~~Environmental Audit Committee~~

~~Inquiry: Technological Innovations and Climate Change: Offshore Wind~~

Written Evidence from ScottishPower

Introduction

The UK is now a world leader in offshore wind, a renewable generation technology delivering employment opportunities across the country and, in particular, in a number of coastal locations which have faced employment challenges over the years. For our part, we have constructed (jointly with Orsted) the offshore windfarm at West of Duddon Sands (389 MW) under the Renewables Obligation and are progressing with the construction of the East Anglia ONE offshore windfarm (714 MW) having won a Contract for Difference ('CfD') in the first CfD auction in 2015. We also have ambitions for further deployment of offshore wind off the coast of East Anglia through the Government's CfD auctioning programme.

Questions

1. How effective has the Government's offshore wind Sector Deal been in moving the sector towards becoming an integral part of a low-cost, low-carbon, flexible grid system and boosting the productivity and competitiveness of the UK supply chain?

The UK Government's Sector Deal has been an excellent platform for driving forward the offshore wind sector, with clear commitments from both the industry and Government providing certainty and confidence to developers, investors and the supply chain.

As a member of the Offshore Wind Industry Council[1] we are working collaboratively with stakeholders, the Government, and other bodies to develop tangible solutions for achieving the ambitions of the Sector Deal. This co-ordinated activity is playing a critical role in addressing the strategic deployment issues facing the industry, including aviation and radar, onshore and offshore transmission, and cumulative environmental impacts. Given the increased ambition scenario of 40GW of offshore wind deployment by 2030 set out in the UK Conservative Party Manifesto at the UK General Election in 2019, the activity undertaken through these partnerships must accelerate to ensure this target can be realised in a sustainable and timely manner.

As part of the Sector Deal, the Offshore Wind Growth Partnership[2] (OWGP) has been established to boost productivity and support the development of high growth companies in the UK offshore wind supply chain, to help achieve the industry target of 60% UK content. The OWGP has already announced funding success for seven UK companies in offshore wind supply chain improvement projects, in addition to completing its first strategic supply chain assessment for foundations. It will be important that the work of the OWGP continues to be sufficiently supported by Government and that the focus remains on delivering the required initiatives despite the current challenges that have arisen as a result of COVID-19.

[1] https://www.owic.org.uk/
[2] https://owgp.org.uk/

2. What level of output can the sector deliver in the UK, and what Government support would be needed to achieve this?

Offshore wind will have a critical role to play in the low carbon transition in the UK to meet the target of Net Zero across the UK by 2050. We welcome the Sector Deal ambition of 30GW of offshore wind by 2030 and the increased ambition of 40GW in the UK Conservative Party Manifesto for the UK General Election in 2019. We believe these targets are feasible provided enabling actions are taken by Government, regulators and stakeholders.

Continuing delivery at scale in the offshore wind sector is vital to meeting the UK's offshore wind ambition, whilst continuing to keep downward pressure on the costs of deployment. We strongly consider that the framework of competitive CfD auctioning is the right one to drive further investment in low carbon generation and cost reduction. The CfD framework, based on the competitive auctioning of long-term contracts, has proven to be a robust, bankable, and sustainable framework supporting the necessary investment in renewable generation whilst driving down costs.

Setting out a clear forward trajectory for regular CfD auctions is important in providing the kind of visibility against which developers and the supply chain can plan future investment options. Accordingly, we welcomed the UK Government's commitment in summer 2018 to holding a CfD auction approximately every two years from 2019. Looking out beyond the next allocation round in 2021, we consider that there is merit in assessing the case for holding regular CfD auctions on an even more frequent basis so as to optimise timely deployment of projects through the 2020s.

3. How might the UK take advantage of further technological advances in offshore wind technology, particularly in relation to floating arrays?

Floating offshore wind could have a role in the long-term decarbonisation of the power sector, subject to seeing cost reductions in its future deployment at scale. Cost reductions will be driven by continued technology rationalisation and innovation through early development projects combined with creating a UK market with a clear pipeline of commercial scale projects with increasing standardisation.

We welcome the UK Government's proposal to facilitate the potential deployment of floating offshore wind projects through the CfD framework. We believe this is the right approach to bring forward deployment of this technology, providing the necessary route to market and policy framework to promote the development of floating offshore wind and enable supply chain investment and further learning.

Floating offshore wind demonstration projects should help to promote increased confidence for developers to engage in large-scale commercial floating wind projects in the medium term. Such demonstration projects might well be located near to existing offshore wind sites or by incorporating a proportion of floating technology with a fixed-bottom project which could help drive costs down. It will be important to ensure that any regulatory barriers to hybrid projects are removed.

To provide a clear view of the opportunity this technology can bring to the UK domestic offshore wind market and supply chain, an industrialisation plan for floating offshore wind should be developed in partnership between Government, industry, supply chain and other relevant stakeholders.

4. What support does the sector require to keep pace with the most cutting-edge innovations, such as in blade technology?

As part of the Sector Deal, the Offshore Wind Innovation Group was established with the aim of encouraging innovation in the sector. However, we believe that there is a role for more direct support to viable future offshore wind supply chain companies to enable innovative products and services to be developed and then delivered at competitive prices. This would help to ensure that the UK can remain a leader in innovation and new technology in the global offshore wind sector. Additionally, we support steps to encourage the UK supply chain to participate in periodic industry reviews of supply chain capability so that there can be a better understanding of where strengths and weaknesses lie as part of the embedding of a strong culture of effective lesson learning.

