B2Z briefing paper

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TOWARDS A CARBON-FREE BRAMPTON

Heat pumps

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B2Z
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Briefing paper

The government has a target to install 600,000 heat pumps by 2028[1] to deliver its net zero ambitions. In 5 years', we can imagine the community in and around Brampton will be responding to this huge shift in heat pump take up across the country and will expect B2Z to facilitate and support this transition. This briefing paper provides up to date overview of heat pumps and the part they will play in delivering the B2Z vision.

Heat pumps don't have a good image in the UK and there are some good reasons for skepticism but there are good reasons why Heat Pump installations are in rapid transition across Europe.

"Heat pumps can be powered by renewables and are three times more efficient than gas heating."

Because Heat Pumps are much more efficient than gas or oil central heating and can in the future be powered completely be renewable electricity such as Solar or Wind, they will play a very significant part in delivering our B2Z net zero vision. ***It's critical that Heat Pump installation moves at a pace commensurate with our ambition for early achievement of net zero for our community.***

How do heat pumps work? Go to National Grid explainer for the basics

Jan Rosenow of Oxford Universities Environmental Change Institute debunks many of the concerns and myths for heat pumps in this May2023 New Statesman article. And yes heat pumps work in very cold temperatures with a small impact on efficiency and all house types are suitable. Heat pumps work best in well insulated homes and it may be necessary for some homes to have some retrofitting and improvements to existing radiators. This House of Commons POST note[2] **considers advances in heat pump technology, their suitability for UK properties, barriers to deployment and government policy support mechanisms.**

A recent (May2023) NESTA user survey of Heat Pumps in the UK paints a positive picture for the future of heat pump adoption, showing that the majority of users are satisfied with their system. It also highlighted some improvements that could make heat pumps even more attractive, including:

- making clear, impartial information about heat pumps more easily accessible
- making it easier for people to use their heat pump once they have one
- reducing the time and disruption associated with installation

It is always best to ensure homes are as insulated as possible what ever the heat system, but it isn't essential to renovate or retrofit a home before installing a heat pump[3]. If retrofit is done later, it will only improve the efficiency of the heat pump and reduce

[1] **https://www.gov.uk/government/publications/energy-security-bill-factsheets/energy-security-bill-factsheet-low-carbon-heat-scheme**
[2] **https://post.parliament.uk/research-briefings/post-pn-0699/**
[3] **https://blog.innovation4e.de/en/2021/02/24/does-a-house-have-to-be-renovated-first-in-order-to-install-a-heat-pump/**

electricity consumption (an essential action when we are operating on less than 100% renewables).

Heat pumps costs are dependent on the installer, the level of retrofit and/or radiator changes and will typically cost[4] between £5000 and £10000 even with government subsidies[5]. This will be a very substantial investment and beyond the means of low income and vulnerable families especially when the existing UK system includes the following issues[6]:

- Heat pump installation costs are higher than gas boilers, in part due to the need for additional retrofitting. Large cost reductions are unlikely. New finance options and government support could make them more affordable.
- Heat pumps currently have similar running costs to gas boilers. Reducing the price of electricity relative to gas would make heat pumps more competitive. Additional savings are possible with flexible electricity tariffs.

There is a debate[7] about the relative role of Heat demand and Heat supply. Heat supply can be reduced through fabric efficiency measures including wall insulation, window and door replacement, loft and floor insulation as well as draught proofing. Heat supply can be decarbonised with technologies like onsite renewables, including solar thermal, a heat pump, or near-site district heating using zero carbon fuels. The role of heat pumps in our community will be dependent on the investment needed for reducing heat demand and the options for heat supply. For example, a district heating system using zero carbon fuels will place less emphasis on the role of reducing heat demand and would reduce the issues of the individual costs of heat pump installation.

In the absence of policy changes in the UK and/or central government support targeted at these groups B2Z will need to consider how we can provide practical or financial

[4] **https://www.which.co.uk/reviews/ground-and-air-source-heat-pumps/article/ground-and-air-source-heat-pumps/air-source-heat-pump-costs-and-savings-akySY6N5Y6Dd**
[5] **https://www.gov.uk/apply-boiler-upgrade-scheme**
[6] **https://post.parliament.uk/research-briefings/post-pn-0699/**
[7] **https://www.sciencedirect.com/science/article/pii/S2214629623002839?dgcid=author**

assistance for example with long-term zero interest loans such as those being offered by Nationwide Building Society[8]. Our focus on the Cumbria Action for Sustainability (CAfS) cold to cosy scheme and more importantly the Retrofit service will prepare many more households for the installation of heat pumps (supporting retrofitting) when the system changes are made in the next few years that will be needed to meet the governments targets.

Another issue is the availability of suitably qualified installers[9]. A recent NESTA discussion paper suggests training needs to focus on existing heating engineers. The government has recently announced significant new funding for training. We will need to investigate with our partners in Cumbria the existing capabilities, gaps and opportunities.

Next steps for B2Z

- Share information on heat pumps with the community
- Find local champions that can share their experiences of heat pumps
- Integrate information and experiences with heat pumps at B2Z events
- Work with partners to ensure the capability and capacity for installations
- Take a longer term strategic view of the role of reducing heat demand and potential changes (decarbonization) of the heat supply

References

Organisations including the International Energy Agency and McKinsey see heat pumps providing most of our heating needs in the future, on the path to net-zero emissions. Carbon Brief update on the state of the European Market and comparison between Heat Pumps and (green) Hydrogen for domestic heating (considered 3x cheaper) and this Nesta article
Go to .gov to Check if a Heat Pump will be suitable for your home

[8] **https://www.financialreporter.co.uk/nationwide-launches-0-green-mortgage-product.html**
[9] **https://www.gov.uk/guidance/find-a-heat-pump-installer**

Cumbria Action for Sustainability (CAfS) is the first place to go for advice for residents of Cumbria – see their information on alternative heating methods
Expert advice and monitoring equipment from Open energy monitor and open source comparison of heat pump performance
Energy stats hobby website (with stats and experience of heat pump use)

Industry Bodies: Various UK trade associations and industry bodies exist for the heat pump sector. These provide representation for the manufacturers, distributors and installers of heat pumps and also provide information for the public on heat pumps.

To find out more about these bodies, use the hyperlinks below. The following links open in a new tab.

- Heat Pump Association
- Ground Source Heat Pump Association
- Heat Pump Federation