Consultation on Market Arrangements for Multi-Purpose Interconnectors

SSE response
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Dear Bartosz and Kevin

Consultation on Market Arrangements for Multi-Purpose Interconnectors

We welcome the opportunity to respond to this consultation on the proposed market arrangements for Multi-Purpose Interconnectors (MPIs).

SSE's purpose is to provide the energy needed today, while building a better world of energy for tomorrow. We do this by developing, building, operating, and investing in world-class electricity infrastructure that is vital to the clean energy transition. This includes onshore and offshore wind farms, hydro, electricity transmission and distribution networks, power stations, carbon capture and hydrogen storage, solar and batteries, as well as providing energy products and services for businesses and other customers.

A FTSE-100 company headquartered in the UK, we have a growing presence in international markets in Europe, Asia, and North America. We employ c.12,000 talented and skilled people and are a proud 'Living Wage' employer and accredited of the 'Fair Tax Mark'. We were also the first company in the world to develop a 'Just Transition Strategy' aimed at ensuring the benefits of the clean energy transition are shared by workers and communities.

At SSE, we support the core objective of the Offshore Transmission Network Review (OTNR) to deliver a more coordinated transmission network for offshore wind with a view to achieving our net zero ambitions whilst ensuring an appropriate balance between environmental, social, and economic costs. MPIs, which are a key part of the OTNR, are a novel asset class that could enable coordination in the delivery of offshore networks by combining offshore transmission and interconnection activities in GB.

SSE Renewables is currently developing, on its own or with its project partners, around 10GW of additional offshore wind capacity in Great Britain, which represents 20% of the total 50GW capacity target set by the UK government for 2030. This is in addition to projects that are already operational or under construction (for example, Dogger Bank A-C, which will be the largest offshore wind farm in the world once completed).

For the OTNR to support the achievement of the ambitious offshore wind capacity targets, we encourage DESNZ and Ofgem to adopt a pragmatic mindset in addressing the challenges of developing MPIs. Developers (MPI owners and Offshore Wind Farm developers) require certainty around the regulatory framework and market arrangements that will apply to commit to the deployment of MPIs.

The proposals included in this consultation represent a welcome step forward toward providing certainty to MPI developers. There are still important challenges that need to be addressed before Offshore Wind Farms (OWFs) can fully commit to connecting to an MPI. Overall, the market regime chosen for MPIs should not impose excessive risks on OWFs or make MPIs less attractive than a radial solution. MPI projects might otherwise not go ahead despite being in the consumers' interest.

In Appendix 1 we have responded to the individual consultation questions. In summary, we would draw attention to the following points:

- We remain of the view that, in the shorter term, the HM market model would have been simpler and quicker to implement, due to its closer proximity to the existing regulatory arrangements for radial connections. However, we acknowledge the potential efficiency benefits of the OBZ model in the longer term.

- We support the proposed market model for MPIs – an Offshore Bidding Zone (OBZ) model with implicit trading arrangements. This is subject to OWFs connected to an MPI being compensated for the revenue shortfalls under the OBZ model relative to the HM model and radial counterfactual.

- At present, our preferred compensation mechanism for OWFs operating under an OBZ model is an amended Contract for Difference (CfD). The existing CfD terms should be modified to reflect the specifics of an OWF connected to an MPI under this market model.

- Under an OBZ model, the reference price of CfDs should be adjusted to reflect the reference price set in the OBZ market when the MPI is importing electricity to GB. Otherwise, there will be a revenue gap compared to OWFs operating in the GB home market. This would discourage OWFs from connecting via MPIs or put MPI-connected OWFs at a disadvantage to those operating in the home market.

- CfDs for OWFs connected to an MPI should have a separate Administrative Strike Price (ASP) that differs from the ASP for OWFs connected radially. This is because OWFs operating under an OBZ model will face higher balancing costs than those connected radially, which would represent a new risk premium that developers need to price in. This would put MPI-connected OWFs at a disadvantage, which should be corrected for.

