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Attn:
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Arven Offshore Wind Farm Limited's (Arven's) response to Ofgem's Consultation on Connections end-to-end review of the regulatory framework

About Arven

Arven is a 2.3GW floating offshore wind development located to the east of the Shetland Islands. Through a 50:50 partnership between Ocean Winds and Mainstream Renewable Power, the two sites were awarded as part of the ScotWind leasing round in 2022. Arven is expected to be operational in the mid-2030s. Its output has the potential to provide two million households with clean renewable power, while saving three million tonnes of CO_2 emissions each year.

As one of the largest sites of its kind, Arven is a flagship project for floating wind. It offers a real opportunity to deploy floating technology on an industrial scale, generating jobs as well as wider economic and social benefits for Shetland, Scotland and the wider UK. Realising the potential of floating offshore wind is essential to a successful and sustainable energy transition, for the UK and globally, highlighting the substantial importance of Arven in terms of technology development, deployment and future learnings.

Working together with local stakeholders, the partnership behind Arven aims to cement the UK and Scotland's position as a global leader in floating technology and offshore wind innovation. Our approach seeks to maximise project expenditure primarily in Scotland (including locally in Shetland), and the rest of the UK, supporting domestic supply chain capabilities. Both shareholders have a strong track record in commitment to developing regional and local infrastructure, and local industry will be at the core of Arven's development. Additionally, around 1500 direct and indirect jobs will be created during the construction phase, plus long-term positions during the operational phase.

Shetland has some of the best wind resources in the world and is well positioned to play a key role in renewable energy development, and a just transition to net zero, due to its geographic location and natural resources. The islands have a proud history of fishing, oil and gas, and maritime industries that have fostered engineering and offshore expertise over time. Sumitomo Electric Industries, Ltd. together with consortium partner Van Oord and in collaboration with client SSEN Transmission, have formally announced the signing of a Capacity Reservation Agreement (CRA) encompassing the supply and installation of a second 525kV HVDC cable link between Shetland and the Scottish mainland. The planned cable for the project is to be delivered from Sumitomo Electric's state of the art manufacturing facility, currently under construction in Nigg, northeast Scotland. The needs case for the second Shetland HVDC link is fundamentally predicated on Arven's development and route to market requirements.

Sincerely,

Ewan Walker (by email)
Project Director – Arven

Consultation Response

Theme 1 - Visibility and accuracy of connections data and network capacity

Question 1a. Do you agree with the issues we have set out under Theme 1 - Visibility and accuracy of connections data and network capacity? Are there any other issues under this theme that we should consider or be aware of?

Yes, we agree strongly with the issues identified here. Especially the lack of visibility of demand connections which has been a specific issue for us.

Question 1b. Do you agree with proposal 1a (new regulatory requirement on single digital view tools)? Do you have any views on how this should be implemented?

We agree with the general proposal that a regulatory requirement would be the best option to ensure data is published and are most interested in how this is implemented at Transmission level. We think it is particularly important that demand connection information is covered under the same regulation. We have been requesting a Demand Capacity Register (comparable to the TEC Register for generation) from the National Energy System Operator (NESO) for some time now, along with other developers, but they have stated that this could take them 18 months to produce, which seems extremely unambitious! We therefore see the need for regulation to ensure this is prioritised.

Question 1c. Do you agree with proposal 1b (new regulatory requirement on the creation of guidance / standards for data visualisation tools)? Do you have any views on how this should be implemented?

We agree with the requirement for guidance and standards. As a developer our main comment is that there remains a significant issue with incorrect data being published. Where this relates specifically to our project it can have far reaching consequences with other stakeholders being misled, so we suggest that as part of the new standards there should be a formal route for a contracted party to request corrections if they identify errors and for these to need to be undertaken within a guaranteed period not exceeding 10 working days.

Question 1d. Do you agree with proposal 1c (new regulatory requirement to provide connections data)? Do you have any views on how this should be implemented?

