FIVE ESTUARIES
OFFSHORE WIND FARM

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10.83 APPLICANT'S RESPONSE TO EAST ANGLIA TWO SUBMISSION ON WAKE EFFECTS DATED 5 SEPTEMBER 2025

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In preparation of this document Five Estuaries Offshore Wind Farm Limited has made reasonable efforts to ensure that the content is accurate, up to date and complete for purpose.

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1. INTRODUCTION

1.1. BACKGROUND

1.1.1. The SoS' letter of 15th October 2025 invites responses to submissions in reply to his requests for information of 21 August 2025 and 26 September 2025.

1.1.2. This submission responds to the letter of 5th September 2025 on behalf of East Anglia TWO Limited (**EA2**). That letter contained suggested alternative wording for a requirement to address wake effects (**the EA2 draft Requirement**). The Applicant notes that this is the third proposal from EA2 as to the form of any requirement.

1.1.3. Before commenting on the EA2 draft Requirement in detail, the Applicant considers that it would assist the SoS if it were to provide a brief summary of its position regarding wake effects, and the basis on which it adopts that position. In so doing, the Applicant notes that its stance in this regard has been addressed in various documents previously provided to the Examining Authority ('the **ExA**') and the SoS (for example, at Section 3.24 of its Closing Statement to the Examination (the **Examination**), Document 10.68 (examination library reference REP8A-038)). However, certain of these documents (including Document 10.68) were prepared and submitted prior to the publication by the SoS of his decision (the **Mona Decision**) in relation to the application for a development consent order (**DCO**) in respect of the Mona Offshore Wind Farm ('**Mona'**).

1.1.4. In these circumstances, it is anticipated that it would be helpful to the SoS for the Applicant to draw certain of its submissions regarding the issue of wake effects into a single, free-standing document, which has regard to the Mona Decision.

1.1.5. Accordingly this document is comprised of three parts, being:

- Summary as to the position of the Applicant regarding wake effects (**Part 1**);
- Response to the proposed wording of the EA2 Draft Requirement (**Part 2**); and
- Response to the EA2s comments on the Applicant's Wake Assessment (Part 2 of the letter of 5th September 2025). (**Part 3**)

2. PART 1: POSITION OF THE APPLICANT REGARDING WAKE EFFECTS

2.1.1. The Applicant's position as before the ExA, and as now maintained before the SoS, is that it is not appropriate for a Wake Requirement to be imposed in respect of any DCO granted in respect of VE. In the alternative, were the SoS nevertheless minded to impose such a requirement, the Applicant maintains that the wording of such requirement should adopt that set out by the Applicant in Document 10.80 Wake effects - Combined responses to Secretary of State letters [C3-024].

2.1.2. The basis for the Applicant's position is summarised in sections 2.2 to 2.9.

2.2. NATIONAL POLICY STATEMENT EN-3

2.2.1. The Applicant has given careful consideration to the Secretary of State's analysis regarding existing policy in National Policy Statement EN-3 ('the **NPS**')[1] , in the Mona Decision. Such analysis was not previously available to the Applicant, during the course of the Examination.

2.2.2. The first observation which the Applicant makes as regards Relevant Policy as set out in the NPS, is the fact that such policy does not fall to be applied 'blindly' and to produce uniform outcomes. Rather, it is trite law that the application of policy should have regard to the particular factual matrix against which it falls to be applied. Having regard to the context of offshore wind development which comprises nationally significant infrastructure, it is for this reason that in some circumstances it may be appropriate to impose a requirement concerning wake effects on a DCO, but in others it will not[2]. Further, the factual matrix in one instance may justify the imposition of a particularly worded requirement in that case, but another such matrix would necessitate a differently worded requirement.

2.2.3. Accordingly, the application of relevant policy in the NPS does not mean it is appropriate to impose the same requirement, or indeed any requirement, in each and every instance. Policy falls to be applied sensibly and pragmatically by reference to the particular facts of each case. Such position cannot be controversial.

2.3. SITUATION OF FIVE ESTUARIES

2.3.1. The SoS will, of course, be well aware that the need (or otherwise) for the imposition of requirements addressing wake effects has been debated at a number of different examinations held in respect of applications for development consent in respect of offshore wind farms. Such examinations include not only those held in respect of Mona, Morgan and VE, but also the applications for DCOs in respect of Morecambe, Outer Dowsing and Dogger Bank South offshore wind farms. Of these projects, all but VE were awarded seabed rights from The Crown Estate (TCE) in seabed leasing round 4 ("Round 4"). The particular circumstances of the Round 4 projects as relevant to the topic of wake effects is addressed in more detail in section 2.9 below.

