Consultation on changes intended to bring about greater coordination in the development of offshore energy networks

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SUPERNODE™

1 Contents

1 Introduction

SuperNode welcomes the opportunity to respond to the Offshore Transmission Network Review's consultation on changes intended to bring about greater coordination in the development of offshore energy networks. SuperNode will submit its consultation response independently while also fully supporting the response from RenewableUK of which it is a member. SuperNode has highlighted certain sections from RenewableUK's response within its submission.

SuperNode is pleased to see such consideration given to the coordination of offshore transmission networks but would like to emphasise that the time horizon on which coordination is considered should not be limited to 2030, but instead look beyond this to 2050 and facilitate the most efficient coordination possible.

2 Early Concept Opportunities

2.1 Question 1: Are there any concepts we have not identified, and which developers may wish to progress?

SuperNode understands that the concepts have been provided by developers with interests in pursuing them, the six options should be appropriate. Other developers may choose to bring forward other concepts but that is their choice according to the opt-in approach being taken. We believe this is important as innovation facilitates different grid architectures.

SuperNode believes that it is important to note that combinations of the proposed concepts by Ofgem should be considered and taken note of. In particular, the combination of an offshore bootstrap with a shared transmission scheme. This would facilitate multiple offshore generators to connect to a single point of connection which then offers two routes to markets and relieves onshore congestion as a result.

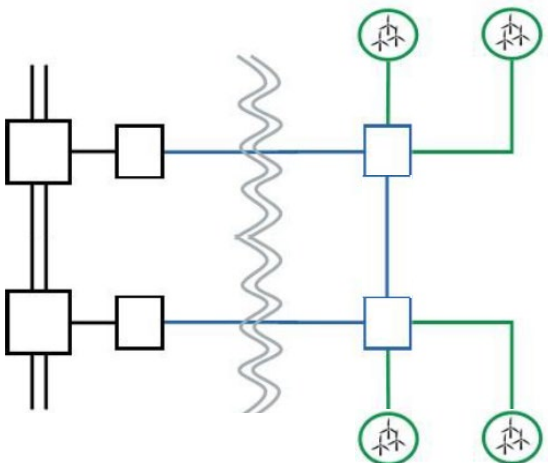

Figure 1: hybrid shared connection and bootstrap connection.

The following points are noteworthy on the six concepts identified and helpful in understanding how the options can be flexed and extended, and how any code changes may need to be framed to ensure they can be carried into the Pathways to 2030 work and the Enduring Regime.

- For all options, assets shown in green as generator assets could be offshore transmission depending on the designs used. For example, option 1 considers two generators connecting at a common offshore transmission substation and sharing an offshore transmission circuit to shore. Either, or both, generator connections to the common offshore substation could be via an offshore transmission link with a further offshore transmission substation at the actual generation project location. This ties in with SuperNode's above point on combining concepts.
- For all options, where a single generator is shown, there could be multiple generators sharing the offshore transmission works. This approach could also be applied to other assets such as interconnectors or energy storage.
- For all options, there is a level of detail below the schematic diagrams shown, which will affect how the options sit within the existing codes. For example, offshore transmission circuits could be HVAC or HVDC, single or multiple circuit, and there could be capacity sharing where the sum of the generation connected exceeds the offshore transmission capacity.
- The options only cover electrical coordination where there is electrical connection and sharing. The options do not consider physical coordination where, for example, onshore cable routes could be shared but cable assets be entirely separate, or onshore substation sites be shared but substation assets separate.
- Bootstrap options should consider the flows of power, as well as the capacity. There could be wider benefits to developing bootstraps, such as managing network outages elsewhere. This should be considered in the plan.
- There are other concepts but if not brought forward as Early Opportunity projects, they will need to be considered as part of the Pathways to 2030 and Enduring Regime.

SuperNode supports these points, also made by RenewableUK. Beyond this, SuperNode would like to emphasise that the time horizon and the integration of the Early Opportunities into longer term grid architectures must be taken into consideration so as to be capable of joining future grid systems.

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

SuperNode believes that the anticipatory risk should be shared between consumers and developers, as consumers will be a large beneficiary of shared connection schemes. The existing framework has resulted in a poor level of adopting coordinated transmission assets to date. This current framework disincentivises generators from participating in anticipatory investment and is therefore not suitable in meeting the four policy assessment criteria or in meeting the interests of consumers in the longer term, including providing transmission services at least cost and environmental impact.

