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Sent by email to: netzeroreview@beis.gov.uk

Dear BEIS Net-Zero Review team

While Centrica is best known as the owner of British Gas, our Group brings together capabilities which support the UK and Ireland's energy security and will help the country reach net-zero. We are proud to offer skilled, well-paid jobs for our 20,000 strong team - and we're growing, taking on a new apprentice for every day of this decade. Our customers benefit from zero carbon electricity supplied from our interest in the UK nuclear fleet, long-term power purchase agreements with renewable electricity generators, and £70bn worth of long-term gas supply contracts. Indeed, Centrica's wider strategy and capabilities centre on enabling a low carbon future. This includes solutions that allow large energy users, including the NHS and defence estate, to save money and reduce carbon emissions and new energy models that mean communities own and control their energy infrastructure.

Last year the UK Government set in law ambitious targets in cutting emissions by 78% by 2035 compared to 1990 levels. This is in addition to the Government's net-zero 2050 target that it set in 2019 and most recently the publication of the Government's Heat and Buildings Strategy, Net-Zero Strategy and Net-Zero Review.

In order to achieve this target, clear long-term policy certainty will have to be created and delivered in range of industries. We've found this to be the largest barrier to decarbonising. For example, decarbonising the housing sector will be extremely difficult, especially considering the fact that UK doesn't have a long-term policy framework for energy efficiency owner-occupier sector. Delivering this type of policy and funding framework will be integral if we are to decarbonise the built environment in the most cost-effective way.

In our response we outline key challenges and opportunities to reaching net-zero, Centrica's role in the transition and the projected green jobs that will be created by 2050. Focussing on the markets Centrica operates in, we summarise below the key government actions that are needed to achieve cost-effective decarbonisation, based on the barriers that we perceive today

- Fill the policy gap on energy efficiency in order to address the challenges of decarbonising homes and businesses. Strong incentives to take up energy efficiency measures are needed to complement and ensure the success of the Boiler Upgrade Scheme (BUS). The BUS should be expanded to include funding for smart controls for heat pumps.

- Fund policy costs through general taxation. This solution will ensure that the costs of decarbonisation are allocated fairly and at the same time provide certainty to investors and help incentivise consumers to take up heat pumps.
- Provide a series of public awareness campaigns to take consumers on the journey to net-zero.
- Implement a regulated revenue regime for large-scale geological hydrogen storage.
- Mandate hydrogen-ready boilers from 2025.
- Remove barriers to low-carbon projects that are facing delays in obtaining connection to the grid.

Net-zero review

Overarching questions

- What challenges and obstacles have you identified to decarbonisation?
- What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?
- What more could government do to support businesses, consumers and other actors to decarbonise?

What challenges and obstacles have you identified to decarbonisation?

Decarbonisation of heat

- As heat accounts for approximately 40% of energy consumption and is the single biggest emitter of GHG in the UK, decarbonising the UK heating systems is the toughest challenge the UK faces on its way to reaching net-zero.[1] There won't be a one-size-fits-all approach in decarbonising our heating systems therefore a phased approach will be important. This type of approach would ensure that the transition is affordable for both consumers and businesses whilst maintaining or in some cases improving consumer comfort levels.

- Approximately 17% of emissions come from buildings.[2] If the Government is to reach its net-zero target by 2050 then emissions from the UK's 29 million homes will have to be eliminated.[3] There are currently 19 million homes rated EPC D or worse, meaning that on average 1.2 million homes will need to be renovated each year by the end of 2035, highlighting the significant challenge the Government faces.[4] Renovation rates would need to increase by around 7x to reach the Government's 2035 target to get as many homes as possible improved to EPC C by 2035, *where practical, cost-effective and affordable*.[5] In retrofitting these homes, many would require energy efficiency upgrades which vary considerably in cost and can run into several thousand pounds i.e., for homes with solid brick walls (no cavity).

