From:	Andy Sime
To:	ThanetExtension@pins.gsi.gov.uk
Subject:	LPC Deadline 4a Submission
Date:	09 April 2019 20:24:45
Attachments:	Deadline 4a.docx

Dear Sirs

I am very sorry this submission is later than today's 1700 deadline however I hope you will allow its inclusion as I have struggled to make the deadline as I have had to work around my hospital visits for my wife and Pilot duties.

Best regards

Andy Sime
London Pilots Council

Get Outlook for iOS

London Pilot Council

Thanet Windfarm Extension Deadline 4a Submission

9th April 2019

1.1. Further to the workshop and IP meetings organised by the Applicants the LPC wholly reject the revised red boundary proposed as a result of the workshops on the grounds of Navigation Safety in and around the NESP area.

1.2. The LPC are particularly disappointed that the data previously supplied by the LPC on vessel turning distances, stopping distances and bridge visibility from a variety of different vessel types which support our claim for a 2 mile operational sea room with a 1 mile safety exclusion zone to the North East of the existing Pilot Diamond, has been ignored.

1.3. At a recent meeting of the LPC where the content of this submission was discussed it was estimated that between the 6 members present we had over 3,000 boarding and landings at the NESP which have been conducted in all conditions of weather, tide and traffic density on all classes and types of vessel. With this experience we are confident that our opinion on the sea room and SEZ required is based upon solid professional experience.

1.4. With the benefit of this experience the LPC are adamant that the proposed 0.5 mile SEZ of the revised red line boundary leaves insufficient sea room and safety margin for manoeuvring large vessels at the NESP during Pilot operations. Furthermore the loss of sea room and proposed 0.5 mile SEZ significantly increase the risk of close quarters situations between vessels, allows negligible room for emergency contingencies and represents an increased risk to the personal safety of the Pilots and Mariners alike.

1.5. In this submission we will supplement the data previously supplied on vessel manoeuvring characteristics with photo shots from X band and S band radars from vessel which were deliberately navigated close to the Windfarm to demonstrate the safety of navigation concerns, the dramatic changes to the line of sight for vessels making for the diamond and the increase in manouvering sea room required at the Pilot diamond, all of which the revised red line boundary creates. We suggest that following will support entirely our requirement for a 1 mile SEZ for manoeuvring large vessels to the NE of the existing Pilot diamond instead of the 0.5mil proposed by the applicant.

1.6. In this submission the LPC offer a ‘trade off’ in SEZ. The inshore area to the SE of the current Pilot Diamond, at the Elbow Buoy, has fewer Pilot transfer operations than the area immediately at the Pilot Diamond. Many of the vessels transiting through this area at the Elbow Buoy are smaller Class 3 and Class 4 vessels and go on to transit over the NESP bank. These vessels have lesser manoeuvring and sea room requirements. In this area we would agree a 1.5 mile sea room with a 0.5 mile SEZ as shown on the applicants revised red line boundary plan. However, it is imperative that the 2 miles of sea room

plus 1 mile SEZ is maintained at the Pilot Diamond and to the North East of the diamond.

1.7. The workshops focus has been on traffic data from AIS tracks, Pilot boat data and Incident reports, all of which have been shown in the Applicants NRA but the validity of which has been contested by all IPs. However, all of the above is looking out of the rear view window. There is virtually no consideration given to the immense increase in trade to the Port of London. The PLA business is experiencing continued growth and expected to continue with three new terminals at the London Gateway planned, upgraded tanker terminals at Grays, Vopak, Oikos and of course Tilbury 2 and additional new reefer trades to Tilbury LCT all of which amount to a significant increase in number of vessels and of increased size of vessel. **We must avoid using yesterday's data to create the safe safe navigational sea area required for the expanding business of tomorrow.**

1.8. The tanker berths have all recently undergone upgrades in mooring and cargo handling facilities in order to accommodate larger vessels. Grays Oil Terminal now have two upgraded berths to take 200 x 11.0m tankers, as does Vopak 1. A brand new deep water tanker berth is due to come on line later this year at Oikos 2 for large Afrimax size tankers. All of this additional traffic will pass outbound via the Princes Channel and the NESP to disembark a Pilot.