SuperNode believes that one method for bringing greater levels of coordination is through the central planning of offshore transmission assets where greater levels of coordination are anticipated. A

central planner, most likely the TSO National Grid, will be incentivised to design an offshore grid which operates efficiently with the onshore grid. This grid can still be developed and constructed by the private sector, bringing in more competition and keeping costs down while also still incentivising innovation from the industry.

There are considerable financial benefits to be gained, both CAPEX and OPEX, from pushing anticipatory investment towards coordinating grid infrastructure development, and this should be reflected in the level of risk which is assumed by the consumer. Transmission systems are costly to build, with high upfront costs, but the potential benefits to the system appear as both operational and financial benefits. The effects on system costs as a whole should be considered.

It is vital that the level of risk passed on to the consumer does not result in a decrease in trust in the project as a whole. There are heavy upfront costs associated with AI, which is understood and accepted, but public acceptance is vital to long term investments being successful and reaching completion.

SuperNode further considers that it is likely the consumer risk will vary between concepts and the details of concepts, and that the system put in place will need to tolerate this variance, noting that all anticipatory investments should go through an Ofgem assessment and approval process (so there can be a cap and/or other safeguards put in place to manage risk).

2.3 Question 3: For concepts that 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?

SuperNode has already discussed how the use of a central planner can increase coordination in areas identified for these types of projects. Part of this would also have the central planner being responsible for identifying where the greatest benefit could be seen and which of the concepts would result in achieving the maximum gain in benefit.

Using the current situation of developer led coordination, developers should have easier access to working on cost-benefit analyses (CBAs) with National Grid ESO (NGESO). Some of the concepts proposed have benefits that are quite easily demonstrated such as through the reduction in offshore infrastructure. However, some concepts offer benefits to operating the system, or in relieving congestion in the onshore system, and require more work with the NGESO in identifying the full extent of the benefits of the proposed project. It is at this stage that the NGESO can consider other options for the project to provide wider system benefits.

There are hard to quantify benefits that may not be easily converted to a monetary benefit that must also be considered. It is relatively straight forward to propose a project and highlight the fact that it reduces the CAPEX of grid related systems, but an alternative project may be proposed which may offer better flexibility in control to the TSO or may offer another non-cost related benefit which under the current system would be compared using a CBA.

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

No comment.

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

Anticipatory investments need to be assessed and approved by Ofgem ahead of OFTO transfer processes and cost assessment. This must cover all types of anticipatory investment. Ofgem should provide those undertaking anticipatory investment with up to two assessments, and one of these will need to be at early stages of projects. Each assessment should result in an approval to proceed with the anticipatory investment (if deemed appropriate), implying that it will not be a disallowed cost at cost assessment. Ofgem may wish to frame these as Gateway Assessments. If Ofgem does not provide these assessments and approvals, then those considering undertaking anticipatory investment will not proceed and Ofgem will find themselves in the same position they are in today with little to no coordination.

Assessment and approval by Ofgem should consider all benefits of the anticipatory investment including those not easily presented in terms of cost benefits such as improving the environmental aspects of the project through reduced infrastructure, as well as operational benefits to the system through relieved congestion, and improved connections to larger capacities of renewable generation. These assessments should be done in conjunction with NGESO to ensure there is approval of the benefits with them. NGESO should have the experience and knowledge to judge whether these projects are appropriate and effective and not in conflict with any NGESO projects planned.

This process is relatively easily implanted for shared transmission proposals but when discussing bootstrap projects or hybrid interconnectors, there may be a need for further analysis on the system benefits. It is for these projects that communication and cooperation with NGESO is vital in minimising time delays to a project's execution. Developers can and should propose projects which can benefit the TSO, but for this to occur, the TSO must be willing to accept and investigate new solutions in a timely manner.

The Early Opportunity projects are driven by real projects being planned today. SuperNode believes there are several options beyond the Early Opportunities that will require early planning that coincides with Early Opportunity projects. Sharing of transmission infrastructure beyond Early Opportunity projects will offer huge benefits moving towards 2050.

