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14th July 2023

Ref: Consultation on the Market Arrangements for Multi Purpose Interconnectors

Dear Cross Border Market Arrangements and Electricity Trading Team,

RWE is a leading global energy player, with a 38 GW global generating capacity worldwide, and a clear target: to get to net zero by 2040. With its new strategy 'Growing Green' (announced in November 2021) RWE expects to invest €50 billion gross in its core business globally - an average of €5 billion gross each year for offshore and onshore wind, solar, batteries, flexible generation and hydrogen.

RWE is the UK's largest power producer, accounting for around 15% of all electricity generated across a portfolio of onshore wind, offshore wind, hydro, biomass and gas, amounting to over 10 GW pro rata[1] (12 GW installed capacity) - enough to power over 10 million UK homes.

RWE is also one of the largest renewables generators in the UK, with a combined installed capacity of over 2.79 GW (pro rata) (4.8 GW installed capacity) across our onshore wind, offshore wind, hydro and biomass assets. In addition to its growing renewables portfolio, RWE operates around 7GW of modern and efficient gas-fired capacity in the UK, making us one of the largest providers of firm flexible generation, which is crucial for security of supply.

Overall, and including its committed investments in projects already under construction, RWE expects to invest up to £15 billion in new green technologies and infrastructure in the UK by 2030.

Thank you for the opportunity to respond to the consultation on the Market Arrangements for Multi-Purpose Interconnectors. A summary of our response can be found below.

[1] Pro-rata – based on equity share

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Summary

- As an offshore wind generator, the HM model is a more attractive option as it conforms to current known practices around offshore connections. However, we acknowledge some of the challenges - such as trading efficiency and the current rules around interconnector trading flows in the EU.

- We recognise that the OBZ model with implicit trading may therefore be the most efficient approach from a trading perspective. However, as offshore wind generators would receive lower revenues under this model than the HM model it is not as attractive an investment proposition, without additional revenue support required to change this.

- Under either market model, it is critical that the generator receives full CfD payments for their output, regardless of cross-border flows. Lower revenues need to be compensated for.

- Our initial analysis suggests there are a number of barriers to overcome to facilitate MPIs into the CfD. The complexity and extent of these changes means we believe that bespoke CfD arrangements for MPI connected OWFs would be required.

- In our view, the CfD should be seen as the likely support mechanism for MPI projects, however if such support cannot be provided for the full life of the asset (25 years +) then it needs to be at least in combination with further measures such as WAFTR and European style TAG (Transmission Access Guarantee) measures to ensure revenue parity with alternative connection types over the asset lifetime.

- We are disappointed with the pace of policy development regarding MPI facilitation into the CfD, with little clarity so far as to how MPI connected projects could be integrated into the scheme. We urge DESNZ and Ofgem to work at pace to provide clear policy positions as soon as possible. This will allow offshore wind developers to assess the viability of such options against alternatives.

- In our view the uncertainty around restricted market access remains a significant barrier for offshore wind farms, as revenue losses would be not only be substantial but also unpredictable for investors. Allocating such risk to the generator would in our view be inefficient leading either to inflated risk premiums or reduced investment.

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Bidding Zone Configuration–Home Market and Offshore Bidding Zone

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

As an offshore wind generator, the HM model is a more attractive option with limited downside risk. The model conforms more to current known practices around offshore connections, providing offshore wind generators with greater certainty over revenues, operational practices and curtailment risks and costs. It allows for quicker and more certain investment decisions to be made on a similar basis to existing radial connections.

However, RWE acknowledges some of the challenges with implementing an HM model, notably issues around trading efficiency and the current rules around interconnector trading flows in the EU. Such a rule, to ensure 70% of capacity is available to be traded may create issues (Art. 16 VIII EU Regulation2019/943) . For instance, windfarms may need to be curtailed to maintain 70% capacity or TSO to TSO trades may be needed to manage congestion. Both measures would be costly and inefficient. There have been ways to secure exemptions in the past from these rules, for instance for a pilot project between Denmark and Germany, but these have been for limited periods (10 years) and are not permanent enough to invest against.

