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To Whom It May Concern,

Planning Act 2008, Vattenfall Wind Power Limited, Proposed Thanet Extension Offshore Wind Farm

The MMO is an interested party for the examination of Development Consent Order (DCO) applications for Nationally Significant Infrastructure Projects (NSIPs) in the marine area. Should consent be granted for the project, the MMO will be responsible for monitoring, compliance and enforcement of Deemed Marine Licence (DML) conditions.

On 30 July 2018, the Marine Management Organisation (MMO) received notice under section 56 of the Planning Act 2008 (the "PA 2008") that the Planning Inspectorate ("PINS") had accepted an application made by Vattenfall Wind Power Limited (the "Applicant") for a development consent order (the "DCO Application") (MMO ref: DCO/2016/00003; PINS ref: EN010084), for the construction, operation and maintenance of the proposed Thanet Extension Offshore Wind Farm (TEOWF).

This document forms the MMO's deadline 4 submission, comprising:

- responses to submissions received at deadline 3 including a summary of issues that remain outstanding; and
- comments on the applicant's draft DCO Revision C

This written representation is submitted without prejudice to any future representation the MMO may make about the DCO Application throughout the examination process. This representation is also submitted without prejudice to any decision the MMO may make on any associated application for consent, permission, approval or any other type of authorisation submitted to the MMO either for the works in the marine area or for any other authorisation relevant to the proposed development.

Yours faithfully





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Response to written submissions of oral cases/actions arising

1. Response to oral cases/actions arising from Issue Specific Hearing 3

1.1 Action 16 – Cessation of piling – noise levels

1.1.1 The MMO submitted its response at deadline 3 providing further detail on its powers to stop works, and the limitations in regards to the current wording of the condition. The MMO notes that its position aligns with Natural England's comments in section 8.2.3. of their deadline 3 submission '*Response to action points requested by the Examining Authority for ISH 3 and clarification of position in relation to SoCG.*' This remains an item under discussion in the Statement of Common Ground (SoCG).

1.2 Action 17 – Applicant and MMO SoCG:

1.2.1 The MMO has reviewed the applicant's position set out in its deadline 3 submission in response to action point 17. This remains an item under discussion in the SoCG. The MMO's position is unchanged from that stated in its relevant representation where the MMO advised that it is not aware of any empirical evidence that fish will flee from the source. It is therefore not appropriate to use an assumed fleeing speed to calculate the impact ranges based on SELcum thresholds, and the noise modelling for SELcum should be undertaken based on a stationary receptor.

1.2.2 A generic fish swimming speed of 1.5m/s, rather than fleeing speed was used by the applicant based on a publication by Hirata K, (1999)¹ which considers swimming speeds of various fish species. This is not empirical evidence that fish will flee from the source. There is some evidence that fish will respond to loud noise and vibration, through observed reactions including; schooling more closely, moving to the bottom of the water column, swimming away, and burying in substrate (Hawkins et al. 2014)². However, this is not the same as fleeing, which would require a fish to flee directly away from the source over the distance shown in the modelling.

1.2.3 Furthermore, even if fish did respond by moving away from affected areas, the timescales in which this may occur are unknown. The fleeing assumption also overlooks the limited mobility of eggs and larvae; and that some animals may have a motivation to remain in a specific area. Herring have a biological need to spawn and require specific substrates to do this (e.g. gravel) and this strong driver to spawn means spawning herring are more likely to remain in situ.

1.2.4 Having reviewed the scientific literature related to fish behavioural responses to noise, and justification which has been presented to support the use of a fleeing speed (i.e. a generic fish swimming speed, without supporting evidence to support an active fleeing response), the MMO considers there is presently a lack of scientific evidence to

¹ Hirata K (1999). Swimming speeds of some common fish. National Maritime Research Institute (Japan). Data Sourced from Iwai T, Hisada M (1998). Fishes – Illustrated Book of Gakken (in Japanese), Gakken.

² Hawkins, A. D., Roberts L., and S. Cheesman (2014a) Responses of free-living coastal pelagic fish to impulsive sounds, J. Acoust. Soc. Am., 135, PP3101-3116

support this assumption, therefore under the precautionary principle, a stationary receptor should be assumed.

