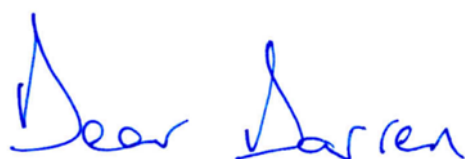


30 April 2021

Darren Jones MP  
Chair, BEIS Select Committee  
House of Commons  
London  
SW1A 0AA



Thank you for your time on the 15<sup>th</sup> April, I thought it was a constructive and open conversation. As promised, I wanted to follow-up on your suggestion to submit evidence to your inquiry into the Decarbonisation of Heat in Homes.

We believe a co-ordinated effort to simultaneously improve the energy efficiency of homes whilst promoting decarbonised sources of heating will be needed to help achieve net zero. The former will require changes to the Energy Company Obligation (ECO) to align it with other incentive schemes; the latter will require a combination of ground source heat pumps, air source heat pumps, hybrid heat pumps, smart devices such as hot water tanks, and the introduction of hydrogen at scale into the UK gas system, on an accelerated basis.

### **Centrica and the decarbonisation of heat in homes**

For decades we have installed and maintained the heating and plumbing system of millions of households. Our customers rely on us to advise them on the best and most cost-effective solutions for their homes, and this will become more important than ever as we look to deliver low carbon heating at scale in the coming years.

There isn't a one-size-fits all approach to reducing emissions in buildings and we therefore see the need for myriad technologies in achieving this. At this early stage, we are keen to equally assess the potential of electrification, hybrid and decarbonised gas solutions for our customers. A range of technologies will be needed, and certain housing stocks will lend themselves better to different technologies.

We are developing ways to support the growth of low carbon heating, including progressing a Centrica funded hybrid-heat pump trial with around 75 households in the West Midlands and developing a paid-for proposition for air source heat pumps. We are also exploring ways in which we can contribute to a broader hydrogen economy, through the potential conversion of the Rough Gas Field into seasonal hydrogen storage, as well as working to understand the role of hydrogen in the home. We will write to the Committee in more detail to provide further detail on the needs case for development of large-scale hydrogen storage, and our potential role in this.

We have a significant focus on social housing through our specialist company PH Jones. We are working with a range of local authorities to deliver low carbon heating solutions. For example, we are working with East Devon Council to install around 100 Air Source Heat Pumps, new heat emitters, and Mixergy hot water cylinders linked via the immersion heater to optimise solar photovoltaics systems.

As the largest single installer and maintainer of gas boilers in the UK, we will have a critical role to play no matter the heat decarbonisation pathway.

### **The size of the challenge and Government policy**

There is a need for government policy to more clearly link energy efficiency with the decarbonisation of heat in one holistic approach, to drive the transition to net zero homes. Around 17m homes in England and Wales are Energy Performance Certificate (EPC) Energy Efficiency Rating (EER) band D or below. To upgrade these homes, we need to upgrade 22,000 homes per week for the next 14 years, around 6 times the number of households receiving the ECO support at present, and carry out 10 times the number of measures currently being carried out. This is in addition to the operational challenge of the decarbonisation of heat, which will require significant changes in nearly every home in the UK over the next 30 years.

Big decisions on the decarbonisation of heat pathways are still to be made, but transitional policy decisions need to be taken now to allow industry to have the confidence to invest in, and upskill, a workforce that is currently not there.

Through its Ten Point Plan, Government has outlined how it intends to begin to transition homes off the gas grid onto low-carbon technologies. Heat pumps have been chosen as the main technology for these properties, however, there has yet to be a clear outline of how those on the gas grid will transition to low-carbon heating solutions. This will be an enormous task as most consumers are connected to the gas grid (85%) and a significant amount of non-domestic buildings (65%) also use natural gas for heating.

We look forward to the forthcoming Heat and Buildings Strategy which we expect will provide an overall framework on how the Government can ramp up decarbonising buildings in a sustainable way and how this will be paid for. This strategy will be a positive development, and we look forward to working with Government on its implementation.

### **Put the consumer experience front and centre**

Beyond developing a policy framework and determining adequate funding, the most significant challenge will be to ensure consumer buy-in, and at scale.

As Citizens Advice identifies in its discussion paper 'Lessons for Net Zero', "Consumer awareness of, and appetite for, energy efficiency and low carbon home improvements is low. Savings on energy bills alone are not enough to motivate most people to make these improvements. Incentives are needed to

overcome a range of barriers, including inertia and lack of trust in the sector<sup>1</sup>.” Through our many years of experience delivering ECO, we know that even when low-carbon measures are free, consumers may not want them if they are disruptive to the home and aren’t seen to add enough value.

