

Funding the Low Carbon Heat Transition

Event Write-up

On 25th June 2020, Carbon Connect held an online roundtable to discuss the funding challenges related to the low carbon heat transition. The event was one of a series of roundtable discussions held as follow-up events on Policy Connect's Future Gas Series reports. This document was produced as a post-event write-up by Policy Connect. While it was informed by the roundtable discussion, it does not necessarily represent the views of all those in attendance.

The session investigated how to encourage the uptake of low carbon heat from a financial point of view in a fair and equitable way, given the challenges we face with the current levels of fuel poverty¹.

Key points:

- The decarbonisation of heating represents a big challenge from a financial point of view, as currently available low carbon heating options are financially uneconomic for consumers without Government support.
- Removing upfront and operational cost barriers are crucial to facilitate the uptake of low carbon heat technologies. Thus, rebalancing the costs between gas and electricity is essential to make low carbon heat financially viable for consumers.
- Making low carbon heating economic for consumers is very important, as regardless of what new policy schemes are introduced or training programmes are held for installers, heat decarbonisation will not be successful without low carbon heating options being financially viable for consumers.
- While cautions were raised in terms of how and when it is introduced, general taxation was seen as the preferred way to pay for the cost of heat decarbonisation.

The current situation

The 2020 Progress Report by **Committee on Climate Change (CCC)** puts the scale of the heat decarbonisation challenge into context, highlighting that **buildings accounted for 18% of the UK's emission in 2019**. This has not fallen over the past nine years and in 2019, **fossil fuel-based heating systems made up over half (57%) of new heating installations** (60% in 2010)². A very small proportion of systems that are in place are low carbon and there are fewer than 200,000 heat pumps installed in UK homes³. Moreover, while it is **broadly recognised that energy efficiency needs to be part of the solution, energy efficiency deployment rates are running 20% below those needed** as the CCC's 2019 progress report argued.

Thus, there is a need for a step change in terms of ambition for heat policy and now there is once in a lifetime opportunity for a nation-wide energy retrofit scheme to be launched. COVID-19 has shown that Government is prepared to spend big if people's lives are in danger, and it has also demonstrated that the public is willing to support radical policies if they agree that their lives are under threat, even if these are unenforceable. There is a need for coordinated stimulus plans post-COVID to create jobs and kick-start the

¹ Fuel poverty affects 2.4 million people in England. BEIS and ONS. 2020. Annual Fuel Poverty Statistics in England, 2020 (2018 data)

² The CCC. 2020 Progress Report to Parliament

³ The CCC. 2020 Progress Report to Parliament

economy and the COP26 Presidency requires real climate leadership from the UK demonstrated by ambitious domestic policy.

Decarbonising heat will be challenging and expensive. **The CCC in 2019 estimated that the costs of decarbonising heating will be around ~£15bn per year⁴.** This is very roughly equivalent to £500 per household per year which is substantially more than the decarbonisation policy costs of ~£200 on bills that households pay today⁵.

It is broadly recognised that there are two main routes for heat decarbonisation: electrification of heating (e.g. heat pumps) and low carbon hydrogen, with potentially some roles for biofuels. These technologies are in different stages of development. Heat pumps and hybrid heat pump systems are proven ways to decarbonise heating given the low carbon intensity of the grid today; whereas low carbon hydrogen is more a future option that is not available today at scale. Therefore, **at the moment, low carbon heating options are either not yet widely available (hydrogen) or are financially uneconomic for consumers (heat pumps) without support from Government.**

Furthermore, there is currently **a large disparity between the cost of gas and electricity.** Gas is the dominant source of heating with around 84% of UK households using it as the source of heating⁶. Despite the fact that it is a higher carbon source, **the gas price for domestic and commercial consumers includes neither the cost of carbon nor any costs associated with decarbonisation policies.** Moreover, there is currently no carbon cost on oil and LPG either.

Electricity consumers, by contrast pay carbon costs and substantial policy costs associated with a wide range of decarbonisation schemes. This makes electricity more expensive than gas, as consumers who switch to heat pumps pay around 12 times more than gas boiler users⁷. Furthermore, over the average 15-year lifetime of a heat pump, policy costs with the current levels would add around £3000 extra compared to gas boilers⁸. **Therefore, the average consumer today has little incentive to switch from fossil gas heating to the lower carbon alternative** the electrification of heating represents, because if they switch to heat pump, they need to pay higher bills.

Ongoing policy developments

The **Treasury** is currently conducting a **Net Zero Review** on how to meet these costs, and a **new Heat and Buildings Strategy from BEIS** is expected in 2020.

Moreover, BEIS is currently consulting about a **Green Gas Support Scheme** and a **Clean Heat Grant**.

The **Clean Heat Grant** will support the uptake of technologies through an upfront grant of £4000. The general consensus at the roundtable saw this is a positive development, helping to **reduce the upfront cost barrier to install low carbon heating options.** (The Renewable Heat Incentive – RHI – was often criticised for favouring wealthier consumers who can afford the high upfront costs of low carbon technological installations.) Furthermore, the grant scheme proposed is a less complicated scheme than the current RHI. However, the roundtable highlighted that **the scale and ambition of the scheme should be upgraded**

⁴ The CCC. 2019. Net Zero The UK's contribution to stopping global warming.

