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03/07/2020

The Rt Hon Rishi Sunak MP
Chancellor of the Exchequer Her Majesty's Treasury
1, Horse Guards Road
London SW1A 2HQ

Please reply to:
Nick Mabey
E3G
47 Great Guilford Street
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Dear Chancellor,

Economic Stimulus for Zero Carbon Heat

With the UK facing a major recession in the wake of the Covid-19 pandemic, we understand that you are considering how to build a resilient recovery and reduce the risk of future economic shocks, including from climate change.

As part of that mission, we would like you to take action to develop the market in zero carbon heat and in particular, stimulate the heat pump market.

The decarbonisation of heat – especially in buildings – is the biggest gap the UK faces in meeting its net zero target. Heating our buildings – space heating and hot water – accounts for 21% of the UK's greenhouse gas emissions¹, second only to transport. Yet, 92% of our heating is produced by fossil fuels. To get on track to net-zero we should be rapidly building up a market to install over one million heat pumps a year but only 10,000 heat pumps were installed in the UK in 2019. The UK's poor performance in developing zero carbon heat ranks it 25th out of 28 European countries in the renewable heat league table.

There are only two heating system replacement cycles between now and 2050 and decisive action is now needed to turn the UK from a zero-carbon heat laggard to leader. This is also a huge opportunity for the Government to create high quality, future-proof jobs across the UK in heat pump development, manufacturing, installation and digital services as a core part of our economic recovery plans.

Outside of better progress being made in heat networks, action has been delayed by a debate on whether the UK should focus its heat strategy on heat pumps or hydrogen. Taking into account the need to almost halve global emissions by 2030², the choice for the next 10 years becomes what can be deployed at

¹ BEIS (2018) *Clean Growth – Transforming Heating: Overview of Current Evidence*

² IPCC (2018) *Global warming of 1.5°C*



speed. The Committee on Climate Change and the National Infrastructure Commission both see the need for heat pump deployment to be the main medium-term focus.

In this context, it is critical to understand the opportunity and near-term limitations of hydrogen in the zero-carbon economy. There is an urgent need to support the development of clean, green hydrogen, produced by electrolysis from renewable power, as a critical part of the UK's net-zero pathway. Green hydrogen is needed for the development of energy storage, to deliver heat for high-temperature and other industrial processes, such as in the steel and chemicals sectors and as part of the solution to decarbonising road, rail and other freight. These are clear priorities for hydrogen development.

However, it does not make economic or environmental sense to use hydrogen to heat the majority of the buildings on the gas network. The reasons are as follows:

- **Economic risk:** There is a hierarchy of need for hydrogen which prioritises the hardest to decarbonise sectors in industry and transport. Decarbonising buildings does not require hydrogen. Green hydrogen would be at least four times less energy efficient to provide heat than it would be to heat buildings directly with renewable electricity. The production of blue hydrogen would require 50% more natural gas than we currently use for the same amount of useful heat.
- **Environmental risk:** Blue hydrogen is incompatible with achieving the UK's net-zero target. According to the CCC, using natural gas with CCS can only cut emissions by 60% to 85% due to the high level of fugitive emissions in the natural gas supply chain and incomplete carbon capture. This is before recent research estimating the level of fugitive emissions to be 25-40% higher than previously thought³. Heat pumps can already reduce heating emissions by 60% and will be zero carbon if the grid is completely decarbonised, which is both possible and necessary.
- **Project risk:** The lead-times for creating the enormous CCS capacity needed for blue hydrogen means far less progress could be made in heat decarbonisation in the next 10 years than powering up the heat pump market. By 2030, no more than one fifth of the CCS capacity needed for blue hydrogen production at the scale required for heating buildings is likely to be available.
- **Security risk:** It would keep the UK hooked on gas and needing more of it, with all the energy security disadvantages that this would entail. Half of our gas is imported and the level of import dependency is set to rise.

Innovation risk: It would drive less innovation than supporting heat pumps, with the potential for heat pump costs to fall and new business models already emerging that capture new value streams arising from flexible demand services that triangulate smart EV charging, storage, small-scale solar

³ Carbon Brief (2020) *Methane emissions from fossil fuels 'severely underestimated'*



and electric heat production. With smarter regulation, this is a huge opportunity to accelerate the development of a digital, net-zero electricity services market that is subsidy-free and exportable.

- **Consumer risk:** Contrary to the claims of some in the gas industry, deploying hydrogen heating systems for homes would be significantly disruptive and leave little consumer choice owing to the regional rollouts required. While heat pump installations also bring disruption, a poll shows 63% of consumers would opt for a heat pump over a hydrogen boiler when faced with an informed choice⁴.

To help stimulate the economy and get on track to net-zero we urge you to put a programme to decarbonise homes at the heart of the Government's economic recovery plans, with support for energy efficiency and heat pumps front and centre. No other infrastructure programme can do more to create jobs and new industry across the UK while reducing emissions and improving health.

The International Energy Agency sees the decarbonisation of buildings as the most labour-intensive stimulus measure⁵ – one that supports over four times as many supply chain jobs per £1 invested than road maintenance, for example⁶ – and the construction sector historically responds to stimulus swiftly. We recommend the following actions to get this programme underway:

1. The Government should set a target to bring all homes up to at least EPC Band C by 2030, to reduce the cost of heat decarbonisation. The Government needs to deliver on its manifesto pledge to invest £9.2 billion in energy efficiency for low income households, schools and hospitals right away. It needs to deploy a further £0.5 billion per year to 2030 to drive the take-up of energy efficiency improvements by able to pay households, to unlock five times as much private investment.
2. To boost the market for heat pumps in the near-term, the £100 million Clean Heat Grant announced at Budget and out for consultation, slated to commence in April 2022, needs to be brought forward to today, deployed as a 'cash for clunkers' heating system scrappage scheme and offered as an alternative to the Renewable Heat Incentive.
3. The Government's Heat and Buildings Strategy, expected later this year, needs to set a medium-term goal to reduce today's heat-related emissions by 50% by 2030 to get on track for net-zero. A public-private financing plan needs to be created for the 10 million home heat pumps this is likely to need, backed by public funding – confirmed in the Spending Review – of £2.3 billion per year for heat decarbonisation.

⁴ CCC (2018) *Cleaning up the UK's heating systems: new insights on low-carbon heat*

⁵ IEA (2020) *Sustainable Recovery*

⁶ Dft (2013) *Action for Roads*



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By putting energy efficiency and a heat decarbonisation scheme at the heart of the UK's recovery plans, you have the opportunity to build a high tech and resilient economic recovery, while getting on track to net-zero. No other infrastructure programme can do so much for so many.

Yours sincerely

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