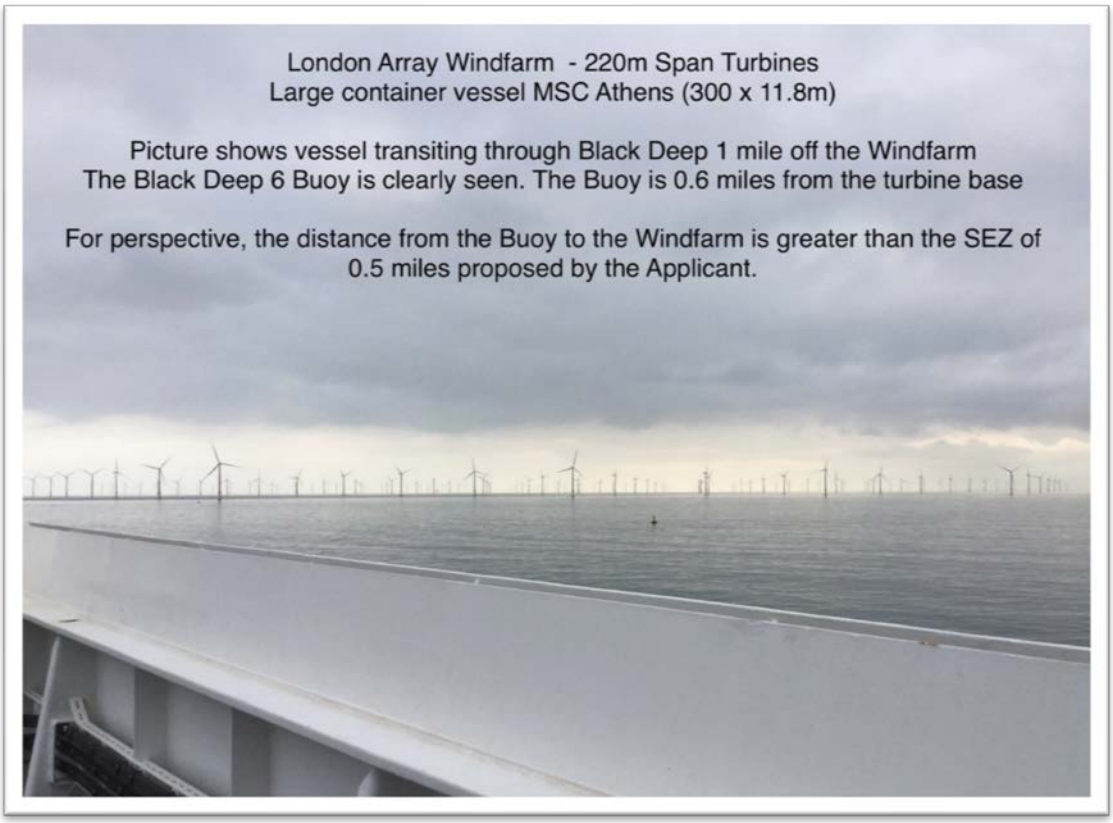
1.9. Northfleet Hope Container Terminal (LCT) has seen both a growth in feeder vessel size and the addition of new trades such as dedicated reefer vessels.Tilbury 2 has begun building which will accommodate bigger, deeper vessels and the London Gateway is planning a three berth extension. All of which will bring an increase in vessel numbers and vessel size to the NESP.

1.10. ULCS Container vessels at drafts at or below 10m have been risk assessed for the NESP and 300m Large Container vessels are now frequently boarded and landed at the NESP. An option to dredge the Edinburgh Channel for deeper draft vessels when the LGW berths 4 to 6 come on line will take the pressure off the Sunk Pilot station.

1.11. The Sunk Pilot station is often under great pressure when the scheduling of vessel boarding, especially priority boardings of ULCS vessels is carried out in conjunction with Felixstowe traffic. By accommodating increased numbers of large vessels at the NESP then pressure is taken off the Sunk for London traffic boardings. Vessel delays and service to our time critical customers such as the London Gateway will be maintained when their new berths become operational.

