ADE Written supporting evidence to evidence presented | BEIS Select Committee's inquiry on decarbonising heat in homes

21 July 2021

Context

On the 8th June, the ADE presented evidence to the BEIS Select Committee for its inquiry on decarbonising heat in homes.

The following provides further supporting evidence to the questions asked in that session.

The possible future role of retrofit coordinators

Several international programmes have successfully used retrofit coordinators, or similar roles such as one-stop shops, to support the uptake of energy efficiency retrofits. This could provide a useful model for consumer engagement regarding both heat and energy efficiency retrofit in the UK.

As set out in BEIS' recent international review on domestic supply chains for retrofit[1], authored by ACE-Research (part of the ADE), "this role usually involves: low or no cost initial assessment of the home and identification of improvement potentials; hand-holding through the tendering and installation stages of the project; post-installation contact with the householder for quality checking, finalising guarantees etc, and educating the householder about using, monitoring and maintaining new systems. Less common elements that were part of some, but not all, one-stop shop approaches include: provision of performance guarantees; direct access to finance and/or financial incentives; and training for / partnership with installers."

International programmes that have successfully made use of a retrofit coordination role include: the US' Better Buildings Neighborhood Programme, Denmark's BetterHome and Ireland's House2Home.

Energy-as-a-Service as a viable model for the UK market

The energy industry is already starting to trial Energy-as-a-Service models in the UK.

One example of this is Sero's (a member of the ADE) "Sero Life" service which is a Comfort-as-a-Service model. Through this service, householders set their preferences for the temperature of the rooms in their house and their travel plans. Sero then uses their intelligent energy management system to optimise delivery of these consumer preferences against changes in retail prices as provided through Octopus' Agile Tariff. This could mean in practice, for example, turning

[1] BEIS (2021) **Domestic retrofit supply chains: international review**

on the home's heat pump early in the afternoon to exploit lower electricity prices whilst maintaining home temperature or, conversely, using storage to heat the home when prices are high.

This model has the potential to reduce bills to consumers and provide the energy system with significant flexibility from home energy use. It also has significant potential in supporting the development of local communities making use of storage, local renewable electricity such as solar PV and electrified heating and transport.

This model is currently being trialled by Sero in Wales with 60 homes built and lived in thus far.

Whole system modelling consistently demonstrates the value of flexibility to a decarbonised system. The most recent report by Carbon Trust and Imperial College London[2] found that flexibility could create savings of £9.6bn/yr - £16.7bn/yr across scenarios comprising heat decarbonisation that is electrification-led, that is hydrogen-led and that uses a hybrid approach.

Readiness of heat network market for regulation

BEIS have been working closely with a wide range of industry stakeholders to design a regulatory framework that acknowledges the specific needs of the heat networks market and to ensure that it is ready for incoming regulation. Unlike existing regulated markets, heat networks are more heterogenous, with a range of different owner and operator models. The key sections of the market are:

- Local Authority owned/operated schemes (account for around 10% of OPSS data on heat suppliers)
- Housing Association owned/operated schemes (account for around 16% of OPSS data on heat suppliers)
- Energy Service Company (ESCo) owned/operated schemes
- Private Leasehold schemes

In order to understand how best to support local authorities to get ready for regulation, BEIS have set up the Local Authority Forum for Heat Networks (LAFHeN). This Forum, delivered by the BEIS Heat Networks Development Unit, serves as a safe space for local authorities to share good practice and discuss and work through common issues related to the development and delivery of heat network projects. Similarly, BEIS have been engaging with groups such as "The Heat Network" to discuss issues specific to housing association-led schemes. The ADE have been actively supporting the work being carried out by BEIS, and recently undertook a piece of work to understand interactions between the Heat Network Market Framework being developed and obligations for local authorities, housing associations and private leasehold schemes under the existing Landlord and Tenant Act. The ADE also advocates that BEIS work closely with MHCLG wherever possible to ensure alignment between the heat network regulation being developed, and planning and housing policy.

In addition, **Heat Trust** have been working closely with BEIS to attract more heat suppliers to sign up to their programme, which will bring a greater proportion of the market up to the consumer protection standards that will be required by regulation. Heat Trust is the independent,

[2] Carbon Trust and Imperial College London (2021) **Flexibility in Great Britain**

non-profit consumer champion for heat networks which sets strict customer service standards to heat suppliers, similar to those imposed on traditional gas and electricity markets.

As such, efforts by Government and trade bodies such as the ADE are ensuring that as many stakeholders from across the heat networks sector as possible are aware that regulation of the market will be introduced by 2025, and are aware of the changes it will bring.

What is the strategic value of heat networks to heat decarbonisation?

Heat networks are technology agnostic: they can operate from a range of different generation or heat sources. This includes the recovery of generated heat that would otherwise go to waste from sites such as energy from waste plants, power stations and industry. Heat networks can also use ambient[3] heat from water sources, the ground or even more unusual sources such as the London Underground[4].

As a result of this, heat decarbonisation modelling by both Government and others such as the Climate Change Committee[5] consistently find that heat networks should contribute approximately 20% of total heat demand by 2050 in optimised net zero scenarios; regardless of whether the broader heat supply is hydrogen-led or electrification-led.

Metering and billing requirements for heat networks

All heat networks in the UK must comply with the Heat Networks (Metering & Billing) Regulations 2014 and the amendments brought in through the Heat Networks (Metering & Billing) (Amendment) Regulations 2020[6]. This requires that all new heat networks or heat networks undergoing major refurbishment install heat meters. It also requires existing heat networks to install heat meters where it is cost-effective to do so. Cost-effectiveness is determined through a standardised Cost-Benefit Analysis published by the Government as part of the amendments. For those heat networks where it is cost-effective to install meters or allocators, heat network operators must comply by 1st September 2022.

What regulation and standards exist to protect consumers when installing low carbon heating?

Consumer and technical standards exist for the installation of ground-source heat pumps and shared ground loops.

Safety regulations for heat pumps in general are covered under domestic electricity and plumbing regulations (BS 7671 18th edition Electrical Wiring Regulations and Water Regulations regarding unvented hot water systems).

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[3] Ambient heat refers to the thermal energy that is freely available from the surrounding environment. This is usually at temperatures around 10-30°C.

[4] Islington Borough Council's Bunhill heat network will use the ambient heat from the London Underground to provide heat to consumers (see **Bunhill Heat and Power**)

[5] Climate Change Committee (2020) **Sixth Carbon Budget** (page 115)

[6] **Heat Networks (Metering & Billing) (Amendment) Regulations 2020**

Consumer standards are addressed through the Microgeneration Certification Scheme. This requires adherence to technical standards and demonstrated compliance with a Quality management Scheme such as ISO9001 or equivalent and subscription to a Consumer Code; for example, Renewable Energy Assurance's Renewable Energy Consumer Code.

Technical standards are as follows -

Publishing Body	Reference & Title
Environment Agency	Environmental good practice guide for ground source heating and cooling
Microgeneration Certification Scheme	Appliance and installation standards
International ground-source heat pump association (IGSHPA)	General Code of practice for closed loop installations
Ground-source heat pump association (GSHPA)	Vertical Borehole Standard
	Thermal Pile Standard
	Shallow Ground Source Standard
British Drilling Association	Code of Safe Drilling Practice
	Guidance on managing the risk of hazardous gases when drilling or piling near coal

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