We would support a major, ongoing campaign to improve consumer understanding of the different elements of decarbonising homes and the carbon footprint of an average UK household. This should help create the ‘consumer pull’ which is necessary to spur private investment and supply chains, which will be required to bring down costs. In tandem, energy companies have a central role to play in the transition to low carbon heating at “key moments” like heating appliance replacement or house renovation, as well as in-life, for example educating consumers about how heat pumps work differently from gas boilers.

### **Early use of low and no regret actions**

The low carbon heating market in the UK is nascent. By effectively ruling out key technologies (through lack of financial support) and promoting others, the Government runs the risk of promoting poor customer outcomes, and in the longer term a more costly and difficult path to achieving net zero. We note, for instance, that the housing stock off-grid (Government’s preferred focus market for funding), particularly rural off-grid, is heterogenous and in many instances not suitable for pure electric heating solutions (i.e. air source or ground source heat pumps). There is a risk that unsuitable installations take place, leading to poor customer outcomes, and reputational damage which could impact the nascent low carbon heating market.

We see the early use of hybrids as a ‘low regret’ action that can be taken now to make material progress on decarbonising heat, alongside other initiatives such as scrappage schemes for oil-fired and old gas back boilers.

### **Hybrid Heating Systems**

In the summer we will bring forward a more detailed view of our role in the decarbonisation of heat, but in the interim we wanted to draw the Committee’s attention to the role of hybrid heating systems as an important, low regret, transitional technology.

Hybrid heating systems should be used to transition some consumers who are currently on the gas grid onto low-carbon heating. Hybrids can meet the energy demand for the majority of buildings irrespective of the energy performance and can offer lower consumer disruption and capital investment costs. Hybrids also increase consumer choice and lower network reinforcement costs and peak demand generation capacity. This makes hybrids a consumer and system friendly transitional technology, whilst also offering significant carbon reductions right now.

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<sup>1</sup> Lessons for net zero: What past energy efficiency and low carbon home improvement schemes tell us, Citizens Advice, 2020

The Committee on Climate Change (CCC) outlined in its ‘Hydrogen in a low-carbon economy’ report, that “Hybrid heat pumps can make a substantive difference if deployed at scale (e.g. 10 million hybrid heat pumps by 2035 in on-gas buildings)”<sup>2</sup> and again in its Net-Zero report that “those on the gas grid should consider a hybrid system”.<sup>3</sup>

Hybrid heating systems are a mature, sustainable technology, available now and provide energy savings of at least 19%. Carbon savings are 25% for grid connected properties and 60% for off-grid properties today, increasing to accumulated savings to 2050 of 37% and 79%, respectively.<sup>4</sup>

Despite this, there is a significant gap in government policy regarding this important technology, and this makes it hard for industry to invest. We think this is a missed opportunity to cut carbon and energy costs in the near-term.

#### Centrica’s trial

As a consumer driven business, we need to explore how we can best help our customers decarbonise their homes, in a way that suits their lives. This year we launched a hybrid heat pump trial working with market-leading manufacturer, Vaillant, in the West Midlands targeting around 75 on-grid residential properties. We believe that our solution design can deliver up to 80% of total heat demand from the heat pump, with 20% coming from our efficient gas boilers. More information on our trial can be found in the appendix. As well as the carbon reduction opportunity, we are also looking to provide evidence on peak load demand, scalability of hybrid heat pumps for the UK housing stock and a consumer focus – carrying out qualitative research with triallists throughout the two-year research period.

#### Proposals for a retrofit fund

We acknowledge that there is an evidence gap regarding how consumers may interact with hybrid systems, and whether in most cases they will deliver the carbon abatement that Government is seeking, hence our trial. However, there is growing consensus in industry of the importance of these systems to help achieve carbon reduction in the short-term and in-line with the CCC’s 6<sup>th</sup> Carbon budget.

To help deliver on recommendations by the CCC, and to help scale up an eventual deployment of hybrids, the Government should introduce a Retrofit Fund to start in 2022/2023 to help transition homes on the gas grid and in some cases off-gas grid, particularly in rural areas, to a hybrid heating system. This would provide industry with the policy certainty to begin large scale trials of hybrid heat pumps.

It would be important to ensure that hybrids are installed in properties that aren’t suitable for pure electrification and that the Fund is administered in a way that is in harmony with existing efforts on the Government’s roll out of heat pumps as outlined in the Ten Point Plan. To receive funding, homes would

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<sup>2</sup> Committee on Climate Change (2018). Hydrogen in a low-carbon economy.

<sup>3</sup> Committee on Climate Change (2019). Net Zero – The UK’s contribution to stopping global warming.