No, we do not agree with this proposal. A single combined Transmission and Distribution connections tool would be less useful for us than separate tools at Transmission and Distribution levels. We note that there are different definitions and terminologies in use across the two types of connection and we would be concerned that a single system wide view would over-simplify this data and thereby lose important granularity.

Question 1e. What are your views on the completeness and discoverability of connections data that would be useful to you? Are the existing resources clear and transparent?

The TEC register is a useful tool format for transmission customers and should be improved, rather than replaced. The following additional fields would be helpful:

- Date of countersigned Bilateral Connection Agreement (this would give queue position)
- Demand connections included
- Link to the Transmission Works Report (TWR) to show reinforcement works required for each scheme
- Project stage should be linked to Queue Management Milestones rather than "Scoping/Consented/In Construction" etc.

Theme 2 - Improved standards of service across the customer journey (not including "minor connections")

We have not provided detailed responses to Theme 2, but we are broadly in agreement with the issues raised and supportive of either proposal 2a and/or 2b. As an offshore developer we are particularly supportive of the introduction of more prescriptive license conditions (proposal 2b) to cover the re-offer process following the Holistic Network Design/Holistic Network Design Follow Up Exercise.

Theme 3 - Requirement on networks to meet connection dates in connection agreements

Question 3a. Do you agree with the issues we have set out under Theme 3 - Requirement on networks to meet connection dates in connection agreements? Are there any other issues under this theme that we should consider or be aware of?

At present, the UK is one of the only markets with no risk sharing provision around grid and connection delays. This leaves generation project developers with no commercial protection should Transmission Operators (TOs) fail to meet the connection date stated in the developer's contract with NESO. This is a present and significant risk that, if left unaddressed, will have cost of capital and investment implications that will hinder projects from taking final investment decisions and push the associated cost of these risks through to the consumer via Contract for Difference (CfD) bids.

We acknowledge that this is not a new issue. Both of our sponsor Ocean Winds' (OW) Moray East and Moray West projects have experienced such delays, and this has not prevented projects from taking investment decisions and delivering large-sale projects. However, since OW experienced connection delays with these projects requiring relatively simple enabling works for connection, we have concerns over the scale of transmission projects needed over the coming years. The risk profile for connections is changing quite materially, and this warrants a new and more bankable approach to risk sharing given the nature of the environment we are operating in.

Given that there is an unprecedented number of enabling works needed to connect the mission-critical energy projects required to deliver clean power to the UK over the next 5-10 years, this issue is critically important to resolve expeditiously. In their Clean Power by 2030 Action Plan (CP30), the Department for Energy Security and Net Zero (DESNZ) has identified 80 essential enabling infrastructure projects that must be delivered over by 2030 to keep pace with clean power targets, with an additional 8 that they recommend for acceleration due to the whole system benefits they afford. This is a level of coordinated and time-sensitive transmission network buildout that the UK has never seen before.

CP30 also requires expansion of current renewable energy capacity by tens of GW between now and 2030 with steady deployment through to 2050. As such, the risk for delivery delays of *both* networks and generation has never been higher. There is a fundamental need to limit risk of delays and distribute the burden of delay risk across accountable parties.

We support the issues Ofgem have identified under this theme, and specifically bullet points two and three under section 2.69:

- *Requirements for DNOs and TOs to meet agreed connection dates should be strengthened. In particular, Ofgem should consider introducing incentives / penalties around network build / upgrades required to facilitate customer connections, in order to mitigate delays.*
- *Network companies whose activities impact project costs or viability and connection delays should be subject to repercussions. Networks should face commercial penalties if delays / changes of design impact on project costs or viability. There is currently limited commercial exposure for network companies within the connection agreement.*

However, we suggest there needs to be additional clarity around the steps that must be taken to ensure that developers are given “bankable” grid connection products. Connection offers must be financially viable and reliable enough to justify funding – meaning offers carry an acceptable level of risk, clear timelines, and legally enforceable obligations for redress should there be delays. Without clear, enforceable commitments from network operators on grid connections, developers will struggle to secure financing for projects.

