



Maritime &
Coastguard
Agency

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28 April 2023

Your ref: EN010109

Dear Sir/Madam

Application by Equinor for an Order Granting Development Consent for the Sheringham and Dudgeon Extension Projects.

Planning Act 2008 – Section 89 and The Infrastructure Planning (Examination Procedure) Rules 2010

Examination Timetable – Deadline 3

Thank you for inviting the Maritime and Coastguard Agency (MCA) to provide additional information to the Secretary of State as part of its assessment of the proposed Sheringham and Dudgeon offshore wind farm extension projects. We would like to submit the following response to the Examining Authority at Deadline 3.

Examining Authority's Written Questions 2

1. Q2.19.1[.1] – MCA navigational safety concerns

Identify and explain what information within the Applicants' submission at Deadline 1 raised concern regarding shipping safety, which may not have been apparent during earlier engagement?

MCA Response

At the Section 42 Preliminary Environmental Impact Report (PEIR) stage, the required vessel traffic surveys had not been completed and a Hazard Identification workshop had not been conducted with navigational stakeholders. The data from both would have informed the conclusions of the draft Navigational Risk Assessment (NRA) and it was therefore incomplete. MCA provided initial comments on the information provided at the PEIR consultation stage and additional comments were subsequently provided once the NRA was complete and had been fully assessed in accordance with MGN 654.

2. Q2.19.1.2 – Background Data

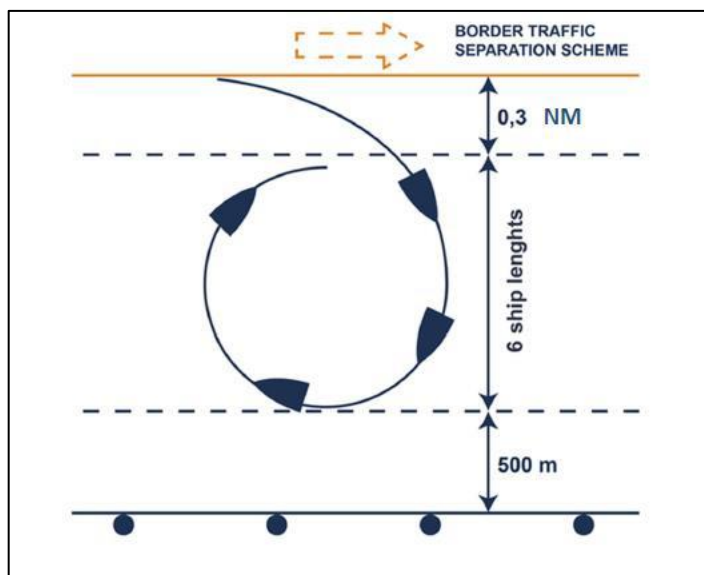
MCA and Applicant, provide the background evidence to support your position relating to the matters discussed at ISH6 [EV-085] & [EV-089], particularly matters where there are issues of disagreement, such as navigational buffers and the potential collision risk, statistical calculations of vessels traversing

through this sea area if the proposed wind farm sites are where currently proposed? Provide supporting illustrations, diagrams and plans.

MCA Response

MCA's concern is the loss of sea room to the west of the northern section of the DEP array that will constrict the two-way traffic into a channel with less than half of the current sea space. The complexity of the area must be accounted for when considering the issue around the width of this channel. There are shallow waters both to the east and west of the Outer Dowsing Channel and traffic converges into the gap between SEP and DEP. The orientation of traffic east of Triton Knoll Offshore Wind Farm is not entirely because of the wind farm but due to the shallow waters of Triton Knoll and the Outer Dowsing Shoal and this is a key factor in the traffic restriction into a corridor.