- The CfD scheme should also be extended to 25 years to better reflect the life duration of the asset and align the CfD with the MPI's regulatory regime. We believe this extension should apply irrespective of the market design adopted.

- Considering that today the lifetime of an OWF could be greater than 30 years, we encourage DESNZ to develop further thinking regarding the commercial arrangements for OWFs after the duration of the CfD term. Currently, OWFs under a standard 15-year CfD term have the option to sign a PPA once the CfD contract has concluded, but it is unclear how a PPA would function for an OWF connected to an MPI.

- It is our understanding that in an OBZ-implicit configuration, the capacity of the OWF will be efficiently allocated to ensure the maximum utilisation of the MPI, and the OWF will not be curtailed due to market conditions. However, if the OBZ-implicit configuration leaves the OWF in a scenario where it cannot trade electricity at the maximum capacity, then another compensation mechanism for the OWF should be implemented in addition to those proposed above to address lower wholesale prices and higher balancing costs.

- The choice of market model is highly interdependent with the choice of regulatory regime and charging arrangements for MPIs. We support the OBZ-implicit model under the regulatory regime proposed by Ofgem – a narrow cap & floor for the cables and onshore platform, and a RAB model for the offshore platform. This is also subject to the removal of TNUoS charges, so offshore generators operating under an OBZ model would have the same entitlement to access the MPI as other users of cross-border capacity, who are exempt from TNUoS charges.

- Finally, we would encourage DESNZ and the appropriate government bodies to look at the marine licensing framework for facilitating MPIs. Currently, there are no existing provisions for MPIs in the regulations for marine licensing, with different requirements for traditional interconnector cables and transmission cables connected to renewable generation assets. Consideration should be given to how these assets are treated to ensure proper licensing in the UK seas, whilst meeting UK obligations under International Legislation e.g., the United Nations Convention on the Law of the Sea (UNCLOS).

We would welcome the opportunity to discuss further with Ofgem and DESNZ the content of our response in a follow-up meeting.

We would also welcome the opportunity to arrange, where useful, separate bilateral meetings between Ofgem/DESNZ and our projects impacted by these proposals, to discuss in greater detail some of the practical implications at project level.

We look forward to continuing to engage with Ofgem and DESNZ over the coming months, both bilaterally and through any further stakeholder engagement opportunities, to support the development of a suitable regulatory and market framework for MPIs that contributes towards achieving the ambitious offshore wind capacity targets set by the UK and Scottish governments.

Yours sincerely,

Angeles Sandoval Romero

Senior Regulation Analyst, Renewables

Appendix 1 – Detailed responses to consultation questions

Q1. Do you agree with the ranking of options (OBZ-implicit, HM-implicit, HM-explicit, OBZ-explicit) presented in the table?

In general, we agree with the ranking presented in the consultation.

Implicit capacity allocation is more efficient than explicit allocation as the cross-border flows of the MPI are optimised. This kind of trading also sits better under the OBZ model. This is because implicit trading shows greater performance associated with correcting anticipated optimal flows which reflects a better utilisation of the MPI. By contrast, under the HM scenario, the capacity calculation must consider a forecast of how much power the OWF generates on the day of production, which determines the capacity released for cross-border trade. This kind of setup could lead to the under-utilisation of the MPI.

Q2. Do you believe that some of the permutations not workable and should be ruled out? Why?

At this stage, we have no specific feedback to provide in response to this question.

Q3. Which of the four options is preferred, and why?

We think options 1 and 2 (OBZ-implicit and HM-implicit) are preferable to options 3 and 4. From the perspective of an OWF developer, the HM market configuration would be more desirable due to its similarity with existing regulatory arrangements for radial connections and because under the OBZ model there is a loss of revenue that the OWF would need to be compensated for. However, we understand that the efficiencies under an OBZ-implicit model could translate into better performance of the MPI.

In this context, we support an OBZ- implicit model as long as the right mechanisms are in place to compensate OWF developers for lost revenue. Otherwise, OWFs will have no incentive to connect to an MPI.

