Open Networks Project team
Energy Networks Association
4 More London Riverside
London
SE1 2AU

Submitted by email to opennetworks@energynetworks.org

Ørsted response to the consultation on Future Worlds impact assessment

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The Ørsted vision is a world that runs entirely on green energy. In the UK, we develop, construct and operate offshore wind farms, battery storage, and innovative waste-to-energy solutions. We also offer flexibility solutions to our industrial and commercial customers as well as supplying them with electricity and gas. Headquartered in Denmark, Ørsted employs 6,000 people, including almost 1,000 in the UK. Ørsted is the largest offshore wind farm developer, generator and owner in the UK.

We welcome the opportunity to respond to the ENA impact assessment of the Future Worlds consultation. We strongly believe system operation is most efficient at a national level as opposed to being broken down into local markets. The system operation of a smart and flexible grid is best led by a single entity coordinating small local entities as it delivers a smoother, efficient and more consistent process.

We do not doubt that coordination at the distribution level will become increasingly important in securing system stability. However, whilst decentralisation of energy resources may occur, there remains a clear role for transmission even as we transform the energy system away from thermal generation.

- Vast amounts of energy will continue to be put onto the transmission network. For example, offshore wind alone is set to grow from 8GW to at least 30GW by 2030; we believe it may even exceed 50GW by 2050. The large amounts of power being generated by offshore wind can be transmitted across Great Britain to go to where the demand is needed, as well as provide ancillary services that power plant scale generators are able to deliver.

- Distributed energy resources (DER) are sited where the natural resources occur and also where network constraints are not a blocker to development; not where the demand lies. DER therefore still relies on the transmission network to export power to a much wider geography, and this should be coordinated centrally.

As the transmission network continues to provide a backbone for the UK electricity network, we believe that a centralised system operator is optimally placed to

deliver market actions in the most secure and efficient manner. Of the future world options considered in the consultation, World D[1] is the most closely aligned with Ørsted's preference for a centralised model of system operation, but we also welcome the inclusion of insights from World E[2].

World D best reflects the activities presently carried out by National Grid ESO (NGESO) as the overarching responsible party for procurement and dispatch of flexibility services. We believe that as the system evolves, the ESO should take a leading role in not only helping DNOs to become more sophisticated, but also continuing to lead and coordinate markets as the DSO model becomes increasingly relevant. The ESO needs to remain a leader so as to prevent market fragmentation, which in an electricity sector populated by regulated monopolies would represent a market inefficiency and loss of value to consumers. Additionally, World D does not deviate significantly from existing arrangements, making it the least disruptive and least cost to implement compared to the other worlds.

World E entails independent party(ies) facilitating the procurement and dispatch of flexibility services. An independent coordinator provides neutral market facilitation which addresses the numerous problems associated with conflicts of interests. We believe that a truly independent ESO could provide the same level of market objectivity without the complexity of information management associated with World E. Furthermore, given that the operation of the flexibility coordinator ceases in the event of a system emergency, the ESO should retain the sole responsibility of coordinating system restoration, to avoid unclear ownership of actions.

Reflecting on the assessment of the future worlds, we can further expand on why a single national market is more important for three reasons:

1. **A level playing field and price homogeneity across a large geography is required to enable a strong competitive market, and provides a better value to consumers**

We believe it is better for competition and value to consumers that flexibility providers participate with each other as part of a wider geography, as expected in World D. This lowers the cost and improves liquidity by having more players in a standardised service across all the regions.

We believe that DERs should have an equal opportunity to access all relevant markets. Having a Distributed System Operator (DSO) as the appointed system operator of a local geographical area poses a risk of price distortion by largely limiting activity to local market or DSO to DSO trading and preventing exposure to national, or indeed European markets via initiatives such as TERRE. In doing so, DSOs with extra flexibility services situated in regions such as Scotland may find

[1] The ESO takes central role in procurement, dispatch and facilitation of DERs, with the DSO informing it of its requirements

[2] National or regional third party(ies) act as the neutral facilitator for DERs, to the ESO and DSO

additional barriers to trading in the South East regions where a more liquid and therefore efficient market may exist.

