

The Committee on Climate Change
7 Holbein Place
London
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14 December 2018

Ørsted response to the CCC Call for Evidence on building a zero-carbon economy

We welcome the opportunity to respond to this call for evidence. Please find our responses to those questions where we have a particular expertise overleaf.

Yours sincerely,



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Ørsted

The Ørsted vision is a world that runs entirely on green energy. Ørsted develops, constructs and operates offshore and onshore wind farms, bioenergy plants and innovative waste-to-energy solutions. Ørsted UK focuses on the development, construction, and operation of offshore wind farms and waste-to-energy solutions. Headquartered in Denmark, Ørsted employs 5,600 people, including over 900 in the UK. Ørsted is the largest offshore wind farm developer, generator and owner in the UK, and the world.

Question 4 (International collaboration): *Beyond setting and meeting its own targets, how can the UK best support efforts to cut emissions elsewhere in the world through international collaboration (e.g. emissions trading schemes and other initiatives with partner countries, technology transfer, capacity building, climate finance)? What efforts are effective currently?*

There are a number of ways that the UK can support efforts to cut emissions elsewhere in the world:

1. The UK should continue and extend its efforts to support decarbonisation in other countries both unilaterally, and multilaterally through initiatives such as the Powering Past Coal Alliance (link below). As a company expanding into new markets for low-carbon generation, the positive role of the UK and other like-minded Governments is clear. The apparatus of Foreign Affairs and Trade Ministries are highly effective at supporting early conversations with countries looking to establish regulatory regimes to encourage low-carbon generation. Follow-up advice on policy can support countries to develop the right technical and regulatory frameworks to drive lowest-cost deployment of low-carbon technologies.
2. Through emissions trading schemes. Either by continuing membership of the EU-ETS, via a UK-ETS linked to the EU-ETS, or by a unilateral UK-ETS that could ultimately link up with other carbon-trading schemes in the future.
3. International collaboration on a multi-lateral carbon tax with those countries prepared to consider a coordinated approach. A paper on the benefits of this approach can be found at: <https://orsted.com/-/media/WWW/Docs/Corp/COM/News/FTI-CL-Energy-CPF-Executive-Summary.pdf>

Link to Powering Past Coal Alliance - <https://poweringpastcoal.org/>.

Question 6 (Hard-to-reduce sectors): *Previous CCC analysis has identified aviation, agriculture and industry as sectors where it will be particularly hard to reduce emissions to close to zero, potentially alongside some hard-to-treat buildings. Through both low-carbon technologies and behaviour change, how can emissions be reduced to close to zero in these sectors? What risks are there that broader technological developments or social trends act to increase emissions that are hard to eliminate?*

Enabling a flexible grid

4. There is the potential for improved collaboration between high-energy-use industry and low-carbon *generators to find solutions for the lower-cost provision of low-carbon energy to high energy users*. There are example of this collaboration already in the form of PPAs between renewable energy generators and energy-intensive users. As industrial energy-users are becoming increasingly electrified they are becoming increasingly knowledgeable about electricity markets and are becoming more flexible users. Their flexibility is enabling them to procure lower-cost energy whilst also providing system benefits. As technical and commercial solutions develop to support grid flexibility, there is a need for the regulatory framework to develop, not only to support existing development, but just as importantly to enable future innovation.
5. Additionally, policy makers across government can work to ensure that sufficient low-carbon energy generation is located near energy-intensive industry clusters. From our experience working in regions such as the North East and North West of England and in the Humber, there is an exciting possibility to develop further the offshore wind clusters that have developed in the UK and to find new benefits for energy intensive industries in these areas. The offshore wind industry has undertaken some work on clusters as part of its ongoing engagement with the UK Government.
6. A recent report from the Association Decentralised Energy (ADE), “Industrial flexibility and competitiveness in a low carbon world” highlights the increased opportunity to grid-flexibility that industrial engagement in ‘energy as a service’ can provide (link below).

New technologies

7. ‘Power to X’ is an emerging area of potential collaboration, particularly with regards to hydrogen. As the recent CCC report states, hydrogen has a

role to play in reducing emissions from industry and transport. As a result of Ørsted's experience in the industrialisation of new low-carbon technologies, Ørsted believes it is possible that the CCC has underestimated the potential for cost-reduction in electrolyzers – a technology that can be rolled out with modular units akin to the development of solar and wind power – technologies that have achieved a rate of cost reduction far beyond that predicted.