Q4. Under implicit trading (loose volume coupling), which bidding zone configuration (HM or OBZ) best supports: a) market efficiency? b) consumer benefits? c) integration of renewables?

We believe that an OBZ model may help to enable more efficient market outcomes, but as the current regulatory regime stands, this market model does not support optimal integration of renewables, unless new forms of compensation mechanisms are introduced for renewables.

Overall, both models are likely to provide similar benefits to consumers. While an OBZ model may lead to lower curtailment costs, this is likely to be netted off by the enhanced risks that apply to OWFs, for which they will need to be compensated.

We also think that the benefits MPIs will bring to consumers go beyond the market design adopted. By combining interconnection with direct connections to OWFs, MPIs have the potential benefit of

reducing disruption to coastal communities and reducing capacity costs due to decreased number of landing sites and associated infrastructure required.

Currently, the HM model better supports the integration of renewable generation. Its similarity to existing arrangements for radially connected OWFs means there is a lower risk of skewed incentives or revenue shortfalls.

Q5. Under explicit trading, which bidding zone configuration (HM or OBZ) best supports: a) market efficiency? b) consumer benefits? c) integration of renewables?

Explicit trading under an OBZ model will lead to new operational complexities and the inefficiencies of explicit trading already affecting point-to-point interconnectors will be exacerbated. On the other hand, explicit trading under an HM model is slightly more efficient than under an OBZ model. Thus, we think an HM model would better support market efficiency and integration of renewables.

Regarding consumer benefits, as explained in response to Q4, we think that both bidding zone configurations will bring benefits to consumers, but under explicit trading these would be reduced relative to implicit trading.

Q6. Do you think that a transition from HM to OBZ is possible and/or desirable?

In principle, we think that a transition from HM to OBZ might be possible if the right regulatory regime and market arrangements were in place to protect all the parties involved in the development of the MPI. However, developers need clarity and certainty over the regulatory and market arrangements that will apply over the lifetime of the OWF. Hence, the possibility of transitioning from one model to the other at some point during the development, construction, or operation of the OWF would be undesirable.

From the perspective of an OWF developer, an HM model is better than an OBZ configuration. This is because, under the OBZ model, the OWF does not have firm access to the grid and receives the lowest of the two market prices, therefore there is a loss of revenue that would need to be compensated for. However, if OWFs operating in an OBZ market are compensated in a way that ensures they are not worse off than in the HM market approach, the OBZ model is one that we could support.

The introduction of compensation mechanisms needs to be simple and transparent for all parties involved in the development of the asset. In this regard, we believe that an amended CfD could be an acceptable instrument for OWF developers. CfDs are known and well-understood financial instruments in a GB energy context, so an adaptation of them to suit an OBZ model should be possible. By contrast, the introduction of other compensation mechanisms such as sharing congestion revenue with the MPI owner is not attractive. This is because new financial instruments such as Wind-Adjusted Financial Transmission Rights' ("WAFTRs") would be needed. WAFTRs have never been used in GB and would make the regulatory framework much more complicated than it is today.

Also, there is a legal challenge with this setup as the pooling of revenues of transmission, interconnection, and generation assets is not possible under the applicable licensing regimes and the relevant legal framework, including the unbundling requirements that will apply to MPIs. This option was ruled out from the analysis from Ofgem due to the same reasons.

Finally, it is unclear if WAFTRs would compensate for all the revenue loss that the OWF would otherwise have obtained using the counterfactual radial connection. A setup such as this would make MPIs less attractive for OWF developers compared to a radial connection.

Q7. What conditions must be met so that a transition from explicit-HM to implicit-OBZ configuration would be viable for developers?

A transition such as this will only be viable if OWF developers are compensated for the loss of revenue and higher balancing cost they will face under this market configuration. It is also important that the mechanisms for recovering the costs are simple and do not make the regulatory regime significantly more complicated than it is today.

Overall, the market regime chosen for MPIs should not impose excessive risks on OWFs or make MPIs less attractive than a radial solution; otherwise, MPI projects might not go ahead despite being in the consumers' interest.

