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23 December 2020
Ref Windfarms/Clashindarroch II

Dear Stewart,

Proposed Clashindarroch II, Aberdeenshire, Wind Farm Obstacle Lighting Scheme

Your Reference: 71434 002 dated 5 October 2020

1. Thank you for the above report in which you discuss proposed lighting schemes for the Clashindarroch II wind farm.
2. The proposed development is a fourteen-turbine wind farm, near Huntly in Aberdeenshire. The turbines are proposed have ground to tip heights of 180m, which brings them into scope of the Air Navigation Order (ANO) Article 222 for aeronautical obstacle lighting.
3. The Air Navigation Order article 222 requires that all obstructions at a height of 150 m or more above ground are fitted with medium intensity steady red lights positioned as close as possible to the top of the obstacle. Taking into account the CAA Policy Statement on "Lighting of Onshore Wind Turbine Generators in the United Kingdom," a wind turbine with a maximum blade tip height at or in excess of 150m above ground level must be fitted with a medium intensity (2000 candela) red light positioned as close as possible to the top of the obstacle e.g. on the nacelle, with a second light serving as an alternative. In addition, at least three (to provide 360 degree coverage) low-intensity Type B lights (32 candela) lights should be provided at an intermediate level of half the nacelle height.
4. Article 12 of the Chicago Convention to the International Civil Aviation Organisation, requires Member States to keep its own regulations uniform regulations uniform "to the greatest possible extent" with the Standards and Recommended Practices promulgated by ICAO. Under Article 37, States are obliged to "collaborate in securing the highest practicable degree of uniformity" in their domestic law, regulations and procedures with their

domestic law, regulations and procedures with SARPs. ICAO Annex 14, paragraph 6.2.4.1, which is a standard, states that:

- “A wind turbine shall be marked and/or lighted if it is determined to be an obstacle.”

This is supported by a reference to paragraph 4.3.2, which notes that:

- “in areas beyond the limits of the obstacle limitation surfaces, at least those objects which extend to a height of 150 m or more above ground elevation should be regarded as obstacles, unless a special aeronautical study indicates that they do not constitute a hazard to aeroplanes.”
- Furthermore, paragraph 6.2.4.1 of ICAO Annex 10 states that “A wind turbine shall be marked and/or lighted if it is determined to be an obstacle.”

5. You have conducted an aviation study that considers the aviation operators who might be expected to fly in this area at night. In particular, you note that the proposed development is adjacent to the operational Clashindarroch wind farm which consists of 18 turbines with ground to tip heights of 110m.

6. We recognise the concerns expressed by local communities in respect of full compliance with the general CAA obstacle lighting requirements for wind turbines. We also recognise the additional consultation that you have undertaken with aviation stakeholders who might reasonably be expected to operate in the area around Clashindarroch II at night, especially those operators who hold exemptions from the Standardised European Rules of the Air minimum height requirements. In particular, we note a leaning towards the proposal for a mix of both visible lights on the cardinal points of the development, plus infra-red lighting, from the responses received from stakeholders.

7. We accept that the majority of night low level operations in the area of the development by night vision device equipped aircraft and we agree with your proposal to fit and operate visible lights on the cardinal points of the development plus infra-red lighting, as set out in your report. However, we continue to require medium intensity lighting for the visible lighting, which should be dimmed as per our policy statement.

8. Therefore, in accordance with the Air Navigation Order (ANO) Article 222 section 6, we agree a variation to the lighting requirements specified in the ANO Article for the Clashindarroch II wind farm as per the following:

- medium intensity steady red (2000 candela) lights on the nacelles of Turbines 1, 5, 6 and 12;
- a second 2000 candela light on the nacelles of Turbines 1, 5, 6 and 12, to act as alternates in the event of failure of the main light;
- the lights on Turbines 1, 5, 6 and 12 will be capable of being dimmed to 10% of peak intensity when the visibility as measured at the wind farm exceeds 5km;
- infra-red lights to MoD specification installed on the nacelles of perimeter turbines in each of the three arrays, which consists of:
 - Turbines 8; 9 and 14.

Note: As a result of this arrangement, intermediate level 32 candela lights will not be fitted on the turbine towers.

9. Happy to discuss further if you wish.

Yours sincerely,

Redacted

Andy Wells
Policy Lead Spectrum and Surveillance