- There is a clear policy gap on energy efficiency (particularly for owner-occupiers) which is the main barrier towards decarbonising heat. It is widely acknowledged that if we are to

[1] University of Birmingham (2022). Pathways for local heat delivery.
[2] Committee on Climate Change (2020). The Sixth Carbon Budget, The UK's path to Net Zero.
[3] Energy Efficiency Infrastructure Group (2019). The Net Zero Litmus Test – Making energy efficiency a public and private infrastructure investment priority.
[4] Energy Efficiency Infrastructure Group (2019). The Net Zero Litmus Test – Making energy efficiency a public and private infrastructure investment priority.
[5] Business, Energy and Industrial Strategy Committee (2019). Energy efficiency: building towards net-zero.

reduce emissions from domestic and non-domestic buildings, then the energy efficiency landscape must vastly be improved. Installation of energy efficiency measures reduces energy demand, leading to a reduction of emissions and is critical in preparing the building stock for the transition to low-carbon heating technologies.

- The Committee on Climate Change (CCC) previously estimated that heat pumps are suitable for 10 million properties on the gas grid and a further 10 million properties could be suitable for heat pumps with energy efficiency upgrades (solid wall, loft insulation and cavity wall). [6]

- There is still a large gap to bridge with consumer / public understanding of Net Zero and energy efficiency measures. Recent research we have conducted shows that whilst 85% of the public are aware of Net Zero and targets only 45% understand it. There is intent from the public to make improvements with 73% willing to make changes to their homes, but there is confusion about the best decisions to make. These views are reinforced by focus groups that reflect the excitement of what can be possible but uncertainty where to start which can lead to inaction*

Costs of low-carbon technologies

- Another barrier to low-carbon heat technologies adoption is around cost. Indeed, in its Public Attitudes Tracker, BEIS noted that the most common barrier among owner-occupiers who had heard of renewable heat measures was cost (58%).[7]

- Costs of air-source heat pumps start at approx. £9,000 depending on the size of the unit purchased, size of property and the levels of energy efficiency upgrades required.[8] In addition, installation costs range between £6,000 - £8,000. Upfront costs of ground-source heat pumps are more expensive, the technology can cost £10,000 - £18,000.[9]

- Whilst the BUS is a welcome addition to the transition towards low-carbon heat, more needs to be done to improve the energy efficiency of homes in order for households to take full advantage of the scheme. Additionally, the scheme is only expected to support up to 90,000 homes throughout its lifetime.

Hydrogen boilers

- We are of the view that hydrogen boilers will play a significant role in decarbonising heat in buildings, either via hydrogen boilers alone or part of a combination with heat pumps as part of a hybrid system – mainly to meet peak demands during the winter months.[10] Some manufacturers have developed hydrogen-ready boilers, which are designed for hydrogen use but optimised to run on natural gas and designed to be easily converted to hydrogen use once required. This would enable the UK to use its existing gas infrastructure, manufacturing and installation capabilities in deploying hydrogen boilers in homes.[11]

Social housing

[6] Committee on Climate Change (2016). Next steps on heat policy.
[7] Department for Business, Energy & Industrial Strategy (2021). BEIS Public Attitudes Tracker (December 2020, Wave 36, UK).
[8] Imperial College London (2022). The future of home heating.
[9] Energy Savings Trust (2018). Air source heat pumps vs ground source heat pumps.
[10] Committee on Climate Change (2018). Hydrogen in a low-carbon economy.
[11] Hydrogen Taskforce (2020). The role of hydrogen in delivering net-zero.

- SHDF is certainly welcomed to support the sectors journey to net-zero, however instead of having multiple waves with short delivery windows. Would it be possible to offer a much longer delivery window for wave three? By doing so this would help the sector to secure longer term commercial agreements with contractors and help to reduce costs allowing LAHAs to contract a program over a longer period. A requirement could be added for a percentage of the work force to be sourced locally and new to industry, helping to create quality jobs for local people. This requirement could be incentivised to attract a percentage increase to the awarded funding supporting the levelling up agenda.