1.2.5 The applicant also states in action point 17 (88) that “the impact ranges for injurious effect is limited to 350m, and the nearest historic spawning ground is 3km away, noting that there is limited evidence that this is still in use and that the primary grounds are agreed as being at least 20km to the south...” However, when considering the cumulative sound exposure, predicted Temporary Threshold Shift ranges may extend out to such distances. In addition there are also potential behavioural effects to consider, which may occur beyond the predicted impact ranges for non-recoverable injury.

1.2.6 The MMO therefore does not agree that additional modelling will be inconsequential.

1.2.7 Consequently, the MMO is concerned that the current modelling is not sufficient to fully assess the potential impact on herring spawning areas. Figure 6-14 shows an overlay of the 186 dB re 1 μ Pa²s SEL_{cum} (TTS threshold) noise contours along with herring spawning areas. This figure demonstrates that there is partial overlap between the TTS range and herring spawning grounds (to the East of the site, where IHLS survey data indicates herring larval abundance of between 27,700-50,100 per m²), however this area of overlap is small in the context of the wider habitat available (para 6.10.51). The predicted impact ranges for SEL_{cum}, if based on a stationary receptor, may be larger than this, and may extend into the Herne Bay and/or Eastern channel spawning grounds. However without the modelling presented, the MMO cannot fully assess the potential impact is on these spawning grounds.

1.2.8 The MMO also raised in its Relevant Representation the potential impacts on Sole spawning grounds in the Greater Thames Estuary. Sole spawning and nursery grounds in the Thames estuary are considered to be of national and international importance to the North Sea stock. The MMO recognises that juvenile and adult sole are classified in the group of fish with no swim bladder and are less susceptible to barotrauma compared to the fish with swim bladder hearing group (which includes herring).

1.2.9 However, sole are still susceptible to the effects caused by piling noise including mortality, potential mortality injury, recoverable injury, TTS and masking and behavioural effects. Indeed the criteria thresholds for mortality and potential mortal injury as well as recoverable injury are higher for sole compared to herring. A significant population level impact may occur if noise causes fish to move away from foraging grounds breeding/spawning or, cease reproductive activities, or change their migratory behaviour, for example.

1.2.10 Given the potential impacts to and vulnerability of Thames Estuary sole, appropriate modelling is required to determine extent of the potential attenuation of the modelled piling noise (based on a stationary receptor) to and upon sole spawning grounds in the Greater Thames Estuary and whether it extends into known areas of higher spawning intensity. The Applicant’s Environmental Statement (ES) presented an overlay of the 186 dB re 1 μ Pa²s SEL_{cum} (TTS threshold) noise contours along with only herring spawning areas

(ES Figure 6-14). The noise contours have not been overlaid onto identified sole spawning grounds (refer to ES Figure 6-4).

1.2.11 The MMO would therefore welcome a figure being provided with the maximum impact ranges (modelled based on a stationary receptor) that illustrates the potential impact range for injury to herring and sole overlaid against the known active spawning grounds for consideration before it can agree with the conclusions of the ES.

1.2.12 The MMO further suggested that to address the potential behavioural effects, the Applicant should model the received levels of single pulse Sound Exposure Level at the spawning grounds. The modelled piling location/s should be based on the worst case scenario. This would show the expected noise levels at the spawning ground, which can be used to make an assessment on the potential risk of impact e.g based on peer-reviewed literature available.

1.2.13 **Long term impact on the benthic environment** - The MMO notes that the applicant did not address its position on the long term effects on the benthic environment in its deadline 3 response to action point 17. The MMO has requested further justification to support the conclusions on the long-term effects due to changes of turbid wakes on benthic ecology (i.e. minor adverse to negligible). The applicant has provided some further detail that is currently under review by the MMO and this remains an item under discussion through the SoCG.

2. Response to actions arising from Issue Specific Hearing 7

2.1 Action 9 – Arbitration provision concerns of statutory bodies:

2.1.1 The MMO notes that some amendments have been made to the arbitration provision in article 36. Whilst these amendments are welcome, the current drafting does not make it explicit that the arbitration provisions do not apply to approvals under the DMLs. This remains under discussion in the SoCG.

2.1.2 The MMO provided a summary of its position to the Examining Authority (ExA) in its deadline 3 submission, and has now reviewed the applicant's deadline response to action point 9 of the DCO hearing.

2.1.3 The MMO recognises that an arbitration mechanism is included in order to resolve 'disputes' between the applicant and third parties where this is an expectation that an agreement will be reached, but that agreement is not achieved.