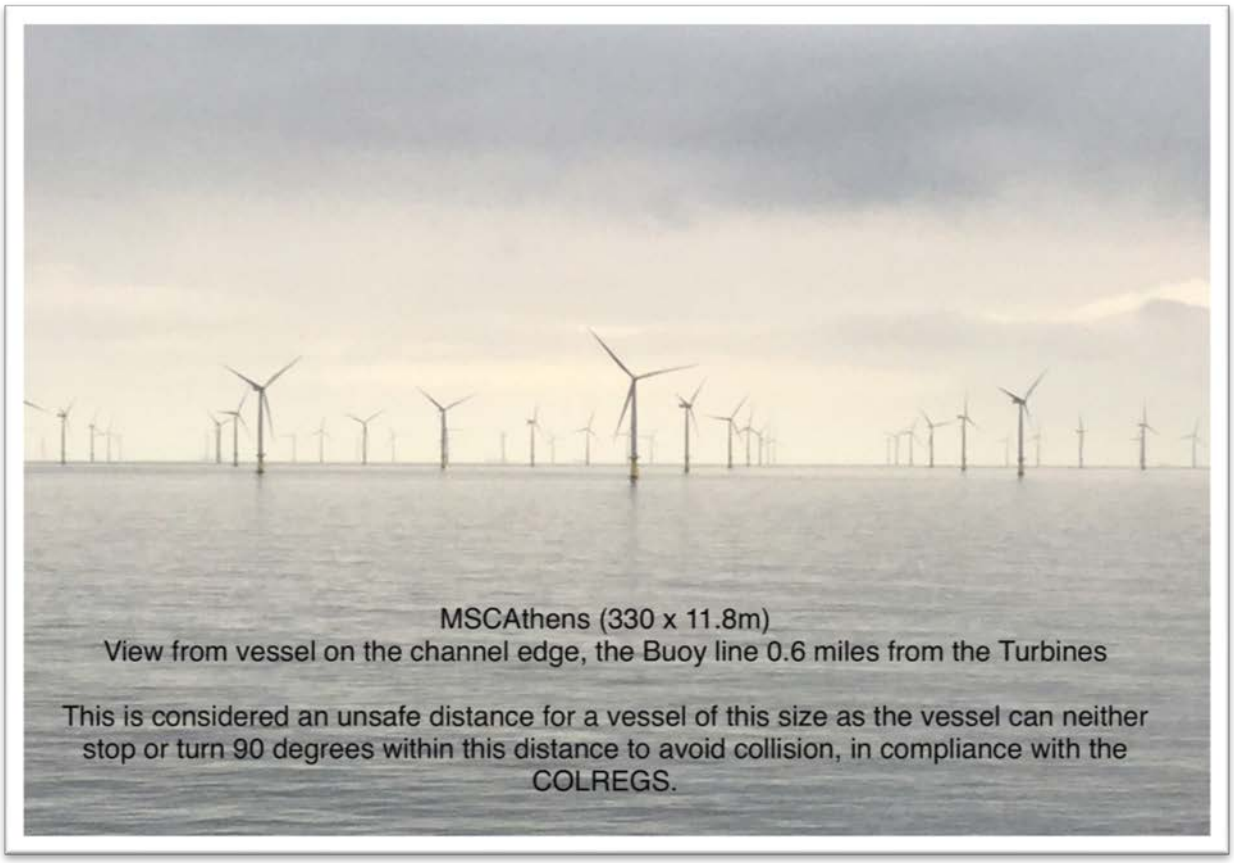
2.0. Transiting a Windfarm

Fig.1 1 mile off



2.1. Figure 1 clearly shows the view from MSC Athens a 300m container vessel passing 1 mile from the large 220m span turbines. The 1.0 mile shown represents the SEZ as requested by the LPC. During night transit and periods of rain, mist and fog, the Mariner is unable to see through the Windfarm and must rely upon radar alone. AIS targets of small vessels may be obscured in the distorted definition the turbines give on radar and small vessels without AIS will not be detected at all. The 1 mile SEZ allows sea room for collision avoidance, position adjustment if the vessel tracks to the extremity of the intended 2.0 mile sea lane and allows the Mariner valuable time for emergency contingencies.