Shared transmission infrastructure, using *Concept 1* as an example, should be highly prioritised beyond the Early Opportunities projects, and should be viewed as the very low hanging fruit. This should be pushed by developers to encourage incentivisation of shared transmission schemes. The technology to develop these transmission assets exists today, with the technology readily available. There is significant innovation occurring in this space both in the technology implemented but also in the designs of these schemes. The benefits of these schemes are clear:

1. Transmission capacity can be fairly allocated to the generation projects connected.
2. The environmental impact of the transmission assets is heavily reduced. These shared transmission schemes will be reaching 2GW in scale in the North Sea in the late 2020's, meaning that 3 or 4 wind farms can connect, and thus would reduce the number of landing points from 3 or 4 down to 1.

3. Shared transmission schemes can also make it more cost effective to go further offshore, again reducing the number of transmission assets from 3 or 4 down to 1, thus opening the door to locate further afield where development conditions may be more favourable.

It must be noted that there may be situations that arise where shared transmission may not always be of benefit to generators, but this must not disincentivise their development. Ofgem should focus on the net benefits which consider benefits to consumers through a reduction in the investment needed in transmission assets as well as the environmental benefits of these schemes. It is essential that shared transmission schemes be incentivised, and with this greatly added benefit, share the risks with consumers.

When apportioning the risk and assessing these schemes, Ofgem should not disincentivise coordination for generators by allocating all the risk of anticipatory investment to generators. The focus of the assessment of these schemes should not lie on the allocation of risk, as regardless of this, the coordination of offshore transmission will invariably benefit the consumer and longer term OTNR goals. The focus should not therefore be centred around what benefit a generator may or may not see, but whether the proposed anticipatory investment will deliver on the objectives put in place, ultimately to assist in achieving Net Zero in the most economic and efficient manner for the consumers and society as a whole.

SuperNode would like to back the concern raised by RenewableUK in its submission with regards to Figure 11, Item 3, which sets out to create a level playing field. Concerns raised around the focus on delivering offshore wind to deliver Net Zero and how changes to regulation could allow access to the changes made for coordination by other technologies which are not relevant to Net Zero, such as offshore oil and gas. This should not be allowed to occur, and the focus be put solely on delivering Net Zero.

2.6 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?

SuperNode Echoes RenewableUK's views here:

"*We do not believe a Significant Code Review is required and would take too long to complete. We have outlined what we believe is the best way to implement the necessary changes through the existing codes and there should be dedicated resources within the ESO to support and progress the necessary code changes. We note that a level of anticipatory investment risk is already shared with consumers onshore and that a low level of transmission costs are already shared with consumers offshore*."

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

Some of the areas of concern have already been outlined in previous questions. SuperNode believes that the Early Opportunities can be delivered, though the focus needs to be put on looking at how these projects fit within a longer time frame plan for a coordinated energy system both within the UK and with respect to neighbouring energy systems which the UK will be interconnected with.

SuperNode sees one big issue with all the planned options proposed in this consultation. This issue is around the largest single-infeed's allowed on the system. It should be noted that currently no-one

in NGESO or NGET was able to clearly interpret the SQSS rules for HVDC connections larger than 1,320 MW (infrequent infeed loss). This will be incredibly important as projects grow in capacity or if multiple projects look to connect to a single link. It is highly likely that Options such as the Quasi Bootstrap, MPI, and shared transmission will exceed the 1,320 MW. This is an area which needs to be addressed as there are significant potential cost savings in facilitating higher capacity connections.

It should also be noted that with the MPI project options, the equivalent rules in the other jurisdiction may reduce the capacity that can be connected on a single link

3 Pathway to 2030

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

SuperNode believes that a Holistic Design approach is the appropriate and most effective method for taking advantage of the benefits which come from coordinated transmission planning. A holistic approach will facilitate a wider frame of view for the energy system and more easily identify system needs and the effects on the system from certain schemes.

The design of the network is one key component, but the actual development of the network tied in with synchronising this development with generation. While a central planner is essential, it is important that the process of designing a coordinated approach is open and transparent to industry and the public, with the benefits of selecting one approach/design over another made abundantly clear.

SuperNode also believes that any holistic design plan should not be insular and remain focused on the UK system, but also look at neighbouring systems and how deeper integration can occur. Connection with neighbouring system will only strengthen the energy system. It is clear that this work should and will tie in with the ongoing work program that NGESO is working on "holistic and coordinated (onshore and offshore) network planning".

One quote of note that concerns SuperNode from the consultation in section 3.1 which states "*Early Opportunities workstream might not be sufficiently impactful while the long-term, Enduring Regime may not be sufficiently timely.*" The Pathway to 2030 must fit in between the Early Opportunities and Enduring Regime but must be closely aligned with the Enduring Regime, treated like a steppingstone towards an end goal, rather than an independent work stream.