Developers are completely unable to influence delivery timelines of transmission projects. It is illogical and ultimately costly to the consumer for developers to price TO delivery risk into their financial decisions and CfD bids. Investors require assurance that the necessary infrastructure will be delivered on time. If delays occur, developers should receive appropriate compensation for costs incurred during construction and for generation lost due to grid delays. Generation project developers can face significant financial losses from such delays, yet TOs have limited incentives to prevent or mitigate them. In most large capital projects, liquidated damages (LDs) or similar mechanisms are standard practice when coordinating interfacing works, making their absence in this context a notable anomaly. Without these protections, the financial viability of projects could be jeopardised, and the cost of this uncertainty and risk will ultimately be passed on to consumers.

Given the scale of transmission buildout anticipated over the coming years, it is fundamental that delay security be included in contractual commitments to reduce uncertainty. Without this, developers will struggle to reach financial close on projects that are required to meet the UK’s clean energy targets at lowest cost to consumers.

Question 3b. Do you have any views on proposal 3a (strengthened principles-based licence condition around meeting connections dates)? Do you have any views on specific wording that would achieve the intended outcome?

It is imperative that there is a sufficient degree of independence, accountability and transparency established for setting fair and realistic connection dates. This could be established via principles-based licence conditions and should be used to protect against any unintended consequences that result in connection dates being arbitrarily moved as a risk management solution.

While these principles can be productive for facilitating better system operations, we do not believe that a principles-based approach alone is sufficient to deliver the investor certainty needed for developers. There must be greater actions taken to disperse risk among the stakeholders who have the power to influence outcomes of network upgrades (TOs, Distribution Network Operators (DNOs), NESO, Ofgem, etc.). These measures must be predictable and established via connection agreements to provide certainty that projects can begin generating power on their connection date or receive compensation if the connection is delayed.

We would support Ofgem pulling together a workgroup that could quickly explore and assess design options for both principles-based licence conditions and financial mechanisms to better allocate risk and improve connection delivery. It is key to do this with the support of TOs, NESO and industry to ensure the proposed solutions are workable, bankable, and deliver risk sharing provisions that ultimately insulate consumers from bearing unnecessary risk premiums.

Question 3c. Do you have any views on proposal 3b (minimum standards / Service Level Agreements [SLA] around meeting connections dates)? Do you have any views on specific standards that could be introduced and how they would work in practice?

We support the introduction of minimum standards/ SLAs around meeting connection dates as a means of improving accountability and delivery certainty. To ensure effectiveness, we suggest incorporating milestones for each network project, similar to the queue management milestones that generators must adhere to in the connections process.

By establishing measurable milestones for network companies, TOs can be incentivised or penalised based on their adherence to these benchmarks. These milestones should align with key project stages, such as initial design approvals, procurement, and construction phases. Implementing a structured framework of incentives and penalties would further reinforce commitment to timely delivery while maintaining flexibility for unforeseen challenges.

Question 3d. Do you have any views on proposal 3c (a financial instrument designed to offer recourse to connecting customers who face detriment due to delays)? Do you have any views on how this should be implemented?

Currently, the burden of risk associated with connection delays rests solely on generation project developers. Developers have no ability to influence network planning and construction timeline and thus should not be liable for 100% of the risk of delays. Developers must carry the CAPEX impacts of construction delays and the loss of revenue with no means of compensation or redress – which is a quite significant in the early stage of projects. It is insufficient to simply penalise or incentivise on-time delivery by TOs – there must be compensation for developers.

We acknowledge that introducing compensation mechanisms, such as LDs, would alter the risk profile for TOs and may require them to incorporate this risk into their business models. While this could be seen as a reason to avoid such financial instruments, it is important to consider the alternative—generation project developers bearing the risk instead. It is inevitable that the risk of delays will flow through to consumers; making this the lowest cost possible is imperative.