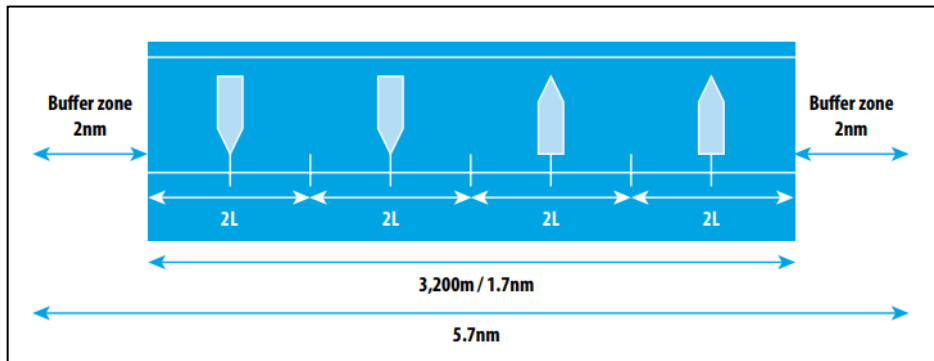
The data within the NRA shows 90% of vessels transiting through the Outer Dowsing Channel do so in a corridor 2.5NM wide (see Image 1 in AS-044). The northern DEP array would push the north bound traffic to the west and MCA has used a conservative figure of 1NM safety buffer. If the recommendation in the guidance document published in 2018 by The World Association for Waterborne Traffic Infrastructure (PIANC), MarCom Working Group Report no. 161-2008, titled "*Interaction Between Offshore Wind Farms and Maritime Navigation*" is followed, this safety buffer would be 1.2NM which is based on the turning circle of a 195m¹ LOA (Length Over All) vessel:



- Starboard side of any route: $0.3\text{NM} + 6 \times 195 + 500\text{m} = 2226\text{m}$ or 1.2NM

The Nautical Institute and The World Ocean Council published guidance on shipping lane widths for two-way traffic in 2013 titled "*The Shipping Industry and Marine Spatial Planning*". This is based on adequate sea room to allow four vessels to safely pass each other:

¹ Using MCA AIS data from August 2021, there were multiple transits recorded by a Ro-Ro Ferry Bore Song 195m LOA through this area.



Assuming 195m LOA, the corridor would be $8 \times 195\text{m} + 4\text{NM} = 4.84\text{NM}$. Using the safety buffer distance from the PIANC guidance the corridor width should be $8 \times 195\text{m} + 2.4\text{NM} = 3.24\text{NM}$ or 6km.

Although the proposed extensions appear to comply with the minimum clearance derived from the guidance (using 195m LOA), the MCA believes that due to the particular circumstances of the area concerned, wider safety parameters should be adopted. The 195m LOA measurement used in the above calculations was taken from a week of AIS data in August 2021. The applicant collected two 14-day traffic surveys in summer and winter and 12 months of AIS data from 2019, and while the NRA does not provide any details on LOA, the 195m figure is likely to be an underestimation. The guidance assumes a central division for vessels heading in opposite directions, in this case north and south. The absence of a sea lane or any traffic separation scheme initiatives in this area is of relevance to our concerns. Traffic can, and does, transit the area in a north and south direction without any obligation to keep to one side or the other.

The restricting factors in the area are the shallower water aforementioned, and the presence of the already existing windfarms. This means that the frequency of encounters for vessels to meet head on are increased. The presence of the northern extension in particular, constricts this traffic in their ability to take early and substantial action in accordance with COLREGS and invites either a departure from them, or alteration of course into the windfarm red line boundary, potentially increasing the risk of allision with a structure. In addition, periods of construction and major maintenance on the turbines closest to the boundary will attract 500m safety zones which potentially constricts the sea space and increases collision risk even further.

The future traffic picture and vessels' obligations in complying with COLREGS is complicated by the presence of the windfarm traffic during both construction and operation. The Navigation Management Plan can be useful for regular runners but will be obsolete for those vessels that do not transit through the area on a regular basis.

The NRA assessed the baseline collision risk within the scoped area as being 'reasonably probable' (1 per 1-10 years) which is already very high. The NRA concludes the increased collision risk is 'remote' (1 per 10-100 years) which again is for the scoped area and not specifically for the area of concern with the western boundary of the northern DEP site. MCA recommends that either structures are not constructed west of a line drawn from the Dudgeon cardinal buoy to the Mid-Outer Dowsing buoy, or a reduction in the red line boundary to this effect.

3. **Q2.19.1.3 – Further discussions and mitigation**

Can both parties continue discussion on the key points of disagreement and propose a way of reaching agreement. What would be the implication if agreement is not reached between the parties?

MCA Response

MCA met with the Applicant on 26/04/23 to discuss the Statement of Common Ground and the wording of the DML conditions requiring amendment. Three additional meetings have been arranged in May and June to discuss the outstanding issues. The implication if agreement is not reached is that MCA would neither confirm navigational risks west of the northern DEP boundary are acceptable nor agree the proposals comply with the National Policy Statement for Renewable Energy Infrastructure (EN-3) or the East Inshore and East Offshore Marine Plans (see below).

