Offshore.Coordination@ofgem.gov.uk
8th September 2021

Dear Offshore Coordination Team,

Changes intended to bring about greater coordination in the development of offshore energy networks

EDF is the UK's largest producer of low carbon electricity. We operate low carbon nuclear power stations and are building the first of a new generation of nuclear plants. We also have a large and growing portfolio of renewable generation, including onshore and offshore wind and solar generation, as well as energy storage. We have around five million electricity and gas customer accounts, including residential and business users.

EDF aims to help Britain achieve net zero by building a smarter energy future that will support delivery of net zero carbon emissions, including through digital innovations and new customer offerings that encourage the transition to low carbon electric transport and heating.

We welcome Ofgem's consultation on this important policy framework which is essential to support the delivery of the UK offshore wind ambitions.

We agree that we need to enable, in stages, greater coordination of the offshore electricity network. The aim is to reduce costs to consumers and at the same time reduce risks to overall delivery of this low carbon infrastructure.

This consultation focuses on the transitional steps to the long-term goal of a fully integrated offshore transmission system enabling the UK to fully realise its potential offshore wind resource. In assessing these transitional steps, it is essential to take account of the potential impacts they have on the ultimate delivery of this long-term goal.

In general, we believe that greater weight should be given to early actions to move towards a fully integrated grid. The scale of change needed to the offshore and onshore grid is very significant and needs to be considered holistically. A clear long-term goal of fully integrating the onshore and offshore grid with, as far as possible the same technical and commercial arrangements, would help to reduce the degree of incremental regulatory change and simplify some of the transitional steps discussed in the consultation.

We provide specific comments and views in the attached annex which addresses each consultation question. If you have any questions, please contact me, or Binoy Dharsi on 07790 893 373.

Yours sincerely

AM Cox

Mark Cox, Head of Nuclear & Wholesale Policy and Regulation

EDF Energy
90 Whitfield Street
London W1T 4EZ
Tel +44 (0) 00 0000 0000
Fax +44 (0) 00 0000 0000

edfenergy.com
EDF Energy Plc
Registered in England and Wales
Registered No. 02366852
Registered office: 90 Whitfield Street
London W1T 4EZ

Early Opportunities questions

Question 1: ***Are there any concepts we have not identified developers may wish to progress?***

No.

Question 2: ***Should anticipatory investment risk be shared with consumers? If it should, what level of risk is it appropriate for consumers to bear?***

Yes, anticipatory investment (AI) risk should be shared with consumers and with it consumers should get a share of the benefits of coordination. At present the only agreed connection topology coordination with others in the same region is where the adjacent developers that agree to co-ordinate, are owned by the same firm. There is not yet any example of this network coordination between differently-owned neighbouring/regional wind farms. Clearly there is too much actual or perceived risk. This has led to a proliferation of cables to shore; there are now over 81 of them. In terms of total environmental shoreline habitat impacts, and of whole system costs which ultimately fall on consumers, this isn't desirable.

To enable a more efficient level of anticipatory investment in offshore transmission infrastructure, we agree that it is necessary for AI to be adequately identified and the risk shared between consumers and developers. All economic and efficient AI incurred by developer A for the connection of another known development B, should be included in the final transfer value of the offshore transmission assets at the end of the tender process (when ownership of the transmission assets required for the first generator is transferred – "adoption").

The more clarity there can be on this regime, with clear updated OFTO guidance, the easier it will be for developers to have confidence to agree to, specify and proceed with GFAI investment with regard to co-ordinating connection with a neighbour to reduce total costs, reduce shoreline impacts or increase system security.

Insofar as perhaps not *all* AI costs are passed to consumers, there would need to be rules so that a second-connecting developer will need to contribute towards its share of any developer AI costs to the first developer which prepared the way for it via a co-ordinated connection scheme, so that any AI costs payable by developers and not consumers, are shared between developers and not borne by the more advanced of the two (or more) – this would avoid creating a regime where there is an incentive not to "go first" in a co-ordinated connections region.