2.1.4 The MMO does not agree that any disagreement relating its decisions can properly be characterised as a 'dispute' for the purposes of article 36. 'Disputes' between the MMO and the applicant only really arise where the MMO is to give any further approval (for example in the discharging of conditions which require the MMO to approve the documentation). When deciding whether or not to discharge a condition it is not 'agreeing' or 'disagreeing' with the applicant such that a divergence of views can properly be characterised as a 'dispute'. When discharging a condition, it is making a 'decision' as a public body in response to an application, taking account of the broad sweep of its statutory responsibilities.

2.1.5 Parliament has vested the public-law functions regarding discharging marine licence conditions in the MMO. Removing its decision-making functions and placing them into the hands of a private arbitration proceeding is inconsistent with the MMO's responsibilities. That is a serious matter and there is no indication that Parliament ever thought it was authorising this kind of usurpation of public functions when it passed the 2008 Act.

2.1.6 Furthermore the MMO notes that on 26 February 2019, the ExA for the Hornsea 3 OWF published its schedule of changes to the dDCO amending arbitration in favour of submissions made by the MMO.

2.2 Action 20 – DML Maximum parameters:

2.2.1 The MMO maintained in its deadline 3 submission that the project should be limited to the maximum parameters assessed in the ES, and that these should be clearly defined on the face of the DML. The applicant has proposed to specify the Environmental Statement as a certified document, rather than include the maximum parameters on the face of the DMLs. The MMO has considered the approach and has some initial concerns:

2.2.2 Once the DCO is consented, responsibility for the Order and any changes to be made would fall to the SoS, and the marine licence would fall to the MMO to deal with in accordance with Part 4 of the Marine and Coastal Access Act (2009) (MCAA) in the same way as any other marine licence issued by the MMO under MCAA. The MMO therefore considers it right and proper that a DML would be treated as any other marine licence, and to limit the authorisation imposed via the DML to the maximum parameters assessed in the ES and to do so clearly on the face of the DML. If an applicant wanted to undertake an activity beyond what was considered in their ES then the process requires a variation to the 'regulatory decision' which triggers the MMO to reconsider whether the ES remains valid, and the variation must be considered and decided in light of the information in and the conclusions from the ES. If any amendments are requested that are outwith the maximum parameters assessed, then these should correctly be requested through a variation to the DML. Through the DML variation process, the proposed amendment will be afforded the appropriate level of scrutiny and MMO has the opportunity to undertake further public or direct consultation as it deems appropriate.

2.2.3 This is not the same as discharging of a condition, e.g. giving approval to documentation such as the construction method statement (CMS), which can only be limited to the maximum parameters within the ES. The purpose of the CMS is to agree and approve the finer details of the methodologies within the envelope that was assessed. The maximum parameters of the project are not 'construction methods' they are integral parts of the project specification and fundamental considerations in terms of the impact the proposals will have. The DCO consenting process is open to public consultation, any changes to the project assessed in the ES after the licensing stage via the 'approval' of a condition risks depriving the public of their right to be consulted.

2.2.4 The MMO notes the applicant's response to action point 20, stating they are in any event restricted to carrying out the development in accordance with the certified ES which also sets out the maximum parameters of the projects, and therefore as they have to comply with the certified ES it is unnecessary to repeat maximum parameters on the face of the DML. Whilst this proposition may work for the main body of the DCO; once granted, the marine licence essentially becomes a standalone document from the rest of the DCO and falls back to the MMO to regulate and amend in accordance with part 4 of MCAA. In Revision C (RevC) of the DCO, there does not currently appear to be any conditions limiting the works to the parameters defined in the certified ES, the MMO expects that on the current drafting the maximum parameters should be set out in the body of the DML.

2.2.5 If the maximum parameters are not stated in the DML, but a condition included requiring the works not to extend beyond the parameters defined in the ES, this could be more restrictive for the applicant than a variation to the parameters on the DML. If the applicant were required to comply with maximum parameters defined in the certified ES it could be more problematic for them to move outside of the activities considered in the ES should they want to.

2.2.6 The MMO therefore believes it would be more appropriate to transfer the maximum parameters defined in the ES onto the DML (as limits on the authorisation imposed through the licence). These parameters can then be amended if they need to be through a variation request (subject to the MMO being satisfied the change in parameters does not result in any materially new or materially different effects from what was assessed in the ES).

