Northern Lighthouse Board

[redacted]
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Ms Laura Morley
Marine Scotland – Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
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02 August 2013

Dear Laura,

APPLICATION FOR TWO CONSENTS UNDER SECTION 36 and 36A of the ELECTRICITY ACT 1989 AND THREE MARINE LICENCES UNDER PART 4, SECTION 20 of the MARINE (SCOTLAND) ACT 2010 TO CONSTRUCT AND OPERATE AN OFFSHORE WINDFARM, FIRTH OF FORTH

We are in receipt of correspondence dated 22 July 2013 regarding the application by **Inchcape Offshore Windfarm Limited** to install and operate wind turbines, offshore sub-stations and the associated electrical interconnecting cables and export cables corridor at their wind farm site in the outer Firth of Forth.

The following is a compilation of the recommendations that we would expect to be implemented on the conclusion of decisions regarding design, size and position of the turbines within the site area. The recommendations are based on the Environmental Statement extracts accompanying the correspondence, including the Navigational Risk Assessments for both the Development Site and the Export Cables Corridor area.

With regard to the consultation and the scope of the assessment, we would only comment on any part relating to Shipping and Navigational Safety contained within the supporting documentation. We would require that Notice(s) to Mariners, Radio Navigation Warning and publication in appropriate bulletins will be required stating the nature and timescale of any works carried out in the marine environment relating to this project.

We would propose that marking and lighting of the site will be required for the three phases of the wind farm life, namely the construction, operational and de-commissioning phases, to give the best possible indication to the mariner of the nature of the works being carried out.

Construction Phase

During the construction phase we would require that the site boundary shall be marked by up to 6 lit Cardinal Mark buoys. The Cardinal Buoys shall be a minimum of 3 metres in diameter at the waterline, have a focal plane of at least 3 metres above the waterline and be of suitable construction for the sea conditions commonly experienced in the North Sea. The light range on these buoys shall be 5 Nautical

Miles. The final location and identifying characteristics of these Cardinal Marks will be advised by NLB once turbine layout and construction plan are known.

If the final site design occupies the majority of the development area, it may be necessary to add a further intermediary lit Special Mark buoys on the development boundary lines to ensure that mariners are adequately warned of the construction site. All required buoyage shall remain in place until completion of the construction phase.

During this construction phase, we note the Navigational Risk Assessment and the conclusions drawn within Volume 2H Appendix 19A. We require that any vessel engaged in these works shall be marked in accordance with the International Rules for the Prevention of Collisions at Sea, and if any jack-up craft are used, in accordance with the Standard Marking Schedule for Offshore structures if secured to the seabed.

Operational Phase

We would advise that we are unable to specify final marking and lighting requirements of the operational site until a decision has been reached on the size, number and layout of turbines, the final number and location of offshore sub-stations, and the cumulative impacts with regard to the Neart na Gaoithe and Firth of Forth Phase 1 Alpha and Bravo projects which the NLB will require to be consulted on.

In general terms, during the Operational Phase the windfarm site shall be marked and lit as per IALA Recommendation O-139 as follows:

- The tower of every wind generator should be painted yellow all round from the level of Highest Astronomical Tide (HAT) to 15 metres or the height of the Aid to Navigation, if fitted, whichever is greater.
- The structures designated as Significant Peripheral Structures (SPS) shall have lights visible from all directions in the horizontal plane. These lights should be synchronised to display a character of one yellow flash every 5 seconds, with a range of not less than 5 nautical miles.
- Selected Intermediate Structures (IS) on the periphery of the wind farm should be marked with lights visible from all directions in the horizontal plane. These lights should be synchronised to display a character of one yellow flash every 2.5 seconds, with a range of not less than 2 nautical miles.
- All lights shall be placed not less than 6 metres and not more than 30 metres above Mean High Water Springs (MHWS)
- A sound signal shall be attached to each SPS and IS as to be audible upon approaching the wind farm from any direction. The sound signal should be placed not less than 6 metres and not more than 30 metres above MHWS and should have a range of at least 2 nautical miles. The character shall be rhythmic blasts corresponding to Morse letter ‘U’ every 30 seconds. The minimum duration of the short blast shall be 0.75 seconds. The sound signal shall be operated when the meteorological visibility is two nautical miles or less. All sound signals should be synchronised.
- Each tower shall display identification panels with black letters or numbers one metre high on a yellow background visible in all directions. These panels shall be easily visible in daylight as well as at night, by the use of illumination or retro-reflecting material.