<sup>4</sup> Wales & West Utilities Ltd (2020). Benefits of Hybrid Heat Systems in a Low Carbon Energy System.

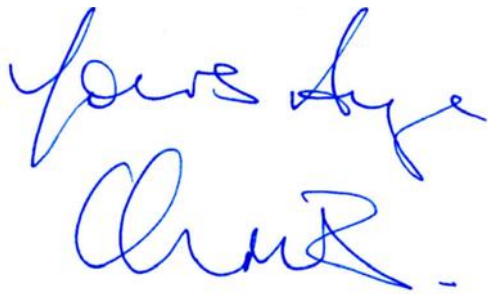
need to undergo an energy assessment and if it is found that a consumer's home is not suitable for heat pumps, this consumer would then be recommended a hybrid heating system.

## **Centrica's commitment to train 1,000 apprentices by 2022**

Central to net zero will be the creation of a green workforce, and this presents an enormous opportunity for the UK. In January Centrica made a commitment to train and employ 1,000 apprentices over the next two years. We've been incredibly pleased with the enormous number of talented individuals who have applied for this scheme, and in a few short months we have already made 150 offers, with 53% of these being women.

Once COVID restrictions are lifted and, with some exciting milestones in our recruitment efforts ahead, I'd be delighted to host you and the Committee at one of our academies, to meet the first of a new generation in green apprentices who will deliver the UK's exciting energy upgrade.

I hope that this is helpful, but please let me know if you need anything further,



**Chris O'Shea**  
**Group Chief Executive**

## **Appendix - British Gas Hybrid Heat Pump trial**

### **Decarbonisation of heat challenge**

Decarbonising the UK's heating systems is a colossal challenge in the journey to achieve net zero by 2050. The Government has outlined, through its Ten Point Plan, its ambitions on how it intends to transition those off the gas grid onto low-carbon technologies. Heat pumps have been chosen as the main technology for these properties however, there has yet to be a clear outline on how the Government intends on transitioning those on the gas grid to low-carbon heating solutions.

Hybrid Heating Systems provides one of the solutions on which technologies the Government could use in transitioning consumers on the gas grid.

The Committee on Climate Change (CCC) outlined in its Hydrogen in a low-carbon economy report, that *"Hybrid heat pumps can make a substantive difference if deployed at scale (e.g. 10 million hybrid heat pumps by 2035 in on-gas buildings)"*<sup>1</sup> and again in its Net-Zero report that *"those on the gas grid should consider a hybrid system"*.<sup>2</sup>

### **Hybrid Heat Pumps**

We believe that Hybrid Heat Pumps (combined Air Source Heat Pump and gas boiler) could be the best alternative low-carbon heating solution for a segment of customers and housing stock - significantly reducing carbon emissions, while optimising customer experience, cost and comfort levels. They are a stepping stone technology, and, for some homes, part of the final net zero solution (alongside a future hydrogen boiler).

Hybrid Heating Systems can maintain comfort levels in all buildings, regardless of a buildings energy efficiency rating with a greater opportunity to decarbonise today. There's opportunity to get incrementally greater carbon reduction over time through improved energy efficiency measures such as better insulation. Hybrid systems can also allow capital expenditure to be spread over a longer period i.e. installing insulation or upgrading radiators to progressively improve the carbon reduction potential of the system.

### **Hybrid Heat Pump trial**

We acknowledge and appreciate BEIS' position that to date there has been insufficient evidence to justify the inclusion of Hybrid Heating Systems in schemes aimed at decarbonising heat in consumers' homes such as the Clean Heat Grant. However, there is growing consensus in industry of the importance of these systems to help achieve carbon reduction in the short-term/in-line with the CCC's 6<sup>th</sup> Carbon budget.

We have therefore recently launched our British Gas Hybrid Heat Pump trial in the West Midlands – we are working with Vaillant, one of the UK's leading heat pump manufacturers to install hybrid heat pumps in customer homes on gas-grid throughout the West Midlands in 2021. We have so far completed several installations in employee homes and are currently commencing customer recruitment. These trialists will join a two-year research programme until Spring 2023 where we

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<sup>1</sup> Committee on Climate Change (2018). Hydrogen in a low-carbon economy.

<sup>2</sup> Committee on Climate Change (2019). Net Zero – The UK's contribution to stopping global warming.

remotely monitor these heating systems to provide evidence of their potential for carbon reduction. We will also run a consumer research programme throughout the period to better understand the “lived experience”, appeal drivers and barriers to adoption for consumers of hybrid heat pumps.

We have held productive discussions with BEIS and Ofgem regarding the trial so far and are excited to continue this dialogue as the initiative progresses and as we start to gather results.