Fig.2. 0.6 miles off

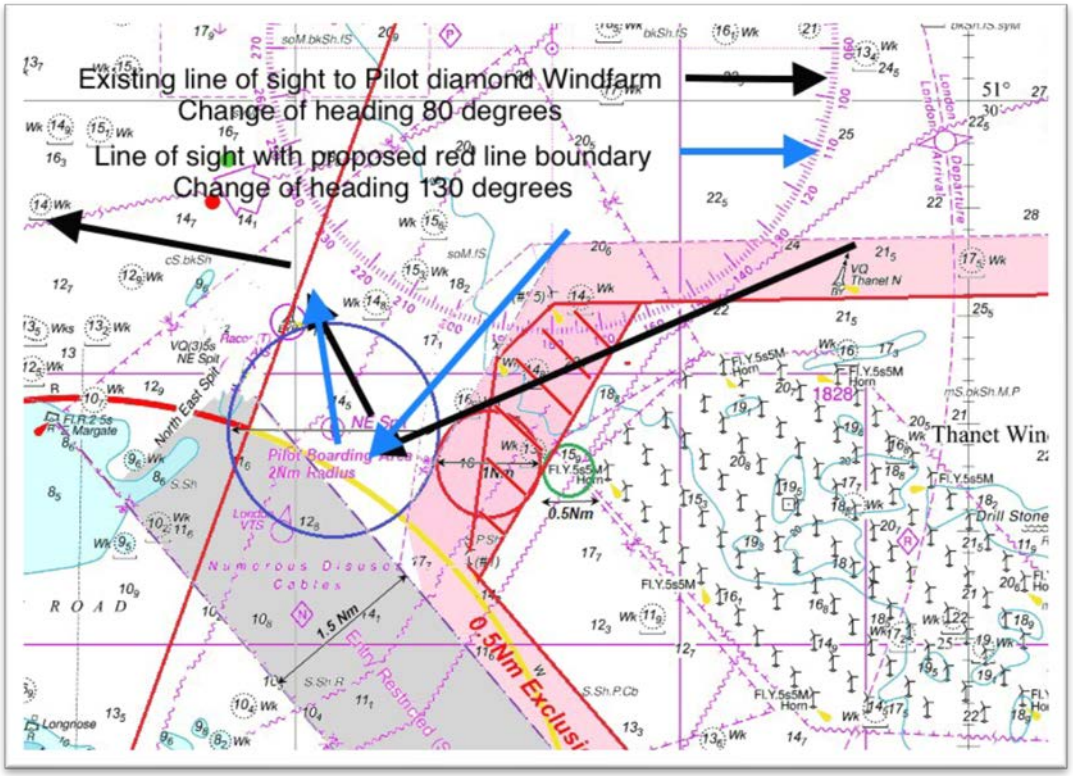


2.2. Figure 2 shows the same vessel at 0.6 cables distance off the Windfarm. This is at an even greater distance than the 0.5 miles proposed as an SEZ by the applicants.
It is therefore a ridiculous expectation, in our opinion, to propose a lesser SEZ than the 1 mile shown in Fig.1.

2.3. In Fig.2, The Master was extremely concerned operating this close, 0.6 mile from the Windfarm as this vessel takes 0.86 of a mile to turn 90 degrees in the event of anti-collision and 1.4 miles to stop. In other words, in the event of any emergency such as loss of engine power, blackout, steering failure or collision avoidance, especially in fog, then there is insufficient safety margin for any corrective action. All of which are not uncommon incidents.

3.0. Line of sight when boarding or landing a Pilot

Fig .3. Line of sight



3.1. Figure 3 shows the current line of sight for vessels transiting inbound and outbound from the Pilot boarding diamond passing North of the Windfarm as indicated by the black marker. The line of sight for vessels approaching with the revised red line boundary in place is shown by the blue marker.

3.2. Vessels are unable to ‘see’ through Windfarms and when using radar alone are unable to determine if risk of collision exists in accordance with the COLREGS Rule 8. Therefore a clear line of sight for the Pilot diamond is essential before altering course towards the Pilot boarding area.

3.3. For a Class 2 and Class 1 vessel (draft greater than 7.5m) approaching the NESP from a position North of the North Thanet Buoy, the existing passage in and out requires a change of course from a heading of 230/245 to 325 degrees after Pilot boarding, passing East and North of the NESP Racon buoy. The 80/90 degree change of heading requires a safe turning circle of approximately 0.5 miles. (See Fig.4 for vessel manoeuvring data)

3.4. Figure 3 clearly shows that the proposed SEZ to the North of the proposed red line boundary pushes the Thanet North Buoy further north into the East/West sea lane. The sea room to the West of the Windfarm has been restricted and the line of sight required by the vessel forces the vessel to make a sharper turn down to the

South in order to clear the proposed 0.5 mile SEZ in order to approach the diamond for Pilot boarding.

3.5. The resulting turn after Pilot boarding requires the vessel to make a 120/140 degree turn in order to proceed inbound, passing to the East and North of the NESP Racon Buoy.