- Energy cost is of significant concern to residents and fabric measures will make a significant difference in the amount of energy required to heat a home. This is not the only solution to support residents to reduce their carbon footprint and in turn their energy costs. Social housing supports some of the poorest people in our society, microgeneration can make a significant impact on running costs of a home. If this solution is paired with storage and smart technology such as demand side response this can significantly reduce a home's running costs with this in mind and considering that measures such as photovoltaic solar do not usually impact fabric measures, could the Government consider allowing microgeneration to be installed without fabric where the fabric measures are not financially feasible. As these measures are significantly lower cost this would allow the SHDF money to go further and help to lift more residents out of fuel poverty.

Skills gap

- The transition to net-zero will also depend on the skills and training provided by the economy. The Green Jobs Taskforce outlined that as a result of the transition, approx. 6.3 million workers will require skills which could experience an increase in demand, sectors such as construction and installation (tradespeople who will be installing the low-carbon technologies needed to transition to low-carbon heat), engineering, operations and maintenance. Many workers in these industries will need reskilling, upskilling or will need to use their skills differently.

- Industry has informed government, via the Taskforce and industry bodies that the Government would need to provide a forward looking (medium and long-term) policy framework in order for the barriers to providing the right skills needed to reach net-zero to be removed. Additionally, where and how market demand will be created will need to be outlined. [12]

What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?

Rebalancing energy policy costs

- The Government has committed to transitioning consumers in off-gas grid and in new builds onto electric low-carbon heating technologies. However, one of the main barriers to this is the disparity between fuel costs. The fairest way to make electric heating more attractive to households would be to move policy costs from electricity bills onto general taxation.

- As part of its package to support consumers and businesses with their energy bills through the energy crisis, the Government announced that environmental and social costs worth around £150 will temporarily be paid for via government taxation. The Government's recent

[12] Green Jobs Taskforce (2021). Green Jobs Taskforce: Report to Government, Industry and the Skills Sector.

response to the BEIS Select Committee's inquiry into energy pricing and the future of the energy market, made clear that the Energy Price Guarantee has superseded the Government's commitment to publishing an affordability and fairness consultation. There will need to be a long-term solution to rebalancing energy policy costs once they are removed from general taxation.

Energy efficiency changes

- To help reduce energy demand and further stimulate the transition to net-zero, the Government should designate energy efficiency and retrofitting homes as a national infrastructure and health priority.

- This recommendation has long been requested by industry and some parliamentarians. There is general consensus that a long-term policy commitment would firstly send a clear message to the investment community and consumers with regards to the Government's policy direction. In a sector that has experienced continuous changes in policy and investment as discussed above, this would help build much needed investor and consumer confidence.[13]

- Economically, according to the EEIG, a Buildings Energy Infrastructure Programme would help reduce energy bills on average by £270 a year. The programme would increase employment opportunities, reduce the costs of heat decarbonisation by up to £6.2 billion per year through to 2050 and would increase business productivity and competitiveness. Additionally, through long-term public investment and subsequent economic activity, such a programme could deliver tax revenues, cumulatively over £50 billion by 2030.[14]

- The Building Research Establishment estimated in 2016 that poor housing costs the NHS £1.4bn a year.[15] One fifth of England's housing stock does not meet the Decent Home Standard and there's a link between excess winter deaths, low indoor temperature and low energy efficiency.[16] Research from Shelter and ComRes also highlights the detrimental affect poor housing has on mental health, with interviewees expressing that they experienced anxiety and depression due to living in these properties.[17] Improving these homes will improve peoples health and wellbeing and would help save the NHS costs over time.

- Designating energy efficiency and retrofitting homes as a national infrastructure and health priority would affect the Treasury's classification of energy efficiency from 'resource' to 'capital' increasing the value of infrastructure in the process.[18]

- Across the UK, Centrica is the largest obligated supplier under ECO and we have delivered over 1 million energy efficiency measures to date. We were also the first company to install an energy efficient product (a Daikin Air Source Heat Pump) using the BUS scheme. We support the £1 billion extra investment over the next three years to make homes cheaper to heat as outlined in the Government's Growth Plan.

