From: Alder, David <David.Alder@casa.gov.au>
Sent: Wednesday, 23 November 2022 10:07 AM
To: Jess Fountain <Jessica.Fountain@planning.nsw.gov.au>
Cc: Iwan Davies <iwan.davies@planning.nsw.gov.au>
Subject: RE: Notice of Exhibition – Winterbourne Wind Farm (SSD-10471) [SEC=OFFICIAL]

OFFICIAL

F22/33646-1

Jess

CASA has reviewed the Aviation Impact Assessment (AIA) (26 April 2022 version) by Aviation Projects for the proposed Winterbourne Wind Farm near Walcha.

The proposed wind farm will comprise up to 119 wind turbines with a maximum tip height of 230 m Above Ground Level (AGL) or 1,564 m above Australian Height Datum (AHD), up to 2 permanent wind monitoring towers with a maximum height of 149 m AGL and approximately 50 km of 330 kV transmission line with towers up to 40m AGL.

The AIA advises that the W128 route LSALT should be increased by 200 ft from 5900 ft to 6100 ft to accommodate Wind Turbine Generators within a 5 nm buffer area of this air route. The Airservices assessment of 30 October 2020 advises that the wind farm will not affect any published air route LSALTs. An updated Airservices assessment is recommended.

Aviation Impact Assessment section 3.6 *Rules of Flight* advises that aircraft are restricted to a height of 500ft above ground level (AGL) and 1,000ft at night. The turbines will reach a height of 230m (755ft) above ground level. While pilots are required to fly no lower than 500ft above the ground or any object on the ground, a pilot could be off track or at a low level or late due to weather, navigation difficulties, controllability issues etc. Pilots could be required to navigate around the project site in low cloud conditions. The charting of a wind farm is one mitigator but does not eliminate the risk of an aircraft colliding with a turbine or wind monitoring tower.

CASA considers the proposed Winterbourne Wind Farm will be a hazard to aviation safety, but the risk to aviation safety could be mitigated to some extent by the provision of obstacle lighting. CASA recommends that the wind farm is obstacle lit with medium intensity steady red lighting in accordance with the NASF Guideline D and section 9.31 of the CASA Part 139 (Aerodromes) Manual of Standards. The Defence assessment of 22 October 2020 advises:
If CASA determines that obstacle lighting is to be provided, it should be compatible with persons using night vision devices. If LED lighting is proposed, the frequency range of the LED light emitted should be within the range of wavelengths 665 to 930 nanometres. Defence has no objection to the proposed wind farm provided that the project complies with the above conditions.

While international standards require, and the NASF guideline recommends 2,000 candela lighting intensity; CASA would accept 200 candela lighting intensity. If the lighting fails, it should fail in the 'on' condition until it can be rectified.

CASA is prepared to review a lighting plan that indicates which turbines are proposed to be lit, if requested. CASA only considers aviation safety and does not consider the effect of lighting on neighbours. However, CASA notes there are recommended treatments including measures such as baffling and Aircraft Detection Lighting Systems

listed in Page 82 Table 17 Risk ID 5 ('Effect of obstacle lighting on neighbours') of the AIA. Also, Annexure 5 describes shielding to restrict the downward component of light. The Visual Impact Assessment Annex I Section 12.4 also describes mitigations to reduce the potential visual impact of obstacle lighting.

Aviation Impact Assessment (Section 11) Recommendations:

CASA agrees with the recommendations at Section 11 starting on page 87 of the Aviation Impact Assessment; except for Recommendation 8 *Lighting of Turbines*.

Further to Recommendation 3, on commencement of the (vertical) construction of the first turbine, or a 149m high Wind Monitoring Tower if preceding the turbines, Airservices Australia should be requested to publish a NOTAM.

Further to Recommendation 7, the Wind Monitoring Towers in the order of 149m AGL should be marked to some extent, depending on the proximity to the surrounding turbines. CASA recommends marker balls on the upper guy wires as a minimum.

Further to Recommendation 5, and noting that AIA Section 4.4 advises: 'each conductor bundle will include orange balls for visual identification and an earth shield wire/s, protecting the line from lightning strikes', the proponent should liaise with Aerial Agricultural Operators to determine which transmission lines should be marked, for example with additional marker balls. The following Australian Standard could be considered regarding the overhead transmission lines:
AS 3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 2: Low-level aviation operations.

If the permanent 149m AGL Wind Monitoring Towers are to be installed a significant duration before the turbines and are in a prominent position, then they should incorporate a medium intensity red obstacle light at night and in poor visibility.

Regards

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