4. **Q2.19.1.4 Sea Lane Essential to International Navigation**

In line with the policy requirement in NPS EN3 (Paragraph 2.6.161), does the shipping route through the SEP and DEP sites constitute a sea lane essential to international navigation? If so, can you explain how the proposals would or would not interfere with this sea lane essential to international navigation?

MCA Response

Paragraph 2.6.161 in NPS EN-3 states:

The IPC should not grant development consent in relation to the construction or extension of an offshore wind farm if it considers that interference with the use of recognised sea lanes essential to international navigation is likely to be caused by the development. The use of recognised sea lanes essential to international navigation means:

(a) anything that constitutes the use of such a sea lane for the purposes of article 60(7) of the United Nations Convention on the Law of the Sea 1982; or

(b) any use of waters in the territorial sea adjacent to Great Britain that would fall within paragraph (a) if the waters were in a Renewable Energy Zone (REZ).

On the understanding that a 'sea lane' in the above paragraph refers to an IMO-adopted Traffic Lane (within a Traffic Separation Scheme), then it is not possible to confirm the shipping route through the SEP and DEP sites constitutes a sea lane since a Traffic Separation Scheme does not exist between SEP and DEP and it is not within the UK's Territorial Sea. However, the route is used by vessels on domestic and international voyages and it is considered to be a strategically important route essential for regional, national and international trade, as per the policy requirement in NPS EN-3 paragraph 2.6.162:

The IPC should be satisfied that the site selection has been made with a view to avoiding or minimising disruption or economic loss to the shipping and navigation industries with particular regard to approaches to ports and to strategic routes essential to regional, national and international trade, lifeline ferries and recreational users of the sea. Where a proposed development is likely to affect major commercial navigation routes, for instance by causing appreciably longer transit times, the IPC should give these adverse effects substantial weight in its decision making.

We would also like to refer to the ports and shipping policy statement in the East Inshore and East Offshore Marine Plans where our position is that the northern DEP site is not compatible with maintaining space for safe navigation:

Policy PS2

Proposals that require static sea surface infrastructure that encroaches upon important navigation routes (see figure 18) should not be authorised unless there are exceptional circumstances. Proposals should:

a) be compatible with the need to maintain space for safe navigation, avoiding adverse economic impact

b) anticipate and provide for future safe navigational requirements where evidence and/or stakeholder input allows and

c) account for impacts upon navigation in-combination with other existing and proposed activities

Comments on Applicant's submission at Deadline 2 in response to MCA's submissions at Deadline 1

The Applicant provided responses to MCA's Written Representation in the document titled *The Applicant's Comments on Responses to the Examining Authority's First Written Questions*, Revision A, March 2023, Document Reference: 14.4, and MCA would like to respond as follows:



2.16 Maritime and Coastal [sic] Agency

Table 16 The Applicant's Comments on National Highway's [sic] Written Representation