- AtoN should not be obscured by any other lighting such as working lights except when necessary for safe access at the time of access.

- All navigation lights should have an availability of not less than 99.8% (IALA Category 1) over a rolling three year period. Sound signals should have an availability of not less than 97% (IALA Category 3) over a rolling three year period. The operator must have sufficient resources, equipment redundancy and response arrangements to achieve this.

- Offshore sub-stations and meteorological masts shall also be marked. Again, recommendations will be given once the final site layout is submitted and particular consideration being given the positions of any Met Masts falling outside of the main development site.

The lighting and marking may need to be amended during the operational phase to take into account adjacent wind farm developments.

With regards to lighting and marking the turbines for aviation, NLB would draw the developers attention to CAA trials with synchronised flashing medium intensity red morse 'W' (Whisky) lights replacing the fixed red lights that may have the potential to be interpreted as Marine Navigation lights when viewed from a distance. NLB would encourage the developer to seek approval from the CAA to use the synchronised red morse 'W' character.

Export Cables Corridor

We note that the Export Cables Corridor is discussed and assessed as a separate project area to the main development site when considering the Navigational Risk Assessment and the conclusions drawn within Volume 2H Appendix 19B. We require that the marking and lighting of any vessel engaged in the trenching, cable laying and protection operations will be marked in accordance with the International Rules for the Prevention of Collisions at Sea, and if jack-up craft are used in accordance with the Standard Marking Schedule for Offshore structures if secured to the seabed.

It may also be necessary to mark the landfall site of the export cable routes depending on the location chosen. We would then require that Lit Cable Marker Boards should be positioned as near as possible to the shoreline so as to mark the points at which the cable comes ashore. The Cable Marker Boards shall be diamond shaped, with dimensions 2.5 metres long and 1.5 metres wide, background painted yellow with the inscription 'Cables' painted horizontally in black. The structures shall be mounted at least 4 metres above ground level, with a navigation light flashing yellow once every five seconds (Fl Y 5s) mounted on the upward apex of the board. The nominal range of these lights should be 3 nautical miles.

Where cable protection is used, sufficient depth of water must be maintained for safe passage of existing marine traffic along the cables entire route. Any reduction in depth must be reported to the UKHO.

Decommissioning Phase

When the site eventually reaches the end of its designed life and there is a need to enter into dialogue with stakeholders on decommissioning options, we would require

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that the Northern Lighthouse Board is consulted on the requirement for marking and lighting during this phase.

General

All navigational marking and lighting of the site or its associated marine infrastructure will require the Statutory Sanction of the Northern Lighthouse Board prior to deployment.

We require that the cable routes, offshore sub-stations and cable landing points should be communicated to the United Kingdom Hydrographic Office in order that all relevant charts and publications can be correctly updated.

A comprehensive contingency plan will be required, detailing the emergency response to all possible catastrophic failure and collision scenarios.

With respect to the application for a declaration under section 36A of the electricity act to extinguish navigation rights: this is the first time NLB has been aware of such an application. We would query whether it is necessary given the marine licence will permit placing structures on the seabed and that those structure will in themselves prevent navigation. However if such a declaration is necessary this must be limited to the actual turbine, met mast, and sub-station locations only and in no way limits navigation between turbines. A consistent approach for all developments on this matter is advised.

These recommendations are based on the application documents and previously supplied documentation. At this stage we can make no firm recommendations but are content for a licence to be issued with the condition that NLB is consulted on final layout and development plans. The licence should ensure that the developer/operator provides marking to our requirements in all phases of construction, operation and decommissioning.

Please advise if we can be of any further assistance, or require clarification any of the above.