

National Infrastructure Commission,
Finlaison House,
15-17 Furnival Street London,
EC4A 1AB

4 February 2022
Our ref.: NIC Baseline Report
Doc. Id: NIC Response

Ørsted Response to Baseline Report

The Ørsted vision is a world that runs entirely on green energy. Ørsted develops, constructs and operates offshore and onshore wind farms, solar farms and energy storage facilities, bioenergy plants, an innovative waste treatment plant (Renescience), and provides energy products to its customers. Headquartered in Denmark, Ørsted employs 6,500 people, including over 1,000 in the UK.

Ørsted welcomes the publication of the NIC's Second Baseline Report and is pleased to have the opportunity to respond to the Call for Evidence. This is an important opportunity to provide reflections and input to the NIC that can help to inform the analysis that will go into further recommendations to the challenges identified.

Reaching Net Zero is contingent on having infrastructure that can facilitate and enable solutions to complex, cross-sector problems. This infrastructure will bring forward required investment and create more efficient outcomes. In the remainder of this letter, we set out the key areas that we think are of most importance to this report and represent significant challenges that require solutions.

Electricity Transmission

We agree with the Commission's inclusion of faster electricity system decarbonisation as a key challenge. The carbon intensity of the electricity system has reduced significantly over the past 30 years, and there is a pathway to further decarbonisation. However, that pathway depends on a number of enablers, a critical one being transmission infrastructure. This becomes especially important as electrification offers decarbonisation solutions to a number of end use cases that have not yet reduced their carbon intensity materially, and therefore the electricity transmission and distribution infrastructure will need to:

- Integrate a higher number of renewable production assets from a more diverse set of locations;
- Expand in terms of capacity to meet the increased demand for electricity; and
- Be reinforced in order to ensure security of supply.

Anticipatory investment in transmission networks is required in order to provide the requisite levels of financing in the timescales needed to meet the above requirements. If 2030 targets are to be met, there is a need to begin this investment now.

There is also a need for further transmission investment in offshore networks. As offshore wind capacity grows, the way in which it connects to the existing onshore transmission infrastructure will need to be reviewed. The Offshore Transmission Network Review is the primary vehicle through which this will be conducted. It is vital that this delivers clarity on roles and responsibilities for network planning, development,

construction, and operations. It also needs to make clear how participants should coordinate activities, and the routes to anticipatory investment.

Our ref.: NIC Baseline Report
Doc. Id: NIC Response

Supply Chains and Ports to support Renewable Deployment

In order to decarbonise the electricity system quickly, the UK needs to deploy large volumes of low carbon generation. The UK currently has 10GW of offshore wind capacity, and over the next decade, will need to deploy approximately 3GW a year to reach its 2030 target. Such a significant increase in deployment rates requires a

strategic approach to investment from industry and government in the facilities and capabilities needed to support the industry.

Investment in the UK's port infrastructure is also required to support new and emerging technologies, such as floating offshore wind. This is important for delivering the UK's Net Zero ambitions as well as enabling the development of a domestic supply chain for floating offshore wind. Larger, deeper ports capable of lifting heavy loads will be required to support the manufacture and installation of floating offshore wind substructures. This will require UK-wide planning and investment to enable the deployment of the UK's floating offshore wind pipeline at scale and pace.

Whole System Solutions

A number of challenges related to reaching Net Zero occur across sector boundaries and will only be solved through finding whole system solutions. There is little explicit mention of whole system solutions in the report, but it is important to recognise that whole system thinking is particularly important in achieving decarbonisation. Building infrastructure that serves and connects multiple sectors will be a key enabler. Some examples of where this is important are set out below:

- New infrastructure to support decarbonisation through electrification will be needed especially in transport. This could be in the form of expanded EV charging networks, but also the upgrade of existing distribution networks that can handle the increased load, as well as tolerating and accessing the greater levels of demand flexibility that result;
- Low carbon hydrogen has great potential to decarbonise hard to abate sectors. Finding hydrogen-based solutions can bring diverse sectors closer together, such as offshore wind and aviation through synthetic fuel production. The infrastructure solutions will have to be developed with all players involved, in order to find the optimal solution that bears in mind locational constraints (i.e. offshore wind locations are relatively fixed) and demand requirements; and
- Accessing demand flexibility in electricity networks requires operators of transmission and distribution networks to work together to ensure that the flexibility is unlocked. This includes identifying and commercialising the opportunity in a way that works across technical boundaries. A solution that optimally apportions costs and benefits is needed so that flexibility is incentivised and accessed.

Seabed Use

One particular whole system example is the need to find solutions to real estate. Decarbonisation will require innovative solutions on how best to manage and utilise

seabed. The seabed leased by The Crown Estate will be critical, as it will be used for locating offshore wind production sites as well as sequestration for carbon capture. There is a need to ensure that sectors and technologies that operate offshore are able to coexist in a way that maximises decarbonisation potential at the greatest value to consumers.

Our ref.: NIC Baseline Report
Doc. Id: NIC Response

Waste Treatment

To support the UK's net-zero and circular economy ambitions, new innovative recycling technologies need to be scaled up quickly. Ørsted agrees with the NIC that the current recycling performance trajectory will not meet the ambitious recycling targets. To overcome the potential barriers, the Government should proactively promote innovative recycling technologies and introduce stronger incentives, both policy and financial, that would move waste further up the waste hierarchy. Below we set out what we believe to be the key points in this area:

- **Policy certainty and support are essential to manage hard-to-recycle and contaminated waste:** New technologies and solutions, such as chemical recycling technologies, have great potential to reduce hard-to-recycle waste and improve environmental values. It is important to recycle and circulate these waste materials into the economy, as opposed to incineration. However, as chemical recycling technology is still at its early development stage, greater policy certainty and potential financial support will be essential to move the industry forward.
- **Sustainable Aviation Fuel (SAF) derived from Recycle Carbon Fuel (RCF) will provide an alternative solution:** We understand that Department for Transport (DfT) has consulted to include RCF as an eligible feedstock for the future SAF support scheme. Ørsted views that the gasification of RCF to SAF will be less favourable than chemical recycling, as the process would be classified as Energy Recovery. However, this will be a better solution than incineration, due to its value in decarbonising the aviation sector. The upcoming SAF obligation will allow RCF to be properly valued and move away from incineration, with a better environmental outcome.
- **Public funding support for new innovative recycling projects:** New recycling solutions could be capital intensive, especially for large projects like Renescience. Government grants in the form of innovation funds would encourage the industry to innovate with reduced project risks, which in turn will support the society to reach net-zero at a faster pace.

If you have any questions about this response, please do not hesitate to contact me.

Yours sincerely
Ørsted

David Wellard
Regulatory Affairs Manager

davwe@orsted.com
Tel +447825857073