ID	MCA's Written Representation	Applicant comments	MCA response								
1.1	<p>The NRA and Shipping and Navigation Chapter recognises the baseline collision rate is high (1 in 9.6 years) due to the current high volume of traffic, shallow banks and neighbouring offshore wind farms. The assessment concludes that collision risk rises to 1 in 8.5 years assuming no increase in traffic volume, or 1 in 7 years with 10% increase in traffic, or 1 in 6 years with 20% increase in traffic. It is recognised that the traffic volume between the sites will increase as a result of cumulative effects of other consented wind farms.</p> <p>The navigable sea room between the existing Sheringham Shoal and Dudgeon wind farms is currently 8.2NM wide. Commercial vessels will typically ensure a safety buffer of at least 1NM between their course and an offshore wind farm boundary and the traffic study shows this is 1.5NM. 90% of this traffic transits in a 'corridor' 5.5NM wide and the introduction of the two extension projects will reduce this corridor to 3.6NM of sea room; a reduction of sea room of 34%.</p>	<p>The Navigation Risk Assessment (NRA) [APP-198] included modelling of the scenario where traffic increases but the SEP&DEP are not present. The results showed the majority of the change in the former (i.e., with SEP&DEP) was associated with the traffic increase as opposed to the introduction of the SEP&DEP. The Applicant notes that the 10% and 20% values referenced by the MCA are inclusive of the effects of increased traffic and the SEP&DEP, however these values are not significantly different from the scenario where SEP&DEP are not present (see table below).</p> <p>The NRA [APP-198] included application of the MCA methodology for corridor width calculation, with the strict interpretation of the width requirements being found to be met. Further details are provided in Section 18.4 of the NRA [APP-198]. The Applicant is in the process of undertaking further assessment of traffic utilising the corridor and will provide any relevant results as part of a future submission.</p> <p>Return periods for vessel being involved in a collision based on NRA modelling:</p>	<p>The MCA does not agree that the change in collision risk is not associated with the SEP&DEP. The applicant states that the values in the table 'are not significantly different', however the change in risk ranges from 11.4% to 11.9% which we would not consider insignificant.</p> <table border="1" data-bbox="1518 719 2128 866"> <thead> <tr> <th data-bbox="1518 719 1827 751">Scenario</th> <th data-bbox="1827 719 2128 751">Change in collision risk</th> </tr> </thead> <tbody> <tr> <td data-bbox="1518 751 1827 807">Base Case (0% traffic increase)</td> <td data-bbox="1827 751 2128 807">11.5%</td> </tr> <tr> <td data-bbox="1518 807 1827 839">10% traffic increase</td> <td data-bbox="1827 807 2128 839">11.4%</td> </tr> <tr> <td data-bbox="1518 839 1827 866">20% traffic increase</td> <td data-bbox="1827 839 2128 866">11.9%</td> </tr> </tbody> </table> <p>The corridor guidance in MGN654 is to be used as advice for determining safe distances between wind farms boundaries and shipping routes and assessment is on a case-by-case basis. Factors that should be considered, in addition to the 20-degree model, are described in Section 4.7 in MGN654. It is important to recognise that the corridor guidance and shipping route template are not prescriptive tools but need intelligent application.</p>	Scenario	Change in collision risk	Base Case (0% traffic increase)	11.5%	10% traffic increase	11.4%	20% traffic increase	11.9%
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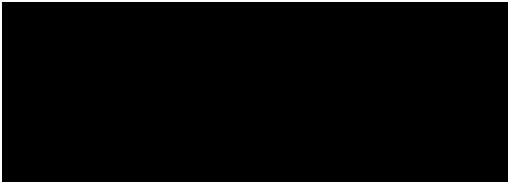
ID	MCA's Written Representation	Applicant comments			MCA response
		Scenario	Without SEP&DEP	With SEP&DEP	
		Base Case (0% traffic increase)	1 in 9.6 years	1 in 8.5 years	
		10% traffic increase	1 in 7.9 years	1 in 7.0 years	
		20% traffic increase	1 in 6.7 years	1 in 5.9 years	
1.3	In Fig 18.1 of the NRA the 20% corridor guidance from MGN 654 has been used to show the minimum width required for the 11.2NM long corridor between the extensions should be at least 4.1NM. The boundaries at the narrowest point are 5.6NM apart, however it is noted that shallow banks marked by the East Dudgeon buoy potentially extend the corridor length a further 6.5NM to the northwest since there is no safe sea room to the west of a line between the East Dudgeon buoy and the northern corner of the Sheringham Shoal Extension boundary. As such, is it arguable the length of the corridor would be 17.2NM and the required width as per the guidance in MGN 654 should be at least 6.25NM.	The NRA [APP-198] included application of the Marine <i>[sic]</i> Coastguard Agency (MCA) methodology for corridor width calculation set out in Marine Guidance Note (MGN) 654, with the strict interpretation of the width requirements being found to be met. In line with the MGN 654 wording, the calculation was based on the area "where turbines appear along both sides of a shipping corridor". It is acknowledged that strict application of the calculation does not account for the presence of the local shallow banks, and text on this basis was included in Section 18.4 of the NRA [APP-198].			The corridor guidance in MGN654 is to be used for determining safe distances between wind farms boundaries and shipping routes on a case-by-case basis. Factors that should be considered, in addition to the 20-degree model, are described in Section 4.7 in MGN654. It is important to recognise that the corridor guidance and shipping route template are not prescriptive tools but need intelligent application.
1.4	Annex F of the NRA (Hazard Log) does not include a hazard for assessing collision risk between two third party vessels as a result of reduced sea space. Collision risk is mentioned in Hazard ID C1, C2, C7 and C8 (Displacement from wind farm sites resulting in increased collision risk) for the construction and operational phases, however there is a focus on deviation and commercial concerns. For instance, the most likely consequences of these hazards were assessed with a score of 1 - Negligible (no perceptible impact) which is not a realistic consequence of a collision between two third-party vessels. The	Annex F [NRA APP-198] Row C1 includes consideration of both displacement and resultant collision risk. The realistic most likely consequences of displacement are negligible with no perceptible navigational safety impact but with a high frequency of occurrence given the mostly likely consequences of a vessel being displaced is an encounter which does not lead to a collision event. The realistic worst case consequences of displacement is that the encounter then leads to a collision event and is appropriately ranked that whilst low frequency is of serious consequence i.e., could lead to serious injury, fatality, or critical			It is understood that the Row C1 scoring focuses on displacement since the consequences of a collision would never be considered 'negligible', and as such, Row C1 can't provide scoring for both displacement and collisions. MCA does not agree that collision risk in isolation cannot be directly caused by the wind farm since it is the reduction of sea space that is causing vessels to be 'squeezed into a new location' and causing collision risk to increase.