Given that generation project developers typically face a higher cost of capital, placing the entire burden of risk on them is unlikely to be in the best interest of consumers. Moreover, TOs are best placed to manage and mitigate these risks, as they have direct control over the planning, procurement, and delivery of transmission infrastructure. Unlike developers, who are dependent on timely grid connections but have no influence over the process, TOs can take proactive measures to prevent delays. Additionally, since NESO is party to connection contracts with developers, their role in this process should be appropriately considered in assessing risk sharing needs. Ensuring NESO and TOs bear appropriate responsibility would create stronger incentives for timely project completion, ultimately reducing costs and uncertainty for both developers and consumers.

As the UK is alone in the lack of redress for developers in the event of grid delays, we recommend exploring the treatment of this issue in other similar geographies—especially those with similar treatment of OFTO assets. There are multiple options for designing a financial mechanism that can deliver the risk mitigation needed for project developers, including if the compensation addresses impacts from lost revenue and/or construction cost impacts. Below, we have provided information on four similar geographies to the UK: the United States (ISO New England), the Netherlands, France, and Ireland. Each take a different approach to implementing financial measures, and these can be used to help build a base of evidence to support the need for and design of potential risk sharing provisions.

We would support Ofgem initiating a workgroup that could quickly explore and assess design options for both principles-based licence conditions and financial mechanisms to better allocate risk and improve connection delivery. It is key to do this with the support of TOs, NESO and industry to ensure the proposed solutions are workable, bankable, and deliver risk sharing provisions that ultimately insulate consumers from bearing unnecessary risk premiums.

1). United States (ISO New England)

In the ISO New England region (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), Article 5.3 of the pro forma interconnection agreement[1] (IA) provides protections to the interconnection customer in the form of liquidated damages in the event the Transmission Owner's interconnection facilities or network upgrades are not completed by the dates designated in the IA.

Specifically, the liquidated damages shall be an amount equal to 0.5% percent per day of the actual cost of the Transmission Owner's interconnection facilities or network upgrades, for which Interconnecting TO has assumed responsibility to design, procure and construct. However, this is capped at 20% of total upgrades cost. No liquated damages will be paid if the interconnection customer is not ready to commence use of the interconnection facilities or network upgrades, even if the required upgrades are late.

2). Netherlands

The Netherlands Royal Decree[2] outlines a compensation mechanism for generators when transmission works are delayed, preventing them from injecting electricity into the grid. The key clauses state:

"In case of delay in the commissioning of the installations referred to in Article 2, §2, paragraph 1, which prevents production facilities from injecting generated or generatable electricity, the relevant concession holders are entitled to compensation for the volume corresponding to AAP (Available Active Power), as calculated by the commission based on the power curve of the generation facility.

The compensation amounts to 90% of the Strike Price, as defined in Article 44 of the Royal Decree of June 3, 2024 (a benchmark value, as auctions are subsidy free). It is due from the first day of delay until the 90th calendar day after the notification of commissioning of the delayed infrastructure."

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[1] ISO NE Large Generator Interconnection Agreement: https://www.iso-ne.com/static-assets/documents/2017/11/oatt-schedule-22-appendix-6-large-generator-lgip-interconnection-agreement.pdf
[2] https://www.rvo.nl/sites/default/files/2021/10/Dutch%20Offshore%20Wind%20Guide%202022.pdf

The number of days for which compensation is due is deducted from the duration of the support period defined in Article 40, §1, of the Royal Decree of June 3, 2024.

Additionally, it states that if the delay is due to a deliberate fault by the transmission owner, the compensation increases to 100% of the Strike Price:

“By derogation from the second paragraph, if the delay in commissioning the installations referred to in Article 2, §2, paragraph 1, is caused by a deliberate fault of the network operator, the compensation amounts to 100% of the Strike Price, determined in accordance with Article 44 of the Royal Decree of June 3, 2024, for the volume corresponding to the AAP, as calculated by the commission based on the power curve of the production facility”.