The OBZ model with implicit trading may therefore be the most efficient approach from a trading perspective. However, as offshore wind generators would receive lower revenues under this model than the HM model it is not as attractive an investment proposition.

To implement MPIs and NSIs in an OBZ model we therefore see it as critical that clear additional revenue stabilisation and support is provided for offshore wind farms. Otherwise investment signals for MPIs and NSIs will not be sent to projects and alternative routes such as radial connections, or HM models may be pursued. To ensure the integration of renewables and long-term consumer benefit, OBZ implicit models need to ensure the same level of revenue stabilisation and support is provided when compared to the HM and radial counterfactual models.

Finally, regarding explicit trading we do not see a benefit of taking these models forward on the basis of their inefficiencies from a trading perspective and potential complexity for operations and capacity allocation.

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

Please see response to question 4, below.

Q3: Which of the four options is your preferred one, and why?

Please see response to question 4, below.

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?

Overall, we would agree that, from a trading and flows perspective, an implicit trading model with OBZ configuration is the most efficient. However, an overall view on consumer benefits and integration of renewables – i.e. the overall efficiency of investment for the consumer – is more complex.

Short-term trading efficiency is enhanced by the implicit OBZ model, however the lower revenues provided by the OBZ approach for offshore wind farms do not send a clear investment signal to pursue this approach and might not be as efficient in the long-term from an investment perspective, as highlighted in our response to Question 1.

Firstly the higher levels of revenue uncertainty for any post CfD revenues in the OBZ model could drive risk premiums in CfD auctions. Additionally, risk premiums may emerge if new offshore wind farm connections are realised in future, something which cannot be anticipated at the time of bidding.

Secondly, if windfarms do not connect to an MPI /NSI they could be replaced by more expensive forms of power onshore, but it is likely that local stakeholders will still experience the same landfall impacts from the interconnector.

We therefore see it as critical that the implicit OBZ model ensures clear additional revenue support for offshore wind farms. Otherwise clear investment signals for MPIs/NSIs will not be sent to projects and alternative routes such as radial connections, or HM models may be pursued.

To ensure the integration of renewables and long-term consumer benefit, OBZ implicit models need to ensure the same level of revenue stabilisation and support is provided when compared to the HM and radial counterfactual models.

The issues of OBZ would also apply to wind farms connected outside GB waters to an NSI. In these cases sufficient investment signals through revenue stabilisation should be considered in the respective cooperation agreements between the partnering states.

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

c) integration of renewables?

Please see response to Question 1.

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

As highlighted in our response to the April-June 2022 consultation regarding Ofgem's Minded-to Decision on Multi-Purpose Interconnectors, we have concerns in relation to transitioning from one model to another (i.e. from HM model to OBZ model) part way through operation of an asset. We consider it would be very difficult to amend CfD contracts, for example, and would create uncertainty for developers of both MPIs and offshore wind operators on their revenue and long term outlook if a change took place at a later stage. There is a need for continuity in regulatory treatment from the outset.

From a generator perspective, it would be very difficult to gain the necessary protections and risk mitigations to enable a switch from HM to OBZ. For instance, would revenues be protected after the period of a CfD if they were lower in the move to OBZ models? How would generators mitigate this risk, especially if insurance products or fallback options are not available?

In principle, any market model chosen should be kept for the lifetime of the asset to protect the underwriting of investment decisions taken (by both offshore wind developers and interconnector developers). Whilst an initial use of the HM model may enable earlier pilot projects to be tested more quickly, as revenues might be more certain, this would not test the wider and more differentiated OBZ model which is more likely to need pilot status.

As noted by Ofgem, in the long-run an OBZ model is likely to be more efficient so facilitating this model through a pilot process would negate the need to "switch" from an HM model later down the line.

