

Hornsea Project Three
Offshore Wind Farm



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Appendix 6 to Deadline 10 submission -
Summary Statement on Shipping and Navigation

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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2019.

Table of Contents

1. Summary of Status of Consultation with Spirit Energy	3
2. Aviation Summary Position Statement	3

1. Summary of Status of Consultation with Spirit Energy

- 1.1 The Applicant has consulted with Spirit Energy through the pre-application phase to both inform the assessments and to address issues raised by Centrica (Spirit Energy) at the PEIR. Post application, the Applicant has continued to consult with Spirit Energy, notably agreeing an Engagement Plan to guide ongoing consultation through the examination phase. During the examination phase the parties have met to further discuss the technical issues arising in Spirit Energy's relevant representation submitted at Deadline 1. The Applicant and Spirit Energy have worked together to prepare a SoCG submitted at Deadline 1.
- 1.2 The Applicant and Spirit Energy held a technical meeting on 17 December to address the remaining issues in regard to aviation and shipping and navigation. The actions from the meeting were submitted at Deadline 4 (REP4-012).
- 1.3 Spirit Energy's shipping and navigation specialist, DNV GL, met with the Applicant's consultants, Anatec, on 16th January 2019 to discuss routeing and the evidence-based approach used to produce the anticipated routes post wind farm construction. Anatec talked through the approach and that it includes consultation with regular operators in the area, use of traffic data for the current scenario and use of historical routeing data for the North Sea collated over the past 12 years. All DNV GL's questions were answered at the meeting.

2. Shipping and Navigation Summary: Allision Risk

- 2.1 The Applicant has undertaken shipping and navigation assessments within the Environmental Statement that comply with the EIA regulations and have regard for the Overarching National Policy Statement for Energy (EN-1), and the National Policy Statement for Renewable Energy Infrastructure (EN-3).
- 2.2 Spirit Energy has expressed concerns with respect to the development of the Hornsea Three Offshore Wind Farm resulting in an increase in allision risk to their surface assets/platforms. This position paper summarises the applicant's view and position with respect to the main concerns raised with regard to this issue

Powered Vessels (Not under Command).

- 2.2.1 It is illegal for a Master of a third-party vessel to deliberately pass within 500 metres of an oil & gas installation on the UKCS, except in limited, special circumstances. (One of these is machinery failure causing the vessel to be not under command, which is discussed separately below.)
- 2.2.2 For a powered vessel, the potential penalty for infringing of a 500m safety zone includes two years imprisonment. This serves as a deterrent from coming too close to a platform reflecting the seriousness of an allision, which could threaten the lives of personnel on both the vessel and platform.

- 2.2.3 We do not believe that building a wind farm to the west of the Spirit Energy platforms will cause a Master to steer their ship within 500m of either the Chiswick or Grove platforms. The Chiswick and Grove are long established platforms having been in place for over 10 years. They are well known to shipping in the area through being physically observed on previous voyages, as well as being depicted on both paper and electronic charts.
- 2.2.4 The Hornsea Three site is in a relatively quiet area of the Southern North Sea in terms of shipping movements. Only a few ship movements per day are expected to be displaced by the wind farm as most of the established routes already pass clear of the site.
- 2.2.5 It is expected that ships currently transiting the site will revise their passage plans following construction of the wind farm but it is inconceivable they would do so and neglect the Spirit Energy platforms, which are already taken into account within their existing passage plans. Similarly for new passages being planned, as required by law vessel masters will take into account all hazards, including fixed structures associated with both the oil & gas and renewables industries.
- 2.2.6 There is ample sea room in the area to avoid the wind farm and the oil & gas assets. As noted above, this is a legal requirement for oil & gas platforms. The wind farm will not have legal protection in terms of safety zones during normal operation¹, however MCA's Marine Guidance Note MGN 372: Guidance to Mariners Operating in the Vicinity of UK OREIs states that "where there is sufficient sea room it is prudent to avoid the area completely". Real-world evidence and experience (as opposed to theoretical conjecture) from several years of traffic surveys around existing wind farms in the UK indicates that commercial ships have followed this guidance to date without exception.
- 2.2.7 Consultation during the NRA with vessel operators actually traversing the area also indicated vessels would go around rather than through Hornsea Three. For example DFDS, the main commercial operator in the area, provided their actual passage plans, including adverse weather routes, as input to the NRA and confirmed they would instruct all Masters as part of their Standing Orders to avoid the wind farm. Each main route was reviewed and re-routed based on marine experience and consultation feedback. Of the east-west traffic that currently passes closest to the Spirit Energy Assets, around 60% was expected to re-route to the north with 40% re-routeing south of the wind farm. The net effect is that vessels will on average pass further from the platforms, which are effectively shielded by the wind farm. Therefore, the net risk of allision is expected to decrease as a result of Hornsea Three, and in EIA terms that is not an effect of Hornsea Three that warrants mitigation.

¹ It is noted that in Dutch waters, a few miles east of Hornsea Three, it is illegal for vessels above 24m in length to enter a wind farm.

