

[REDACTED]

Good afternoon Diana,

I refer to your request for an updated Airservices assessment of the Yass Valley Wind Farm (SSD 6698).

Communications/Navigation/Surveillance (CNS) Facilities

With respect to CNS facilities, I have attached a copy of our assessment response email dated 7 October 2016 which was also forwarded to you (ie, NSW Planning and Environment) at the time. This assessment was based on the proponent's TNO report (ie, *Baseline Interference Assessment of the Mount Majura and Mount Bobbara Radars caused by Wind Farm Yass Valley*) for the construction of GW121 wind turbines. Our assessment of the now larger GW140 wind turbines which is the subject of this updated application has not changed - namely, the wind farm proposal adversely impacts the performance of the Mt Bobbara Radar in areas where it is a significant and sole contributor to ATC radar surveillance which then results in adverse operational consequences. Following the updated review of the TNO work carried out to date, Airservices is satisfied that the proponent has addressed the requirements in the *NSW Department of Planning and Environment Development Consent Appendix G Mitigation of Aviation-Related Impacts Condition 34(a)* - attached, and has prepared an *Aviation Impact Management Plan ("AIMP")* currently under review by Airservices. This AIMP has been prepared to address requirements in the *NSW Department of Planning and Environment Development Consent Appendix G Mitigation of Aviation-Related Impacts Condition 34(b)* and as stated above, is under review by Airservices.

Airspace Procedures

With respect to procedures promulgated by Airservices in accordance with ICAO PANS-OPS and Document 9905, at the maximum height of 980.1m (3216ft) AHD, the wind farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Cootamundra Airport nor any air routes lowest safe altitude.

Note that procedures not designed by Airservices at Cootamundra Airport were not considered in this assessment.

If you require any further information or wish to discuss any aspect of this email, do not hesitate to give me a call.

Kind regards,

Tony Aiezza

Operational Standards and Assurance

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Good afternoon Andrew,

Airservices has completed its review of the Report by TNO - "*Baseline Interference Assessment of the Mount Majura and Mount Bobbara Radars caused by Wind Farm Yass Valley*" (the *TNO Report*), dated 12 June 2016.

Mount Majura Radar

With respect to the Mount Majura Primary and Secondary Radars, our assessment of the *TNO Report* has determined that the impacts appear to be operationally inconsequential.

Mount Bobbara Radar

With respect to the Mount Bobbara Radar, our assessment of the *TNO Report* indicates that the wind farm proposal adversely impacts the performance of the radar in areas where it is a significant and sole contributor to ATC radar surveillance, and results in adverse operational consequences. Therefore, this wind farm proposal is not acceptable to Airservices.

Of particular concern to Airservices are the wind turbines that are significantly above the existing terrain horizon that result in the largest azimuth (off-boresight) errors. These errors have the potential to cause track drops (loss of aircraft tracking and therefore situational awareness for air traffic control), false tracks (with the potential for false conflict alerts being triggered to ATC) and aircraft positional errors outside the operational requirement for the airspace.

With reference to Figure 4.6 in the *TNO report*, the wind turbines that are of particular concern are 2, 3, 9, 10, 15, 20 and the tight groupings of wind turbines (in azimuth as seen from Mount Bobbara Radar) from just after wind turbine 20 through to approximately 220°.

It is important to note the statement made in the *TNO Report's* conclusion: "... For example, for well separated aircraft 'en route', the weaving motion of the track is likely to be completely unimportant. In case the separation is less, e.g. for aircraft that are approaching the Albury ILS glide path towards the runway, the error can be dangerous, as an ATC operator is misinformed because of the weaving motion. ...". Airservices does not agree that the first scenario mentioned leads to a "completely unimportant" outcome. The accuracy of display of the aircraft position is important during all phases of flight, as at any time a controller may be separating aircraft to the minimum allowable standards. In addition, although a potential mitigation was suggested (ie, the Secondary Surveillance Radar at Mount Macedon), this was not investigated in the report and there is no evidence provided to support this as a potential solution. Nonetheless, anything (ie, the current Yass Valley Wind Farm proposal) that could result in an error that is considered "*dangerous*" to aircraft operations and air navigation management, will not be accepted by Airservices (and presumably CASA).

As a result of the above *TNO Report* being prepared, as required under the *NSW Planning and Environment (NSW P&E) Consent Condition 33(a)*, and the *TNO Report* findings and Airservices assessment, Epuron will need to prepare an Aviation Impact Management Plan in accordance with *NSW P&E Consent Condition 33(b)*. As I stated in my previous email, potential mitigations were being reviewed, however our initial internal review has not identified any strategies that will provide Airservices with certainty that the current level of radar surveillance will be maintained. Therefore, in preparing the Aviation Impact Management Plan, Epuron should not exclude the option to remove and/or relocate all wind turbines that have an unacceptable impact on the Mount Bobbara Radar.

I suggest that we arrange to have a meeting with you at your earliest convenience to discuss the preparation of an Aviation Impact Management Plan that will manage the impacts identified.

Regards,

Tony Aiezza
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Airservices Australia

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