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

To be viable for developers there needs to be full compensation available for lost revenues that would be incurred in moving from a HM to OBZ market model.

The process for revenue compensation and protection needs to be clearly set out within CfD contracts and a clear and demonstrable process for how these contracts would change and be renegotiated as part of any transition needs to be available.

In reality, this is likely to be very difficult to achieve and hence our point above in response to Question 6, such a move does not seem logical. Instead, it would be best to either keep the HM arrangement enduring for the particular MPI pilot and change to OBZ for future interconnectors, or move to an OBZ model more quickly to pilot new concepts.

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

In the event of a transition from HM to OBZ model, consideration must be given to the changing nature of network charging. Under the HM model, it is assumed that the offshore wind farm would face charges for use of the interconnector that are equivalent to local TNUoS charges. However under an OBZ model the offshore wind farm would instead face capacity charges from the interconnector. When moving from one market model to the other, the corresponding charging framework will need to also transition. Consideration must be given to how to ensure investor certainty for a developer investing under one framework, and transitioning subsequently to another.

Consideration must also be given to the interactions between this workstream and the work of both the SQSS review and TNUoS taskforce –which are reviewing the 'backgrounds' used for modelling system security standards and TNUoS charges respectively. These currently feature interconnectors, but have no values for MPIs/OHAs. This will need addressing irrespective of the market model which is used.

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?

Our overall views on trading arrangements for questions 9 – 12 are explained below.

In principle, a move to an OBZ model with implicit trading will likely mean day-ahead trading is the most important element of arrangements. But we would also note the longer-term options and intraday trading will also need to be integrated in an implicit OBZ approach.

The day-ahead timeframe is particularly important for offshore wind projects, which currently have their CfD payments linked to a day-ahead market reference. Whilst we note bespoke CfD arrangements may be required, it is likely that day-ahead referencing would continue. However, the REMA programme is also looking at reforms to the CfD scheme which may move assets away from day-ahead incentives. These reforms could be in place by the late 2020s and cross over with pilot MPI projects. Therefore, trading arrangements need to be robust in light of market design changes.

From our understanding, it is difficult to provide for long-term capacity rights under existing EU legislation. Therefore we see long-term capacity rights playing a smaller role in trading arrangements. If long-term capacity rights cannot be provided for offshore wind developers, then alternative arrangements need to be sought to ensure confidence of delivery on power volumes.

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?

See response to Question 9.

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

See response to Question 9.

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?

See response to Question 9.

Support schemes for OWFs under OBZ market model

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. RWE believes compensation is needed to ensure incentives are provided to developers to undertake new pilot MPI business models under the OBZ model.[2]

In either market model, it is critical that the generator receives full CfD payments for their output, regardless of cross-border flows. Without this any MPI model would deliver lower returns than a radial counterfactual and would disincentivise take up of this approach for offshore wind developers.

We believe compensation should be available through either CfD or congestion revenue routes. We have reservations about putting all compensation through the CfD scheme when:

- **It is not clear if the CfD would be extended to cover revenue stabilisation for the lifetime of the offshore asset**. Meaning that only providing revenue support through the CfD could see extended periods of lower revenue both pre and post CfD. A typical asset life of our projects is envisaged for 25-30 years,[3] meaning up to half the asset life would be earning lower revenues than a radial counterfactual if the current 15-year CfD was applied to projects.

[2] The issues of loss of revenue would also apply to wind farms connected to NSI assets. In these cases sufficient investment signals through revenue stabilisation should be considered in the respective agreements between the partnering states.

[3] Note, there is also significant work underway looking at life time extension options for offshore wind farms. Potentially meaning 25-30 years is the minimum asset life.

- Future merchant business models outside of the CfD could be seen in future, for instance through hydrogen offtake or electrolysis. Pushing MPI projects towards the CfD as the only form of revenue may inhibit projects exploring alternative routes to market and business models which are likely to emerge over the coming years.