The holistic approach must consider long term network requirements, aligned with the Enduring Regime, and accepting responsibility for the risk and anticipatory investment required. The Generation map will be useful in providing a clear view of where generation will be, and how best to design the route to market. This generation map should not only be limited to 2030 and must consider the locating of generating assets beyond 2030, as the design of a system for 2030 generation may require a very different looking system to what is needed for 2040 – the system must be designed to facilitate and meet 2030 goals while still also remaining optimal for 2040 and 2050 targets in the future.

The holistic approach appears to be solely focused on the design and development of the offshore network, with insufficient consideration for the development of onshore infrastructure to compliment the offshore developments. The UK will be working on networks to build out its offshore ambition in the North Sea as well as the Irish Sea. There must be consideration given into how these developments could interact in the long term. These must not be considered independently but rather as a full energy system (Onshore and Offshore) for realising the most efficient and effective energy system.

3.2 Question 9: Do you agree with the planned work for a detailed network design offshore? Who do you believe is best placed to undertake the detailed design for assets that are in offshore waters?

With respect to Early Opportunities, detailed network design is already underway for projects within Round 4. These projects have the developer responsible for the DND. The consultation response does not explain how DND will interact with these projects, or what the output of DND for these projects will bring.

With regards to DND for the onshore environment, SuperNode agrees that the TOs should be responsible for this work, but there must be open and transparent discussion between the TO and offshore developer on the interaction between both transmission assets. A disconnect between both parties responsible for both the onshore and offshore DNDs could result in an ineffective design, delays, and/or added cost to the consumer.

Considering the relatively short timeframe to 2030, it is worrying to note that "We have yet to decide who will undertake the DND Offshore." If the offshore DND is to be integrated for Early Opportunities, then this is a decision that needs to be made very soon.

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

The current system leaves the offshore Detailed Network Design (DND) within the realm of responsibility of the developer to design the most optimal system for the generating asset to connect back to the grid. SuperNode believes that a single system architect is valuable for this process, with oversight of both the onshore and offshore DND. The offshore DND could fall under the remit of the TOs with transparency for the TSO in integrating with the holistic design.

A transparent process which facilitates input from stakeholders will ensure an efficient design is developed through the competitive process while still considering views from stakeholder, both from industry and consumers.

3.4 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.

SuperNode is of the opinion that the currently used Developer Led Approach will still remain useful in the future energy system. There will remain projects where it makes more sense to connect in a

radial fashion, but the priority should always be for new generation projects to be connected to the holistic design.

Connecting generation using a coordinated system rather than a radial approach allows the TSO more control and flexibility in their system operation. This is optimal for the future energy system as Radial connections are rigid in nature and while they have served well in growing offshore to date, connecting to an offshore network must be prioritised over point-to-point schemes.

SuperNode does not agree with Ofgem's sentiment that "*we do not think there is a need to change it [the OFTO regime]*". One change which SuperNode believes is important is to put single generator point to point projects at the very bottom of the priority list. Moving forward, where radial connections may be required, shared transmission schemes such as Concept 1 from Figure 4 in the consultation document should be prioritised over a conventional radial connection, and this should inevitably be considered as part of the wider system and how future connections could incorporate this shared transmission scheme.

3.5 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.

Option 1 – TO build and operate

Section 3.49 outlines exactly why this option is not fit for purpose stating "*this option does not include a role for competition beyond that inherent in the TO's procurement processes. This limits the possibility of achieving cost savings for consumers*." Competition is vital for reducing the costs for the consumer as well as incentivising innovation in the space. It would be preferable to choose a model which may not meet 2030 but encourage competition and innovation over selecting this model and running into more serious problems with network development post 2030.

A TO led model has the advantage of potentially being capable of facilitating coordination more easily, however, experience with onshore projects to date would indicate that TOs may not be the most efficient when compared to other potential parties that could lead the development. The TO led model could be considered in part for development of shared transmission assets, however, for the wider, over-arching goal of 2030 and beyond, this is not the optimal method of designing the most effective solution for the energy system as a whole.

Currently, there is not sufficient experience in the offshore environment with onshore TOs to achieve 2030 targets using this method, this is addressed in section 3.64 of the consultation document.

