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The future of Carbon Capture and Storage in Europe

EDF Energy is one of the UK's largest energy companies with activities throughout the energy chain. Our interests include nuclear, coal and gas-fired electricity generation, renewables, and energy supply to end users. We have over five million electricity and gas customer accounts in the UK, including residential and business users.

We note that the European Commission, through its Green Paper, has started to consult stakeholders on the development of an integrated climate and energy policy framework for the period up to 2030. It is recognised that this framework should ensure that the EU is on track to meet longer term climate objectives (reducing greenhouse gas emissions between 80-95% by 2050) and build upon the Energy Roadmap 2050. We agree that achieving the EU's energy policy objectives will require an ambitious emissions reduction target in the region of at least 40% in 2030.

EDF Energy supports the adoption by EU Member States of clear and stable long-term policy frameworks for the transition to a low carbon economy. We would highlight that such a framework already exists in the UK through the use of 'carbon budgets', and believe that such roadmaps could be used by other Member States. This would allow them to make technology choices which reflect their specific circumstances and which remain compatible with European policy objectives. The frameworks would help inform the priorities for policy development and would assist in providing investors with the certainty they require to accelerate the delivery of investment in low carbon technologies.

Carbon Capture and Storage (CCS) provides an opportunity to retain coal and gas within the generation mix, while minimising climate change impacts. CCS has the potential to be developed commercially but not without significant progress on developing capture technology and transport and storage of carbon dioxide at scale. In the UK, the statutory requirement of an 80% reduction in CO_2 emissions by 2050 will require the decarbonisation of the power sector by 2030 or soon thereafter. A technology neutral approach to reducing greenhouse gas emissions will lead to a diverse generation mix. For example, an illustrative scenario proposed by the UK's Committee on Climate Change (CCC) for 2030 envisages a renewable generation share of around 40%, a nuclear share of around 40% and a CCS share of 15%.

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In addition to the contribution that CCS can make to decarbonising the EU power sector, the benefits of CCS should also be considered through the use of low carbon electricity to decarbonise the residential heat and surface transport sectors, and the potential role CCS can play in reducing emissions from industrial processes.

Our detailed responses are set out in the attachment to this letter. Should you wish to discuss any of the issues raised in our response or have any queries, please contact Ravi Baga on 020 7752 2143, or myself.

I confirm that this letter and its attachment may be published on European Commission's website.

Yours sincerely,

Angela Piearce
Corporate Policy and Regulation Director

Attachment

EDF Energy's response to your questions

The Commission invites contributions on the role of CCS in Europe, particularly:

1) **Should Member States that currently have a high share of coal and gas in their energy mix as well as in industrial processes, and that have not yet done so, be required to:**

   a. **develop a clear roadmap on how to restructure their electricity generation sector towards non-carbon emitting fuels (nuclear or renewables) by 2050,**

   b. **develop a national strategy to prepare for the deployment of CCS technology.**

EDF Energy believes that EU Member States should be free to meet any agreed greenhouse gas emissions reduction target at least cost to its consumers, and in a way best suited to their national circumstances, both politically and economically. This is consistent with Article 194 of the Lisbon Treaty which makes it clear that Member States retain the right to determine the structure of their energy mix and supply. The Commission, in its 2030 Green Paper, is right to acknowledge the diversity of geographical characteristics, natural resources and economic capability of Member States.

We strongly support the development of national roadmaps for the transition to a diverse generation mix that will include renewables, nuclear and other forms of low carbon generation such as fossil fuel plant with carbon capture and storage (CCS). We agree that achieving the EU's energy policy objectives will require an ambitious emissions reduction target in the region of at least 40% in 2030. This approach will allow EU Member States to make technology choices which reflect their specific circumstances and which are compatible with European policy objectives and mechanisms such as the Emissions Trading System (EU ETS). However, in developing these decarbonisation roadmaps, it is essential that all low carbon generation technologies are treated equally to minimise market distortions.

An example of such a roadmap supporting the transition to a low carbon economy is the UK's use of legislated 'Carbon Budgets'. These are important milestones on the path to meeting the UK's statutory requirement to reduce emissions by at least 80% on 1990 levels by 2050. Delivering the UK's Electricity Market Reform (EMR) package is a key component in achieving the challenging targets set out in the carbon budgets. We strongly support the UK Government in its continued focus on EMR, which shows a clear and unilateral commitment of its low carbon intentions to investors.

We also support the UK Government's CCS Commercialisation Programme, which aims to accelerate commercial deployment of the technology in the 2020s. There is merit in supporting demonstration CCS projects as a first step in CCS deployment and preparing the regulatory framework for commercial CCS deployment. Following successful

demonstration, the pace of implementation of CCS across coal and gas generation should be determined by the delivery of UK carbon budgets, driven by the carbon price and the mechanisms which form part of the EMR package.

