



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

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Dear Darren,

Decarbonising heat in homes – follow up

I wanted to write to thank you for your part in the evidence session on the BEIS Committee's inquiry into decarbonising heat in homes on 16 March. I have always found Committee evidence sessions a useful opportunity to discuss critical issues and this was no exception.

As my ability to do justice to the amazing work my colleagues at E.ON are undertaking every day on this topic was hindered by failing technology during the evidence session, I wanted to follow up with you directly to better provide clear answers to your outstanding questions and give you a fuller impression of E.ON's credentials and experience in this area.

Today, E.ON installs more devices in more homes in Britain than any other company. The energy efficiency measures we have installed will provide households with over £1bn lifetime savings. We have been instrumental in Britain's first emissions success story: the switch from coal to wind and solar in electricity generation. E.ON built the first offshore wind farm in the UK and has invested billions into the UK. I led this part of E.ON's business as Chief Executive for many years before taking my current UK role.

This means we know what is working for customers and households today, and what is working for the UK supply chain today. It means we know the policy framework that delivered change in electricity generation in the past and will do so again today if Government repeats it in heating.

I attach a short brief that outlines our key experience and recommendations to Government in this area, as well as a short Q&A that provides clear answers to the questions raised in the evidence session. We have recently written blogs on two of the key issues raised: how to create energy efficiency schemes that work and the issue of rebalancing the costs of gas and electricity. I have also included copies of these with the briefs in this letter. I hope you find them useful.

The implementation of enduring policy to decarbonise heat is critical, but policy recommendations are detailed and potentially complex. I would like to meet with you directly to discuss the issues one-to-one if possible. My office will be in touch with yours to secure a mutually convenient time.

Your sincerely,

Michael Lewis
Chief Executive, E.ON UK

E.ON Brief: Decarbonising heat in homes

Our credentials – we already install more devices in more homes than anyone else in Britain

- We install on behalf of companies such as Octopus and Bulb as well as for our own customers; 1 in 4 smart meters across Britain is installed by E.ON; Almost 1 in 5 homes and businesses in Britain are E.ON customers. We've already saved households over £1bn in lifetime savings due to the 1.4 million energy efficiency measures we've installed. Over the next five years, we expect to install three quarters of a million solar panels and 10,000s of heat pumps.
- E.ON also runs more than 60 district heating networks across Britain, totalling over 600km of pipework and serving over 35,000 customers. This year, we will upgrade our flagship project in London with a ground source heat pump – a UK first.
- We're trusted by BEIS to deliver their Decarbonisation of Heat project in Newcastle (installing 250 heat pumps), and across the Midlands we're upgrading 1000s of homes as part of the Government's Healthy Ageing Grand Challenge, combining energy upgrades with wider healthy home upgrades to help people live more independent lives, improve health and reduce pressure on the NHS.

We know what works – E.ON was instrumental in the switch from coal to offshore wind

- E.ON built the first offshore windfarm in the UK – at Blyth on the North Sea Coast in the early 2000s – and subsequently invested billions into offshore wind projects around Great Britain.
- We know the policy framework that delivered real change to Britain's power system and we know the conditions that attracts investment into the UK supply chain creating economic value for the country and lower prices and better propositions for households
- The use of subsidies worked. They helped create the conditions for repeated investment which crashed the price of new technologies like wind power. Today, those subsidies are no longer needed. The same can be made to happen with heating technologies like heat pumps.

The policy framework that delivers change:

- **A regulatory backstop** through building standards that signals the phase-out date of polluting technologies. They must remain enforceable regardless of changes in future Governments. We support the recommended timeline set out by the CCC in their 6th carbon budget:
 - a. Energy Efficiency standards:
 - i. All new homes built zero-carbon: 2025
 - ii. All homes for sale or rent minimum EPC C: 2028
 - b. Heat technologies:
 - i. Gas connections to new homes phased out: 2025
 - ii. Use of coal and oil to heat homes phased out: 2028
 - iii. Sale of gas boilers banned: 2033
- **Incentives for early investment** in new technologies. This includes ensuring taxes and levies are appropriately aligned and financial support is available
 - a. Remove levies on electricity bills and introduce carbon price on gas
 - b. Zero VAT on low carbon home upgrades and tax and stamp duty breaks and rebates
 - c. Attractive capital support and access to low-cost finance for all
 - d. Funding for social housing and those most in need

E.ON's key recommendations to Government:

- 1. The continued boom & bust** caused by instability and uncertainty in Government policy in this sector over many years continues to significantly degrade investor confidence, which in turn hinders investment in the UK and the growth of jobs and career pathways. Policy and funding must be enduring and not subject to change as Governments change.
- 2. There is a silver bullet: energy efficiency.** There are mass rollout programmes that work, but they are aimed solely at the poorest in society. Expand them and use them alongside access to low cost finance to deliver to the rest of the housing stock instead of reinventing the wheel. Our experience with successful schemes like ECO, LAD and the Warm Homes Fund show what works: a single national programme manager ties together demand with the supply chain and ensures delivery. Its important that future programmes, such the Home Upgrade Grant (HUG) heed these lessons and replicate them in their delivery process.
- 3. Both hydrogen and heat pumps are needed** to decarbonise domestic heating, but heat pumps are expected to be able to do more and can be deployed at scale today. Learn the lessons from offshore wind and kickstart the heat pump market now to secure the manufacturing base in Britain, breed innovation and rapidly lower costs. We believe industrialising the process and investing in the skilling up of heating engineers can reduce capital and installation costs by between 30% and 50%.
- 4. There is a clear need for a phase out date for all fossil fuel heating** – coal, oil and gas – with retrofit gas boiler sales ending by 2035 at the latest. Manufacturers should also have an obligation to produce increasing numbers of low carbon alternatives throughout the 2020s, adopting an approach similar to what we have seen with motor manufacturers.
- 5. It is critical that the Future Homes Standard is enforced** by legislation in 2021 to provide clarity and certainty to housebuilders that the standard will be enforced from 2025 and the interim standard from 2022. This will see heat pumps become the default heating choice for developers.
- 6. Heat networks should become far more common** in Britain. They are a no-regrets option for areas of high population density and by 2050 could make up 20% of the market. Our 2021 flagship heat pump project in London (Citigen) showcases how heat networks can be successfully decarbonised.
- 7. Putting a carbon tax on gas** (and other fossil fuels) for heating can fund the removal of policy costs currently levied on the electricity bill. This will remove the implicit subsidy for gas heating, improve fairness as low income households pay disproportionately more for policy costs, bring the running cost of a heat pump down to that of a gas boiler through the removal of market distortions, whilst keeping dual fuel bills broadly the same. This approach is broadly cost neutral for HM Treasury.

