



# Hornsea Project Four

## Applicant's comments on Harbour Energy's Deadline 6 submissions

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## 1 Background

- 1.1.1.1 The Applicant and Harbour Energy agree that the only remaining issue to ensure successful coexistence relates to helicopter access to decommission two wellheads within the Johnston Field. This was confirmed by Max Rowe on behalf of Harbour Energy at Deadline 2 (**REP2-080**)
- 1.1.1.2 The need to decommission the Johnston Field was a known constraint at the point of Application. Para. 11.7.1.23 of **APP-023** acknowledged that Harbour Energy anticipated cessation of production in the early 2020s with decommissioning to take place “at some point in the future not necessarily immediately after cessation of production”. Para. 11.11.6.14 states “that the construction of Hornsea Four will likely also have an impact on the decommissioning activities associated with the Harbour Energy operated wells within the Johnston Field (Licence Block 42/27a). This includes potential effects on helicopter access to decommissioning vessels within the array area. It should be noted that current indications are that [the] Johnston Field assets will cease production in the 2020’s prior to the construction of Hornsea Four”.
- 1.1.1.3 The parties made significant progress towards finalising a coexistence agreement relating to helicopter access but there are outstanding points of disagreement which will not be resolved prior to the close of Examination.

## 2 Amendments to the protective provisions submitted at DL6

- 2.1.1.1 On the premise that decommissioning cannot take place prior to the construction of Hornsea Four the Applicant has proposed a proportionate response to ensure decommissioning can be undertaken safely. The Applicant’s proposed protective provisions are included at schedule 13 of the Development Consent Order submitted at Deadline 7 (**C1.1 Draft DCO including Draft DML**)
- 2.1.1.2 At DL6 the Applicant submitted a 1000m marine corridor (**REP6-040**). The Applicant did not consider an additional aviation corridor necessary because the consequence of the marine corridor was (1) to allow a minimum of 695m clear airspace to provide safe helicopter access and (2) to provide a 347.5m radius exclusion zone around the production wellheads for helicopter access to the decommissioning rig. These distances are compliant with the relevant civil aviation authority (CAA) regulations, and that remains the case. However, further engagement has taken place between Harbour and the Applicant including the technical team and further concessions can be made for the benefit of Harbour with an acceptable impact on Hornsea Four. On that basis the Applicant has amended the proposed protective provisions submitted at DL 6 as follows:
  - a) a 800m wide aviation corridor of clear airspace measured tip to tip from any wind turbine generator which will run along the route of the Johnston pipeline;
  - b) a marine corridor of 1000m that will also run along the Johnston pipeline to allow rig and other vessel access for decommissioning activities;
  - c) a WTC exclusion zone comprising a 900m radius of clear airspace measured from the centre of the two Johnston production wellheads ; and
  - d) an aviation access corridor comprising an 800m corridor of clear airspace tip to tip from any wind turbine generator the location of which will be determined by the Applicant and notified

to Harbour prior to commencement of the Applicant's offshore works. This access corridor has been provided to address Harbour's concern that they would have insufficient space to turn.

- 2.1.1.3 Whilst the Applicant appreciates these distances do not meet the request from Harbour, they do significantly exceed the distances within which the helicopters can operate safely and under the CAA regulations.
- 2.1.1.4 The Applicant's proposed protective provisions included within the updated Development Consent Order submitted at DL7 remain for the benefit of the current owners and for the benefit of those parties that will have an interest post cessation of production.

