heat Pump Monitor (HPM) | 383 systems | Mean Seasonal Performance Factor (SPF) 3.9 | What is achievable when design, commissioning and engagement align |
| Electrification of Heat (EoH) | 742 systems | Mean SPF 2.8 | Government demonstration project; closer to typical delivery |

Neither dataset is representative of installations under large-scale energy efficiency programmes, nor of households at risk of fuel poverty, but, combined, they provide detailed insights to help us understand heat pump system performance.

The performance gap



+£580

a year: the running cost gap between the highest-performing (SPF 4.7) and lowest-performing (SPF 2.2) systems in the same medium-use home.

Ofgem medium-use dwelling. Ofgem price cap Q2 2026.

Factors associated with the performance gap and fuel bills

Not all factors affecting performance can be observed in the data, and the observed factors do not fully account for the performance gap. However, among the factors that could be observed:

Weather compensation: the clearest signal in the data

Correctly set weather compensation was consistently associated with the highest-performing systems, more so than any other factor observable in the data. Third-party on/off thermostats that switch the heat pump on and off override weather compensation; they are both a symptom and a cause of systems not set up to modulate.

- Hot water settings.** Cylinder set-point, schedules and immersion use materially affected overall efficiency and fuel bills, and were frequently left unoptimised.
- System sizing.** Showed a marginal correlation with performance levels in the data. Some oversized systems still performed well with correctly commissioned weather compensation.
- Flow temperatures.** Lower flow temperatures were associated with higher efficiency, but this correlation was weaker where weather compensation was not commissioned effectively.
- Building fabric.** Showed no correlation with heat pump efficiency in the data, but improving building fabric lowers heat demand, and therefore bills, independently of heat pump performance.
- Solar PV and battery storage.** Modelling of illustrative households at risk of fuel poverty with heat pumps showed substantial savings associated with installing solar PV and battery storage.
- Time-of-use tariffs.** Reduced fuel bills where heating aligned with off-peak tariff windows, but increased fuel bills where heating patterns were not well aligned to the tariff.



03 / How can we ensure a successful transition for households at risk of fuel poverty?

This research underpinned eight recommendations for the Committee on Fuel Poverty in its role supporting and challenging government on delivery, focused on the principal Warm Homes Plan instruments for low-income households - Warm Homes: Social Housing Fund and Warm Homes: Local Grant.

Commissioning, handover and ongoing support

1 Ensure minimum standards of commissioning are met.
Specify and verify: weather compensation correctly calibrated, no on/off thermostats, optimised hot water settings.

2 Equip households to operate their systems confidently and efficiently.
Minimum handover standards, a follow-up visit after the first heating season, and ongoing servicing as standard.

Monitor, guarantee and remediate performance

3 Monitor and verify heat pump performance as standard.
In-situ monitoring, with efficiency data shared with the household, delivery body and funding department.

4 Require minimum performance guarantees.
Anchored to the design-stage efficiency prediction installers already produce under the Microgeneration Certification Scheme (MCS).

5 Monitor the effectiveness of remediation.
MCS:2025 financial protection is a critical but unproven safeguard for households at risk of fuel poverty.

Solar PV, battery storage and time of use

6 Include complementary measures in installation packages.
Solar PV and battery storage by default where feasible, and fabric improvements for larger dwellings with higher heat loss, until heat pumps routinely reduce fuel bills for this group.

7 Recommend time-of-use tariffs only where households can manage them.
Calculate affordability at standard rates; pair time-of-use with confident users or automatic optimisation.

Evidence gaps

8 Address key gaps in the evidence base.
Fund monitoring of in-situ performance in households at risk of fuel poverty. Study how the transition to continuous heating affects overall heat demand.

THE CENTRAL MESSAGE

Heat pumps have the potential to help alleviate fuel poverty across all property types. Implementing these recommendations will help ensure that the benefits are realised and that low-income households are protected against the possibility of a negative transition to heat pumps.