As explained in response to Q6, the possibility of transitioning from one configuration to another at some point in the future would represent a significant barrier to OWFs connecting into MPIs.

Q8. How does this relate to other areas such as regulatory regime design or charging arrangements?

The choice of market has important implications for the regulatory regime design and charging arrangements. Since a change from the HM to the OBZ model would change the risk-reward balance for both the MPI operator and the OWF connected to the MPI, this would also affect the way the cost recovery of the assets is set up.

For example, under an explicit HM approach, a variable RAB model where the RAB can be split between cap & floor and the Tender Revenue Stream (TRS) would be more appropriate, with cap & floor applied to the point-to-point interconnector portion and TRS applied to the OFTO portion. The allocation of costs and revenues between these two portions could be informed by the capacity of the OWF relative to the total capacity of the MPI, and possibly the expected load factor of the OWF.

On the other hand, under the implicit - OBZ approach, the most appropriate regime seems to be a narrow cap & floor for the cables and a RAB model for the offshore platform. This model has been extensively discussed as part of Ofgem's MPI Framework Discussion Group, with most stakeholders agreeing that it would be an effective way to ensure cost recovery and a fair balance between the MPI owner, OWF developers, and consumers. This model also incorporates the removal of onshore and local TNUoS charges. Onshore charges should be removed because the OWF loses priority access to the grid, and local charges should also be removed because the MPI owner recovers the costs of

the assets through the RAB regime (for the offshore platform) and cap & floor regime (for the cable and onshore substations).

Overall, an OBZ configuration is more favourable for the MPI owner than for the OWF. This is because the MPI owner receives the price difference between the two countries for the full MPI capacity, the same as under point-to-point interconnection, but the OWF loses firm access to the grid and receives the lowest price from the two zones. This results in a loss of revenue in an importing scenario, where the OWF is paid the price outside GB, which would be lower than the GB wholesale price in this scenario.

We believe that this revenue shortfall can be resolved with an amended CfD, which should reflect the reference price set in the OBZ market. In this way, when the MPI is importing electricity to GB, the OWF will be paid the strike price over the EU reference price.

In our understanding, in an OBZ-implicit configuration, the capacity allocation of the OWF will be efficiently allocated to ensure the maximum utilisation of the MPI. Similarly, the OWF operator will not have the need to book capacity in advance as the flows of the OWF will also be efficiently allocated. This means that an under-utilisation of the OWF should not exist, as the flows will always be allocated efficiently to import or export electricity.

However, if an OBZ-implicit configuration solely ensures the maximum utilisation of the MPI and leaves the OWF in a scenario where it cannot trade electricity at the maximum capacity, then another compensation mechanism for the OWF must be implemented. This is because any additional revenue shortfalls arising for this reason, might be harder to recover through a CfD.

We encourage Ofgem and DESNZ to clarify this point with developers, as it is likely to be a key factor for OWFs considering whether to connect to an MPI. If OWFs are not fairly compensated for the loss of revenue of an OBZ-implicit configuration, OWFs will always prefer the counterfactual radial connection, which will maximise the utilisation of the wind farm and makes sure that it receives the GB wholesale price.

Q9. How do you envisage long-term, day-ahead and intraday trading arrangements working for MPIs under both HM-explicit and OBZ-implicit scenarios? Can explicit capacity allocation work with OBZ configuration, if yes how?

We do not think that explicit capacity allocation would work under an OBZ model. This is because it is unlikely that traders can individually optimise flow directions and dispatch efficiently. A small percentage of efficiency loss will have a significant monetary impact.

Q10. What are your views on using either PTRs or FTRs in the long-term timeframe? Will OWFs have an active role in long-term capacity allocation?

In our understanding, under the OBZ model, we assume that the OWF sells volume into the offshore zone, with no interaction with the MPI. If this is the case, the wind farm should not be required to

procure capacity, so OWFs will not play an active role using either PTRs or FTRs. Capacity owners are simply flowing power generated by the wind farm (with any additional coming from the market).

Asset owners would of course be able to purchase transmission rights if desired – but this would be for the separate purpose of hedging other risks.