Options 2 – TO build > OFTO Operate

Similar concerns to Option 1 crop up here, with questions around the experience of TOs to coordinate offshore projects effectively. The TOs have good understanding and experience in the design, consenting and construction of onshore assets, but the offshore poses different challenges.

The concerns around lack of competition are eased slightly here with some level of competition introduced in the operation of the asset, but the benefits of competition are not fully realised in operation alone. This option has many similarities to the existing Generator Build model used today.

This option does still gain the advantage of facilitating coordinated permitting of transmission assets, as well as increased speed of delivery of the assets.

Questions on the transfer of assets from the TOs to OFTOs raise questions on the incentives and outputs for TOs to ensure efficient delivery of the assets. This also raises questions as to how innovation will be encouraged within the design process. Innovation will play a vital role in future grid designs, and TOs should be encouraged to test and utilise new technologies as well as new system architectures.

Option 3 – TO Design > OFTO Build and Operate

This model of late competition will allow a smoother transition from TOs to OFTOs leading into the construction phase. Increasing the role and responsibilities of the OFTO will facilitate more competitiveness in the process, and result in a more cost-effective solution for the consumer. The OFTO process to date has been effectively used in the offshore industry and increasing their involvement and experience towards the Enduring Regime would be preferable for the on-time delivery of assets.

It is clear to see that the synergies between design and construction are lost in a model which transfers the responsibility of construction onto a new party during the process. There is the potential for a loss of optimisation in the process during this transition/handover. Transmission assets are in growing demand as the offshore sector continues to grow with significant lead times for high voltage electrical equipment and cables. The question then arises as to how the procurement of the required sub systems from the scheme would occur and who's responsibility it is to conduct the procurement phase.

This option does still have its risks and downsides. The OFTOs currently lack the required expertise in the construction of transmission assets in the offshore environment, which is an area that would require rapid upskilling to facilitate this model operating effectively. Another question arises as to what incentives will be offered to onshore TOs to lead the detailed network design and pre-construction phase but not go on to own the asset.

Option 4 – Early OFTO Competition

There are some immediate concerns raised under this model option. Section 3.59 raises some serious concerns with this model whereby the OFTO would find it challenging to incorporate innovation in the project where the design was done by another party. The question here again comes down to incentivising the TOs to bring innovation and new technology into the design.

There would be an immediate tendering of the detailed design to OFTOs which could be a lengthy process. This process needs to be efficient and constrained with respect to time. This process cannot be allowed to delay the project. During this process, the project will essentially lie dormant with no progression of design nor consenting. There must be some method for the tendering process to occur while the project can still progress through the process.

SuperNode considers this model not to be optimal, primarily due to the disconnect between the DND phase and the pre-construction phase.

Option 5 – Very Early OFTO Competition

Option 5 presents a solution to the major shortcoming of Option 4, the disconnect between detailed design and the rest of the project. Option 5 offers the opportunity to increase competition amongst OFTOs. It offers a flexibility between the DND phase and the consenting phase whereby the OFTO would be responsible for both of these phases. Most importantly, there would be little to no delay between the design and consenting phase, whereby Option 4 would require a rapid learning curve for the design prior to the consenting phase.

The final critical concern SuperNode has surrounding Option 5 is the lack of experience in designing, consenting, and building offshore transmission at this scale, which can and will form an integral part of the offshore network. A coordinated approach will inevitably see interlinked projects and as such, delays to one project can be disastrous for another project.

SuperNode believes that these challenges can be overcome and welcomes the level of competitiveness and potential innovation that can stem from this.

Option 6 – Developer Design and build > OFTO Operate

This option is acknowledged as being "*analogous to the generator-build option used to date in the current OFTO regime*." The industry to date has shown its appetite for developing and building transmission infrastructure. This option is well understood and trialled, with developers now experienced and resourced in designing and consenting transmission infrastructure.

One of the issues with this option is that the developer may not be interested in developing the transmission asset themselves. This would particularly be the case in a situation where the transmission infrastructure is of no immediate benefit to the developer. There is currently no incentive for them to undertake this additional risk. The main incentive to undertake Generator Build at present is in ensuring delivery of the offshore transmission assets for the developer's own project and controlling spend and risk therein.

Finally, this model raises questions as to what happens if a developer undertaking offshore transmission work (for others) changes their generation project plans or terminates the project altogether. A process must be in place to find a suitable OFTO replacement that minimises delays to project development.