3.6. The searoom required to make this turn is massively increased with revised red line boundary and SEZ. The amount of searoom required to make such a turn varies according to Vessel type. The following data is gathered from actual vessel manoeuvring data in accordance with IMO Res.A601(15)

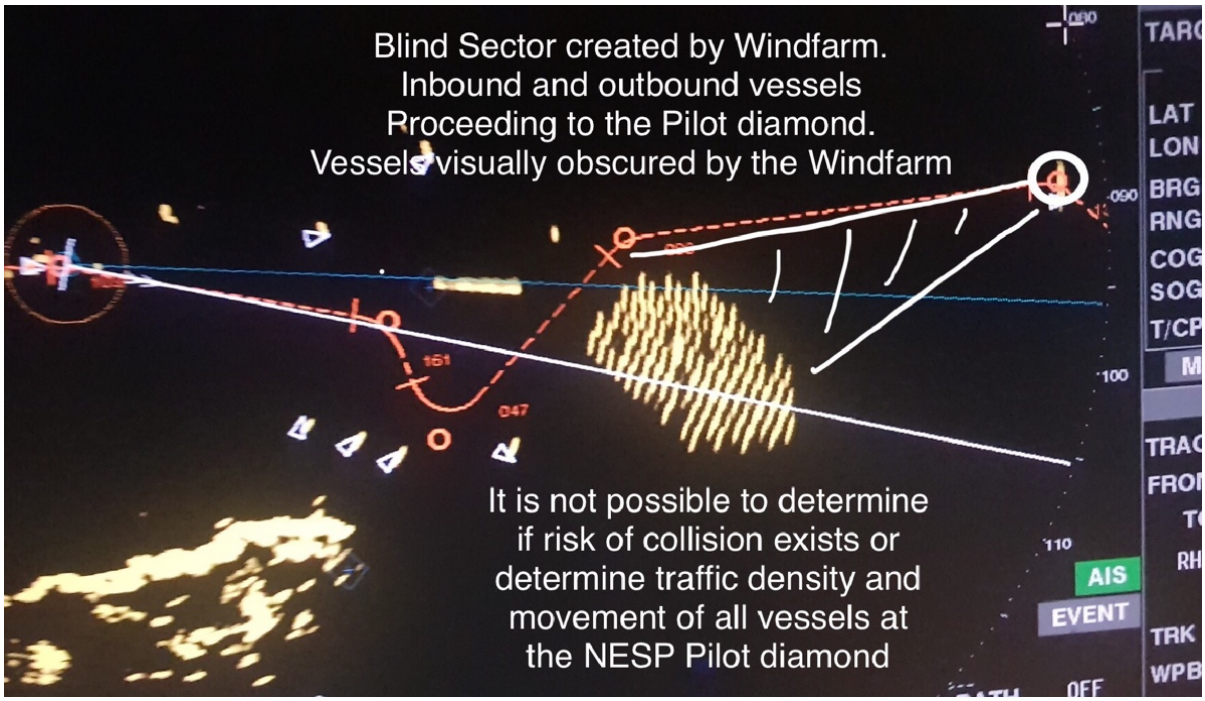
3.7. From Fig. 4 we can clearly see that the amount of sea room to make a 140 degree change in heading required by the proposed red line boundary requires between 0.5 miles for some Class of vessel and by extrapolation, up to **1.2 miles** for the large container vessels.

Fig.4 Vessel Manoeuvring Characteristics

Vessel Name	**Balao**	**Viking Adventure**	**Grande Lagos**	**Cap San Artemissio**
Type of Vessel	Cl. 1 Container	Car Carrier	RoRo Container	ULCS
LOA x Bm x D	209 x 30 x 9.5	199 x 35 x 9.5	236 x 36 x 9.2	333 x 48 x 10.2
DWT	34,144 T	62,106 T	31,340 T	124,426 T
Half Ahead	9.4 Knts	11.0 knts	10.8 knts	10.4 (Slow Ahd)
Turning 180 deg.	**0.6 miles**	**0.46 miles**	**1.1 miles**	**1.45 miles**
Stopping Dist 10kt	0.86 miles	0.8 miles	0.96 miles	1.53 miles
Block Coefficient	0.646	0.575	0.620	0.726
Fwd Blind Sector	306 meters	320 meters	380 meters	496 meters
Squat @ Slow Ahd	0.59 meters	0.53 meters	0.69 meters	1.21 meters
Turn @ 2 Deg Heel	0.51 meters	0.6 meters	0.63 meters	0.84 meters

3.8. Figure 5 clearly shows the inbound and out bound tracks to the North of the existing Windfarm. Figure 5 also shows the problem the Mariner has in discerning targets for collision avoidance and the loss of definition of radar picture caused by the reflected echo of the turbines.