2) How should the ETS be re-structured, so that it could also provide meaningful incentives for CCS deployment? Should this be complemented by using instruments based on auctioning revenues, similar to NER300?

Climate change mitigation will require long term and deep rooted changes to the energy systems of Member States. The EU ETS is intended to be a central instrument of EU climate change policy, but has so far failed to provide a long term and enduring price signal in which investors can have confidence. It must be effective in delivering the long term investments that are required to deliver the EU ambitions through to 2050.

To remain credible, the EU ETS must deliver a price that drives investment. The delivery of interim Phase caps is important, but is not the sole criterion for success. A recalibration of the EU ETS supply is needed in the short term or the scheme will not deliver significant change until at least 2020. The Commission's backloading proposal is a practical step that can be taken within the current framework, but it is only a first step. An effective EU ETS requires fundamental structural reform including a transparent mechanism to adjust the supply of allowances. We would encourage the Commission to bring forward its proposals to undertake structural reform of the EU ETS as soon as possible.

In the UK, investment in low carbon technologies for the current electricity generation capacity replacement cycle will have a significant impact on the long term carbon footprint of the UK economy. In response, the UK Government is developing specific instruments to deliver the UK's emission reduction targets and supplement the EU ETS.

3) Should the Commission propose other means of support or consider other policy measures to pave the road towards early deployment, by:

a. support through auctioning recycling or other funding approaches
b. an Emission Performance Standard
c. a CCS certificate system
d. another type of policy measure

While a strong carbon price signal should be the primary driver for the effective and economic deployment of low carbon technologies across Member States, our analysis suggests that this will not be an efficient means on its own to drive low carbon investment because of the uncertainty associated with both carbon and fossil fuel prices. Low carbon generation, such as CCS, has high capital costs and low operating costs and hence is "price taking". The EU should therefore encourage the establishment by Member States of supporting market frameworks, such as the UK's EMR package, to help to reduce the cost of decarbonising the economy. The purpose of EMR is to create a market framework to deliver all three of the UK's energy policy objectives, namely decarbonisation, security of supply and affordability. These objectives are consistent with the EU's long-term energy and climate change ambitions.

We recommend that immediate priority is given to achieving successful end to end demonstration of CCS at industrial scale, and to structural reform of the EU ETS. In the interim, we highlight the UK's use of supporting policy measures through EMR and, in particular, the use of feed-in tariffs with Contracts for Difference (CfDs). Together with the carbon price floor, CfDs are capable of working for all low carbon technologies, including renewables, nuclear and fossil fuels with CCS. Such a mechanism will give such projects the stable and reliable revenue they need to support the large upfront investment required.

EDF Energy believes that an Emissions Performance Standard (EPS) could be a useful instrument in the future, as a form of regulatory backstop to ensure emissions from operational fossil plant are abated. However, in the short to medium term, we believe that investment in CCS is likely to be driven through incentive mechanisms such as CfDs rather than regulatory interventions such as tightening EPS levels.

We are not in favour of a tradeable CCS certificate system due to the risk of unanticipated interactions with the EU ETS. We believe that CCS deployment can be effectively supported by an ambitious technology neutral 2030 decarbonisation target with no sector specific targets that would undermine the carbon price.

4) Should energy utilities henceforth be required to install CCS-ready equipment for all new investments (coal and potentially also gas) in order to facilitate the necessary CCS retrofit?

We note the existing requirement in the CCS Directive for new fossil plant to be capture-ready, requiring developers to examine potential pipeline routes and storage options and ensure that sufficient land is available for a capture installation. We believe that this is a sensible approach which will ensure that the technology can be retrofitted once CCS becomes commercially available.

5) Should fossil fuel providers contribute to CCS demonstration and deployment through specific measures that ensure additional financing?

EDF Energy does not support any additional CCS levy for coal or gas operators to support either demonstration or deployment. Member States should be able to determine their own levels of support for pilot or demonstration projects, and the EU ETS should be the appropriate market signal for commercial deployment. We are concerned that any additional costs levied on coal operators would add further distortions, and raise concerns over implementation and hypothecation in practice.

6) What are the main obstacles to ensuring sufficient demonstration of CCS in the EU?

EDF Energy would identify the main obstacles to CCS demonstration in the EU as:

- Near complete collapse of the price of EU carbon allowances, which has significantly reduced the funding available through the NER300 scheme and removed any price signal for commercial deployment of CCS.

- Individual energy policy decisions by some EU Member States which effectively rule out the development of CCS projects.

- Lack of public acceptance and appropriate incentives for developing transportation pipelines and storage sites, as well as technical difficulties in coordinating the development of shared CO_2 transportation networks, which are key to lowering the costs of transport.

7) How can public acceptance for CCS be increased?

No comment.

EDF Energy
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