### **3 Technical Justification for the Applicant's protective provisions**

- 3.1.1.1 It is the Applicant's submission, from both a safety regulations and practical operational perspective, that a 900m radius exclusion zone from the centre of the production wellheads together with an 800m aviation corridor should address the concerns of Harbour.
- 3.1.1.2 A 900m radius exclusion zone around the wellheads is consistent with the real life operational experience on the existing Hornsea Two offshore wind farm where the radius of the exclusion zone from the centre of the offshore substation where the helideck is located to the tip of the closest wind turbine blade is 914m. This helideck also serves the Hornsea One offshore windfarm. In addition the Hornsea Three offshore windfarm due to be constructed shortly proposes clear airspace less than the precedent set by the previous two windfarms. It should be noted that (near) daily flights using AW139 helicopters, often fully laden, take place to and from the Hornsea Two offshore substation. In addition it should be noted the Hornsea Two windfarm has not accommodated a specific aviation corridor and the helicopters have no issue flying through the windfarm. In reality the helicopter pilots tend to use the Search and Rescue Access Lanes. This is expanded upon further below.
- 3.1.1.3 The 800m aviation corridor will provide safe helicopter access to the rig during decommissioning operations. Additionally, the SAR Lanes required by MGM 654 provides Day VMC access for commercial air transportation to any vessel or jack up rig helidecks located over a wellhead. These access routes will permit a helicopter to approach a helideck towards the prevailing wind and make a final adjustment exactly into wind within 500m of the helideck i.e. less than the spacing proposed by the Applicant. As any jack up rig working over a wellhead will be manned, a direct approach and landing is the standard method of arrival. In a similar manner, a take-off can be made into wind and then the flightpath adjusted once the take-off safety speed is achieved. The distances shown in the Applicant's proposed protective provisions are suitable for Day visual flight rules (VFR) operations, noting that operations inside a wind farm are only permitted in Day VMC. The Applicant would once again stress the existing precedent of safe flight operations within the Hornsea zone.
- 3.1.1.4 The aviation corridor provides for safe helicopter access to a rig over the wellheads. It is acknowledged that decommissioning may take longer due to there being a minor adverse impact on the availability of flights able to operate due to the weather conditions. This is a logistical inconvenience. The impact is such that some flights will not be able to operate because of the need to operate under visual flight rules which may mean that the

decommissioning of the wellheads will take longer as a result of the presence of the windfarm. It is not a safety issue.

- 3.1.1.5 Harbour's submission at Deadline 6 ([REP6-49](#)) include statements based on flying in Instrument Meteorological Conditions (IMC) which do not apply inside a windfarm. Flights inside a windfarm can only operate under Day Visual Meteorological Conditions (VMC). Under Day VMC the helicopter crew is able to manoeuvre visually to ensure safe obstacle separation. Harbour's proposed protective provisions submitted at Deadline 6 effectively redraw the order limits to place the production wellheads outside of the developable area. The distances referred to in their submission, particularly those quoted as from helicopter operators are only applicable if the Examiners accept the order limits should be redrawn to allow for IMC helicopter operations during Johnston decommissioning.
- 3.1.1.6 It would be disproportionate to sterilise a greater area than absolutely necessary to decommission. The Applicant has provided a plan at [Figure 1](#) demonstrating, on an indicative basis only, the impact upon the potential turbine locations of a 3nm radius exclusion zone around the production wellheads. A 3nm radius exclusion zone would result in a loss of 44 turbine positions which would be wholly unacceptable to the Applicant and would have a major adverse impact upon the viability of the windfarm due to the significant reduction in capacity. The Applicant would stress, however, that any distance greater than the proposed 900m WTG exclusion zone and 800m aviation corridor offered would have an adverse impact upon the windfarm which cannot be justified for the sole purpose of reducing the logistical inconvenience posed by the location of the turbines.

## 4 Legal and policy position

- 4.1.1.1 One of Hornsea Four's core project objectives is to make efficient use of the available grid connection capacity, with a 2.6GW grid capacity secured. The turbines must be a minimum distance of 810m apart and must follow the lines of orientation running from south east to north west fixed by Hornsea Two. The positions of the turbines are optimised using a complex algorithm around the known constraints and any movement or loss of a turbine results in a sub-optimal layout. It is also not simply a case of packing the wind turbines into a smaller developable area as this also increases the wake loss impacts of the wind farm and can have a significant effect on the generation performance. In turn, increased wake losses also increase the detrimental impact on the overall business case for the project, particularly should Hornsea Four enter into the highly competitive Contract for Difference Auction Round model where projects are effectively competing against other projects. An inefficiently designed wind farm with high wake losses is very likely to be at a significant disadvantage. For clarity, Hornsea Four needs to maintain the extent of the proposed Hornsea Four developable area as is reasonable to deliver an essential and substantial near-term contribution to the UK's decarbonisation objectives and security of supply, at a highly competitive cost per megawatt hour (MW/h).
- 4.1.1.2 Hornsea Four is a nationally significant renewable energy power project. It will provide a significant capacity of electricity to the national grid from a clean power source. It will contribute to energy security and resilience, whilst offering an alternative to fossil fuels and helping to mitigate the ever more apparent impacts of climate change.