As the market price in an OBZ tends to converge with the lower market price in connected market zones it should also be noted that generators under an OBZ market model are likely to have a higher exposure to negative price hours, when CfD payments are not granted and generation is curtailed.

The revenue under an OBZ model may also be reduced due to market access restrictions resulting from interconnector capacity allocation and partial dispatch in the context of cross-zonal market coupling (see Q15).

Models such as the WAFTR and European TAG (Transmission Access Guarantee) model should continue to be explored alongside options for extensions to CfD support. In RWE's view, the CfD should be seen as the likely support mechanism for MPI projects, however if such support cannot be provided for the full life of the asset then it needs to be at least in combination with measures such as WAFTR and TAG to ensure revenue parity with alternative connection types.

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?

As outlined previously to Ofgem and DESNZ, RWE firmly believes MPI connected OWFs should be eligible to apply for future CfD rounds. Such wind farms have the ability to reduce landfall environmental impacts, support consumer savings and integrate new business models.

RWE's initial analysis suggests there are a number of barriers to overcome to facilitate MPIs into the CfD.

The complexity and extent of these changes means we believe that bespoke CfD arrangements for MPI connected OWFs would be required. This would include bespoke award outside of current auction structures, bespoke contract lengths to align to interconnector support and bespoke contractual specifications or contract types.

- **General CfD eligibility:** MPI connected offshore wind farm projects are currently not eligible for the CfD. Eligibility rules would need to change to facilitate entry by allowing offshore wind farm projects that are connected to interconnectors.

- **Contract protections and provisions:** The current CfD contract as written does not fully protect offshore wind farms from some of the risks associated with MPI development. This includes a lack of protection (as written) if MPI/interconnector network construction is delayed and a lack of flexibility around project timelines compared to standard offshore wind farms owing to the different nature of MPI development. This could be provided through a new contract type, akin to existing CfD contract types such as private wire and phasing, provided specifically for MPI connected projects.

- **Offshore wind and MPI timings:** compared to the traditional radial OFTO model, the timings of typical CfD/generator Final Investment Decision (FID) and Interconnector FID are currently not aligned. This is due to the typical timelines of regulatory approval for interconnectors being significantly earlier than the FID of a windfarm going through a CfD auction process. For the MPI model to work the FID of both the offshore wind farm and interconnector components must be sufficiently aligned. It may therefore be necessary for an earlier CfD to be facilitated to ensure FID alignment. Unless specific auction carve outs can be made, for instance through extended delivery year options or earlier auction access, a bespoke CfD with earlier agreement would be necessary to meet the earlier commitment requirements. We also think anticipatory investment policy could be used to here to provide assurance during periods of misalignment – see our response to the parallel consultation on Regulatory Frameworks.

- **Reference pricing and market modelling:** Uncertainty over reference pricing, and thus project revenues, is of material importance in assessing MPI viability. Whilst some analysis suggests the OBZ model is more economically efficient, the exchange rate risk and volatility in payment is a concern. Even with the protection of a CfD contract, there may be complexities in administering such an approach for the LCCC, for instance in forecasting and managing payments of the windfarm in another currency for supplier obligations.. RWE believes both models should continue to be explored to assess their viability and potential viability for offshore developers and the CfD. However, once a decision is made on the market model for MPIs, CfD policy must align with this to ensure MPI connected projects can clearly understand CfD revenues and post CfD revenues. **In either model, it is critical that the generator receives full CfD payments for their output, regardless of cross-border flows.** Without this any MPI model would deliver lower returns than a radial counterfactual and would disincentivise take up of this approach.

- **Wider interaction with MPI models and charging:** Clarity is needed on how wider charging will work across MPIs and how offshore wind farms connected

to them will be treated for both network charging (TNUoS) and system balancing. Without this projects will not be adequately able to reflect these costs in strike price bids.

