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Dear Lord Kinnoull,

I am writing in response to your letter of 30 September on behalf of the Environment Sub-Committee requesting supplementary information to the Explanatory Memorandum on the European Commission document COM(2020) 299 '*An EU Strategy for Energy System Integration*', which I submitted on 23 July.

You have requested a view on the potential relevance of the strategy and potential regulatory implications for the UK.

EU Energy Integration Strategy

Energy system integration refers to the development and operation of the energy system 'as a whole' across multiple energy carriers, infrastructures, and consumer sectors. The approach aims to improve efficiency, affordability and accelerate the decarbonisation of the economy to meet the climate neutrality target by 2050. The EU Strategy for Energy Integration, part of the EU's Green Deal, sets out three central pillars of action: making the system more circular by improving efficiency and reducing waste, increasing the share of renewable energy in end use sectors through direct electrification, and increasing use of clean and decarbonised gas. The EU Strategy builds on the EU Clean Energy Package adopted in 2018 – 2019 which established the foundation for system integration. The UK welcomes the EU ambition which is consistent with the UK's approach for decarbonising the energy sector as required to meet our 2050 net zero ambitions, whilst maintaining security of supply and low energy costs for consumers.

The UK government has committed to publishing an Energy White Paper in Autumn, which will, similarly, set out a strategy designed to drive a green economic recovery and help deliver our climate goals. This will build on commitments made in our Clean Growth Strategy.

Renovation Wave

The Renovation Wave is a central part of the EU's Strategy, setting out a programme of policies to accelerate the renovation of both public and private buildings. The Strategy is aligned with UK ambition on energy efficiency and heat decarbonisation led by my department, on which the Government have made some significant announcements this year.

The Chancellor, in his Summer Economic Statement, announced a net zero building package worth in excess of £3 billion. These announcements reflect our commitment to build back greener, deliver a green recovery and reach our net zero ambition, through a sustainable, diverse, and resilient energy system and will be used to support the following:

- a) **£1 billion over the next year** in a new Public Sector Decarbonisation Scheme to upgrade public sector buildings, including schools and hospitals, making them fit to help meet net zero with energy efficiency and low carbon heat measures
- b) **£2 billion 'Green Homes Grant'**, under which homeowners and landlords can apply for a voucher to fund up to two thirds of the cost of hiring tradespeople to upgrade the energy performance of their homes (up to a maximum contribution of around £5000). Low income households will be eligible for up to 100% government funding, up to around £10,000. This will upgrade more than 600,000 homes in England and save households up to £600 a year on their energy bills and it will help people get their homes towards the standard we need to reach our net zero climate goals.
- c) **£50m demonstrator project** to start the decarbonisation of social housing over 20/21. This short-term investment will encourage innovation and help inform the design of the future Social Housing Decarbonisation Fund.

In addition to this, the Government has committed to publishing a Heat and Buildings Strategy later this year which will set out the immediate actions we will take for reducing emissions from buildings. These actions include the deployment of energy efficiency measures and low carbon heating as part of an ambitious programme of work required to enable key strategic decisions on how we achieve the mass transition to low carbon heat. The Commission communication sets out an ambition to increase investment in renewables-based district heating and cooling systems, which is in line with UK programmes. The Chancellor announced in the March 2020 budget the Green Heat Network Fund, a £270 million grant investment to incentivise the use of low carbon heat sources.

The EU's proposals for electrification of transport in the Integration Strategy also align with the UK approach for road vehicles which was set out in the first stage of the Government's Transport Decarbonisation Plan published earlier this year. We are engaging with EU Member States on electric vehicles through our COP26 campaigns and we anticipate that the EU's Sustainable and Smart Mobility Strategy to be published later this year.

The EU's Strategy sets out that several energy directives will be revised in 2021. Following the end of the transition period the UK Government will no longer be bound by EU law. However, the Government is seeking to negotiate a future relationship with the EU which will enable us to cooperate with EU partners on areas of mutual benefit in the energy field.

Interconnection

One specific area of your interest was on the EU's proposals for expansion of interconnection to enhance system efficiency and renewable integration. The EU's target to increase its interconnection levels to at least 15% is welcomed by the UK as, whilst we do not have a specific target, we are strongly supportive of increased levels of electricity interconnection with the EU.

The UK and EU are both looking to increase their levels of electricity interconnection and are aligned in recognising the potential benefits of further interconnection to contribute to energy security, affordability, and decarbonisation objectives for connecting countries. Since the EU referendum in 2016, interconnector projects have continued to progress with the go-live of NEMO Link in 2019 to Belgium, the final investment decision on VikingLink to Denmark in Oct 2019 and the go-live of IFA2 to France later on this year.

