

Written evidence submitted by Cadent Gas (PEG0229)

We are delighted to provide our response to the above inquiry.

Cadent owns and manages four of the eight gas distribution networks in the UK. Our pipes carry gas to 11 million homes, schools, hospitals and businesses in the North West of England, the West Midlands, the East of England (including the East Midlands and East Anglia) and North London. In total, our pipes stretch over 80,000 miles.

Our work on decarbonisation

We believe global climate change is the most serious challenge facing humanity and that urgent and radical changes are needed to the way we heat our homes and buildings and power our industries. As well as tackling the environmental impact of our own operations, Cadent is playing a leading role in helping the UK reach Net Zero, by connecting greater levels of renewable biomethane to our networks and pioneering new technologies, including hydrogen for energy, to substantially cut carbon emissions. By facilitating a switch in the gas that flows through our pipes from natural gas to renewable biomethane and zero-carbon hydrogen, we can, in turn, decarbonise those heat networks that are fuelled by the gas we supply.

Further Information

We would welcome the opportunity to discuss this further with you, and would be happy to provide any further detail you require.

1. Background

As a network operator who owns 4 of the UK's 8 gas distribution networks, we welcome the ambition that the Government has set out in using this post-Covid19 opportunity to 'level up' the economy, investing in the industries and jobs of the future. The forthcoming Energy White Paper and potential Hydrogen strategy, will be a core component in ensuring that Net Zero is hardwired into the policy and regulatory frameworks which govern not only our industry, but the wider economy.

Cadent, as one of the UK's energy networks companies, are the very "industries and infrastructure that can turn the tide on climate change" that Prime Minister Boris Johnson described when setting out his own ambitions for the green recovery.

- The networks are forecast to invest and spend over £60bn over the current RII0-1 price control period. Given the geographic footprint of the energy networks, this expenditure is happening across the entire length and breadth of the UK.
- Cadent and the other networks support 36,000 jobs in the UK, as well as vast regional supply chains. The unique opportunity to accelerate the transition to a carbon neutral future while creating both long-term economic growth and high-value jobs is not one that industry, governments or civil society should ignore.
- We have already connected over 30GW of renewable generation in the past ten years and are now undertaking a project which is set to create the world's first zero-carbon gas grid.
- During this period of exceptionally low energy demand, the networks have worked with BEIS, Ofgem and other stakeholders to ensure security of supply

and enable the lowest carbon energy system since the Industrial Revolution – facilitating the UK’s longest ever coal-free generation run.

The scale of the challenge ahead is vast. As networks, we are looking to the future and the ‘difficult to reach’ sectors which we need to decarbonise to fulfil our net zero obligations. We are ready to provide the digitalised backbone to the national uptake of electric vehicles, a fully flexible energy system and decarbonisation of heating systems.

As we look to move forward, the series of measures taken by government should deliver economic growth and jobs across the whole of the UK, help the UK achieve its net zero targets, and be fair for the public. This is why a green economic recovery is so important – because it has potential to achieve those objectives.

As sectors become increasingly interconnected, investing in a green economic recovery presents opportunities for jobs and growth across not just in the energy system but for transport and waste too. This will not just include more jobs within the energy networks but for supply chain and new services that will be required.

New businesses will open and others will diversify as we build on our world-leading innovation in smart grids, technologies and services. Businesses that could subsequently see their products be exported globally.

The hydrogen economy also presents a huge opportunity for the UK to take a global lead on a key zero carbon technology that has the potential to create over 220,000 jobs and £18bn of GVA across the UK.

Giving a clear steer on green gas is vital. This would include mandating hydrogen-ready boilers by 2025 and announcing the sites of the first CCUS projects receiving the £800m announced in the Budget. Doing so would significantly accelerate deployment of private capital into those projects and associated jobs and growth.

2. Whole system approach to a green economic recovery

We believe that if our power, heat, transport, waste and industrial sectors are all interdependent, then so must the solutions for their decarbonisation. Solutions will be driven locally as well as nationally. There are a number of areas in which industry and government can focus on with the right regulatory support to accelerate economic recovery and a carbon neutral future and we are working with Ofgem and the government to support this.