We would also note that considerations need to be made about future CfD support scheme designs in the context of REMA. For instance, pilot MPI connected offshore wind projects may be subject to different CfD designs if eligible for support in the late 2020s.

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

As referenced above in response to Question 13, we consider models such as the WAFTR and European TAG (Transmission Access Guarantee) model should continue to be explored alongside options for extensions to CfD support.

Ultimately the risk level for MPI projects with an OBZ market model should be comparable to radially connected projects. Currently, there are further risks associated with an OBZ model which cannot be mitigated via the CfD mechanism and also depend on future trading and market coupling arrangements with the EU.

If MPIs and NSIs are subject to or affected by EU capacity allocation rules and market coupling arrangements (either based on Net Transfer Capacity or Flow Based) the available transmission capacity on the MPI or NSI might be restricted to anticipate bottlenecks in onshore grids. Dispatch of generators could be restricted by the power exchange ("curtailed bids") or to optimise cross-zonal exchanges within the whole coupled market region. Even if grid operators comply with the 70% requirement the reduction of the available transmission capacity on the MPI or NSI can lead to situations when the total available transmission capacity to all markets cannot accommodate the total available generation.

Restrictions to available transmission capacity would lead to a partial curtailment of available generation in the OBZ. In this scenario, the market price in the OBZ is expected to reduce to zero, leading to zero revenues even for the exported generation (the price collapse would lead to increased congestion income for interconnector operators).[4] While the risk of price collapse could be offset by higher CfD payments (during the CfD period), the curtailed volumes would not.

[4] https://energy.ec.europa.eu/system/files/2022-09/Congestion%20offshore%20BZ.ENGIE%20Impact.FinalReport_topublish.pdf

In our view the uncertainty around restricted market access remains a significant barrier for offshore wind farms, as revenue losses would be not only substantial but also unpredictable for investors. Allocating this risk to the offshore wind generator would be inefficient leading to either inflated risk premiums or lower overall investment.

A "Transmission Access Guarantee" (TAG) as discussed in the context of EU market design reform could - if properly designed - provide an effective instrument to neutralise the additional price and volume risk resulting from restricted market access through a compensation payment (similar to redispatch compensation in an onshore bidding zone). Importantly, the TAG could provide mitigation for this particular risk beyond the traditional 15-year CfD period.

TAG compensation could be partially financed by the operators of interconnectors using the excess congestion income they earn when access of OBZ generators to connected markets is restricted and this leads to lower market prices than without restriction. The targeted (and limited) use of congestion income is being explored in EU legislation. The applicability of such arrangement to MPIs or NSIs connecting GB and EU markets could be considered further.

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

Understanding charging arrangements, especially costs and the rights/ responsibilities of the offshore wind farm, are crucial in regards to support schemes.

Currently, TNUoS charging arrangements play a critical role in the assessment of a radial connected offshore wind farm CfD bid. This is because TNUoS charges need to be forecast, well beyond National Grid 5-year forecasts, by the developer into a fixed price CfD bid.

Apart from CPI indexation, CfDs are fixed price contracts with no revenue upside. Therefore, factoring in the most accurate and sensible on variable charges such as TNUoS is critical to any bid price assumption and to ensuring positive project returns.

The same will be true of MPI connected offshore wind farm assets looking to bid into a CfD process. Therefore, if MPI charging arrangements can be provided in a clear, transparent and robust way with a longer-term view on costs, developers can create more accurate bids. Lower volatility on these the charges would also reduce risk levels and premiums in bid prices.

Operability and other issues

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 have a number of concerns related to the operability of MPI assets from an OWF perspective. However, at this stage we think more information is needed from NGESO on how it envisages this working in order for us to provide a meaningful response. We encourage Ofgem to ask NGESO to provide more detail so that we can fully assess the proposal against the existing regime in place for radially connected OWF.

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

No response

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

No response

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?

No response