Fig. 5. MV Tundraland RoRo vessel 190m x 6.5m draft. (30.03.2019) Actual Radar Plot showing Blind Sector



4.0. Marine Radar around Windfarms

4.1. Although the vessel in Fig.6 transits the Kentish Flats Windfarm at a safe distance of 1.5 miles, Figure 6 shows the loss of target definition for vessels right ahead or end on to the subject vessel due to the reflected echo of the Windfarm off the large self discharge crane at the fore part of the vessel

4.2. The Mariner must proceed with extra caution as small vessels such as fishing boats and vessels without AIS will not be visible right ahead. Particular caution must be taken when in rain, mist and fog when vessels are not in sight of one another. (COLREGS Rule 19)

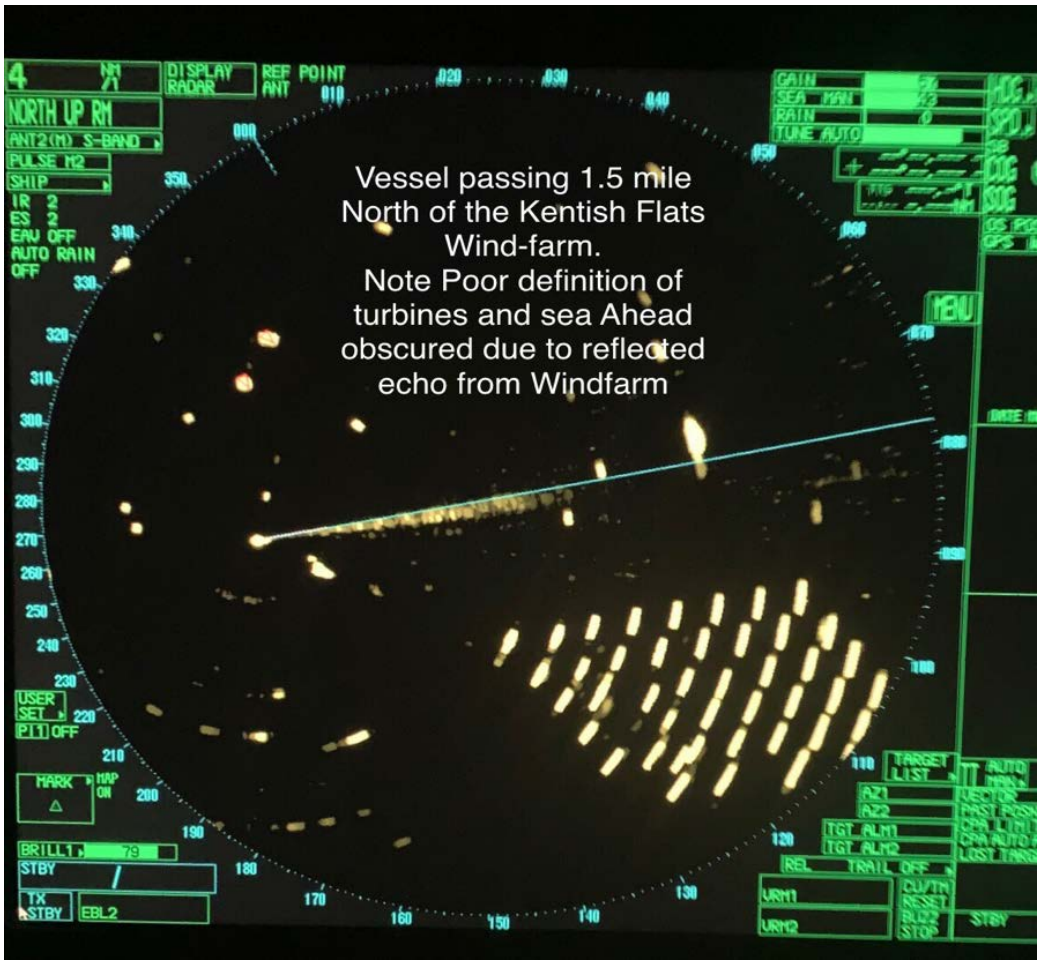


Fig.6 Reflected echo from Windfarm turbines create a radar shadow right ahead

Fig.7. Echo effct of Windfarm turbines large on feeder container vessels with large deck cranes