⁵ Numbers cited at this roundtable

⁶ Policy Connect – Carbon Connect. 2019. Uncomfortable Home Truths

⁷ Numbers cited at this roundtable

⁸ Numbers cited at this roundtable

significantly to meet net zero. Going forward, upfront grants were seen as the preferred way to help finance the low carbon heat transition.

The future support for low carbon heat consultation also suggests that the Government seeks to green the existing gas, as the **Green Gas Support Scheme** will be coming in place that will be the first levy on gas if the Climate Change Levy is not taken into account.

The future of hydrogen is not fully known from a policy perspective yet. Current rules only allow 0.1% hydrogen to be used in the gas network, but the Government provides innovation funding for hydrogen in order to help understand how hydrogen can play a role in heat decarbonisation.

Recent Government consultations also suggest that heat networks are seen as part of the solution to low carbon heat.

Who pays?

It needs to be ensured that the transition to low carbon heat is carried out in a fair and equitable way.

We need to prioritise the highest carbon and most fuel poor household first. This means targeting the most fuel-poor households with the least efficient homes first.

The general consensus at the roundtable that the costs of heat decarbonisation should be met via general taxation, however, some caution was raised, calling for a well-designed and well-timed scheme. General taxation was highlighted to be a better option than putting the costs on bills, because the poorest households pay proportionately more for policy costs levelled through bills than the richest⁹. As research by UKERC highlighted, financing the costs of the low carbon transition from general taxation would lower the burden on the poorest households and the study sliding scale was suggested where the poorest households pay nothing and the richest households pay proportionately more¹⁰. Thus, general taxation was seen as a good option for financing heat decarbonisation as it is linked the ability to pay, helping to ensure a just transition.

Areas of action

Remove the upfront cost barrier for the installation of low carbon heating systems: The equipment and installation costs of low carbon solutions are higher which creates a barrier for their large-scale deployment when they compete with high volume and highly efficiency gas boilers in the supply chain. Making lower carbon heating options financially viable for consumers is an important imperative to grow the low carbon heat market which in turn can drive down costs further through the economies of scale. Therefore, incentivising the uptake of low carbon technologies can help to make these technologies cheaper. Furthermore, developing a low carbon heat market can also increase investment which can reduce costs as well. This has been demonstrated by the case of wind energy where costs have rapidly fallen over the past years.

⁹ Barrett, J. Taylor, P. and Owen, A. 2018. Funding a Low Carbon Energy System: a fairer approach?

As the study highlighted, while low-income households spend 10% of their income to heat and power their homes, the richest households only spend 3% which means that any cost increases through bills hit low income households disproportionately.

¹⁰ Ibid.

Remove the ongoing operational cost barrier for low carbon technologies: Currently gas is cheaper than low carbon alternatives and until that changes, it will be very hard to convince anybody, other than the early adopters to change the heating solutions in their homes.

The imbalances between the cost of electricity and gas need to be addressed to make low carbon heating options financially attractive to consumers. We need a cross-sector carbon tax and start valuing carbon properly. Government needs to explore options to address this, as gas should also pay carbon costs to make low carbon alternatives economic. **Therefore, it needs to be rethought where policy costs are put and how carbon pricing can incentivise consumers to use low carbon sources.**

Besides policy schemes and regulation, it is important to **harness consumer power** and **ensure a participatory low carbon heat transition**. This requires changing consumer behaviour and **flexible tariffs** can help drive this. The agile tariff, for instance, has demonstrated that people are willing to change their behaviour on a daily basis related to energy if they are incentivised with small rewards, i.e. if they are given the tools to control their energy use and they are rewarded for using it at times when carbon is lowest in the system.

Therefore, **consumer power and behavioural change can play an important role in delivering the low carbon heat transition**. A potential way to do this was by making the 'greenest electron the cheapest', i.e. by reflecting on how green energy is through **flexible tariffs**, taking the carbon fluctuations in the grid into account. Using price incentives to encourage demand when low carbon generation is abundant can encourage heat pumps and hybrid systems to exploit low costs when low carbon generation is abundant. These model can thus help customers save money while helping to maximise carbon benefits. We need well-working smart systems for this that can take carbon signals from the grid and we need to make sure that these kind of systems are available and affordable to everyone. Therefore, **smarter and more flexible energy systems are crucial to move towards low carbon heat and help households benefit from the inherent flexibility of a heat pumps and hybrid heating systems**. Flexible tariffs can thus help to drive down the cost of heat pumps and make them more competitive compared to heat pumps. Moreover, if they are designed in a way that genuinely serves the needs of customers, they can help improve the currently low levels of trust in energy companies

Prevent future cost increases and ensure that the low carbon heating solutions that we deploy do not create grid capacity issues which could increase customer bills in the future. The question regarding the necessary size of grid capacity due to the uncertainty associated with it represents a big challenge for electrification. Therefore, we need to guarantee customers that their long-term interests are covered by the move to low carbon heat. However, if the right scales are identified, combining the extension of the grid that is needed for transport with the expansion necessary for heat can deliver important cost savings.

Provide further recognition for households that increase their homes' energy efficiency and install low carbon heating systems to encourage the uptake of these technologies. Therefore, the **Energy Performance Certificate** should be changed to give households recognition that install low carbon heating solutions. Moreover, using **variable stamp duties** could also play an encouraging role in this by giving people the incentive to install low carbon systems when they sell and move homes.