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[13] Business, Energy and Industrial Strategy Committee (2019). Energy efficiency: building towards net-zero.
[14] Energy Efficiency Infrastructure Group (2019). The Net Zero Litmus Test – Making energy efficiency a public and private infrastructure investment priority.
[15] The Building Research Establishment (2016). The cost of poor housing to the NHS.
[16] University of Birmingham (2016). Good Housing, Better Health.
[17] Shelter (2017). The impact of housing problems on mental health. Finding of a research project between Shelter and ComRes.
[18] CBI (2020). Net-zero: The Road to Low-Carbon Heat.

Expanding the BUS scheme

- The Government should provide a time limited (to 2025 when the BUS is due to end) energy efficiency grant for owner-occupiers to help them improve their energy efficiency and ensure their homes are suitable for heat pumps. The grant would sit alongside BUS and would have a broad eligibility criteria.

- An advantage of this scheme is that the funding requirement is relatively small (approximately £50 million for three years) to match the expected number of properties supported by the BUS (approx. 90,000 over the lifetime of the scheme) that will require additional energy efficiency measures. Fundamental and cheaper energy efficiency measures such as, fabric insulation, loft and cavity insulation should be the focus of the start of the scheme and all measures should be TrustMark accredited.

- Building on the BUS, the Government should consider expanding the scheme to include installation of smart controls for heat pumps. Ensuring that smart controls are installed alongside heat pumps would allow consumers to remotely adjust their home (with the potential of creating heating zones in their home).

- Smart heating controls can help consumers better use their energy without overheating and wasting energy whilst saving money on their energy bills and reducing residential carbon emissions. Some smart heating controls can be linked to smart meters, allowing consumers to take advantage of time-of-use tariffs. Installations of smart controls should be prioritised in homes suitable for heat pumps.

Hydrogen

- The Government should step up its efforts in creating the UK's hydrogen economy. The strong hydrogen demand forecast in the future reflects that it is the most effective decarbonisation option in many sectors, and complements alternative low carbon solutions in other sectors. For example, hydrogen is well-positioned as a source of energy to industrial processes and to provide residential and commercial heating, as well as supplementing other fuel sources in the transport sector and providing peaking capacity in the power sector.

- Hydrogen is not only an opportunity for the Government and its net-zero ambitions but also for UK businesses. Catapult Offshore Renewable Energy research estimates that potential exports from green hydrogen could reach £48bn per year and the potential for £200 bn of gross value added.19

- The Government should mandate for hydrogen-ready boilers from 2025 at the latest. We need to make things as easy as possible for consumers and for many households across the UK, hydrogen boilers will be a familiar technology and it will minimise disruption for consumers. Furthermore, hydrogen boilers are not expected to cost more than existing boilers and the boilers British Gas engineers are installing today are already able to accept 20% hydrogen.

[19] Catapult Offshore Renewable Energy (2020). Offshore wind and hydrogen – solving the integration challenge.

- Blending hydrogen with natural gas in the gas grid will help provide early markets to scale production so the Government should expedite its update of the Gas Safety Management Regulations to allow greater flexibility for hydrogen injection into the gas grid, to enable the 20% blending by 2023 to be achieved. This would help reduce gas emissions in the near term with the distribution infrastructure already in place.

Grid connections

- Low carbon projects are facing substantial delays, and costs, in obtaining connectivity, as are flexible assets like energy storage. This represents the biggest current blocker to deploying low-carbon and flexible technologies, both as stand-alone generation assets and energy schemes vital to improving the efficiency of manufacturing and the public sector e.g. hospitals. Challenges exist at distribution and transmission level.

- Actions we propose to resolve this situation are as follows:

    - Radical action to remove stalled projects from the queue to connect. These projects are blocking more viable schemes from entering construction and are causing the triggering of costly and potentially unnecessary reinforcement works.

    - Tighten up the rules on changes to projects that are yet to connect changing technology. We believe that the ability for sites that are already connected to evolve is essential but projects that have a Connection that are not yet built, changing technology causes delay in the Connection Queues for projects that are ready to build and they should exit the queue and restart the process.