We would welcome clarification from Ofgem and DESNZ regarding the role that OWFs will have in capacity allocation if our understanding of the policy intent is incorrect.

Q11. Which timeframe is the most vital/relevant for MPIs and why?

At this stage, we have no specific feedback to provide in response to this question.

Q12. Are there any improvements to commonly understood trading models (explicit trading or implicit price or volume coupling) that can be made to better facilitate efficient market arrangements for MPIs?

At this stage, we have no specific feedback to provide in response to this question.

Q13. Do you agree that OWFs should be compensated for a loss of revenue in OBZ compared to HM? Where should this come from? Should it come from the congestion revenue from the MPI cable derived from cross-border trade?

Yes, we think that OWFs should be compensated for the loss of revenue in the OBZ model. This could come from an amended CfD, which should have two main modifications:

- A new administrative strike price to reflect higher balancing costs for OWFs operating under this model, and
- A reference price that reflects the price set in the OBZ market.

However, an amended CfD may not be enough to fully compensate the OWF developer. This is because, under the OBZ implicit model, it is unclear if the OWF could export electricity at the maximum capacity in the same way as it could under the counterfactual radial connection.

As mentioned in our answer to Q8, if the capacity allocation of the OWF is allocated to maximise the use of the MPI, and the OWF is not curtailed due to market reasons, then no additional compensation mechanism is needed. However, if the OWF cannot trade electricity at the maximum capacity, an additional compensation mechanism is needed. In this case, we believe that direct compensation should exist between the MPI owner and the OWF developer. This will make sure that under the OBZ model the OWF is not worse off than under the counterfactual radial solution.

As mentioned in our answer to Q6, compensation mechanisms such as sharing congestion revenue with the MPI owner are not attractive. This is because sharing congestion revenue implies the use of new instruments such as WAFTR, which would make the regulatory regime more complicated than

today. The CfDs are known mechanisms by OWF developers and would make the transition to an OBZ more feasible.

Q14. How could the existing CfD scheme be changed to support OWFs connected to MPIs, especially considering OBZ market model? How would you envisage this scheme to work?

Under the existing legislation and contract framework, there is no provision for a renewable generation asset that is connected to an interconnector to be eligible to apply for a CfD. Therefore, we believe it is essential to amend the CfD framework to enable OWF connected to an MPI to participate in the scheme.

The existing CfD should be changed to reflect the reference price set in the OBZ market when the MPI is importing electricity to GB. The scheme should also to be extended to 25 years to better reflect the life duration of the asset and align the CfD with the MPI's regulatory regime. The 15-year duration for the existing CfDs (relative to the 25-year cap & floor regime for interconnectors, and longer asset life of the OWF) is not as much of an issue under a home market model as it is for an OBZ model. This is because, under the OBZ model, projects will be exposed to at least 10 years of reduced revenue that will be difficult to recover, unless effective forecasts to account for this loss of revenue can be made and reflected in CfD bids and strike prices. Making effective long-term forecasts will be difficult even under the home market, and significantly more difficult under the OBZ market, which is naturally more volatile than the home market.

Given that under an OBZ market model, OWFs connected to an MPI will also face higher balancing costs compared to the counterfactual radial connection, we also think that a new administrative strike price for OWFs connected to an MPI must be calculated. This is because higher balancing costs represent a new risk premium that OWF developers need to price in.

OWFs connected to MPIs should have a dedicated CfD pot with separate contractual arrangements that reflect the 25-year duration of those assets and their specific challenges. Given the nature of OWFs connected to an MPI, it would not be appropriate for such assets to directly compete with the existing CfD technologies, particularly in an OBZ model. Therefore, the kind of arrangements for these assets needs to be bespoke.

We would welcome further thinking from DESNZ regarding how the CfD scheme would impact operational OWFs on existing CfDs that subsequently connect to an MPI.

