Our reference: SF15/50631: DOC16/604664
Contact: Michael Heinze (02) 6229 7002

Executive Director – Resource Assessments & Business Systems
Department of Planning and Environment
Planning Services
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Nicole Brewer

3 March 2017

Dear Ms Brewer,

Re: Jupiter Wind Farm – SSD 6277 – EPA Review of Environmental Impact Statement

I refer to your email received by Environment Protection Authority (EPA) on 29 November 2016 notifying of the public exhibition of the Environmental impact Statement (EIS) for the proposed Jupiter Wind Farm. The wind farm is proposed to have 88 wind turbine generators across the local government areas of Goulburn Mulwaree Council and Queanbeyan Palerang Regional Council ('the proposal'). I apologise for the delay in responding.

As requested, the EPA has reviewed the documentation provided in the EIS including the two acoustic assessments for the proposal: the "Wind Farm Noise Impact Assessment" by DNV GL and the "Supplementary Acoustics Assessment" by ERM. The EPA has identified a number of broader environmental issues that the Department of Planning and Environment (DP&E) may wish to consider in its overall assessment of the application which include the following:

- Noise impacts during construction and operation of the wind farm;
- Air and water impacts;
- Pesticides; and
- Waste and contamination.

The EPA provides its detailed comments and recommendations for DPE's consideration in the attachments to this letter. **Attachment A** provides our general comments on the EIS and suggested improvements and additions to the Summary of Mitigation Measures for the Project.

The EPA could issue an Environment Protection Licence for the proposed Jupiter Wind Farm, subject to the recommended noise limits provided in **Attachment B** to this letter and suggests these be formalised as conditions of any approval. **Attachment C** provides the EPAs recommendations in relation to noise impact management.

Large scale wind farms that have a capacity for generating more than 30 megawatts of electricity and/or approved as a major project will require an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* for both the construction and operational phases. The proponent will need to make a separate application to EPA to obtain this licence if project approval is granted and prior to the commencement of construction activities.

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I trust this feedback is helpful for DP&E in its assessment of the proposal. Should you have any queries or wish to discuss the EPA's response, please contact me or Michael Heinze on Ph: (02) 6229 7002.

Yours sincerely,

JULIAN THOMPSON
Unit Head – South East Region
Environment Protection Authority

Attachment A

NSW EPA - Review and comments on Environmental Impact Statement

Proposed Jupiter Wind Farm – SSD 6277

March 2017

1. AIR QUALITY

Air quality in and around the project area is expected to be good because of the rural setting with no nearby industrial facilities or point source emissions of air pollutants. The main expected air quality issue for the project is dust emissions. The ridge system on which the wind farm is proposed will be exposed to high wind energy.

The traffic generation for an expected 18-24 month construction period for the project is significant, and potential dust impacts along the transport route utilising unsealed roads and newly constructed access tracks has the potential to increase dust deposition at nearby receivers and is an environmental risk.

The EPA notes that an Air Quality Impact Assessment has not yet been undertaken for the proposed project. Given the extent of unsealed access roads and tracks, and the potential for adverse weather conditions (e.g. high winds and low rainfall) during the construction period, the EPA advises that the proponent should ensure sufficient water is allocated for dust suppression during the construction phase. It is noted that the proponent has carried out a Water Balance (Chapter 4 of the Water Quality, Water Supply and Hydrology Assessment Report), which includes an assessment of the water demand for dust suppression on roads

Should the proposal be approved, the EPA recommends the proponent prepare an Air Quality Management Plan (AQMP) to be incorporated into the Construction Environment Management Plan (CEMP) to manage dust impacts during the construction period, as indicated in Table 14.4 - Summary of Soil and Water Mitigation Measures (Erosion Control).

The AQMP should (at a minimum):

- **Be prepared and implemented prior to the commencement of construction activities;**
- **Ensure that the proponent maintains a water cart onsite at all times for the purposes of dust suppression on all unsealed roads and exposed surfaces;**
- **Provide that all disturbed areas and stockpiles be maintained in a manner that prevents the generation of dust.**

2. SOIL AND WATER

2.1. Erosion and sediment controls

It is noted that the Environmental Management Framework (Chapter 18.2 of the EIS) includes a commitment to preparing a CEMP which will address the construction phase environmental impacts of the proposal. The EPA considers this an important step and the CEMP should provide details of drainage works and associated infrastructure to divert ‘clean water’ around the construction site(s) and collect and treat ‘dirty water’ from the construction areas of the project.