We are following the development of the EU's Offshore Renewable Strategy. The large-scale deployment of offshore wind and other offshore renewable technologies, particularly in the North Sea, is a key area of interest to my Department. Our own Offshore Network Review, announced 15 July 2020, will bring together the key stakeholders involved in the timing, siting, design and delivery of offshore wind to consider all aspects of the existing regime and how this influences the design and delivery of transmission infrastructure. The review will also consider the role of multi-purpose interconnectors in meeting net zero through combining offshore wind connections with links to neighbouring markets. This is an area where it will be to the mutual benefit of the UK and the EU to work together to share knowledge and expertise.

We recognise the value of providing for continued efficient trade across electricity interconnectors and this is what we are working to achieve in the ongoing negotiations with the EU. Should this not be possible the UK has undertaken domestic preparations to enable trade in electricity over the interconnectors to continue from 1 January 2021 without an energy agreement. Alternative arrangements, based on existing fall-back procedures, have been developed with regulators and Transmissions System Operators which will ensure security of energy supply is unaffected.

Carbon Pricing

The Commission communication sets out that a key action to promote a level-playing field across all energy carriers is to provide a more consistent carbon price signal across energy sectors and Member States, including through a possible proposal for the extension of the EU Emissions Trading System to new sectors (by June 2021).

The UK is committed to carbon pricing and our priority is ensuring we will have a robust carbon price in place at the end of the Transition Period. We are on track to establish a UK Emissions Trading Scheme (ETS) that will be in place from 1 January 2021. The Government Response to the consultation on the future of UK carbon pricing was published in June and the domestic legislative process is underway. The

draft Greenhouse Gas Emissions Trading Scheme Order 2020 was approved by the House of Commons on 8 September 2020.

At its start, the UK ETS will cover the same sectors – power, heavy industry and aviation – covered by the EU ETS to allow for smooth transition for businesses. We also recognise that there is a case for expanding carbon pricing and will consider the option of expanding the scope of the scheme to the most appropriate sectors in a review of the system due in 2023. As an alternative to a UK ETS we are also consulting on the option of a Carbon Emissions Tax, to provide maximum insurance that the UK will have a carbon pricing policy in place in all scenarios.

We are continuing discussions with the EU on carbon pricing and have been clear that we are open to considering a link between a UK ETS and the EU ETS, if it is in both sides' interests.

Hydrogen Strategy

The EU Hydrogen Strategy, part of the EU's Green Deal, sets out a number of key pillars as part of its strategic approach: why we need a strategic roadmap for hydrogen; a roadmap to 2050; an investment agenda for the EU; boosting demand and scaling up production; designing a framework for hydrogen infrastructure and market rules; promoting research and innovation in hydrogen technologies; the international dimension. The Strategy aligns with our own strategic approach to developing hydrogen as a decarbonised energy carrier, which we will set out in our upcoming Hydrogen Strategy. We plan to publish our Strategy in early 2021 in advance of COP26.

The EU's Hydrogen Strategy places a central focus on scaling up renewable (electrolytic) hydrogen and outlines the role of low carbon hydrogen in the near term to expand the market and support the growth of electrolyzers. Carbon capture and storage (CCUS) reliant production methods (such as methane reformation with CCUS) are recognised as an option in the near term to rapidly reduce emissions from existing hydrogen production and support market development in the EU. This aligns with the UK 'twin track' approach, which aims to bring forward CCUS enabled 'blue' hydrogen and 'green' hydrogen using electrolysis from renewables. In all deployment scenarios in the UK context, initial expansion and decarbonisation of UK hydrogen market is expected to be delivered by 'blue' hydrogen, which can be delivered at scale. The Committee on Climate Change analysis, in its 'Further Ambition' scenario, suggests this is the most cost-effective path to net zero, as up to 80% of low carbon demand could be met through CCUS enabled production methods. This will be complemented by development of renewable green hydrogen using today's technology and innovation to scale up, reduce cost and improve efficiency of electrolyzers.

The EU Strategy considers the investments needed to scale up and deploy hydrogen, indicating that investments in electrolyzers could range between 24-42 billion euros, and retrofitting existing hydrogen production with CCUS is likely to cost 11 billion, with 65 billion in investments for transmission. The UK Hydrogen Strategy will include discussion on the costs associated with expansion of the UK hydrogen economy, and how these might be met.