- 4.1.1.3 The importance of *optimising* the grid capacity is also more urgent than ever. The [Addendum to the Statement of Need](#) submitted at Deadline 7 finds that National Grid's TEC Register lists 51GW of offshore wind projects with connection dates before 2029, of which 20GW are connected or committed to delivery. It finds that 97% of those projects must connect, at their current estimated capacity and without delay, in order to meet the BESS aim of 50GW of offshore wind operational and connected by 2030. Hornsea Four, with its planned grid connection dates of April 2027 (1.5GW) and October 2028 (1.1GW) is a critical measure in support of achieving those commitments. **The full transmission entry capacity for Hornsea Four is an essential element of achieving the revised national offshore wind targets.**

# Hornsea 4

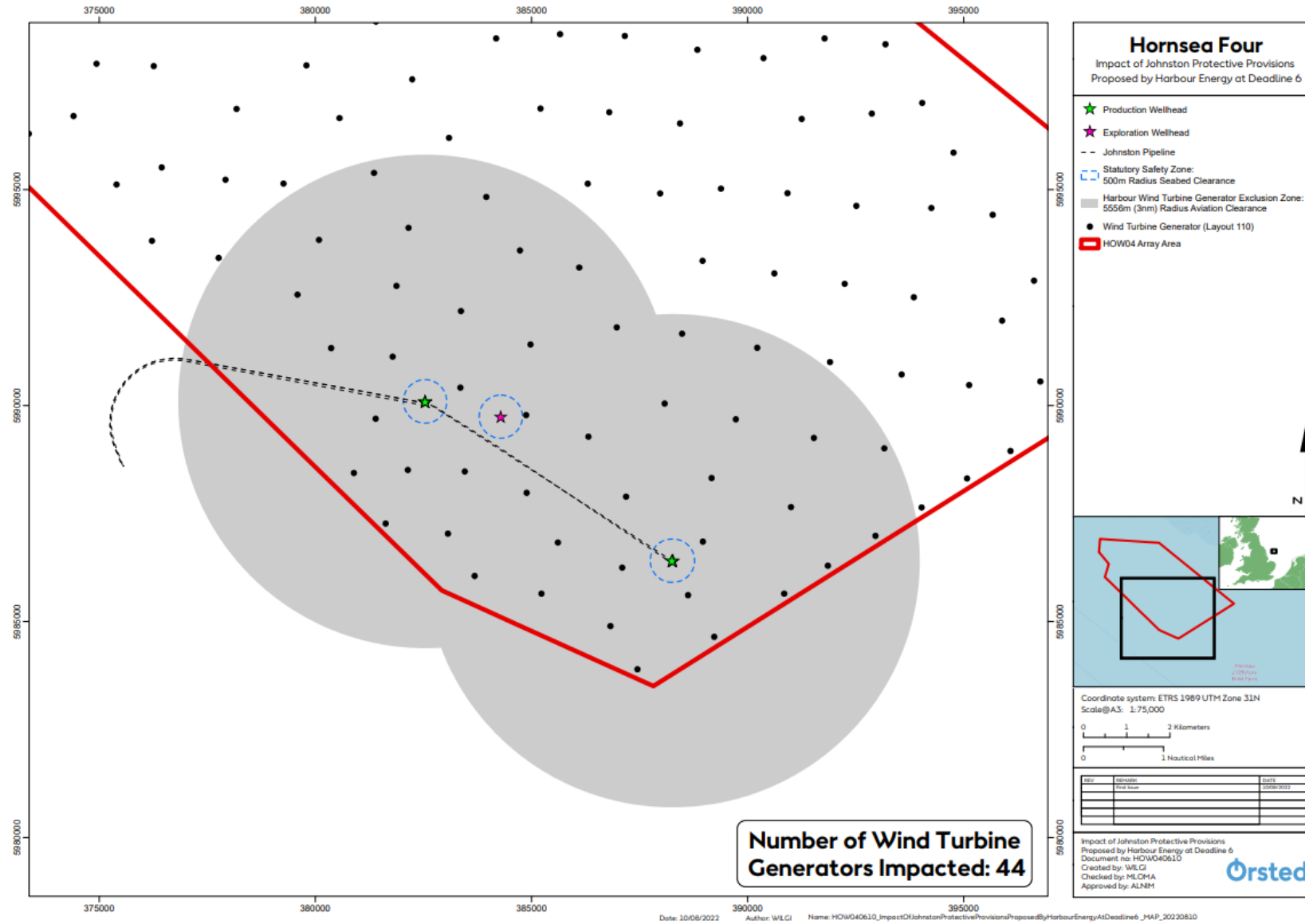


Figure 1: Impact of Johnston Protective Provisions proposed by Harbour Energy at Deadline 6