    - Carry out a full review of the existing Transmission Entry Capacity (TEC) Register and Embedded Connection Registers and give network operators the power to remove defunct projects or those with overstated generation capacity based on their real-world performance over a number of years. This will create capacity, give an accurate picture of active generation and genuine projects on the Networks and reduce the need for costly reinforcement projects.

    - Develop and rapidly implement new standards on how Battery Energy Storage Systems (BESS) are modelled on the system as the current transmission and distribution methodologies do not reflect real world conditions and can trigger costly reinforcement and delay unnecessarily.

    - We support National Grid ESO's plans to conduct a comprehensive reform of GB connections processes. This must be accelerated and take a whole network approach, capturing processes at Distributed Network Operator level. Low-carbon generation connecting at distribution level must often sit in two separate queues – one to connect to the local network and the other waiting for transmission system reinforcement.

    - As part of the acceptance of offers to connect the Developer must be able to show that they have sufficient funds to build the project. This is to prevent speculative projects blocking the path of projects that are ready to build.

    - The Planning Process to be amended for critical infrastructure such as new Grid Supply Points and Overhead Lines. The duration of these projects needs to be shortened considerably to enable projects to connect sooner.

- Allow the transmission networks to be proactive and make Anticipatory Investment where there is a clear consumer or growth benefit, this would allow the network to be future proofed to support the connection of multiple projects in an area, ensuring the security of our Energy Supply rather than the current reactive programmes which contributes to the piecemeal development of our system.

- Government should look at mechanisms to enable third parties to contribute to the cost of the Energy Infrastructure upgrades required (over and above payments required in their connection agreement) if this could accelerate network upgrades. In return the third parties should receive a guaranteed return of investment over a number of years to smooth out the burden on the bill payers of today.

- We support the delivery of Ofgem's Access Significant Code Review which should reduce the cost of most distribution connections from 2023, however, DNOs must use their network efficiently to allow more decentralised technologies to connect as the system decarbonises. The processes and additional costs of getting a connection should be standardised.

What more could government do to support businesses, consumers and other actors to decarbonise?

- Clarity on business models and policy frameworks is required as soon as possible to enable private capital investment and rapid at-scale deployment of these key low-carbon technologies.

- We also believe information and education is key. We need to take consumers on a journey and help them to understand the steps they can take to reduce their energy usage.

- Reaching net-zero will not be possible without public engagement and buy in. Up until this point, the decarbonisation story has been somewhat far removed from the public, as much of the power sector has been decarbonised.

- BEIS's Public Attitude Tracker states that on the topic of net-zero, that from December 2020 76% of the public were aware of the concept an increase of 24% from when the question was initially asked in March 2020. However, only 4% knew a lot about net-zero with 18% knowing a fair amount and 20% of respondents knowing hardly anything about the concept but had heard of it.

- To help remove the lack of engagement barrier, the Government should work with the private sector in constructing and delivering a series of public awareness campaigns on the transition to net-zero.

- It is critical that any public awareness campaign is inclusive, diverse and community led, due to the variety of ways different people consume and view heat. The transition to net-zero could affect people in different ways so different forms of engagement would provide people with opportunities to be involved in the decision making in their area.

- The Government is responsible for setting the overarching engagement framework, working with local authorities, allowing long consultation times and outlining clearly how the public can get involved.[20]

- The campaign should also encourage consumers to adopt smaller measures such as, draught-proofing their home, insulating home water tanks, radiators and pipes to reduce heat loss.

How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?

- We support Government's focus on the UK's energy independence and, given the geopolitical outlook, we agree that it is crucial for the UK to have robust and secure supply chains. Investors and consumers need a stable framework for a prosperous energy economy and the government will need to work carefully to balance the short-term tensions with the long-term objective of net zero.

- There are important new commitments to fund innovation in "state-of-the-art business models for Carbon Capture Usage and Storage transport and storage, low carbon hydrogen and industrial carbon capture" as well as heat pumps. Balancing the needs of investors to deliver the innovation with those who will need to fund this will be a challenge.