General conclusions on delivery models for 2030

SuperNode believes that Options 3, 4 and 6 offer the clearest pathways to 2030, but further work needs to be done to consider the landscape beyond 2030 and how these options can be further refined for future needs.

The UK has a unique opportunity to continue leading in the integration of offshore renewables. Radial links have been useful in growing the industry, but there needs to be a transition to more effective models. The move towards shared transmission infrastructure and a more coordinated approach will require deep cooperation and transparency between the ESO, and generators to share experience. It also necessitates close cooperation and coordination with neighbouring countries on developing shared offshore transmission assets.

In practice, the HND will be a determining factor as to what each party can most suitably do and the HND itself should be designed to facilitate delivery and the best delivery models. This may mean that the HND is not the cost optimal design but is still a reduced cost design that can be suitably carved

up and delivered according to the strengths and capabilities of the parties and models assigned to deliver for 2030.

One interesting question is, what occurs when a fault occurs on the transmission asset, or a repair is needed? Is there any recourse for the generator? These questions are applicable for options 1 – 5 as well. Generators will seek compensation for transmission outages which result in the power from their projects being unable to reach the market.

As noted in the consultation, an impact assessment of each of the options, and their variations (see Q13 below) is vital in outlining near term targets but more importantly, how these options fair in the longer term, and what could occur in the future with increasing targets.

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

It is unclear in the descriptions of the options whether there is scope for a combination of generators to work together on the construction of transmission assets where no one single generator wants to undertake the work alone. This option would best fall under Option 6 but may be considered a variation of this option.

It is also unclear, as has been mentioned above, whether the ESO can be interchanged with the TO in Options 1-3. It would be optimal to have the single entity responsible for the Holistic Network Design to also take further responsibility for the detailed network design. This option would allow a more rounded view on the network rather than allowing for a specific focus on a single section of the electricity section that may not result in the most optimal design for the grid.

Another option is for other third parties, who are neither TOs nor generators, who have the appetite for designing, consenting and/or constructing transmission assets. These entities exist elsewhere in Europe and abroad who have already been involved in delivering transmission projects of scale. It is unclear as to whether these entities can partake in the process, and arguably could take the place of TO/Generator in any of the options described.

4 Multi-Purpose Interconnectors

4.1 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?

SuperNode believes that both MPI options are viable and useful and should be accommodated for in the UK system. The IC-Led model makes sense where clean sheet MPIs should be designed with the connection of an offshore generation asset in mind.

Similarly, the OFTO-led models would facilitate the timely development of generation assets which can, and should, have their transmission assets designed to be connected to by another transmission asset in the future. TenneT is looking at this model for its upcoming 2 GW shared transmission schemes which are being designed so as to be multi-terminal ready.

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

SuperNode believes that it is very short sighted to not consider changes to legislation to facilitate an interested party in owning both a generator license and an interconnector license. Opening up discussion on changes to the legislation does not appear in the consultation, and SuperNode believes this is an area which should be considered for the energy system for long-term operation.

4.3 Question 16: What are the commercial, operational and regulatory factors that would drive a developers 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?

No Comment.

4.4 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.

No Comment.

4.5 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?

There is some inconsistency in the proposals made in the OTNR consultation in respect of, for example, the Anticipatory Investment proposals (which envisages that the secondary developer is likely to be a different entity to the first) which appears to be at odds with the development of an MPI licence, given that such a licence would likely only be workable if issued to a single party as licensee.

Even if an exemption to the unbundling requirements were to apply, we consider any form of hybrid licence model where more than one licensee is a party to be complex, likely difficult to administer and would increase risk if there were, for example, cross-termination rights

4.6 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?

No comment.

4.7 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?

No Comment.

4.8 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?

No Comment.

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

No comment.

4.10 BEIS Question 1: What do you consider to be the key challenges to the establishment and operation of MPIs in the UK presented by current and proposed regulatory requirements applicable in EU Member States or other countries which MPI projects may connect with, or by the TCA? (e.g. regarding the efficient operation of MPIs under both the Home Market and Offshore Bidding Zone approaches). Are there further domestic challenges to these possible market design options

Ofgem's regulatory jurisdiction is limited only to the part of the interconnector located within GB's jurisdiction. Therefore, the cap and floor regime may only apply to the half of the interconnector that falls within GB waters, whilst revenues over the remaining portion are regulated separately by the other jurisdiction's regulatory authority. It is unclear how this will be managed between jurisdictions such as GB and Ireland, and GB and continental Europe.