The contribution from the developer of the second project would have to be proportionate to the potential benefit it would be likely to derive from the co-ordinated infrastructure, and not excessive.

Question 3: ***For concepts that [are] intended to provide a wider system benefit, e.g. by mitigating an onshore constraint, how should the need for investment be demonstrated by the developer?***

The only party which can independently verify that an offshore transmission infrastructure topology has a given estimated value in mitigating an onshore constraint, e.g. by acting as a quasi-bootstrap at times, is the future system operator (FSO), or in the very short term the ESO. An advantage of the proposed creation of the FSO will be that it won't have any financial interest in the onshore network, or in new onshore build, so its advice will be independent in this respect. The ESO is part of National Grid Group, which also contains NGET, so the perceived independence may be less.

We would therefore suggest that a developer positing value to a given offshore transmission infrastructure topology in relation to the net present value of alleviated future onshore constraint costs, should look to source these cost estimates from the FSO, which should have a licence obligation to provide timely analysis and assistance to developers in this matter on request by way of cost-benefit analyses and impact assessments (and perhaps proactively, where the FSO is aware of future potential onshore-constraint-alleviating value that others with less whole system insight may not perceive).

Question 4: ***What options are available to developers in demonstrating a reasonable expectation they intend to connect to the system?***

Developers should be able to demonstrate that they either have a seabed lease in their proposed development area/block, or at least an option to lease the relevant part of the seabed. Consents for on and offshore works and a connection agreement are also possible extra indicators of still firmer development intent. If they lack these, there is presumably a risk of potentially exposing consumers to a risk they cannot control if consumers underwrites GFAI or WNBI costs at this stage, when the project may, regardless of wind potential and development costs versus potential income, simply be unable to develop on the seabed there.

That said, the ESO (FSO) should be aware of the likely offshore development areas and already be thinking strategically about what an efficient coordinated network should look like independent from any specific developer's intent to connect although this is likely to be much more relevant for the Pathway to 2030.

Question 5: ***To what extent do you agree with our proposals to remove barriers to the Early Opportunity concepts? Please explain your answer.***

Changes will be required to the CUSC to facilitate appropriate risk sharing between developers and consumers for AI. Changes will be required to the Grid Code regarding the method for connections to, and the operation and use of, more integrated offshore network designs.

We note your view that a Significant Code Review is not required for enabling Early Opportunities for co-ordination between reasonably advanced projects, as the changes may not be sufficiently fundamental or widespread/substantial to justify such a review (an SCR). We agree.

Question 6: **Do you believe a Significant Code Review is required to give effect to a potential decision to 'share' AI risk between consumers and developers?**

No, as noted above.

Question 7: ***Do you agree with Ofgem's proposed approach to deliver the objectives of Early Opportunities workstream?***

Yes

Pathway to 2030 Questions

Question 8: ***We consider that a holistic network design (HND) will result in a more coordinated, economic and efficient network. Do you agree? Please give reasons for your answer.***

Yes. The design of coordinated connections will need to take account of (a) SQSS rules such as GSR011, (b) any engineering solution constraints on the size of switchgear that can be used in meshed HVDC networks to try to overcome (a), and (c) the economic and environmental, such as shoreline impact, benefits of each coordinated approach under consideration in each region, and as a whole. The HND should try to align the onshore and offshore grids as far as possible so that whether the network is offshore or onshore the same framework and arrangements apply. One example of this would be to review the definition of MITS to be universally applicable onshore and offshore.

One point that is not clear from the consultation is the need for this HND to take into account the onshore grid works. It only refences the onshore grid works that are needed for the offshore developments. We believe that this is either incorrectly described or needs to be expanded to make sure that the onshore network assessment includes expected generation/demand developments onshore. We note sector targets for solar of 40GW by 2030 and onshore wind of 30GW by 2030. These developments and the broader network evolution should be carefully considered as part of the HND to ensure it is fully robust.