- We welcome Government's boost for renewables and nuclear and the focus on kick-starting the hydrogen economy. This will help us reduce our dependency on foreign gas and done properly, could help make us a net exporter of energy, boosting our economy and creating well paid, highly skilled jobs. Centrica is well placed to advance these objectives:

    - ***Rough*** - our investment in repurposing Rough supports energy security and represents a UK global leadership opportunity to become a world leader in, and exporter of, hydrogen and hydrogen related services.

    - ***Solar*** - Centrica is developing a portfolio of solar and battery projects and have already completed over 85MW of projects including a 4,000 panel project for the British Army in Yorkshire. Our goal is to build a total of 650MW of solar farms by 2026 and grow our battery portfolio over the same period, meaning our low carbon assets could increase by around 900MW.
        - We share concerns expressed by the Solar Energy UK at reports Government is considering extension of the definition of 'Best and Most Versatile' land to Grade 3b under the Agricultural Land Classification scheme., which would have the effect of severely restricting the development of solar farms in England. It is understood that this step is being considered in response to an unsupported belief that solar farms threaten the UK's food security. In reality, even if five times as many solar farms were built, they would occupy less than 0.3% of UK land – less than half the amount occupied by golf courses.
        - More than 2.2GW of solar capacity was procured in the latest round of the Contracts for Difference scheme, the government's auction system for energy, at some of the cheapest prices yet. The rapid growth of the solar

[20] Department for Business, Energy and Industrial Strategy (2021). Net zero public engagement and participation.

industry overall means it could supply 17% of the UK's annual electricity needs by 2035, and supporting 60,000 jobs.

- Centrica's role in providing route-to-market for wind in the UK – in November EM&T signed a PPA for a share of the energy produced by Dogger Bank - the world's largest offshore wind farm, expected to generate around 6TWh of electricity annually (totalling 18TWh) - enough renewable electricity to supply 5% of the UK's demand.

What export opportunities does the transition to net zero present for the UK economy or UK businesses?

- Hydrogen offers a major opportunity for the UK to lead on development of a new sector capable of unlocking thousands of jobs, billions in investment and new export opportunities. With the right choices, the UK is uniquely well placed to capitalise on this new sector.

- If we are to realise this leadership opportunity, we need to move quickly to implement new frameworks and mechanisms to support clean hydrogen production, storage and deployment.

- We would like to see the Government's Energy Security Bill make its way through Parliament. Elements of the bill, particularly around enabling business models for low-carbon hydrogen production and carbon capture are important in building a hydrogen economy. However, the Bill was recently placed under review in order to free up parliamentary time.

Business questions

- What barriers do you face in decarbonising your business and its operations?
- Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen economy or clean power?
- How many green jobs do you estimate will be created in your sector by 2030?

What barriers do you face in decarbonising your business and its operations?

- Centrica plc embarked on a journey in 2007 to cut the internal carbon footprint of its property, fleet and travel by 20% by 2015. We exceeded this target, achieving a 27% reduction. In 2015 we committed to further reductions of 20% by 2025 against existing levels - surpassing this target only four years later in 2018 – and leading to the creation of ambitions the following year to reduce our internal carbon footprint and customer emissions in line with Paris goals out to 2030.

- As the need to accelerate our journey to net zero grows, Centrica has once again responded by amplifying action as part of its People & Planet Plan – setting targets to help our customers be net zero by 2050 (28% reduction by 2030) while becoming a net zero business ourselves by 2045 (40% reduction by 2034) - five years earlier than its previous goal and the UK deadline.

Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen economy or clean power?

- We are recruiting 3,500 new apprentices by 2030 and we are equipping them now with the skills needed to create the low carbon homes of the future. Apprentices will receive technical skills training and knowledge for the job at one of the company's award-winning academies in Dartford, Hamilton, Leicester and Thatcham.

- In addition to this, we're upskilling our workforce, our Smart Energy Experts will play an important role in Centrica's contribution to the green homes revolution. Many Smart Energy Experts have already been upskilled to fit electric vehicle charging points, accelerate electric vehicle adoption, and install heat pumps.