A) Decarbonising transport

We would support measures being introduced to incentivise decarbonisation of heavier vehicles: trains, buses and heavier goods vehicles including LGVs, PSVs and HGVs. Electricity, hydrogen and biomethane vehicles all have a role to play in the future decarbonised transportation mix. This means looking at a whole energy system approach i.e. making optimal investment and operational decisions for the whole energy network.

B) Green gas

Cadent are working with other network operators on ENA’s Gas Goes Green programme, we have made clear our commitment to creating the world’s first zero carbon gas grid, here in the UK, and to delivering the innovation projects needed to tackle the operational and technical challenges associated with the deployment of hydrogen and biomethane.

The hydrogen economy presents a huge opportunity for the UK to take a global lead on a key zero carbon technology that has the potential to create 221,000 jobs and £18bn of GVA across the UK whilst also protecting existing roles in carbon-intensive sectors.

The UK has the opportunity to create the world’s first zero carbon gas grid. However, other countries (e.g. Germany and Australia) are already pushing ahead. Establishing a world leading hydrogen economy in the UK could deliver:

- 221,000 Jobs and £176bn of private sector investment across the UK
- A major contribution to our net zero targets across power, heat, transport and industry
- Help deliver the decarbonisation of heat in the least cost way, minimising disruption for consumers and up-front costs
- Create new UK-based green industries and a whole new supply chain

As companies investing in this sector, we are ready to move ahead with c£1bn of investments, including a series of 'shovel ready' projects right across the UK to help start to deliver the benefits across the country.

C) Decarbonising heating

Accounting for 50% of global final energy consumption in 2018, heat is the largest energy end-use and contributes 40% of global carbon dioxide emissions. Around 85% of homes in the UK are currently connected to the gas network

The Committee on Climate Change (CCC) recommends that all new homes should be fitted with low-carbon heating systems (for both space and water heating) and ultra-high levels of energy efficiency from 2025 at the latest. We support this move and would urge the Government to follow-up their recent £2bn commitment by beginning to plan the next phase of energy efficiency retrofit support as it will be central to cost effectively hitting net zero.

We envision a much more diverse future domestic heating market than we currently use. That means shifting from natural gas to low- or zero carbon alternatives such as hydrogen and biomethane as well as more electric boilers, domestic heat-pumps and district heating

In a report by Imperial College London for the CCC, it is stated that the cost and disruptiveness of distribution network reinforcement can be minimised if investments are future-proofed. However, the current price control framework "does not cover the required multi-decade time horizon".

The CCC states that low-carbon hydrogen is critical to achieving Net Zero and needs to be deployed at scale. There is no realistic scenario whereby the UK can achieve net-zero carbon emissions by 2050 without hydrogen playing a key role in the decarbonisation of large emitting sectors such as domestic heat, industry and heavy transport.

Given hydrogen's potential to accelerate decarbonisation across multiple sectors, a cross-cutting vision and strategy for a hydrogen economy will be required from the government, with production and use starting from the early 2020s.

There is an opportunity for the UK Government's 2020 Heat Roadmap to embrace innovation. More must be invested in trials – from heat pumps to hydrogen and hybrid heating systems – driving UK research and development.

Setting clear policy intent and the right incentive framework for low carbon heating systems will help increase consumer confidence in adopting these measures. This will also allow networks to unlock investment to facilitate electrification and use of alternative gases in heating.

Hydrogen has the ability to have a significant impact across multiple sectors, transport, industry, power generation and domestic heat. Creating greater support for hydrogen in the UK, such as implementing a hydrogen strategy and by mandating hydrogen replacements for old gas boilers, will help establish a world-leading hydrogen economy which could deliver several hundred thousand jobs and around £176bn of private sector investment right across the country.

There is an opportunity for Cadent to advance plans and speed up the way local green gas producers, such as farmers and other small businesses, can connect to local gas grids.