There is also a concern that each DSO or local market may resort to creating bespoke products to solve specific local network issues that not all service providers could access. This would represent a further breakdown in price liquidity and would represent a step backwards from efforts such as SNAPs and the programme under the Future of Balancing Services, which has consolidated products over time that were poorly procured or were limited to a handful of providers. In this regard, the ESO plays a central role in creating standardised, tradeable flexibility products that should meets local needs at large, but adds to the depth of liquidity of the market.

An example of a standardised platforms are stock exchanges in the financial markets, which act as a central, transparent liquidity pool. Standardised products in the form of stocks and options are offered to market participants in a central venue where all information is freely accessible. Market participants from all regions are able to buy and sell similar products, with standard terms and conditions in place. This creates a very liquid market and efficient price formation. The scrutiny of so many market participants, as well as effective regulation acts as a strong set of checks and balances to prevent market manipulation. Should the electricity sector move away from a centralised market and pursue the creation of multiple local markets, these kinds of benefits fade away. Additionally, issue of expensive duplication of systems and processes in each locality would reveal itself, systems that the ESO already possesses.

We also question how the system boundaries between DSO regions can be appropriately set to design around optimal markets that could mitigate some of these risks. The present boundaries were set up based on technical criteria, but not necessarily market based criteria that would facilitate efficient local system operation. An outcome which pursues World A but retains existing boundaries may not offer the most value to consumers.

As a result, we believe evolving the role of the ESO to lead and coordinate markets at the distribution level is the most appropriate. Adopting this approach maintains an efficient, uniform, and borderless market that can successfully coordinates between transmission and distribution boundaries.

2. Safeguarding security of supply is best delivered at a national level, instead of a local level

The ESO should maintain the responsibility of national system balancing and emergency events, in order to ensure overall security of supply. Rather than a bottom-up approach to balancing, national balancing should be prioritised with the whole electricity energy system in mind.

The impact assessment added the assumption that DSO activities/needs will be prioritised, with the residual flexibility offered by DER made available to the ESO. Considering the potential complexities of promptly coordinating or gaining visibility of each DSO regional balancing activities ahead of national needs poses a real risk to national balancing and a reliable service. Running a balancing process twice at both local and national level will lead to over-procurement of residual flexibility by the ESO in a bid to pre-emptively avoid any possible delays of DSO balancing notification, therefore impacting on consumer costs.

Given the intention of this assumption is to encourage local flexibility and reduce the amount of national balancing required, we would like to see more quantitative analysis put forward that independent local balancing is better than the current practice. The prioritisation of regional balancing and a recurrent focus on avoiding curtailment of distributed energy resources at low voltage level, could result in the unintended redundancy or sub-optimal deployment of existing transmission connected generation which provides the same capability.

3. Implementation costs and operational complexities of regional DSOs deter value to consumers

The substantial investment and annual operating costs associated with setting up and operating regional DSOs conflicts with the principle of offering high level of customer service at lower costs. This calls the viability of a regional market led world into question, as it creates the risk of price inequality for consumers where some local markets may be more efficient than others, which may be due to reasons such as arbitrary boundary setting, or a less sophisticated DSO compared against another.

Additionally, the resulting extensive complexity in coordinating the various regional balancing actions between neighbouring zones as well as a nationwide system operator has not been priced; therefore, the full cost remains unknown. This complication should be appropriately reflected in the qualitative assessment, under a full cost benefit analysis as well as under the Economic and Management cases of HM Treasury's five case model.

Please do not hesitate to contact me (chinw@orsted.co.uk, 07854 225866) should you have any questions about our response.

Yours sincerely

Chiamaka Nwajagu
Regulatory Affairs Analyst