[1] In particular Paragraphs 2.8.197, 2.8.200, 2.8.261 and 2.8.344 ("**Relevant Policy"**)

[2] In this context, the Applicant notes that the Morgan Offshore Wind Project Generation scheme (Morgan) – in which no requirement was imposed - is a special case because there is no public information regarding the detail of the commercial agreement reached between the promoters and the objectors, which led to the removal of the wake-related objection.

2.3.2. It is necessary to recognise, at the outset, that the situation of VE stands apart from these other projects; the locational situation of VE is fundamentally distinct from each of these other developments. This is so because whilst each and every one of the other above-named projects is proposed in a location which affects at least one existing, operational wind farm, whose operator is seeking the imposition of a Wake Requirement (or protective provisions related to wake effects), that is not true of VE. Rather, in the case of VE, the only party seeking imposition of a Wake Requirement is EA2, which seeks such requirement by reference to the East Anglia Two Wind Farm (the **EA2 Wind Farm**), which facility is not yet operational. Indeed, construction of the EA2 Wind Farm has not yet even commenced.

2.3.3. The fact that the only argument for the imposition of a Wake Requirement in the present case is grounded in the potential wake effects upon development not yet constructed, sets the situation of VE materially apart from that of other offshore Wind Farms currently under examination/recently consented.

2.3.4. The Applicant considers that it is imperative that the SoS grapple with this important factual distinction in evaluating the question as to whether or not a Wake Requirement should be imposed in respect of VE (and indeed the wording of any such requirement).

2.4. CONDUCT OF APPLICANT

2.4.1. The Applicant recognises that, in issuing the Mona Decision, the SoS has made his position clear regarding the correct application of Relevant Policy in the NPS in relation to potential wake effects of offshore Wind Farms.

2.4.2. However, the Applicant respectfully submits that up and until the publication of that decision, there was widespread uncertainty (or at the very least, a significant lack of clarity) in the sector as to how that policy should properly be applied. It was on this basis that at the various examinations held in respect of each of the VE, Mona, Morgan, Morecambe, Outer Dowsing, and Dogger Bank South wind farms, there was extensive debate regarding Relevant Policy. Further, the Applicant notes that the examining authority in respect of Mona expressly recognised the lack of a "*clear policy direction*" in this regard[3].

2.4.3. The Applicant recognises that up and until the Mona Decision, it had maintained a restrictive stance as regards the correct application of Relevant Policy in the NPS.

2.4.4. However, since the issue of that decision, and importantly since the SoS has clarified his own stance as regards the correct application of that policy, the Applicant has actively sought to engage and comply with that policy as now understood. In particular, the Applicant has:

- Undertaken and submitted to the SoS a wake effects assessment (the **VE Wake Assessment**, Document 10.78 [C3-022]);

[3] Paragraph 5.3.98 of Examining Authority report in respect of Mona

- Sought to engage proactively with EA2 (as the sole IP seeking the imposition of a Wake Requirement); regarding the potential wake effects of VE on the as yet unconstructed EA2 Wind Farm; and
- Revisited the issue of design mitigation, so as to enable it to establish definitively that there are no further measures that could reasonably be adopted without reducing overall yield (to the detriment of consumers)[4]. This is despite the fact that the Applicant considers that the limited nature of the impact does not justify further mitigation.

2.4.5. Thus the Applicant has not adopted an 'entrenched' or obstructive position, but has instead sought to respond positively to the policy position as now understood.

2.5. SCALE OF IMPACTS

2.5.1. The Applicant would also draw the SoS's attention to the limited extent of the impacts alleged in respect of VE. In particular, as already established, no issue arises in respect of operational infrastructure. Even the potential impact on consented (unbuilt) infrastructure (EA2 Wind Farm) is minimal.

2.5.2. In this regard, the SoS has been provided with two wake assessments; one prepared in respect of each of the two promoted schemes (being VE and the EA2 Wind Farm).

2.5.3. Unsurprisingly, given the lack of any recognised or established methodology for the assessment of wake effects, there is some disagreement in these two reports as to the precise extent of the effect, which the wake of VE would have on the EA2 Wind Farm (when/if constructed). However, the disparity is minimal in nature; both reports anticipate effects in the order of only 1%.

2.5.4. Accordingly, even were the SoS were to adopt the alleged assessment of effect as identified in EA2's report, it is apparent that the impact would very limited. The limited nature of the impact does not justify further mitigation steps.

