Retrofitting heat pumps in large non-domestic buildings

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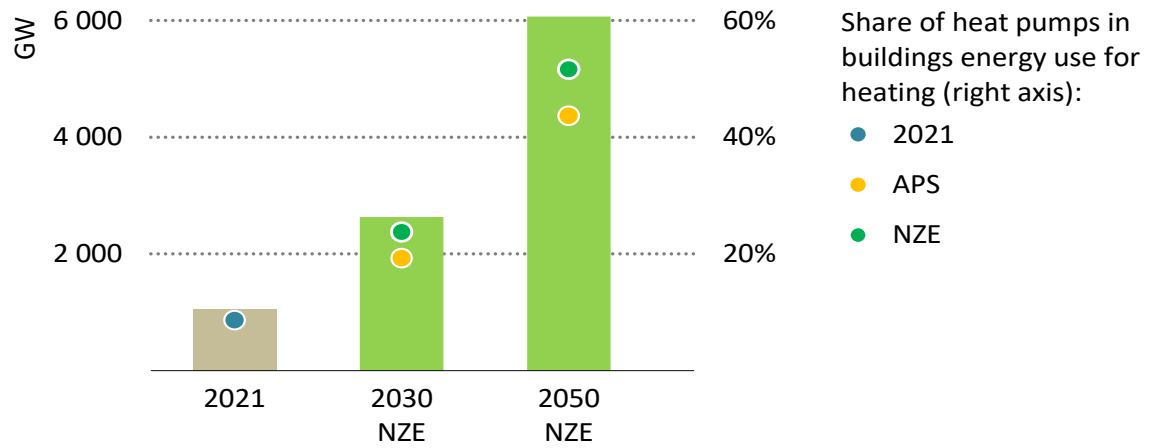
The problem: 6-fold increase in deployment needed

Figure 1.12 ▷ Global heat pump capacity and coverage of heating needs in the APS and NZE Scenario, 2021-2050



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Global heat pump capacity nearly triples by 2030 in the NZE Scenario and then doubles again by 2050, with stronger policies than those already planned needed beyond 2030

Domestic vs non-domestic heat pumps

- Energy use for heat/hot water is similar (including industrial buildings) but households dominate the policy discussion
- Similar levels of funding and support available:
  - Public Sector Decarbonisation Scheme for capital costs
  - Public Sector Low Carbon Skills Fund for skills and capacity
  - Heat Network grants for public and private organisations
- Sales of large heat pumps are growing (we think) but we are some way off the leading countries

The key issue is deployment

- Non-domestic buildings are complex and varied in form, size and function
- Decision-makers face some complex issues:
  - Retrofit depth: anything from boiler replacement to deep refurbishment
  - System options: Heat source? Distribution system? Bivalent?
  - Drivers: CapEx/OpEx? Carbon/energy saving? Reputation?
  - Barriers/constraints: Compliance issues? Disruption? Compliance?
- There is a lack of simple guidance for decision makers who know they need to take action but don’t know how

What is IEA HPT Annex 60?

- UK led project, with Austria, Canada, Ireland, Italy and the Netherlands
- Focus is on retrofitting existing buildings rather than new ones
- Review the state of the market and key drivers and barriers
- Identify case studies showing good deployment practice
- Develop on-line guidance for decision-makers

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Who is the guidance for?

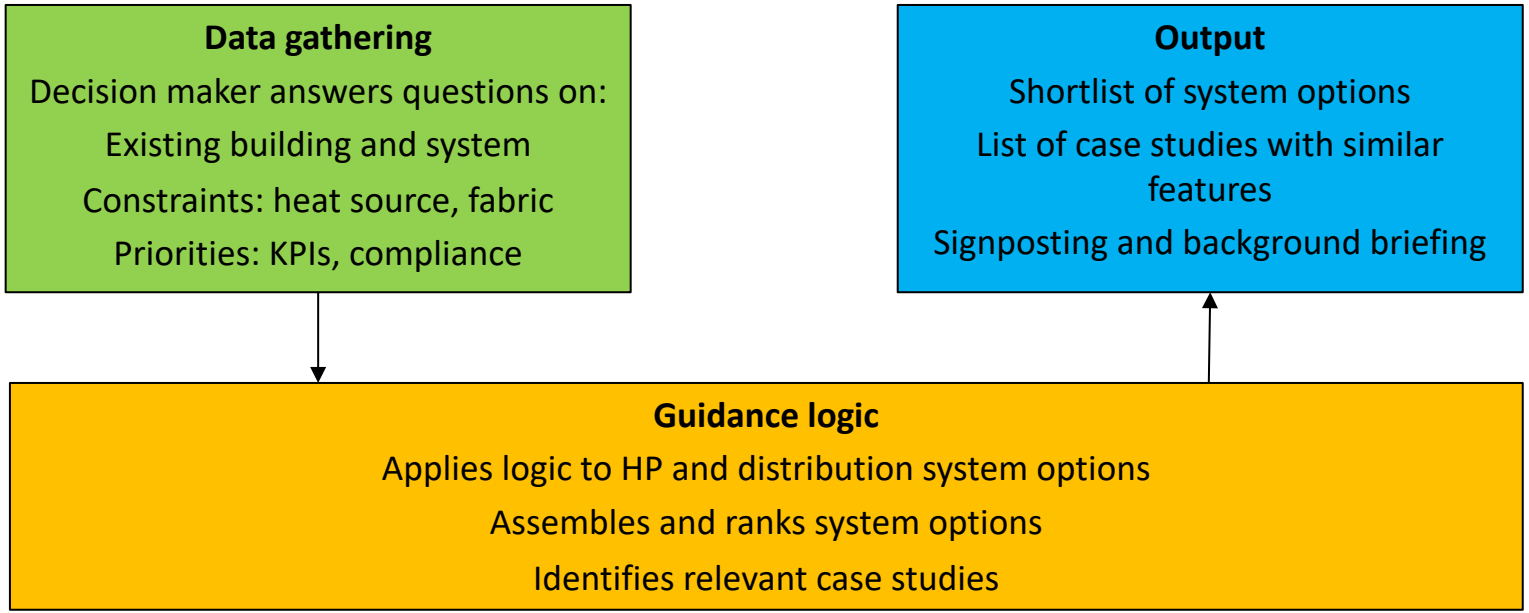
Three sets of decision makers with different roles and perspectives:

- Primarily building owners and managers, who are driven to switch to a heat pump but don't know how
- But also their advisors, eg HVAC system designers, who will need detailed information on system choice and design
- Not to forget policy makers, who need to know the practicality, costs and impact of policy instruments

Progress to date

- Literature review: strong on systems and technologies but very little on deployment practice
- Case studies: slow to arrive but we now have 40-50 from a good range of buildings and climates, mainly in the public sector
- User requirements: we are developing our understanding of how decisions are made in large non-domestic organisations
- Guidance development: we have defined the key user questions and sketched out the basic logic model

How will the guidance work?



What now?

- We’re about 30% through a three year project
- We need to figure out how to translate the guidance logic into a web development specification for coding
- We also need a better understanding of how decisions are made during the procurement process
- How should we tailor the guidance for different country circumstances: climate, regulations, language and convention?
- More analysis, for example we need to dig into the comparative costs and efficiencies of the various system options

You can help

- We would like **examples of successful retrofits** to be published as case studies (and, privately, information about less successful ones)
- If you have **assessed alternative solutions for a particular building**: we would like to talk to you (again privately) about what you found
- If you are **thinking about a retrofit** but haven't done it yet we would like to talk to you about your motivations and concerns
- If you would like to **keep in touch** with the project or become actively involved please get in touch

Thank you

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