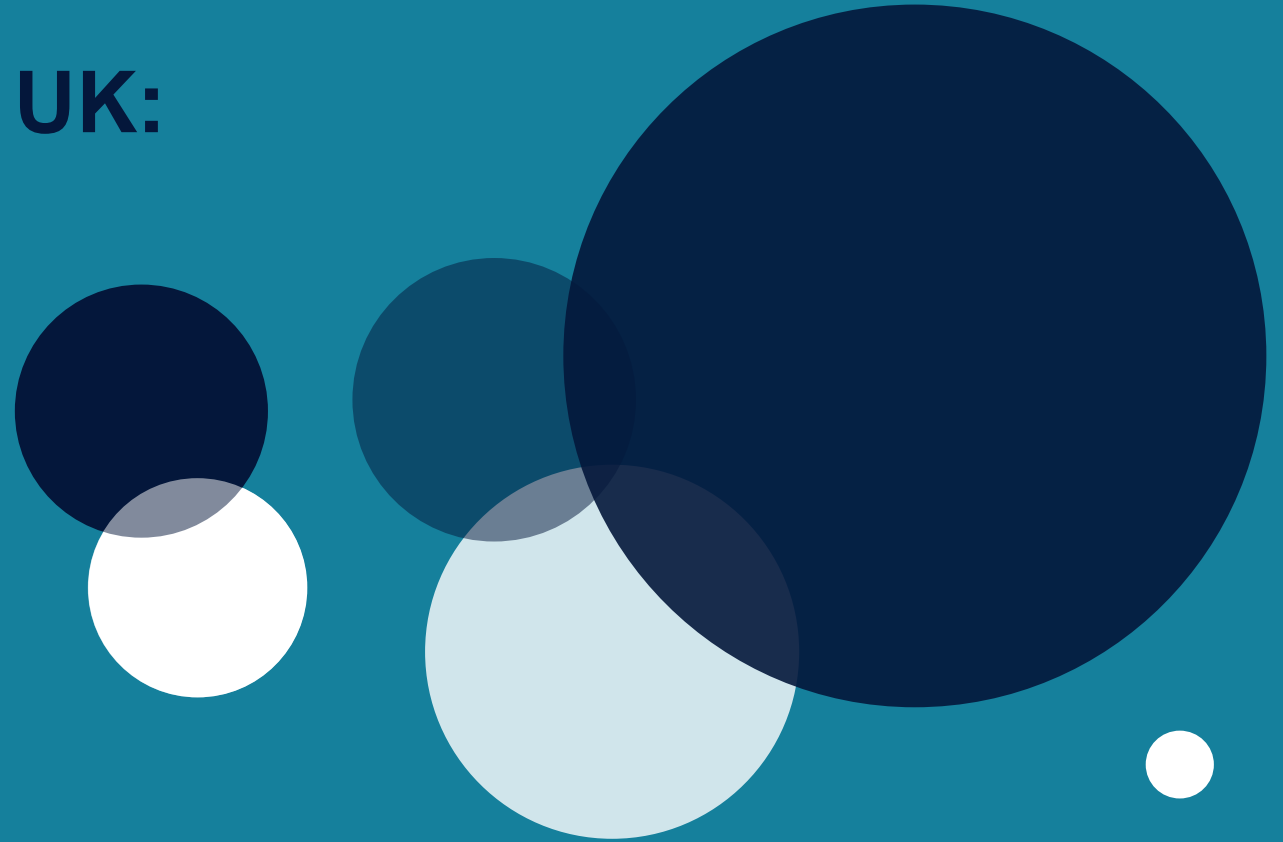


# Heat Pump Trials in the UK: An overview

Dr Tina Fawcett

Environmental Change Institute,  
University of Oxford



# Purpose, outputs and outcomes

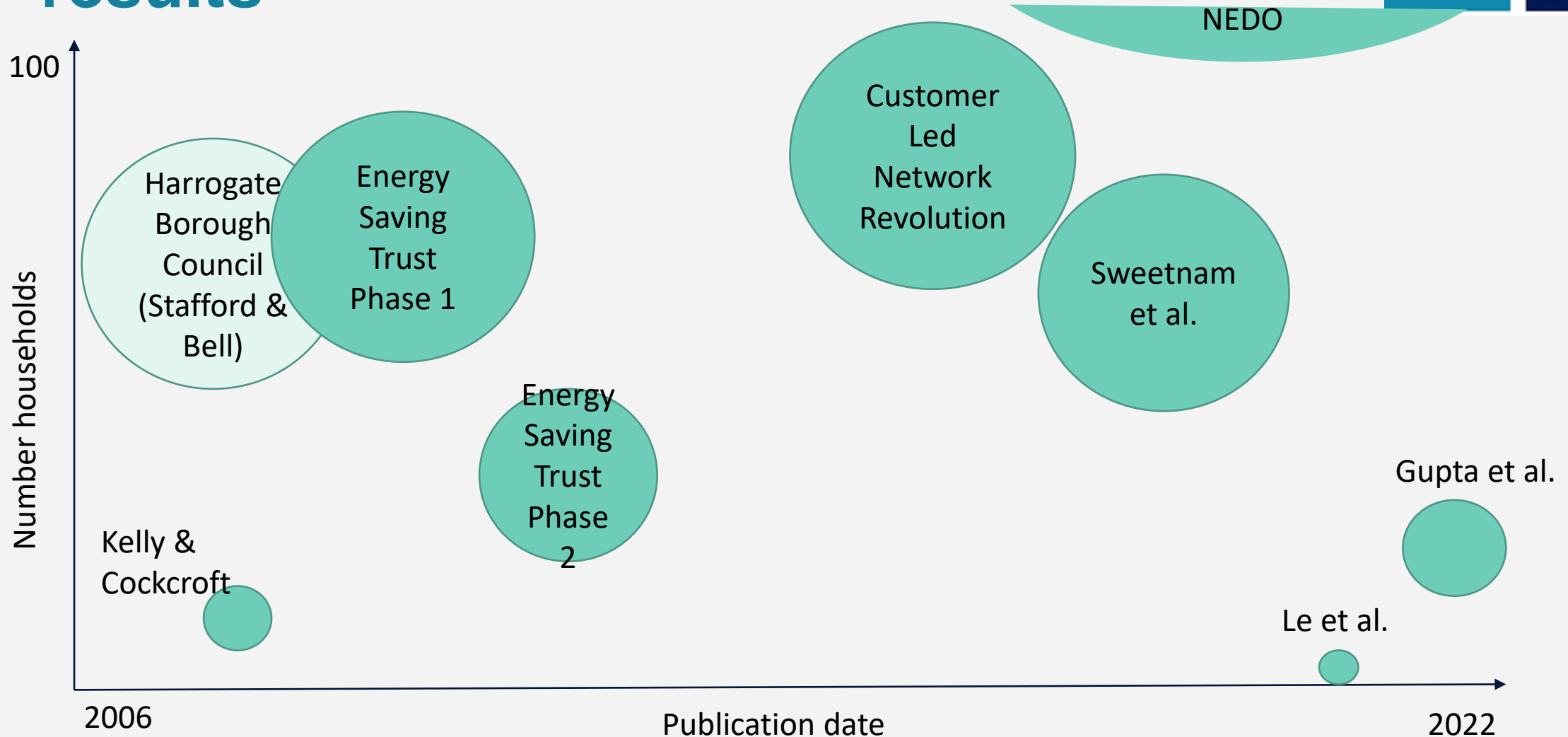


By reflecting on past, current and planned heat pump trials in the UK, we can consider what additional information, of what quality, is needed to improve our social, technical, economic and environmental understanding of these technologies, their users and uses. This will help inform the low carbon transition.

## **Outputs & outcomes**

- Good / best practice guidelines for HP trials
  - Library of HP trials, UK and international
  - Identification of research gaps & proposal for future trial(s)
  - New relationships and networks across the sector
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# Completed trials with (some) published results



# Trials underway & planned



## Innovate UK Demonstrations

Smart local energy systems



## BEIS Electrification of Heat Demonstration Projects

E.ON, OVO energy, Warmworks



## BEIS Heat Pump Ready Programme

Several projects, moving into Phase 2

## New opportunities:

EPSRC-funded Energy Demand Observatory and Laboratory

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# Common challenges



## Household recruitment

*“Despite the recruitment incentives including free Broadband for up to 2 years and a free tablet, tenant sign up to the project was particularly challenging, with uptake lower than anticipated.”*  
(NEDO, 2017:23)

## Data quality

*“...[We recruited] 381 domestic customers with air source heat pumps. Out of these, 89 customers had sufficient quality heat pump data readings available over the one year period to be included in the analysis.”* (DEI & Element Energy, 2015:6) – Customer Led Network Revolution

## Trialling flexibility

*“....in the relatively early stages of the project, it became clear that the use of real-time trading for heat pumps would require residents to take on excessive market risk.”* (Hampton et al, 2021:18)  
Energy Superhub Oxford

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# Trials of what?



## **Some questions have been answered**

We know that good quality ASHP and GSHP installations perform well technically and householders are generally very satisfied with thermal comfort. (Not all installations are good quality however.)

## **Questions to answer & issues to explore via trials – some examples**

Flexible use of HPs – for cost-reduction / network benefits

Customer controls and feedback – what works well?

How to reduce capital costs & improve installation quality of HP systems

Integration of HPs with other heating and hot water systems, solar PV, batteries, heat storage

Balance of investment between whole-house retrofit and HP

New business models for shared low-temperature heat networks, powered by HPs

## **Other example questions – supported by trial data**

What policy support is needed to ensure mass transition to heat pumps? What will it cost?

What are the equity implications of switching to heat pumps?

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