3). France

In France, the Energy Code addresses the issues of delays and indemnities related to grid connections.

In this regard, the French Energy Code requires the Transmission and System Operator to pay compensation for delays in accessing the grid that are caused by setbacks in their enabling works for offshore wind facilities.[3] Such compensation is owed when:

- The delay in grid connection is not caused by a force majeure event or by an event for which the producer is responsible that significantly affects the connection work; and
- The delay forces the producer to postpone the anticipated start date of the Contract for Difference and results in a well-substantiated loss for the Producer.

The compensation is calculated for the period between the projected date and the actual date on which the CfD or the Feed-in-Tariff contract comes into effect. This period is limited to the time between the deadline for the availability of all connection facilities and the actual date these facilities are made available. This period cannot exceed three years. If there is a delay of three years in providing all connection facilities for an offshore production facility, the System Operator and the Producer must meet as soon as possible to find a solution that allows the project to proceed.

[3] French Energy Code Article D342-4-12: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000045302526

The payment compensates power producers for delays in grid connection by estimating lost revenue based on the operational capacity of their facility, expected annual runtime, contractual electricity tariff, and the proportion of the promised grid connection that has been made available.

4). Ireland

In Ireland, Grid Delay Compensation considerations are defined in the Terms and Conditions ORESS Tonn Nua Offshore Wind Auction.[4] A Grid Delay Compensation event will accrue to the Generator on and from the first date on which the Generator demonstrates (to the Minister's satisfaction) that all of the following conditions have been satisfied:

(a) The Fixed Grid Date has occurred; (date on which the grid should have been delivered)

(b) The Longstop Date has not occurred; (the max CfD activation date has not passed)

(c) Grid Delivery has not occurred; and (the grid has not been delivered)

(d) The ORESS Tonn Nua Project has achieved an Installed Renewable Capacity, installed and onsite, equal to or greater than the Minimum Installed Renewable Capacity (90% of total target capacity)

The Grid Delay Compensation will be calculated on a monthly basis using a methodology set by the Regulatory Authority. The amount will be based on the Grid-Delayed Quantity for each relevant day, adjusted by an appropriate capacity factor (based on P50) and multiplied by 100% of the Strike Price, subject to any adjustments outlined in the Terms and Conditions. Transmission and distribution losses will be factored into the calculation, and any revenues earned in relation to the Grid-Delayed Quantity will be deducted to avoid overcompensation.

Compensation will be paid monthly, providing financial relief in a timely manner to help mitigate the impact of grid delays on affected projects.

[4] https://assets.gov.ie/310719/9f4b1593-6089-4745-bb1b-f9858fcf6928.pdf

Theme 4 - Quality of connection offers and associated documentation

Question 4a. Do you agree with the issues we have set out under Theme 4 - Quality of connection offers and associated documentation? Are there any other issues under this theme that we should consider or be aware of?

We agree with the issues identified already under Theme 4, but believe there are additional issues that require consideration relating to whether connection offers are correctly reflecting the technical parameters of a customer's application, specifically:

- Provision of a "non-firm" offer when customer requests a "firm" offer

If a customer applies for a firm connection, we believe there should be a clear obligation for the network operator to provide an offer for a firm connection. This may result in a higher cost or longer timeframe for connection, but this should be a customer choice. In recent applications for offshore wind connections however we have been made aware that the relevant TO determined that they could not offer firm connections on certain parts of the network and therefore requests for a firm connection would be declared "not competent" and sent back to NESO, until NESO amended the request to a non-firm request. This resulted in non-firm offers being produced, without discussion and agreement with the customer. A non-firm offer, which does not meet SQSS conditions and includes specific restrictions on availability for which the generator is uncompensated, may be fundamentally unacceptable for large generators as it poses a significant risk to investors.