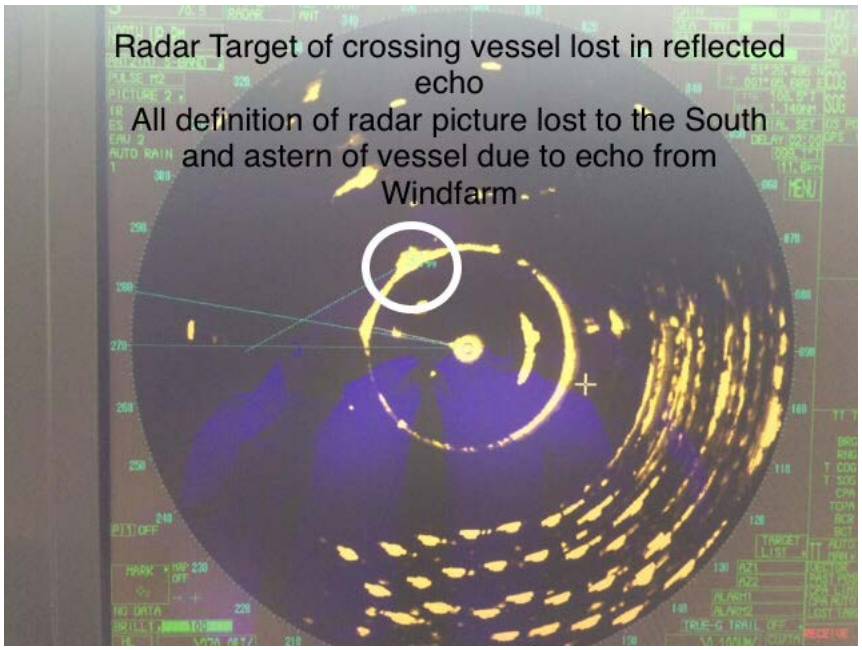


Figure 7 is a classic example of a typical 200m x 9.0m container vessel from the NESP Pilot boarding area proceeding inbound through the Princes Channel.

4.3. The vessel is 1.1 miles to the North of the Kentish Flats Windfarm (Parrallel Index for Princes Deep Water Route). Because of the very prominent effect of the Windfarm turbine echo bouncing off the vessel deck cranes all definition of the Windfarm to the South of the vessel is lost and any targets astern of the vessel are also lost.

4.4. To the NE of own vessel is an ultra large inbound container crossing vessel coming out of the Knock John Channel on a collision course with our subject vessel. The inbound target vessel's radar echo bounces off the deck cranes and obscures the target vessel's AIS signature and target 'paint' until it is auto selected by the radars anti collision feature (ARPA). In restricted visibility only when the target is auto selected then can the Pilot assess the situation and take avoiding action as the target is obscured or hidden from the operator for manual selection. All vessels do not have an auto select target function therefore an extremely dangerous collision situation exists in this photo.

4.5. This is an example of not just the effects of the Windfarm alone on marine radar but also because of the nature of the individual vessel construction and the combined effect of traffic and Windfarm distortion as seen by the Pilot or observer causing an extremely distorted, unreliable and dangerous radar picture for the Pilot to contend with. This picture is at 1.1 miles from a Windfarm. The distortion would be intolerable at the proposed 0.5 miles SEZ and render the Mariner incapable of performing collision avoidance or estimating traffic density.

5.0. LPC proposed SEZ

Fig.8.