Also, clarification is required to understand what commercial arrangements OWFs could adopt after the 25 years of the CfD contract. Today the lifetime of an OWF could be greater than 30 years, so certainty regarding commercial arrangements after the 25 years of the CfD is important. One option could be for the OWF to sign a PPA, but it is unclear how a PPA would function for an OWF connected to an MPI. In the case of an OWF connected radially, there is a clear off-taker, but for an OWF connected to an MPI, it is unclear how a PPA would work, including who the off-taker would be, whether it would be the MPI, and how it would work when the electricity is being transported to different jurisdictions.

Q15. Are there any other alternative approaches that we have not considered that would better incentivise an OWF to connect to an MPI?

As explained in our answers to Q8 and 13, if the OWF is curtailed for reasons that go beyond security reasons, an additional compensation mechanism would be necessary for OWFs who connect to an MPI operating under an OBZ market model.

Q16. How do charging arrangements relate to the considerations on support schemes for MPIs, especially under the OBZ scenario?

Given that OWFs operating under an OBZ model will lose priority access to the grid, we think it is essential to remove TNUoS charges altogether. In this way, offshore generators operating under an OBZ model would have the same entitlement to access the MPI as other users of cross-border capacity, and therefore, like other users of the MPI should be exempt from TNUoS charges.

However, the removal of TNUoS charges should not be considered a compensation mechanism to offset revenue shortfalls under the OBZ model (due to lower wholesale prices, higher balancing costs, and potentially lower export capacity). This is because, depending on the location of the OWF, it could end up receiving TNUoS credits instead of paying TNUoS charges. In this scenario, removing TNUoS would be a disadvantage for the OWF rather than an advantage.

Q17. Does the chapter on operability capture the key topics that should be included when considering the impact of market arrangement models on system operability? Are there other important implications that need to be considered?

We agree with the high-level topics presented in the chapter on operability. MPIs are a new type of asset that have to accommodate two separate activities that potentially require two sets of operational and balancing arrangements. The level of detail behind how operability should work will heavily rely on the market arrangement chosen.

Q18. Do you have any views on how curtailment and compensation might work under both HM and OBZ configurations?

At present, interconnectors can be curtailed for security reasons via an agreed GB methodology and the ESO compensates an interconnector for curtailment. However, it is unclear how these arrangements would apply to an MPI and any OWFs connected to it.

We think that if the same principles of curtailment and compensation are adopted for MPIs, part of the compensation must be transferred to the OWF for the restrictions placed on it. We are aware that today the methodology for curtailment used for interconnectors is not mandatory, and interconnectors can opt in or out of the agreed methodology. However, in the case of MPIs, there is a third party (the OWF) that will also be affected by curtailment. Therefore, if this methodology is transferred to MPIs, the agreement needs to be done with all the parties involved.

Q19. Do you have any comments on how balancing might work under both HM and OBZ models?

From the perspective of an OWF developer, we would prefer to have separate metering and BMU arrangements from the MPI owner. This will allow us to run BM and ancillary services independent of the MPI.

Q20. What are your views on contractual agreements that will need to be established between the system operator, MPI operator and an OWF? Do they differ depending on HM or OBZ configuration?

At this stage, we have no specific feedback to provide in response to this question.

Appendix 2 – Glossary

ASP	Administrative Strike Price
BM	Balancing Mechanism
BMU	Balancing Mechanism Unit
CfD	Contract for Difference
C&F	Cap and Floor
DESNZ	Department for Energy Security and Net Zero
ESO	Electricity System Operator
FTRs	Financial Transmission Rights
HM	Home Market
MFDG	MPI Framework Discussion Group
MPI	Multi-Purpose Interconnector
NSI	Non-Standard Interconnector
OBZ	Offshore Bidding Zone
OHA	Offshore Hybrid Asset
OTNR	Offshore Transmission Network Review
OWF	Offshore Wind Farm
PPA	Power Purchase Agreement
P2P	Point-to-point
PTR	Physical Transmission Rights
RAB	Regulated Asset Base
TNUoS	Transmission Network Use of System
TRS	Tender Revenue Stream
UNCLOS	United Nations Convention on the Law of the Sea
WAFTR	Wind-Adjusted Financial Transmission Rights