2.2.7 The MMO will continue to discuss this through the SoCG, however at present does not feel that the applicant has put robust arguments as to why it should depart from the general approach.

2.3 Action 21 – Offshore pre-construction plans and documentation – submission time periods:

2.3.1 Further to discussion at ISH3, the MMO submitted its case for amending the timescales for approval of pre-construction plans and documentation. This remains under discussion through the SoCG.

3. Responses on other submissions at deadline 3

3.1 The Draft Development Consent order (dDCO) and Deemed Marine Licences (DMLs)

3.1.1 The following issues in respect of the dDCO/DMLs remain outstanding and under discussion with the applicant:

3.1.2 **Minor drafting requests** – there are a number of minor wording amendments being discussed between the MMO and the applicant.

3.1.3 Interpretation of commence – The provisions for pre-commencement activities (i.e. seabed preparation) are not currently sufficient and therefore, as currently drafted, the MMO considers that seabed preparation activities should be included in the definition of commence. The definition of pre-commencement activities and how they are secured on the DML remains under discussion through the SoCG.

3.1.4 Volumes and figures – The maximum impact areas for sandwave levelling does not appear to be defined in the clarification note or on the DML. The MMO requests that this is addressed and is in discussion with the applicant.

3.1.5 MMO requested that the maximum disposal volumes for each activity are clearly defined on the DML for each disposal site, and the disposal sites are accurately referenced on the DMLs. The MMO is aware the applicant previously requested 4 disposal sites to be set up and that this has now been revised to 3 sites. This request is currently being reviewed by MMO and remains under discussion through the SoCG.

3.1.6 The maximum disposal volumes stated in part 3, condition 1(d), have combined the disposal volumes from drill arisings and the disposal volumes for seabed preparation. These should be separated out by activity. Disposal from drill arisings is of different material to sandwave levelling, and the current wording could allow for the disposal of more drill arisings than has been assessed in the ES. Furthermore, the total figure stated in the condition does not total the two figures cited in (i) and (ii).

3.1.7 Hammer Energy – the MMO requests the maximum hammer energy be stated on the DMLs. The maximum hammer energy is an important metric in ensuring that impulsive noise is within the maximum that was assessed in the ES (and potentially the HRA). If the proposed hammer energy is to increase, the implication is that underwater noise impacts will increase, and further modelling would be required to demonstrate the scale of this impact. Such a change would most appropriately be dealt with through a variation to the DML.

3.1.8 Fisheries Liaison and Co-Existence Plan - The MMO requested that submission to MMO of details of the FLO is captured in condition 12(d). The MMO understands that the applicant has agreed to this amendment and this will be captured in the next iteration of the DCO.

3.2 Operations & Maintenance (O&M) Plan

3.2.1 The O&M Plan is not sufficiently detailed in its current form. The MMO has submitted comments to the applicant to ensure the plan provides a clear outline of what will be presented in the final version and is sufficiently detailed. This is in order that the MMO can exercise sufficient control and approval over O&M activities. The MMO understands that the applicant will amend resubmit the plan in due course. This remains under discussion through the SoCG.

3.3 Biogenic Reef Plan (BRP)

3.3.1 The MMO has submitted comments on the BRP to the applicant in order to ensure the MMO is able to maintain a control of approval of the various stages. The MMO

understands that the applicant will amend and resubmit the plan in due course. This remains under discussion through the SoCG.

3.4 Schedule of Monitoring

3.4.1 The MMO notes Natural England's comment in section 2.4 of its deadline 3 response ('*Comments on Clarification Notes submitted at DL1 & DL2*') on the uncertainty of the MCZ assessment and the need for further monitoring within the MCZ:

Further pre-construction ground truthed surveys are also required to further refine the scale and need for such activities within the site, and to ensure activity is in line with that outlined within the MCZ assessment. Post construction monitoring is required in order to validate predictions regarding impacts and ensure that recovery is occurring.

3.4.2 The MMO considers there is currently insufficient detail on the proposed monitoring and requires the commitment to be secured on the DML.

3.4.3 The MMO understands that the applicant intends to secure this on the DML at deadline 4. The MMO welcomes this and will review any proposed wording. The MMO requests that further detail is included in the Schedule of Monitoring to ensure rationale underpinning why the monitoring within the MCZ is required and what it aims to achieve in order to ensure that this understanding is clear post consent.