It is also important that developers and supply chain companies work closely together to facilitate the timely development of innovative solutions which benefit the whole sector e.g. blade technology. Moreover, further support and funding for feasibility studies and innovative testing and trials could help to promote more proactive solutions to be developed.

To support the long-term growth and development of the UK's offshore wind industry, it is important that any innovation support is not focussed solely on cost reduction but also targets the long-term challenges ahead, including floating technology and system integration.

5. What is the UK industry doing to promote the sustainability of offshore wind arrays throughout their entire life-cycle from development through to decommissioning, and to improve maintenance and end-of-life repair?

Within the UK offshore industry there are many examples of good practice to promote sustainability throughout the entire life-cycle and to improve end-of-life repair. Innovations in this area have proven effective with arrays now being planned for a 30-year life, rather than 20-25 year.

Multiple innovations have taken place already focussed on improving maintenance and extending the operational life span of arrays. For example, the use of Unmanned Aerial Vehicles (UAV) for blade inspections reduces the health and safety risks associated with vessel-to-turbine transfers. They are also quicker and cheaper than traditional rope-access and provide good quality inspection outputs. Additionally, advances in data gathering and management also offer benefits to improve operational life-span, as data can be used to monitor operations and guide methods to reduce the impacts of events such as turbine stoppages.

With regards to end-of-life repair, the industry recognises the need to sustainably manage options to reuse or recycle turbine components. In terms of major turbine components these tend to be refurbished and reused. For other major components which are not suitable for refurbishment, they can be processed into scrap metal to be reused and recycled. In some cases, the components may also be donated to educational institutions for training purposes, e.g. courses for training new wind turbine technicians. For smaller components, there is an opportunity to improve the reuse of these items and we have been working on trials with a third-party to further the reuse and recycling of these parts e.g. pumps, motors, electronic equipment.

Whilst many components can be reused or recycled, recycling of blades (which are generally made from composite materials such as carbon or fibre glass) requires specific processes. Further innovative methods of recycling are being developed through industry and academic research

projects investigating future options for the disposal of wind turbine blades. This is an active area across the industry with several ongoing studies, including Life Brio[3] which we are involved in.

6. How well is the UK industry managing the environmental and social impacts of offshore wind installations, particularly on coastal communities with transmission-cable landing sites?

The industry successfully adheres to the robust policies and processes designed to manage the impact of connections for offshore wind and is doing so within the framework of rules set by the UK Government and Ofgem. The industry is also working collaboratively with Government, Statutory Nature Conservation Bodies and key environmental stakeholders across the UK to improve our understanding of the potential environmental impacts of offshore wind at the future levels required to meet Net Zero ambitions.

Given the scale of the challenge associated with meeting the UK Government's Net Zero target, there is good reason for review of the current arrangements with the aim of moving to more strategically planned infrastructure which would ultimately reduce both environmental and financial costs.

7. How well is Government policy supporting innovation in transmission technology to improve the efficiency of electricity transmission?

In order to support the deployment of offshore wind, anticipatory investment and work is needed to ensure grid resilience and stability. This work will be essential to meeting the offshore wind deployment targets in the Sector Deal and making progress towards meeting the Net Zero challenge.

Offshore wind will play a significant role in the UK's future electricity system, including providing flexibility to the system. Whilst there has been some progress in this area, more needs to be done to unlock the potential for flexibility services from offshore wind in the short and medium term.

Government policy to support innovation in this area should also cover hydrogen and storage co-location. The current arrangements with offshore transmission mean that generators cannot own the network or station infrastructure where onshore storage assets would be located, removing the co-location aspect of offshore projects. There is still scope for "virtual" co-location, but this would require additional costs, whilst moving storage assets offshore is not feasible. Thus, prioritisation of a workstream in this area could facilitate access to the potential synergies offshore wind, hydrogen and storage have for improving transmission efficiency.

8. Looking to the future, what can the onshore wind sector learn from the offshore success story?

To date, we have invested in and developed over 1.8 GW of onshore wind projects with a focus on deployment in Scotland. Work by BVG Associates, assessing the economic benefits of onshore wind, based on investment in eight of our recent projects in Scotland, found that there were significant economic benefits to the country based on impressive UK content levels of around 66%.[4]

Onshore wind is now the lowest cost technology for new electricity generation in the UK and we see substantial opportunities for the continued development of suitably located onshore wind projects across Scotland. Independent analysis[5] suggests that a series of five onshore wind CfD auctions of

[3] http://www.lifebrio.eu/index.php/en/
[4] BVGA Associates, *Economic benefits from onshore wind farms*, September 2017
[5] BVGA Associates, *The Power of Onshore Wind*, June 2018

1GW each could create up to 18,000 jobs during peak construction years, and 8,500 long term jobs during operation, with the bulk of onshore wind projects delivered in Scotland. These projects would have very high local content levels (up to 70%), thereby delivering industrial benefits across the country.

We therefore welcome the UK Government's announcement that the next CfD auction in 2021 will include auctioning for onshore wind projects. Building on the success of the CfD programme to date by running a Pot 1 CfD auction for onshore wind and other 'established' renewable technologies will be vital to making further progress with power sector decarbonisation at lowest cost whilst delivering jobs and economic benefits across the UK.

9 June 2020