We understand that there are a number of applicants in a similar position who requested firm connections but who have been provided with **non-firm offers and therefore suggest this is an issue requiring attention and not a one-off error.**

Question 4b. Do you have any views on proposal 4a (principles-based licence condition on the completeness / quality of the offer and supporting documentation)? Do you have any views on specific wording that would achieve the intended outcome?

We believe that proposal 4b may be more appropriate here as it would be easier to administer if there is specific guidance rather than a "principle" – i.e. if an offer is deficient, we would like to be able to point to a clear standard that has been breached rather than debate whether the principle has been followed.

Question 4c. Do you have any views on proposal 4b (minimum standards / SLAs on the completeness / quality of the offer and supporting documentation)? Do you have any views on specific standards that could be introduced and how they would work in practice?

We support proposal 4b. We believe the specific standards should include a requirement for the offer to accurately reflect the customer's application in terms of:

- Capacity,
- Technology,
- Firm/non-firm connection,
- Design variations.

Question 4d. What do you consider would constitute a 'high quality offer'?

- All offers should contain a single line diagram showing the proposed connection arrangement.
- All offers should provide a timeframe for each individual enabling works/reinforcement work.
- Offers should provide geographic information about the proposed point of connection, even if this is subject to change

Theme 5 – Ambition of connection offers

Question 5a. Do you agree with the issues we have set out under Theme 5 - Ambition of connection offers? Are there any other issues under this theme that we should consider or be aware of?

We do agree with the issues identified – specifically around "creating a mindset shift amongst network companies to offering conservative, later connection dates which will be easier to meet". With the significant scope of network upgrade projects required to deliver CP30 and beyond, conservative connection dates could be a barrier to delivery. It is important that Ofgem strike the right balance between holding network companies accountable for on-time project delivery and offering redress to developers in the case of delays. Without both elements, network delays and project delays are a risk to the rapid expansion of clean energy that is needed to reach clean energy targets over the coming years.

The lack of a standardised method for calculating Earliest in Service Dates (EISDs) is important in the context of the ongoing discussions regarding the transitional Centralised Strategic Network Plan 2 (tCSNP2) in the UK. Ofgem has identified the need for clearer and more consistent methodologies for calculating

EISDs across TOs. Currently, without a NESO/Ofgem-approved approach, discrepancies in how EISDs are calculated by different network companies can lead to significant planning and financial uncertainties for developers. The tCSNP2 funding framework, discussed in recent Ofgem decisions[5], calls for better planning, transparency, and alignment on project timelines. One of the proposals that has emerged is for a more unified approach to these calculations to ensure that all TOs are working from a common standard, which would help mitigate risks associated with delayed connections.

Question 5b. Do you have any views on proposal 5a (strengthened principles-based licence condition around offering earliest achievable connection dates)? Do you have any views on specific wording that would achieve the intended outcome?

We support the proposed approach of requiring network companies and NESO to offer developers the "earliest achievable connection dates." This represents a welcome improvement over the current wording, "time being of the essence," by ensuring a clearer, more accountable process for setting connection timelines.

We also recognise the positive intent behind the suggestion of revising offers post-agreement if an earlier connection date becomes possible. However, for projects with long development timescales—such as offshore wind—connection date accuracy is crucial. Many of these projects cannot always react to updated offers due to their complex planning, permitting, and financing structures. Therefore, while flexibility is valuable, a stable and reliable connection date, and the opportunity for redress in the event of delays, remains essential for effective delivery and to maintain investor confidence.

It is imperative that there is a sufficient degree of independence, accountability and transparency established for setting fair and realistic connection dates. This could be established via principles-based licence conditions and should be used to protect against any unintended consequences that result in connection dates being arbitrarily moved as a risk management solution.

[5] https://www.ofgem.gov.uk/sites/default/files/2024-12/tCSNP2_decision.pdf