



Wake Impact Assessment Report Response to Comments from Morgan OWF

Irish Sea Cluster - Ørsted

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1. RESPONSES TO QUERIES RAISED AT ISSUE SPECIFIC HEARING 2

WT provide the following written responses to the queries raised for the Morgan wind farm through Issue Specific Hearing No. 2.

1.1. Independence of the report

WT stands by the statement that the report is an independent assessment of the impacts of neighbouring wind farm wakes. WT has applied the same approach that would be used for any Energy Yield (including wake effects) assessment. This is a method which has been built on a number of past studies for multiple clients, and for this assessment documents the assumptions used for each of the wind farms being considered. WT has made its preferred selection of key parameters in the assessment as well as its derived power curves for the future proposed turbine types independent of any client view on their use.

WT is regularly engaged by clients to provide 3rd party independent assessments of Energy Yield. This is typically in situations where Energy Yield assessments are being used to support financial decision making and have been undertaken by a separate consultant and the Client has their own internal assessment. In these situations, WT retains full control of the analysis choices for its best practice approaches that it has developed. Use of multiple independent assessments using similar but slightly different methods and tools is common wind industry practice.

1.2. Model choices

The Wind Farmer Analyst model used for this difference analysis assessment is a tool created by DNV, an Offshore Wind industry consultancy and certification body. Wind Farmer was developed to enable more consistent application of the AEP methodologies and the technical components that can otherwise influence the analysis outcomes. These tools are as close to an industry standard as is available and are often the first of several tools that are applied in this type of assessment. The tools have been validated by DNV on hundreds of wind farm projects, and importantly form the basis for many of the assessments of AEP that are being taken forward around the world. This type of tool is also particularly effective for looking at relative wake loss effects, which form the basis of the report submitted to the Examining Authority.

It is important to note that more complex engineering models exist. However, the work by RWE & DNV referenced in our conclusions, which validates a range of models against operational data, compares well with the study undertaken by WT. The wake loss approach applied as part of WT's preferred approach was very similar

to that selected in the RWE study (specifically the use of Wind Farmer Analyst with the Eddy Viscosity Model with the Large Wind Farm correction).

These methods are being used on hundreds of projects by a range of practitioners around the world to estimate the potential effects of internal and external wake effects on AEP estimates for proposed wind farms.

1.3. Baseline definition

WT would like to clarify that the Baseline scenario included all existing operational wind farms in the Irish Sea, not just Ørsted IP assets. As such, the effect of wakes from existing wind farms interacting with themselves (internal wake) and each other (external wake) has already been accounted for in the Baseline. This includes for example Gwynt y Môr, Rhyl Flats, North Hoyle and Ormonde, and the effects of the Ørsted IP assets on themselves and each other. Reference is made to Table 5-1 in our report.

The operating performance of the existing assets is included in the baseline and crucially, this doesn't change between scenarios. Other factors affecting production, such as maintenance or specific operational considerations are not specifically considered in the model, however are assumed to be constant between scenarios. As such the key benefit of the modelling approach applied is that the assessment is a difference analysis, where everything is kept constant between the scenarios except for the external wake environment which differs between the scenarios. This approach is similar to other modelling methods used for EIA assessment for significance of effect.

Additionally, it is noted that Awyl y Môr was included within the final scenario (Scenario 5) as it has the latest Commercial Operation Date according to public statements from developers of the farms (even though it is currently consented), therefore its effect will likely be later than those of the Mona, Morgan and Morecambe sites, hence the approach undertaken in the scenario assessments.