Question 9: ***Do you agree with the planned work for a detailed network design (DND) offshore?***

Yes. The offshore part of the DND takes the HND as a given, and prepares necessary local details to minimise environmental impacts as per the HND approach, with any innovative local mitigations that can be identified. The DND Offshore should be at a level of detail that allows licensees or bidders to proceed with delivery of network assets, such as pre-consenting and detailed technical studies.

Question 10: ***Who do you believe is best placed to undertake the detailed design for assets that are in offshore waters?***

These assets in relation to future "Pathway to 2030" projects should be designed and developed by the party most able to undertake the work efficiently. For detailed designs involving coordination between significant onshore works and multiple developers it is likely that the incumbent TO may well be best placed to develop the detailed design with the relevant developers and oversight from the ESO/FSO.

Question 11: ***Do you agree that the existing developer led model should be retained and applied where the HND indicates a radial solution should be used? Please explain your answer.***

We expect cases where the HND indicates a radial solution should be used, without connections to neighbouring developments, to be quite rare, relating to rather geographically isolated licensed seabed areas. However, the existing developer led (generator build) model could work, and would be ideal in these cases.

There will be some cases in which a radial solution could be shared with other parties, or split between offshore substations. In this instance, the generator may not wish to take on the build of both sections of the radial link and therefore the regime must be able to accommodate this flexibility.

Question 12: ***Please provide your views on each of the delivery options we have described in this document. In providing your views, please comment on the issues we have raised. Please also give your views on the implementation issues we have raised.***

Overall the best option is likely to depend on what the HND concludes. For highly complex offshore developments involving close coordination with onshore works and multiple developer connections with real risk of delaying delivery of 2030 targets, option 1 and option 2 have a lot of merit. For much simpler designs there is no reason to step away from the existing model materially, i.e. option 6.

In terms of the other options the key question lies in the capability and skills of existing and future OFTOs to be able to undertake the various stages and whether they will have the capacity and capability to meet the scale of requirements expected. There have been no early OFTO development to date despite being allowed for under the existing regime, so it is hard to know their effectiveness. Our main concern with these options is the risk of delay when the scale of challenge in delivering these networks is already significant.

Question 13: ***Please describe any feasible delivery options that we have not set out in this document.***

None identified.

*Question 14****: Do you think we are focusing on the right models at this stage, or are there other models we should be considering? Is it also necessary to consider the evolution of such MPIs from pre-existing assets? Ultimately, should Ofgem accommodate multiple MPI models (e.g. IC-led and OFTO-led) or just one? What factors influence your answer?***

The limited choice presented in the consultation between what is characterised as an OFTO-led versus an Interconnector-led MPI approach does not take account of the long-term goal of a fully integrated system, taking account of the underlying purpose of transmission network and the ways in which it delivers an efficient outcome for both generators and consumers.

In particular, we are concerned about the compartmentalisation of the transmission system in this vision of MPIs, as it could (and this is especially true of the interconnector-led model) obstruct the development of an integrated offshore (and onshore) grid needed to support carbon budget 6 and overall delivery of net zero.

Our main point is that if a coordinated grid is developed using the same or similar frameworks governed by the ESO/FSO and delivered through transmission licensees it would be more effective and it would be simpler to then exclude the concept of IC-led MPI. Essentially ICs would connect offshore to the GB grid if economic or connect onshore to the GB grid.

In terms of evolution as part of the HND it will be important for the ESO to establish whether it is likely to be economic and efficient for MPIs. Through this assessment the ESO should also have a view on whether in future any of this offshore grid may evolve into MPIs. At this is likely to be beyond 2035 (as the HND should be looking over this timeframe) it does not seem a priority at this point.

*Question 15**: Do you agree with this position with regard to ownership structures of MPIs under the current framework?***

We agree that an MPI would need to operate such that the different components of the MPI are owned and operated by different legal entities, each with its own licence. This leads to a requirement for separate ownership of the OFTO, interconnector and generation assets. We agree that changes to enable a single owner/operator of the transmission and interconnection assets would seem likely to require changes to primary legislation.