Any proposed storages and settling/containment ponds should be designed with available capacity to prevent uncontrolled discharges to surface waters and be developed in accordance with the principles and

management practices consistent with the 'Blue Book' – *Managing Urban Stormwater: Soils and Construction Vol.1* (Landcom 2004).

The EPA supports the proponents' recommendation to prepare a Soil and Water Management Plan (SWMP) to be incorporated into the CEMP to manage soil and water impacts as indicated in Table 14.4 - Summary of Soil and Water Mitigation Measures (General Management Considerations).

2.2. Design ARI's

Chapter 6.3 of the Water Quality, Water Supply and Hydrology Assessment Report (Water Report), is titled "Design ARI's and calculation of peak flows for control devices", however there is no text in this Chapter. The EPA is unsure as to whether the proponent intentionally failed to address this matter, however the derivation of appropriate data for the design of control devices is an important component in ensuring adequacy of management.

It is noted that an Intensity-Frequency-Duration Table is provided in Annex B of the Water Report, however Annex B is referred to in the main text as the Erosion Hazard Assessment (provided as Annex A). There does not appear to be any reference to the IFD Table in the main report.

The EPA suggests that the proponent review the Water Quality, Water Supply and Hydrology Assessment Report to ensure that it accurately predicts the impacts of the proposal and that proposed management measures are supported by adequate data.

3. WASTE AND CONTAMINATION

The EIS provides limited detail in relation to waste management and disposal in Table 14.4 - Summary of Soil and Water Mitigation Measures (Pollution Control and Waste Management Measures).

The EPA recommends the proponent develop a Waste sub-plan in the CEMP to fully detail the safe and proper disposal of all wastes generated from the proposal, particularly during the construction phase.

4. CONCRETE BATCHING

Chapter 6.5.2 (page 54 of the Water Quality, Water Supply and Hydrology Assessment Report) states "Water discharged from the (concrete batching plant) wash bay will be encouraged to evaporate and/or infiltrate the soils,…". The EPA **does not support** the proposed method of infiltration of concrete wastewater to soils, as wastewater associated with concrete batching is usually highly alkaline and can increase soil and water pH. It can also increase the turbidity of waterways.

The proponent should ensure that contaminated concrete wastewater is not discharged to the environment from any of the concrete batching and is managed so as not to pollute land or waters.

5. CHEMICALS AND PESTCIDES

Table 9.8 Proposed mitigation measures (Construction) of the EIS refers to the "controlling existing weed infestations with consideration to potential adverse effects of chemicals or other mechanisms on potentially occurring threatened species". Table 18.1 (Summary of Mitigation Measures for the Project) of the EIS also makes the same statement. Though not explicitly covered in the EIS, the use of pesticides in such a project is likely, and the EPA suggests the addition of a commitment in Table 18 to the effect:

- **All pesticide applications must be carried out in accordance with the requirements of the NSW *Pesticides Act 1999* and the *Pesticides Regulation* 2009.**

6. NOISE – COMPLIANCE MONITORING

For the purposes of the EPA's suggested noise limit conditions in **Attachment B**, wind speed is to be measured directly in accordance with a method nominated by the proponent and at a location nominated by the proponent, consistent with the method and location used to determine the background noise regression curves in the Noise Impact Assessment.

- **The EPA recommends that the proponent nominate the location and method for wind speed monitoring, prior to any operations commencing.**
- **To ensure the accuracy of modelling and for future compliance monitoring, the proponent should confirm the grid references of all assessed receivers.**

ATTACHMENT B

NSW EPA Recommended conditions for noise and blasting – Jupiter wind farm

Noise Limit Conditions

L6.1 For wind speeds from cut in to rated power of the wind turbine generators, wind turbine noise generated from the premises must not exceed, at non-involved residential receivers, the greater of:

a) 35 dBA or

b) the existing background noise level plus 5 dBA for each integer wind speed at 110 metres above ground level (hub height) at the wind farm site.

L6.2 For the purpose of determining compliance with condition L6.1, the locations and noise limits in the table below apply. The locations referred to in the table below are defined in condition L6.4.