The EU Strategy also discusses the need for incentives to drive demand for hydrogen. Potential options include minimum shares or quotas. We agree that developing a business model is crucial to driving investment in, and deployment of low carbon hydrogen. That is why we published our response to the UK Government's CCUS business models consultation, which included a hydrogen chapter, in August this year. Alongside publication of the Government Response, we also published a report commissioned by BEIS on possible business models for low carbon hydrogen production. One of the approaches explored as part of this work was a Contract for Difference model. We welcome the opportunity to engage further with EU partners on the development of business models to unlock investment in, and deployment of, low carbon hydrogen at scale.

The EU Strategy also considers the need to establish standards for defining low carbon hydrogen, including building on existing work through its CertifHy project. We are working closely with international partners, including the EU, through the International Partnership for Hydrogen and Fuel Cells in the Economy, and through the Hydrogen Production Analysis Taskforce, which aims to establish an approach and take initial steps to develop a mutually agreed upon methodology for determining the greenhouse gas and other pollutants' emissions associated with the production of hydrogen.

The EU Hydrogen Strategy places focus on the development of a Clean Hydrogen Alliance. The Alliance is a forum that coordinates and maximises the impact of joint actions and projects by engaging all stakeholders in the hydrogen value chain, including industrial actors, Member States and regions, trade unions, civil society, innovators, research and technology organisations, investors and NGOs. The UK Government welcomes the EU Clean Hydrogen Alliance. Since the UK has left the European Union, we are seeking to engage and cooperate with the EU and with EU Member States on hydrogen through normal diplomatic channels. As such, we have not participated in any EU Hydrogen Alliance meetings.

UK Activity on Hydrogen

The UK is committed to developing hydrogen as a decarbonised energy carrier, which could play a significant role in a net zero energy system. It has the potential to deliver against the UK's most challenging decarbonisation needs - in industry, heavy transport and for heat in buildings. Our Strategy will bring together the UK hydrogen story, showcasing activity to date and setting out an action plan for decarbonisation and expansion in the 2020s. A key focus is on how to continue support for scale up of low carbon hydrogen production and stimulate demand, and capture economic benefits such as supply chain.

It is critical that we put the right building blocks in place now to give confidence that low carbon hydrogen can be produced reliably and cost-effectively on a pathway to net zero. This builds on our existing effort to develop hydrogen, and includes: investing up to £121m in hydrogen innovation across the value chain; building sustainable policy frameworks to support investment in low carbon hydrogen production; supporting the deployment of low carbon hydrogen production through the £100m Low Carbon Hydrogen Production Fund.

As we undertake activity to develop hydrogen in the UK, we are closely following international hydrogen developments and participate in a range of international fora, including the Clean Energy Ministerial, the International Partnership for Hydrogen for Fuel Cells in the Economy and Mission Innovation. These offer opportunities to discuss other countries' domestic hydrogen strategies in detail. This contributes to understanding of, for example, respective drivers for interest, levels of ambition, innovation priorities and policy support frameworks which is informing our strategic approach.

You asked about the implications of the Commission's proposals for Northern Ireland. It is understood that any EU regulatory changes, which impact on wholesale electricity markets, would have potential implications for Northern Ireland under the terms of the Northern Ireland Protocol, as regards maintaining the functioning of the SEM. New or revised regulations will need to be considered on a case-by-case basis as they are published.

The NI Executive is currently in the process of developing a draft Energy Strategy which is expected to include many of the issues set out in the EU strategies on hydrogen and system integration. Although a number of the actions set out are reserved for the UK Government to consider, the proposed approach by the EU is not considered to be inconsistent or in opposition to that expected to be adopted in Northern Ireland. In particular, NI recognise the benefit of greater electricity interconnection with elsewhere, for security of supply and facilitating integration of greater levels of renewables. The NI Executive would wish to have as full access as possible to any funding support mechanisms to facilitate the establishment of hydrogen as a significant fuel source in NI as well as progressing greater system integration.

We are currently negotiating a future energy agreement with the EU, to agree arrangements for efficient trading over UK EU interconnectors as well as broader energy cooperation, carbon pricing and climate change. Good progress has been made in the negotiations to date. The agreed deal we reach will dictate the UK's relationship with the EU and will hopefully facilitate future cooperation on energy integration and decarbonisation.

We can confirm that since the UK has left the European Union, we are seeking to engage with the EU through normal diplomatic channels. Through the FCDO Prosperity Fund Programme we are seeking to engage with EU Member States on UK and EU priorities for Offshore Wind and Gas Decarbonisation.

I thank you for your interest in these matters and hope that you find the supplementary information I have provided helpful.



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