2.5.5. The fact that the impacts would be this limited is of course entirely consistent with EA2 not having engaged with the Applicant during the period of consultation, early design and preparation of the VE scheme (EA2 having been aware of the VE project and having been consulted in respect of the same since 2018) and instead only having engaged in relation to the issue of wake effects so belatedly during the Examination itself.

2.6. RECIPROCAL EFFECTS

2.6.1. A further consideration to which the SoS should have regard, is the fact that the VE Wake Assessment demonstrates that each of these two schemes (i.e. both VE and the EA2 Wind Farm), neither of which is yet constructed, will have a broadly equivalent impact upon the other.

[4] In this regard, the Applicant notes that any further realignment of its proposed development would potentially result in adverse impacts on other, constructed and operational Wind Farms (namely Galloper and Greater Gabbard, the operators of which are not parties to the current process), and also materially reduce the generation capacity of VE, to the detriment of the aggregate position. That is to say, the total renewable energy yield from UK offshore wind farms would not be maximised.

2.6.2. In this regard, the Applicant notes that at Paragraph 2.4 of the EA2 Letter, EA2 contend that the fact of such reciprocal effects should be disregarded. In particular, it is asserted that the impact which EA2 would have on VE is "*wholly irrelevant*", given that the wording of Paragraph 2.8.197 of the NPS appears concerned only with the impacts of the development the subject of an application for development consent, rather than the question of impacts more broadly.

2.6.3. Such inflexible approach to policy on the part of EA2 is unfortunate and unhelpful. Further it is entirely artificial, and fails to have regard to the pragmatic basis on which such policy should fall to be applied. In appropriate circumstances, such as where there is existing infrastructure (A) in scope, it may indeed be appropriate that the SoS have regard only to the impact which a proposed scheme of development (B) would have on (A). However, where neither (A) nor (B) has yet been constructed, and where there must necessarily be some uncertainty as to both the timing of (A)'s delivery, and the extent of any ultimate impacts upon (A) (given the final form of the development is not yet fixed), then it must be entirely appropriate to apply policy in such a way as recognises the reciprocal impacts of (A) on (B).

2.7. FAIRNESS

2.7.1. There should also be consideration given to the fairness of the position. When the EA2 Wind Farm was consented (in April 2022), there was no recognition on the part of EA2 that the wake effects of its proposed development on other, existing infrastructure (in the form of the Galloper and Greater Gabbard Wind Farms) should be the subject of assessment. Indeed, no wake assessment was undertaken, nor was there any constructive engagement on the part of EA2 such as the SoS has now indicated is appropriate. This is so notwithstanding that extant policy in the NPS was the same[5] as that on which EA2 now seeks to rely in order to advocate for the imposition of a Wake Requirement in respect of VE.

2.7.2. Such inconsistent application of policy in respect of two potential schemes is wholly undesirable, and in the Applicant's submission, is unfair.

2.7.3. The points already made regarding reciprocal effects in paragraph 2.6 also give rise to questions of fairness.

2.8. SUMMARY POSITION

2.8.1. It is on this basis of the above matters that the Applicant contends that the SoS should not impose a Wake Requirement on any DCO granted in respect of VE.

2.9. WITHOUT PREJUDICE POSITION

2.9.1. However, without prejudice to the primary position as set out above (i.e. that no Wake Requirement should be imposed), the Applicant would wish the SoS to have regard to the following matters. In particular, the Applicant's overarching submission is that if a requirement is to be imposed, it should not necessarily replicate that imposed in any other particular project.

2.9.2. In this regard, the Applicant notes the following:

[5] All the relevant policy wording in the 2011 and 2024 energy NPSs is the same.

- Firstly, that the drafting of previous requirements (such as that imposed in respect of Mona) necessarily had regard to the interface between the particular operational infrastructure already existing in that context, and the development proposal then under consideration; and
- Secondly, and perhaps more importantly, the drafting of previous requirements were also the subject of agreement[6].

2.9.3. The Applicant submits that this latter consideration, in particular, is crucial. In particular, the SoS should not mistake the fact of such agreement as establishing the legitimacy of the approach in question, but instead should recognise that it is reflective of the commercial position/negotiations as between particular operators in the particular factual context then in play.