Safety must be at the core of this shift. We are ready to bring forward the changes necessary to gas standards and safety regulations in an evidence-based manner to ensure the safety of our customers is maintained as we transition to a zero-carbon gas grid.

3. Opportunities within the network companies

Increasing investment in the networks will create new services, driving efficiencies and opportunities for consumers such as vehicle-to-grid charging and domestic aggregation.

Industry will create new roles to take full advantage of new technologies, such as those using artificial intelligence or digital skills, which will require different combinations of competencies within the workforce.

For the energy networks alone we can expect to see new job opportunities across every country and region of the UK arising in a range of areas including:

- **Frontline:** A green economic recovery will require more people employed on the frontline – installing new hydrogen-ready boilers, EV charge points and associated infrastructure alongside a much bigger nationwide energy efficiency programme.
- **Engineering:** New roles will be necessary in every form of engineering including mechanical, electrical, structural, civil etc. along with requirements for more surveyors. Traditional craft skills will still be essential.
- **Surveyors:** As is the case with engineers, there will be a need for a full spectrum of surveyors, quantity and structural, capable of assessing the needs of both homes and infrastructure.
- **Customer service:** Following an acceleration of new products and services (such as electric vehicle infrastructure and heat pumps) there will be an increase in customer service opportunities to manage consumer experience. We will also likely see an increase in the number of staff required to support vulnerable customers.
- **Environmental:** Infrastructure build-out at the scale needed will necessitate more environmental and ecological scientists as well as engineers and surveyors.
- **Digital:** To help us manage a future 'Internet of Energy' we will need staff with competencies in managing new data, cyber and artificial intelligence.
- **Specialist (back office):** As a result of new technologies and services, network companies, supply chain and new businesses will require staff with competencies in legal, compliance/regulation and supporting vulnerable customers.

It will be important to focus on maintaining sector attractiveness, recruitment and workforce diversity while reflecting the population that we serve. Government and industry must maximise investment in skills to help us deliver the jobs needed while building public recognition of the careers available in the sector.

4. Taking steps towards a green recovery

There are a number of steps government and the regulator can take to make sure that homes and businesses across the UK are able to benefit from a green economic recovery

- a) **Create and implement a hydrogen strategy:** Creating a hydrogen economy is vital to hit our climate targets and drive forward green, economic growth. Government should commit to build on our world-leading expertise and develop a UK hydrogen strategy, otherwise we risk being left behind in the international hydrogen race. A UK strategy will help to maintain our global leadership position as well as delivering

long-term benefits to homes and businesses across the country whilst also protecting jobs in those sectors most exposed to the transition to net zero.

- b) Develop a detailed local and national transport plan: This plan should go beyond the government's Road to Zero strategy should support the rapid up-take of electric vehicles and the growth of green gases as a fuel for transport in trains, buses and heavy goods vehicles.
- c) Increase the ambition of the UK Heat Roadmap: Drive growth in heat-pump and hybrid boiler deployments and expedite the shift to green gas solutions while also mandating the introduction of hydrogen-ready boilers by 2025.
- d) Commit to future full-systems testing of a net zero economy: Build on existing innovation by investing in trials including electric vehicles, high-renewables volumes, system flexibility, the hydrogen economy and other technologies.
- e) Ensure synergy between government policy and regulation: We need to attract significant investment in a competitive global market in order to deliver a green economic recovery at least cost to customers. Network companies have historically been able to raise billions of pounds of capital at best value for the public. Ofgem needs to set a regulatory regime that allows network companies to continue to deliver this investment along with the benefits for homes and businesses across the UK. The recently published RIIO-2 Draft Determinations for the electricity transmission and gas distribution networks do not, as they stand, provide this. It is essential that the RIIO regime provide a stable and predictable regime in order to unlock net zero infrastructure at pace and at least cost to the consumer. The next few months will be a critical period for all parties to come together to deliver a framework fit for the challenges of the 2020s and beyond.

September 2020