ID	MCA's Written Representation	Applicant comments	MCA response
	<p>likelihood of a worst-case consequence of a collision between two third-party vessels was assessed with a score of 1 (no perceptible impact) which appears to be an underestimation of the likely outcomes.</p>	<p>impact damage. Even if the hazard log impact was to solely consider collision risk in isolation (which cannot be directly caused by the wind farm i.e., the vessels have to be displaced or squeezed into a new location) the most likely consequences based on real time accident statistics shown in section 13.4 is that the collision would be low frequency and lower consequence.</p> <p>The hazard log is a key input into the Formal Safety Assessment process and uniquely provides opportunity for local and national stakeholders to agree rankings, The hazard workshop took place on the 10th August 2021, a draft hazard log was provided to attendees for comment on the 9th November 2021, and a final version was then sent to attendees on the 19th November 2021.</p>	
1.5	<p>Collision risk is discussed in section 21.1.3.1 of the NRA, however it is not understood how the future collision risks have been predicted using the hazard log scores. The predicted increase of 13% collision frequency at current traffic levels may have been underestimated, in which case changes to the red line boundaries must be considered.</p>	<p>Multiple inputs are used to inform the Formal Safety Assessment around which the NRA is developed. This is detailed in Section 3.1 of the NRA [APP-198] and includes both the modelling outputs and the consultation input including the hazard workshop.</p> <p>The NRA including outputs of the modelling shows that collision risk is already high in the area as demonstrated by the pre wind farm modelling scenarios (see response in ID 1.1). However, when looking at accident and incident statistics, the risks are managed by mitigations already in place including the International Regulation for the Prevention of Collisions at Sea (COLREGS).</p>	<p>It is agreed that collision risk is already high in the area and even with COLREGS accidents and incidents still occur. The introduction of SEP&DEP increases collision and allision risks even further.</p>
2.2	<p>Promulgation of project vessel procedures in a Navigation Management Plan to regular operators is noted as a mitigation of displacement, however not all transiting vessels will have this promulgated to them. As a risk control for reducing the impact of displacement and for preventing collisions between</p>	<p>It is not the intention of the NMP to control encounter events and the possibility of collisions given that COLREGS is already in place to manage these interactions.</p>	<p>Section 21.1.3.1 of the NRA which refers to Third Party to Third Party collision refers to the Navigation Management Plan in paragraph 439 as 'reducing the frequency of any displacement and deviation the impact is considered to be tolerable with additional mitigation and ALARP'.</p>

ID	MCA's Written Representation	Applicant comments	MCA response
	<p>two third party vessels the NMP is not an effective mitigation measure. Although not specifically worded for a risk of collision between two third party vessels, Hazard C1 does refer to this situation and the NMP is not listed as a further mitigation measure between third party vessels. This implies that there has been no additional mitigation outside of the embedded mitigations to address the predicted large increase in the frequency of encounter.</p>	<p>See response in ID1.1 for further detail on changes in collision risk.</p>	<p>Section 13.5.1.4 of Chapter 13 Shipping & Navigation (Environmental Statement) refers increased collision risk between third party vessels and paragraph 109 states that a Navigational Management Plan will be developed as mitigation.</p>

In addition, the Applicant's comments on MCA's response to the first Examiners' Questions Q1.19.1.6 regarding the Navigation Management Plan, the Applicant again commented that "*It is not the intention of the NMP to control encounter events and the possibility of collisions given that COLREGS is already in place to manage these interactions*". I refer to the statements within the NRA and ES Chapter 13 as highlighted above that refers to the NMP reducing third party vessel collision risk.

Yours faithfully,



Nick Salter
 Offshore Renewables Lead
 UK Technical Services Navigation