Committee on Climate Change's call for evidence on building a zero-carbon economy – Nuclear Industry Association Response

1. The Nuclear Industry Association (NIA) welcomes this opportunity to respond to the Committee's call for evidence on building a zero-carbon economy, especially in light of the Intergovernmental Panel on Climate Change's (IPCC) recent Special Report.

2. The NIA is the trade association and representative body for the civil nuclear industry in the UK. We represent around 260 companies operating in all aspects of the nuclear fuel cycle, including the current and prospective operators of the nuclear power stations, the international designers and vendors of nuclear power stations, and those engaged in decommissioning, waste management and nuclear liabilities management. Members also include nuclear equipment suppliers, engineering and construction firms, nuclear research organisations, and legal, financial and consultancy companies.

Overview

3. Given its role, the NIA is not in a position to respond to many of the committee's consultation questions. However, given electrification of heat and transport could make a major contribution to achieving greater decarbonisation, we would like to comment on questions 8 and 10.

4. The NIA believes that a mix of different low carbon generating technologies, including nuclear and renewables, will be required to meet the UK's emissions reduction targets. If these targets are strengthened the demand for low-carbon generation will only increase.

5. Nuclear power stations provide reliable, clean power. They also bring significant benefits to the energy system, including maintaining grid stability during times of intermittency or inertia that can come from variable sources such as solar and wind.

Question 8: How will global deployment of low-carbon technologies drive innovation and cost reduction? Could a tighter long-term emissions target for the UK, supported by targeted innovation policies, drive significantly increased innovation in technologies to reduce or remove emissions?

6. Experience from around the world suggests that when technologies are deployed on a mass scale, lessons are learnt and applied from one project to the next. This applies at all levels, from project management to those involved in the supply chain.

7. In the case of nuclear technology, EDF is currently planning to 'copy and paste' the design of Hinkley Point C (HPC) and build it again at Sizewell. By doing this, as well as using a new financing model, as recommended by the Public Accounts Committee, they are confident that Sizewell C will produce electricity at a significantly lower cost than HPC. Both of these projects draw on expertise and experience gains from similar developments around the world, such as in Taishan, China.

8. Should there be a tighter long-term target for the UK, beyond the 80% currently legislated for, the NIA believes that even greater amounts of nuclear-generated electricity will be needed.

9. The IPCC's 1.5°C Special Report highlights the need to decarbonise is now of the utmost urgency, and we believe that electrification of heating and surface transport alongside deep decarbonisation of electricity generation is the pathway that provides the most assurance of success.

10. A recent report by the Massachusetts Institute of Technology (MIT) concluded that nuclear is a vital part of a low carbon generating mix, especially in economic terms. MIT's analysis shows that a balanced future energy mix would require 67-77GW of grid capacity, however if nuclear were to be excluded, over 478GW of mostly excess capacity would be required. This would be needed to compensate for the intermittency of renewable generation.

11. The resultant construction and system costs of a non-nuclear grid would mean the cost of electricity would be significantly higher than in a balanced energy mix.

12. Nuclear power provides safe, clean and reliable generation, and can be deployed on a significant0020scale in a relatively short amount of time. For example, in the 1970s and 80s, Sweden and France largely decarbonised their grids by building a fleet of nuclear stations.

Question 10: Including the role for government policy, how can the required changes be delivered to meet a net-zero target (or tightened 2050 targets) in the UK?

13. The UK and Welsh Governments have been supportive of nuclear, and consistent in their commitment to keeping nuclear power as part of the electricity mix. It is important that this continues.

14. In June 2018, UK Government and industry launched the Nuclear Sector Deal, as part of the Industrial Strategy. One of the key components of the deal is to reduce the cost of new build nuclear by up to 30% by 2030.

15. A significant part of these cost savings will be achieved through developing new ways of financing projects, and the Government is developing the Regulated Asset Base (RAB) model. It is important this work continues. The RAB arrangement provides investors with a set long-term return and has been successfully used to finance major infrastructure projects in the energy, telecoms and water sectors. This should enable nuclear to be competitive with the cheapest low carbon generators.

16. By comparison, two-thirds of the strike price of Hinkley Point C is the cost of the capital needed to fund the project, and the financial risk associated with the project is being borne solely by EDF.

17. In terms of the devolved administrations, we believe that Scotland's commitment to decarbonise could be enhanced by reviewing their current policy of phasing out nuclear energy when current plants retire. Between them, Hunterston B and Torness, have provided clean baseload electricity to the grid for 42 and 30 years respectively, and in 2015 provided enough generation to meet 49% of Scottish electricity demand. The recent outage at Hunterston B has highlighted the reliance the north of Scotland has on nuclear power, as without it, gas has taken its place and emissions have risen.

18. Against this background we believe that a future low carbon generating mix including both nuclear and renewables could potentially provide a more cost effective and efficient means of achieving decarbonisation than on renewables alone.

19. By creating the right market conditions, the governments, both national and devolved, can make the UK an attractive place to develop nuclear power, and allow it to contribute towards meeting our decarbonisation goals.

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