Location	**$L_{eq(10minute)}$ NOISE LIMITS (dBA)**												
Integer wind speed (m/s) at 110 metres above ground level	**3 or less**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
J003, J076A, J076B, J152	35	35	35	35	35	35	37	39	41	43	45	46	47
J013, J025, J028B, J072, J111, J179	35	35	35	35	35	35	35	35	35	35	35	35	35
J141	35	35	35	35	35	36	38	40	42	44	46	48	49
J142, J147, J148, J162_TB, J174A, J174B	35	35	35	35	35	36	38	40	42	44	45	45	45
J208	35	35	36	37	39	40	41	42	43	44	46	48	50
J257	35	35	35	35	36	37	39	40	41	41	41	41	41
J261	35	35	35	35	35	35	37	39	41	43	45	46	47
J255	35	35	35	37	38	40	41	43	44	46	47	48	49
J070	35	35	37	38	39	40	41	43	44	45	47	49	50
J194	35	35	35	35	36	38	39	41	42	43	43	43	43

J129A	35	35	35	37	38	40	41	43	44	46	47	48	49

L6.3 The noise limits specified in conditions L6.1 and L6.2 do not apply to any sensitive receiver location (residence) where a noise agreement is in place between the licensee and the respective land owner(s) in respect to noise impacts and/or noise limits.

L6.4 For the purpose of condition L6.2, locations are defined in the table below. Grid references (eastings and northings) refer to the Map Grid of Australia 1994 (MGA94), zone 55.

Location	Easting (m)	Northing (m)
J003	745692	6110374
J076A	745945	6110174
J076B	745980	6110265
J152	746501	6110413
J013	739337	6107891
J025	739355	6107521
J028B	738378	6109335
J072	738357	6109105
J111	740783	6103613
J179	739624	6107513
J141	746551	6103871
J142	746010	6104388
J147	746447	6104325
J148	746014	6104219
J162_TB	748557	6101408
J174A	748193	6102321
J174B	748387	6102234
J208	745869	6099526
J257	741556	6110433
J261	748934	6109094
J255	741085	6090116
J070	739472	6091650
J194	740800	6087598
J129A	743758	6094060

L6.5 For the purpose of condition L6.1, noise must be determined in accordance with the methodology in the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2009). The modification factors in Section 4 of those guidelines must be applied, as modified by the NSW Wind Energy: Noise Assessment Bulletin For State significant wind energy development (2016), to the noise levels measured by the noise monitoring equipment.

L6.6 For the purpose of condition L6.5, the presence of excessive tonality (a special noise characteristic) must be determined in accordance with ISO 1996.2:2007 *Acoustics - Description, measurement and assessment of environmental noise - Determination of environmental noise levels*.

If tonality is found to be a repeated characteristic of the wind turbine noise, 5 dBA should be added to measured noise level from the wind farm. If tonality is only identified for certain wind directions and speeds, the penalty is only applicable under these conditions.

The tonal characteristic penalty applies only if the tone from the wind turbine is audible at the relevant receiver. Absence of tone in noise emissions measured at an intermediate location is sufficient proof that the tone at the receiver is not associated with the wind farm's operation.

The assessment for tonality should only be made for frequencies of concern from 25 Hz to 10 kHz and for sound pressure levels above the threshold of hearing (as defined in ISO 389.7:2005 *Acoustics - Reference zero for the calibration of audiometric equipment - Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions*.

For the purposes of condition L6.5, the presence of excessive low frequency noise (a special noise characteristic) must be determined with reference to the NSW Wind Energy: Noise Assessment Bulletin For State significant wind energy development (2016).

The maximum penalty to be added to the measured noise level from the wind farm for any special noise characteristic individually or cumulatively is 5 dB(A).

L6.7 For the purposes of condition L6.1, wind speed is to be measured directly in accordance with a method nominated by the proponent and at a location nominated by the proponent, consistent with the method and location used to determine the background noise regression curves in the Noise Impact Assessment.

L6.8 To determine compliance:

a) with the $L_{eq(10\ minute)}$ noise limits in conditions L6.1 and L6.2, the noise measurement equipment must be located:
   - approximately on the property boundary, where any dwelling is situated 20 metres or less from the property boundary closest to the premises; or
   - within 20 metres of a dwelling façade, but not closer than 5m, where any dwelling on the property is situated more than 20 metres from the property boundary closest to the premises.

b) with the noise limits in conditions L6.1 and L6.2, the noise measurement equipment must be located:
   - at the most affected point at a location where there is no dwelling at the location; or
   - at the most affected point within an area at a location prescribed by condition L6.8(a).