2.9.4. As noted earlier, the Mona, Morgan, Morecambe, Outer Dowsing and Dogger Bank South projects are Round 4 projects. It is a matter of public record that the annual option payments (due each January during the option period in the Agreement for Lease (**AfL**) with TCE) for each of the projects awarded in Round 4 were of an unprecedented scale, in several instances running to the hundreds of millions of pounds annually[7]. These option payments can only be brought to an end by drawing down the lease under the AfL, which in the ordinary course of offshore project development would occur once a DCO had been granted and is free from legal challenge.

2.9.5. The existence of these unprecedented option payments, and the clear commercial incentive for the developers of those projects to secure a challenge-free DCO before January 2026 (to then have the ability to draw down the lease and avoid a further option payment) has cast a profound shadow across all the Round 4 Examinations.

2.9.6. The existence of such liabilities, and the consequent cost of potential delay, are factors which inform the commercial arrangements which competing operators may ultimately agree.

2.9.7. It is for this reason that the terms of an 'agreed' requirement should not serve as an appropriate template for future DCOs. Indeed, the Applicant respectfully submits that this is true of the requirement agreed between the applicant (CIP) and the IP (Orsted) in respect of Morecambe, which EA2 now seeks to commend to the SoS as the model of the EA2 Draft Requirement.

2.9.8. By contrast VE is not a Round 4 project. Instead VE was awarded its seabed rights in the 2017 extensions leasing round, which unlike Round 4 was not conducted on the basis of annual option fee bids from developers.

[6] The Morecambe requirement has been submitted on an expressly agreed basis. The Mona requirement was submitted by the applicant on an without prejudice basis, with only a minor drafting point raised by the objecting IPs – hence it was, in effect, agreed.
[7] The annual option fee for each of the Mona and Morgan projects is £231,000,000 (£231 million) respectively, equating to £154,000 per megawatt per annum.

3. PART 2: RESPONSE TO THE WORDING OF THE EA2 DRAFT REQUIREMENT

3.1.1. As already stressed in this submission and throughout the Examination, the Applicant does not consider that a requirement can be justified and would not meet the tests in EN-1. The Applicant has only put forward its version of the drafting provided by the SoS because it was asked to do so. It has explained its continuing concerns about any form of requirement, including its own without prejudice version which should be considered alongside the following specific comments on the revised alternative drafting put forward by EA2.

3.1.2. The Applicant has a range of concerns in relation to the drafting put forward by EA2, which are set out in the table below.

Relevant part of EA2 revised requirement	Applicant's comments
*"**Wake effects X.—*** *(1) No part of any wind turbine generator may be erected as part of the authorised development until either—* *(a) A wake effects plan has been submitted to and approved by the Secretary of State following consultation with East Anglia TWO Limited; or* ***(b) The undertaker has provided evidence to the Secretary of State that alternative mitigation for wake effects has been agreed with East Anglia TWO Limited**."* ***(emboldening added)***	> In relation to (1)(b), for the Secretary of State to impose a wake effects requirement, he must be satisfied in the usual way that the tests for requirements are met. By definition, in imposing such a requirement the Secretary of State would be accepting that the regulation of wake effects was a legitimate planning matter to be addressed by a DCO requirement. It would therefore not be appropriate in those circumstances for there to be an ability for the parties to contract out of the requirement as proposed in the EA2 drafting.

"(2) The wake effects plan provided in accordance with paragraph (1)(a) must include:

(a) ***details of reasonable steps that have been taken by the undertaker*** *in the final design of the authorised development or reasonable measures which will be applied during the operation of the authorised development (or both)* ***to minimise wake effects on the East Anglia TWO Offshore Wind Farm without materially reducing the capacity of the authorised development****;"*

(emboldening added)

- The EA2 drafting expressly envisages the possibility of the capacity of the authorised development being reduced, so long as such reduction is not "material". This fails the policy tests in EN-1 for lack of certainty and general unreasonableness. There is no basis for deciding what reduction is considered "material", which creates great uncertainty for the Applicant in promoting VE. This approach is in sharp conflict with renewable energy policy in EN-3 to maximise the generation from new projects.
- Any test should require that there is no reduction in capacity or energy output from VE. That provides a clear test which is aligned with policy.
- Further, there is no guidance or precedent on what constitutes a "reasonable" step or measure. This creates considerable uncertainty and fails the test in EN-1.
- The requirement ignores the potential effects on projects other than VE and EA2. Public policy in relation to maximising UK renewable energy generation means that the impact on all projects should be taken into account when deciding whether to impose a requirement such as this. It is also highly relevant to the drafting of the requirement. On the facts of this case, it fails the EN-1 test of overall reasonableness for such a requirement to be limited to EA2 and VE. However, seeking to bring in other wind farms in turn brings great complexity as to how any given mitigation step or measure should be judged – with different wind farms at different distances and points of the compass. It was for a similar set of reasons that the ExA in Mona recommended that no requirement could be justified.
- The requirement should expressly acknowledge the situation where there are no reasonable steps or measures which could be required due to the level of wake impact, and / or because any mitigation steps or measures would be unreasonably detrimental to the Project. At present the drafting proceeds on the implicit assumption that such steps or measures will be available. This fails the EN-1 test for general reasonableness.