Decarbonising heat in homes - 5 key questions & answers:

1. What proportion of heating technologies do we expect in future?

- If Britain decarbonises heating in the lowest cost, most effective and efficient way, we would expect a significant change in the (approx.) proportions of homes using different technology:

Today: 83% Gas – 7% Oil – 7% Direct Electric - 2% Heat Networks – 1% District Heating

2050: 60% Heat Pumps – 20% Hydrogen – 20% Heat Networks

2. Can the system cope with increased demand from heat pumps and electric vehicles?

- The electricity system can cope. National Grid's analysis is very clear on this point. However, Government must accelerate the current sluggish pace of transforming the current passive electricity network to an active, dynamic system that makes good use of system flexibility.
- Energy suppliers such as E.ON could play a much larger role than currently allowed today in unlocking system flexibility via our domestic and industrial customers. Not only through new tariffs such as time of use tariffs, but also through the development of flexibility markets so the demand side can play an active role and minimise the amount of physical infrastructure reinforcement.

3. What are the costs of heating technologies today and their prospects for the future?

- The cost of different options used to heat a typical family home each month today:

Gas (£38) – Oil (£33) – Heat Networks (£38) - Heat Pumps (£66 reducing to £43) - hydrogen (£95**)*

**If the expected reductions in costs can be achieved; **Estimated as no commercial examples yet exist*

- Gas today has an implicit subsidy compared to electricity due to the distorting effects of policy costs (Renewables Obligation, Feed-in-Tariff, Contract for Difference) added to electricity. These added costs make up c23% of the cost of electricity compared to less than 2% of the cost of gas. In addition, electricity is (rightly) liable for a carbon tax whereas gas heating does not pay this cost.
- The running costs of heat pumps are therefore artificially high compared to using gas. Moving policy costs from electricity to gas is not an ideal solution, particularly for the poorest in society who still use gas for heating (and logically it does not make sense for gas customers to pay for the scaling up of renewable electricity generation). A better solution is to put a carbon tax on gas for heating which can then fund the removal of the renewable generation policy costs from the electricity bill. We have set out this proposal in detail to HM Treasury.
- Our analysis and experience from other renewable technologies suggests a 50% reduction in upfront costs for a heat pump is a reasonable assumption to make if policy is forthcoming which drives sustained and enduring demand that brings a manufacturing base and supply chain to Britain. Coupling this reduction with access to finance at a 3% interest rate would make the lifetime costs of a heat pump comparable to that of a gas boiler today without the need for further public subsidy.
- Government's proposed £4,000 Clean Heat Grant from 2022 will still require heat pump customers to pay more than they would for a gas boiler unless they can access finance under 3% interest.

4. What disruption will homeowners face from the different heating technologies?

- Britain has so far reduced emissions by swapping coal for wind and sun in power generation. Continuing to reduce emissions means changes that homes and businesses must take part in. While homeowners cannot be given a choice of *what* they must do – *we must all decarbonise our homes to avoid dangerous climate change* – there can be a choice of *when*.
- Improving energy efficiency will involve fabric upgrades for most homes in Britain regardless of any changes required to the heating system - whether new radiators for a heat pump or changes to gas pipes and fittings for hydrogen.
- It's important that disruptive changes remain in the control of the homeowner and can be timed to coincide with other works involved with upgrading a home and timed to when these changes are least disruptive (e.g. a change in occupancy, major modernisation of a building, etc.). Clear, long-dated regulations across all housing tenures are needed to set the framework for what needs to be done, by when, allowing homeowners to plan ahead.
- Changing the current gas network infrastructure to a system for hydrogen may also be highly disruptive and importantly will *not* be in the control of the homeowner. The practicalities of exactly how such a switch could take place and what disruption there would be to homes and neighbourhoods have yet to be widely communicated but could be expected to be prolonged and disruptive to a wide area.

5. How do we maximise job creation and economic benefit to Britain?

- Government support today to pump prime the market for decarbonising homes will provide significant economic benefit to the UK. The home improvement sector is labour intensive and highly skilled with a supply chain of predominantly small businesses across every area of the country. Just delivering E.ON's small portion of the Green Home Grant LAD scheme in 2021 created 500 new jobs.
- The continued boom & bust caused by instability and uncertainty in Government policy in this sector over many years has significantly degraded investor confidence, which in turn hinders investment in the UK and the growth of jobs and career pathways. Policy and funding must be significant, enduring and not subject to change as Governments change.
- Britain is in a global race to secure the investor confidence that brings the supply chain and manufacturing base for decarbonising homes to the UK. Creating investor confidence in sustained UK market demand will secure investment just as we saw in offshore wind, but with the opportunity of even greater UK content.
- Enduring investor confidence in this sector in Britain, in turn, brings confidence in the career path for new employees and in investing in the required qualifications and training for employers.