8. As well as the aviation, agriculture and industrial sectors mentioned in this question, it should be noted that there are other sectors that are hard to decarbonise when the aim is net zero-carbon such as freight transport.

Link to 2018 ADE report:

https://www.theade.co.uk/assets/docs/resources/Industrial%20flexibility%20and%20competitiveness%20report_v10%20web.pdf

Question 8 (Technology and Innovation): 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?

9. As the leading offshore wind developer in the UK and globally, we are confident that global deployment of technologies, particularly those whose production can be serialised, drives innovation and cost reduction. Offshore wind has demonstrated a decline in cost that is deeper and faster than anyone predicted. A joint strategy agreed between the industry and Government in 2013 (line below), set an ambitious target for the cost of offshore wind to fall to £100/ MWh by 2020 (new FIDs taken in 2020) and a 2015 EY report (link below), predicted that offshore wind would reach a cost of EUR90 by 2020. In fact, the price of contracts awarded in 2017 was £57.50 and offshore wind is now cost-competitive with new-build conventional generation.
10. The reason for cost reduction are multiple including: innovative new technology; improved and more sophisticated supply chains; economies of scale; innovative methodologies in construction and operation. Global deployment, leading to a significant increase in opportunities in the market, provide incentives for both large companies and SMEs to invest in R&D and new facilities, encourage new and innovative market entrants, and allow for economies of scale. As much of the innovation in methodologies of construction and operation are driven by 'learning by

doing', increased deployment also rapidly increases the rate of this learning and allows for greater transfer of knowledge.

11. Global and country-specific targets that are visible, timely and clear, are important components in cost-reduction. They give confidence in future demand, both in-country and in the global market, and allow companies to make the investments that drive cost reduction. They also prevent sudden expansion and 'boom and bust' scenarios that are damaging to the industry and which can stall reductions in cost.

Offshore Wind Industrial Strategy 2013:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243987/bis-13-1092-offshore-wind-industrial-strategy.pdf

EY 2015 report:

<https://www.ewea.org/fileadmin/files/library/publications/reports/EY-Offshore-Wind-in-Europe.pdf>

Question 9 (Behaviour change): How far can people's behaviours and decisions change over time in a way that will reduce emissions, within a supportive policy environment and sustained global effort to tackle climate change?

12. Ørsted is both a generator of utility-scale low-carbon electricity and a B2B retailer of gas and electricity. From the point of view of a generator of low-carbon electricity, the decisions of businesses and whether or not they want to prioritise the purchase renewable energy impacts on the demand for low-carbon generators. The extent to which a market for low-carbon generation for PPAs can develop in the UK will be an important factor on the kind of support mechanisms that are required to enable greater penetration of large-scale renewable energy projects.

Question 10 (Policy): 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 positive lessons from the ten years since the Climate Change Act give a clear guidance on the future role of government policy.

14. Whilst R&D at low-Technology Readiness Levels is vital, it is only through deployment that significant cost reduction can be achieved. The impact on cost-reduction of serialised production has been consistently underestimated and this has implications for the future cost of batteries, electrolyzers and other technologies.
15. As discussed above, transparent and early statements on targets gives businesses confidence to invest in new technologies, and in facilities and people. It also gives clarity to businesses and consumers alike if the Government is clear that support for new technologies is intended to support them down the cost-curve and that high rates of subsidy are not intended to be a long-term solution.
16. There still remains some low-hanging fruit and no-regret actions the Government can make. For example, regulatory and other support for the use of biomethane in heating and transport offers instant reductions in carbon emissions without restricting future choices.
17. If the UK Government decides to decarbonise deeper and faster there are implications for the power sector. It is very likely that there will be an increase in electrification of the transport and probably of the heating sectors, which will result in higher demand for low-carbon electricity and there will therefore have to be a greater focus on lowest-cost solutions for grid-integration of intermittent renewable generation. Similarly, it is likely that hydrogen may have to play a greater role.

End.