- Centrica offers its Smart Energy Experts the opportunity to upskill to become domestic electrical installers with skills in electric vehicle charging point installation, or the opportunity to upskill to achieve gas boiler service and repair capability.

- The upskilling training for domestic electrical installers lasts 20 weeks, and is offered 12 months after Smart Energy Experts have finished their apprenticeships in one of Centrica's four academies. The gas boiler service and repair programme also takes place 12 months after the completion of the Smart Energy Apprenticeships, and is split over two years. Every year Centrica's academies train and assess 5,000 engineers, in order to keep all British Gas engineers compliant with the regulatory and industry requirements needed for their specific roles.

Decarbonisation of transport

- Decarbonising our transport sector is one of the most significant challenges the UK faces on the way to net-zero by 2050. Emissions from transport contributed 28% of UK domestic emissions in 2018 and are 4% higher than in 2013. Road transport is the largest emitter of the overall percentage, with cars contributing 55% of domestic transport emissions.[21]

- We have committed to electrifying our British Gas fleet by 2025, which was previously 2030. The mandate is positive for us as it has the potential to drive up uptake of EVs and we welcome this. However, there are still concerns around the UK's charging infrastructure.

- We view public chargepoints as a significant element to the roll out of EVs in the UK and agree that they should be reliable, easy for consumers to find and use including ease of payment. We were pleased to read that the Government will open up public chargepoints data as we support a dynamic data sharing structure for public chargepoints and believe this will help industry create services and apps. Additionally, we support the introduction of the Local Electric Vehicle (LEVI) fund and will need to work with the Government on how the fund will work. While inroads have been made to install charge points at work and leisure destinations, the roll out of chargers closer to drivers' homes is desperately needed to unlock the potential for many more EVs being adopted.

- Around 70% of our engineers will need to rely on public charging, be it on-street charging near their homes or rapid chargers on route. They will need access to charging overnight - this should be a minimum of 7kW (charges the battery in 10 hours) and also access to rapid charging 50-100kW, which can deliver around 80% charge (not from a flat battery though) in around 1 hour.

[21] Department for Transport (2020). Decarbonising Transport – Setting the Challenge.

- Our fleets need to know the available chargepoints when they can't be fitted at home. To support businesses that rely on operating their vans from home local authorities, we are recommending that local authorities produce more kerbside EV chargepoints as opposed to rapid chargers in a hub. These mean that drivers would have to travel to charge (much like the fuel retail model), but this then inherently produces downtime whilst waiting to charge, or worse, waiting for the charger to be vacated by a previous visitor.

- Additionally, we welcomed the changes to rules in the Department for Transport's Renewable Transport Fuel Obligation (RTFO) scheme in order for grid-connected electrolysers to claim subsidy for hydrogen use in transport using power purchase agreements. However, DfT's rules around additionality are at odds with BEIS, and indeed the European Union's approach to renewable fuels of non-biological origin (RFNBOs). Continuing to have a discrepancy on regulation between UK departments and having overly strict regulations relative to neighbouring markets could hinder the development of UK green hydrogen projects and hold back decarbonisation of the UK transport sector.

How many green jobs do you estimate will be created in your sector by 2030?

- The transition to a net-zero economy will impact all our lives over the coming years as the UK seeks to tackle climate change, achieve a just transition away from a fossil fuel economy, and become more resource efficient. There are huge opportunities in these changes for employers and employees, and we need to ensure British workers and businesses are well-placed to make the most of these opportunities.

- We welcome the Government's ambitions around supporting green jobs. The 10 Point Plan for a Green Industrial Revolution sets out an ambition to support 90,000 green UK jobs within this Parliament and up to 250,000 by 2030 across the ten sectors covered in the plan. We believe these ambitions are realistic.

- At Centrica, we have committed to hire the equivalent of an apprentice every day over the next decade, and we are on track with our milestone goal to recruit 1,000 apprentices by the end of 2022 with the ambition for 50% to be women. We invest around £30,000 in every apprentice we train, and believe apprenticeships are a brilliant route into the workplace and a key driver for growth. Alongside this, we're inspiring young people into a career in energy by supporting over 650 schools via Tech We Can.