*Question 16**: What are the commercial, operational and regulatory factors that would drive a developer's preference for either the OFTO-led or IC-led MPI model? and do you envisage a different usage of the component assets of an MPI depending on the MPI model?***

As explained in our reply to question 14, we fear that the interconnector-led model would be likely to obstruct the development of an integrated solution. If forced to choose between an interconnector-led (IC-led) MPI model and the OFTO-led MPI model, we think developers will prefer the OFTO-led MPI model.

*Question 17**: How would the line to shore (L1) be used in practice and what would you consider to be the primary and secondary activities from a practical perspective? Please provide views for both the IC-led and OFTO-led models, highlighting any differences between L1 usages across the two models.***

As we have previously stated we believe that steps taken now should support a longer-term integrated transmission system including on- and offshore grid. An OFTO led model could align with this subject to the other points we have made. An IC-led model risks further complicating the regulatory arrangements and is less aligned with a future integrated grid.

For an OFTO-led model the system operator should optimise flows on L1.

We believe that it would be optimal for L1 to be used to transport zero carbon wind generation to the benefit of GB consumers, who have funded that offshore wind generation, to maximise the CO2 reduction in the onshore received electricity mix at least cost.

At times of high GB offshore wind generation, the operation of the market should cause GB wholesale prices to fall, and unless EU wind generation is also high *, interconnectors should naturally be incentivised to export from Britain. This would help to avoid the "price cannibalisation" effect (negative GB wholesale pricing).

* low pressure (windy) weather systems are generally not so large as high pressure (windless) systems.

For an IC-led model arrangements would need to be established over how L1 is utilised. From a developer perspective as Ofgem note, the offshore wind farm will want priority access.

Question 18 ***: Are there any barriers within the current frameworks, such as definitions within the CUSC, SQSS or other industry codes, that might prevent the line to shore (L1) being classified as either an OFTO or an interconnector while undertaking other secondary activities?***

The current frameworks focus only on existing onshore transmission with 'bolt-on' regulatory arrangements for offshore transmission. As we have set out a longer-term view is needed with a focus on a fully integrated transmission system whether onshore or offshore.

Therefore, we believe that a key barrier is the definition of MITS; it needs to be broad enough (as a single definition) to encompass the build and operation of an offshore MITS.

As detailed above, a new set of arrangements will need to be developed to facilitate at IC-led model.

Question 19 ***: What are your views on the feasibility of adopting a regime that requires developers to submit evidence to support their licence application (for assets that form part of an MPI) and commit to regular performance reports? Would this be practicable, proportionate, and effective? Are there other options that work well for industry that we could explore further?***

The underlying concern implied by the question disappears if a different approach as we suggest in our answer to question 14, is applied.

Question 20: ***What are your views on the practicality of transposing obligations from one licence into another, which obligations would be the most important to incorporate into a remaining licence?***

Section 8A (Standard Conditions of Licences) of the Electricity Act 1989 does allow that Ofgem may when granting a licence, modify any of the standard conditions for licences of that type in its application to the licence to such extent as it considers necessary to meet the circumstances of the particular case.

Question 21: ***Do you think the exemption provision with the Act offers any solutions to licencing MPIs within the current framework, even if only a temporary solution until a potential enduring solution is implemented?***

Section 4 of the Electricity Act 1989 does prohibit certain activities being undertaken without a licence; Section 5 allows exemptions against these prohibitions to be granted. This could be useful in this complicated new field in ensuring maximum use of the capacities of L1 and L2 as lines and wind farms etc fall partly or completely in and out of service.

Question 22: ***Are there any aspects of the priority dispatch and curtailment arrangements, the Trade and Cooperation Agreement [TCA], or the cross-border trading arrangements that are adopted in UK that might influence the choice of MPI models?***

Article 13 of the domestic retained Electricity Regulation 2019/943 60 (which formed part of the EU's Clean Energy Package), requires renewable generators to be curtailed only as a last resort. Offshore wind in an MPI connection therefore should not be extensively or regularly curtailed. From the system operator's point of view, the most economic approach is to give priority to the party which will be most expensive to switch off, to minimise constraint costs; this is likely to be offshore wind.