L6.9 A non-compliance of condition L6.1 or L6.2 will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions L6.8(a) and L6.8(b); and/or
- at a point other than the most affected point at a location.

Blasting Conditions

L7.1 The airblast overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.2 The airblast overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.3 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.5 Blasting at the premises may only take place between 9:00am-5:00pm Monday to Friday. Blasting is not permitted on public holidays.

L7.6 Blasting outside of the hours specified in L7.5 can only take place with the written approval of the EPA.

L7.7 The airblast overpressure and ground vibration levels in conditions L7.1 to L7.4 do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.

Additions to Definition of Terms of the licence

- Noise - sound pressure levels' for the purposes of conditions L6.1 to L6.9.
- "Noise sensitive locations" includes buildings used as a residence, hospital, school, child care centre, places of public worship and nursing homes. A noise sensitive location includes the land within 30 metres of the building.

Attachment C

EPA Recommended Conditions of Approval

Pre-commissioning validation monitoring

If any wind turbine is operated before the project is commissioned, then the proponent must perform a type test on each one of those turbines within three months of it coming in to operation. The type test must be performed in accordance with IEC 61400-11.

Mode checking

Before using Sector Management or Noise Management Mode for any operational wind turbine, the proponent must provide a method by which the Department of Planning and Environment, the EPA and the community can easily verify that each wind turbine is operating in the correct mode at any time.

Revised NIA

The Proponent must prepare a revised noise impact assessment, for the final chosen turbine model and layout, prior to commissioning the wind turbines. The revised assessment must demonstrate, through appropriate modelling and in accordance with the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2009), that the final turbine model and layout can meet the limits in this approval.

Noise Management Plan

Prior to commissioning of the turbines, the Proponent must prepare and implement a Noise Management Plan to manage noise emissions from the operation of the project. The Plan must include, but not necessarily be limited to:

a) compliance monitoring within one year of commissioning, in accordance with the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2009)
b) procedures to certify noise
c) identification and implementation of best practice management techniques for minimisation of noise emissions where reasonable and feasible
d) measures to be undertaken to rectify annoying characteristics resulting from the operation of the project such as excessive low frequency noise, excessive tonality or adverse mechanical noise from component failure
e) procedures and corrective actions to be undertaken if non-compliance is detected.

Recommended Construction Hours

Construction must only take place within the hours of 7:00am to 6:00pm Monday to Friday, 8:00am to 1:00pm Saturday. No construction may take place on Sundays or Public Holidays.

Exceptions to construction hours

The following activities may be carried out outside the recommended construction hours:

a) construction that causes $L_{Aeq(15minute)}$ noise levels that are:
    i. no more than 5dB above Rating Background Level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009); and
    ii. no more than the Noise Management Levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive land uses; or
b) for the delivery of materials required by the police or other authorities for safety reasons; or
c) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or
d) as approved through the process outlined in condition 4 of this approval.

Variation of construction hours

The hours of construction activities specified under condition 1 of this approval may be varied with the prior written approval of the Secretary. Any request to alter the hours of construction shall be:

a) considered on a case-by-case or activity-specific basis
b) accompanied by details of the nature and justification for activities to be conducted during the varied construction hours
c) accompanied by written evidence that appropriate consultation with potentially affected sensitive receivers and notification of relevant Council(s) (and other relevant agencies) has been and will be undertaken
d) all feasible and reasonable noise mitigation measures have been put in place
e) accompanied by a noise impact assessment consistent with the requirements of the *Interim Construction Noise Guideline* (DECCW, 2009).

Construction Noise Management Plan

The proponent must prepare and implement a detailed construction noise management plan, prior to commencement of construction activities, including but not necessarily limited to:

a) identification of each work area, site compound and access route (both private and public)
b) identification of the specific activities that will be carried out and associated noise sources at the premises and access routes
c) identification of all potentially affected sensitive receivers
d) the construction noise and vibration objectives identified in accordance with the *Interim Construction Noise Guideline* and *Assessing Vibration: A Technical Guideline*
e) assessment of potential noise and vibration from the proposed construction methods (including noise from construction traffic) against the objectives identified in (d)
f) where the objectives are predicted to be exceeded an analysis of feasible and reasonable noise mitigation measures that can be implemented to reduce construction noise impacts
g) description of management methods and procedures and specific noise mitigation treatments that will be implemented to control noise and vibration during construction, including the early erection of operational noise control barriers.