- 2.2.8 Spirit Energy have expressed most concern about vessels re-routing to the south of Hornsea Three and then turning northwards towards Grove immediately after passing the wind farm.
- 2.2.9 This concern only applies to eastbound traffic, which is estimated at 1-2 ships per day passing to the south of the wind farm. However, it would not be efficient for this traffic to turn sharply northwards after passing the wind farm, regardless of the presence of Grove. These vessels are expected to continue eastbound to either cross or join the Off Botney Ground Traffic Separation Scheme.
- 2.2.10 Historically, there have been 10 powered passing vessel allisions with oil & gas platforms on the UKCS since the 1970s, five involving fishing vessels and five involving commercial ships. All have been in the Southern North Sea where traffic densities tend to be highest. All have been attributed to watchkeeper failure, e.g., watchkeeper asleep, distracted or absent from the bridge. None have resulted in fatalities.
- 2.2.11 For a vessel to alter course towards Grove requires conscious action on the bridge of the vessel, which indicates the officer of the watch is present and active. To continue on an allision course would also require the errant vessel to ignore warning messages sent by the J6A Control Room, which would sound on the bridge.
- 2.2.12 In their Full Written Representation of 7 November 2018 (EN010080-001197-Spirit Energy First draft rep; Section 5.8), Spirit Energy stated that in order to mitigate (perceived) increased risks from third-party vessels, *“the current ARPA and AIS warning systems will need to be upgraded to a predictive radar early warning system (REWS). Further work is however required to verify the effectiveness of such a REWS in operating in close proximity to turbines of the size and density proposed by the Applicant.”*
- 2.2.13 At a meeting between Spirit Energy, Ørsted and radar experts on 1 March 2019 it was confirmed that J6A already has a predictive REWS. The radar experts were of the opinion that the existing system would be able to track vessels within and beyond the wind farm on both Radar and AIS and hence provide the necessary alarms should any vessels be on an allision course. The radar supplier also indicated it would be straightforward to introduce a new alarm to provide early warning of any vessel turning NE towards Grove after passing south of the wind farm so that the vessel could be contacted.
- 2.2.14 Therefore, the mitigation proposed by Spirit Energy to alleviate allision risk is already in place with only a minor software update required, and a trial planned after construction to ensure it continues to work effectively. There is no justification for the 2nm buffer between the platforms and eastern boundary of the array as proposed in Spirit Energy's draft protective provisions.

2.2.15 This same REWS will continue to be able to track any vessels navigating within the wind farm. AIS tracking will be unaffected by the wind farm and the radar experts indicated the J6A radar could distinguish targets provided they were more than 15m from turbines and not in the narrow shadow sector behind the turbines. It was agreed that vessels closer than 15m to a turbine or on a course immediately behind a turbine were a problem for the wind farm, not the Spirit Energy platforms.

Drifting Vessels (Not Under Command)

2.2.16 There has never been an allision between a drifting third-party vessel and an oil & gas platform on the UKCS.

2.2.17 As discussed above, passing ships are expected to increase their average passing distances to the Spirit Energy platforms due to the shielding effect of the wind farm. This reduces their exposure time in proximity to the platforms and hence the risk that there could be a drifting scenario caused by power loss and drift.

2.2.18 The wind farm will introduce new vessel traffic in the area, especially during the temporary construction phase, however, this will normally be remote from the platforms.

- Strict procedures will be in place to mitigate the risk of a drifting incident as the highest risk will be to the wind farm structures (metres away), rather than remote oil & gas platforms (kilometres away). Even a vessel working at the extreme eastern edge of the site will be 3 km (1.5 nautical miles) from the closest platform, Chiswick.
- Wind farm vessels will be carefully selected, vetted, audited, monitored, and required to follow strict operating procedures including allowable weather limits.
- Example principles currently employed by Ørsted for an installation jackup are as follows:-

- Prior to departing from the loadout port the vessel master will have to have a sufficient weather window to make the port departure, transit, as well as position the vessel at the foundation and jack to survival height (taking into account storm survival).
- The weather window for this will include a 50% contingency, so for a 10hr transit time there will need to be a total weather window for 15hrs.
- During the above mentioned “total weather window” the significant wave height (Hs) and the wind speeds (W/S) at 10.0m above water line will not be higher than the sea fastening design criteria. This is dictated by many factors, the vessel’s natural characteristics, the turbine components weight, etc.
- At the expected arrival time at the foundation the master has to have the right environmental criteria (significant wave height, Hs, and wind speed) to position and jack up, which could take up to 12 hours. Current limits are around 1.8m Hs and 13m/s (approx. 25 knots).

2.2.18 At ISH8, Spirit Energy stated that these issues could be managed to the benefit of both parties through communications, a Cooperation Agreement and Construction Management Plan, which is acceptable to the Applicant.

2.2.19 In the worst-case, if a vessel were to lose power and drift from the wind farm towards the oil & gas platforms, the weather criteria means there will be more than the 20 minutes required by Spirit Energy to evacuate personnel (if applicable) and shutdown the platform, before the potential allision. This assumes the drifting vessel is unable to restart engines, anchor and/or use any residual steering to influence its drift angle and avoid allision.

3. Conclusion: Allision Risk

3.1 The shipping and navigation assessments within the Environmental Statement were based on the best available evidence and extensive consultation. Passing vessel allision risks are expected to reduce due to traffic being re-routed away from platforms. Drifting vessel risks from third-party vessels are also expected to reduce for the same reason. Wind farm vessels operating in the area will be strictly managed. It will be assured that the existing REWS on J6A will continue to function to provide early warning of any vessel approaching on a hazardous course so that appropriate action can be taken, which is the most effective mitigation, although the rate of alarms from 3rd party vessels is expected to reduce.