Trevor Hunter

From: Wells Andy <Andrew.Wells@caa.co.uk>
Sent: 13 September 2019 09:31
To: Ian Fletcher
Subject: Kirkan Wind Farm proposed development

Dear Ian,

Thank you for the e-mail and our subsequent discussion on the details of the Kirkan Wind Farm proposed development.

As you are aware, the current requirements for lighting onshore are specified by law in the Air Navigation Order (2016) Article 222. This requires that all obstacles over 150m above ground level are fitted with medium intensity steady red lights positioned as close as possible to the top of the obstacle.

Article 222(6) provides scope for the CAA to grant permission for lighting requirements in accordance "with a particular case or class of cases or generally." In the case of wind turbines above 150m, we have published a policy statement, "Lighting of Onshore Wind Turbine Generators in the United Kingdom with a maximum blade tip height at or in excess of 150m Above Ground Level" dated 1 July 2017 which provides lighting requirements for all UK land based wind turbine generators which have a maximum blade tip height at or above 150m AGL as follows:

a. The person in charge of the wind turbine generator must ensure that it is fitted with a medium intensity (2000 candela) red light positioned as close as practicable to the top of the fixed structure. A second light serving as an alternative should be provided in case of failure of the operating light.
b. The lights required by paragraph (a) must be so fitted to show when displayed in all directions without interruption.
c. Additionally, at least three (to provide 360 degree coverage) low-intensity Type B6 lights (32 candela) lights should be provided at an intermediate level of half the nacelle height.
…
g. If the horizontal meteorological visibility in all directions from every wind turbine generator in a group is more than 5 km, the intensity for the light positioned as close as practicable to the top of the fixed structure required to be fitted to any generator in the windfarm and displayed may be reduced to not less than 10% of the minimum peak intensity specified for a light of this type.

The International Civil Aviation Organisation (ICAO) has published updated standards and recommended practices (SARPs) in Annex 14 to the Chicago Convention, Aerodromes, Volume I, Aerodrome Design and Operations 8th edition (Jul 2018)

Lighting
6.2.4.3 **Recommendation.—** *When lighting is deemed necessary, in the case of a wind farm, i.e. a group of two or more wind turbines, the wind farm should be regarded as an extensive object and the lights should be installed:*
a) to identify the perimeter of the wind farm;
b) respecting the maximum spacing, in accordance with 6.2.3.15 [longitudinal intervals not exceeding 900 m for medium intensity lights]*, between the lights along the perimeter, unless a dedicated assessment shows that a greater spacing can be used;*
c) so that, where flashing lights are used, they flash simultaneously throughout the wind farm;
d) so that, within a wind farm, any wind turbines of significantly higher elevation are also identified wherever they are located; and
e) at locations prescribed in a), b) and d), respecting the following criteria:
i) for wind turbines of less than 150 m in overall height (hub height plus vertical blade height), medium-intensity lighting on the nacelle should be provided;

ii) for wind turbines from 150 m to 315 m in overall height, in addition to the medium-intensity light installed on the nacelle, a second light serving as an alternate should be provided in case of failure of the operating light. The lights should be installed to assure that the output of either light is not blocked by the other; and
iii) in addition, for wind turbines from 150 m to 315 m in overall height, an intermediate level at half the nacelle height of at least three low-intensity Type E lights, as specified in 6.2.1.3, should be provided. If an aeronautical study shows that low-intensity Type E lights are not suitable, low-intensity Type A or B lights may be used.

As we discussed, we are minded to adopt the ICAO SARPs in respect of lighting of wind turbines in the interests of enhancing global standardisation and to somewhat reduce the visual impact of obstruction lighting on UK onshore wind turbine developments in the future. We will begin UK stakeholder engagement on this issue shortly, ahead of formal consultation on a change to the policy statement; however we would envisage that this would apply to new developments from the date of implementation and we would not seek to apply any new policy retrospectively to turbines that have been built, are being built or have already received planning consent. However as you might expect, as this is subject to consultation with stakeholders, I am unable to provide a guarantee that the current lighting policy will change.

Taking into account the above, I have reviewed your proposed aviation obstruction lighting plan for the Kirkan Wind Farm proposed development. I am content that the lighting plan appears to be in the spirit of the proposed CAA policy direction and we would like to request additional information relating to the distance between the proposed lit turbines on the perimeter (on account of item 6.2.4.3b of ICAO Annex 14) and heights AMSL of the proposed turbines (on account of item 6.2.4.3d of ICAO Annex 14). Due to the inherent uncertainties with the future content and timescales associated with any change to UK policy, I would highlight that we must agree the final lighting plan prior to construction.

Kind regards

Andy

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