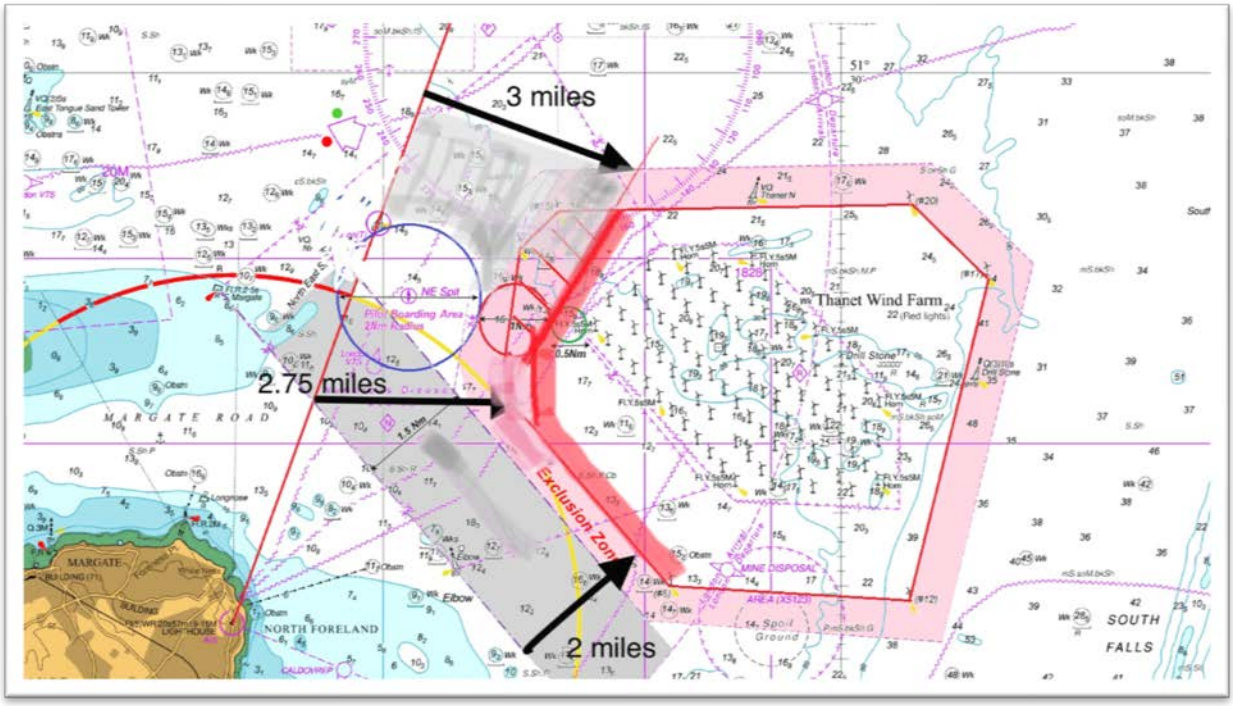


Figure 8 shows the minimum sea room required to safely manoeuvre vessels at the NESP

5.1. Distances to the red line boundary in Fig.8

- **Elbow Buoy total distance to be not less than 2 miles**
- **South of the NESP Pilot boarding diamond to be not less than 2.75 miles**
- **Pilot boarding diamond to be not less than 3 miles**
- **NESP Racon Buoy to be not less than 3 miles**

6.0. Summary

6.1. The LPC has demonstrated the practical hazards for large vessels transiting around Windfarms and feel justified in asking the Inspectorate to recognise and appreciate that large vessels need large areas to safely manoeuvre in order to board and land Pilots.

6.2. The Applicants revised red line boundary actually increases the need for further sea room due to the tight angles created when vessels dip down to board and land Pilots. The LPC has provided actual vessel data showing turning circles and stopping distances to support this. It is without doubt that a 0.5 mile SEZ does not allow sufficient margin for speed and position adjustment when the vessel arrives at the NESP

6.3. Vessels incur additional specific hazards to safe navigation when transiting around windfarms due to the effect of windfarms on marine radar and the effect that this may have on determining risk of collision, traffic density and the proximity of small vessels such as fishing boats and leisure craft. The PLA Pilot body have provided the undersigned with a great deal of photographic evidence, of which only a sample has been shown, to support this. The distortion to radar picture of the Windfarm increases the closer the vessel gets to the Windfarm installation. The LPC are therefore adamant that an SEZ of less than 1.0 mile as shown in Fig.8 has a marked impact to safety and collision avoidance for manoeuvring large vessels at the NESP.

6.4. To conclude. Very little consideration has been given by the Applicant in either their NRA or workshop to accommodate the growth of shipping in the Port of London when determining their revised red line boundary. Instead the Applicant uses much disputed data from their NRA, a simulator exercise from a simulator not fit for this purpose as previously discussed and figures plucked from the air at the RA workshop in order to determine future risk.

6.5. The LPC can only reiterate that during this process of determining a safe sea area and corresponding SEZ, we must use the vast professional and commercial experience of all the interested parties and avoid at all cost using yesterday's data to create the safe safe navigational sea area required for the expanding business of tomorrow.

Capt. Andrew Sime MM MNI
Class 1 Unrestricted Pilot
Port of London Authority