	> Linked to this, is the absence of recognition of any steps which have already been taken by the Applicant to reduce wake effects. In this case, VE has respected TCE's buffer distance (which was set in part by reference to wake effects) and altered the northern boundary of VE. Both steps will have reduced the wake effects on EA2.
"(c) details of consultation with East Anglia TWO Limited and the extent of any agreement or disagreement with them on— *(i) whether any design changes or operational measures could further reduce the wake effect impacts; and* *(ii) the conclusions of the wake effects assessment under paragraph 2(b)."*	> The EA2 drafting does not provide an enforceable timetable for the discharge of this requirement. > A requirement in these terms would create great uncertainty as to when the Applicant would know that it had resolved the potential impact of wake effects on its design and thus the renewable energy yield of the wind farm that is necessary for a project to prepare a bid for a CfD. The design must be sufficiently fixed to allow the layout to be finalised with the Maritime and Coastguard Agency and for procurement to proceed. A requirement in these terms is likely to cause material delay to the development of VE and fails the reasonableness test.

4. PART 3: RESPONSE TO THE EA2'S COMMENTS ON THE APPLICANT'S WAKE ASSESSMENT (PART 2 OF THE LETTER OF 5TH SEPTEMBER 2025)

4.1. OVERVIEW

4.1.1. The Applicant notes EA2's points that seek to diminish the weight attributed to the Applicant's Wake Assessment on the grounds outlined below. The Applicant highlights to the Secretary of State that despite these points, the conclusions of both of the assessments are in fact very similar and differences are within the measure of uncertainty that is applied to technical modelling of this kind.

4.1.2. It is on this basis that the Applicant asserts that sufficient weight is given to its Wake Assessment and its conclusions. For completeness, the technical criticisms of the Applicant's Wake Assessment have been summarised in the sub-headings to sections 4.2 to 4.4 below, with the Applicant's responses in the sub-bullets beneath.

4.2. MODELLING CONDUCTED "IN HOUSE" RATHER THAN BY A CONSULTANT

- RWE's in house resource assessment team are experts in the field and regularly lead and participate in industry leading research alongside independent experts such as the third party (DNV) appointed by EA2.
- DNV and RWE have worked together extensively on wake assessment models and have released the results of comparison studies. For example, a wake study presented at the Wind Europe Technology Workshop in 2024 showed direct comparison of the DNV models and the RWE VV model, and critically it compared these models to recorded operational SCADA data. The results showed that in one of the case studies RWE VV is more accurate at predicting the external cluster effect, and in another that the DNV models are more accurate. However overall the differences are small and critically "Differences between models are within the typical uncertainties used for turbine interaction losses".
- RWE has further supplemented its own internal VV model with the use of two commonly used publicly available models. Again, the results are not precisely the same, but they are within the typical uncertainty for turbine interaction losses. The use of these publicly available models was intended to address any concern over the proprietary nature of the internal VV model.

4.3. THE LAYOUT, WTG TYPES, AND PROJECT SIZES ARE NOT ACCURATE / FINAL

- The Applicant highlights that the Five Estuaries project does not have its final layout or WTG type at this stage, as is common with all offshore wind farms in the development process. This is, consistent with the Rochdale Envelope adopted for consenting, hence uncertainty with layouts will always be inherent in any wake assessment. The Applicant has used a set of assumptions within that envelope to conduct its assessment.

- As regards some of the project information for EA2 used by the Applicant in its assessment which EA2 has indicated is incorrect, the Applicant has twice requested details in writing from SPR and to date the corrected information has not been provided.

4.4. THE WIND MODEL DATA AND WAKE MODEL PARAMETERS ARE NOT PROVIDED.

- The Applicant highlights that the wind model and data, and wake model parametrisation are commercially sensitive and intellectual property of the Applicant, hence it is not possible to share these publicly or with a competitor. EA2 has indicated directly to Five Estuaries that they *"take full note of your comments about the difficulty in sharing sensitive data and share those concerns"*.

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