



Our reference: DOC12/45118; FIL11/7183
Contact: Michael Heinze 02 6229 7002

Neville Osborne
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Anna Timbrell

13 February 2013

Dear Mr Osborne

Re: Exhibition of Environmental Assessment for Crookwell 3 Wind Farm

I refer to your letter dated 24 October 2012, seeking comments from the Environment Protection Authority (EPA) in relation to the Environmental Assessment (EA) for the proposed Collector 3 Wind Farm (the proposal), comprising up to 30 wind turbines located near Crookwell in the Upper Lachlan Shire. I apologise for the delay in responding.

To assist the Department of Planning and Infrastructure (DoPI) with its assessment of the proposal, the EPA has conducted a review of the EA. The EPA's comments are at [Attachment A](#), including justification for amendments that DoPI may wish to consider in its overall assessment of the application. In light of the above review, the EPA recommends that DoPI seeks amendments to the draft Statement of Commitments as identified in [Attachment B](#). The EPA has also recommends that conditions relating to noise and blasting limits (as detailed at [Attachment C](#)) be incorporated as part of any development consent that is issued for the proposal.

Bearing in mind that the EPA is currently not responsible for licensing wind farms or imposing limits on operational noise, the EPA's comments of 11 April 2011 on the adequacy of the draft EA related only to the noise associated with construction. The EPA has made more detailed comments regarding the Noise Impact Assessment (NIA) in the publicly exhibited EA for the proposal and has requested further information in [Attachment A](#) to ensure that the noise impacts of the proposal are equal to, or below, the relevant criteria. Rather than requesting a revised NIA, the EPA would be satisfied if the proponents supplied the required information as part of the Response to Submissions Report (RTS) following closure of public comments.

As you may be aware, large scale wind farms that have a capacity for generating more than 30 megawatts or that have been approved under certain provisions of the *Environmental Planning and Assessment Act 1979* are likely to require a licence from the EPA in the near future. Specifically, the draft *Protection of the Environment Operations Amendment (Wind Farms) Regulation 2012* (submissions currently being reviewed following exhibition) proposes to amend Schedule 1 of the *Protection of the Environment Operations Act 1997* to require the operators of applicable large-scale wind farms to hold an Environment Protection Licence (EPL) for both the construction and operational phases. The EPA anticipates that the final Regulation will commence after March 2013 and as a result it is envisaged that the proposed Crookwell 3 Wind Farm will be the subject of these new licensing requirements. With this in mind, the EPA has proposed licence limits ([Attachment D](#)) for any future EPL for the Crookwell 3 Wind Farm.

Should you wish to discuss this matter further, please contact Michael Heinze on 02 6229 7002.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'J. Thompson', with a long horizontal stroke extending to the right.

JULIAN THOMPSON
Unit Head – South East Region
NSW Environment Protection Authority

Attachment A

EPA Review Comments

NOISE

Operational Noise

The EPA notes that the noise impact assessment states that the final Wind Turbine Generator (WTG) make and model are to yet be determined. We note that it is usual for conditions of any approval to require noise impacts to be confirmed by remodelling once the actual WTG(s) to be constructed have been confirmed, and an on-ground compliance assessment once the as constructed WTG(s) commence operation. The EPA would support the imposition of these requirements for this proposal.

The EPA advises that while sufficient information has been provided in the NIA on the cumulative noise impacts resulting from the proposal, sufficient detail has not been provided to enable the EPA to suggest licence noise limits for specific sensitive receivers located near the proposed wind farm. The EPA requests the following additional information from the proponent (e.g.: through a submission to DP&I via the Response to Submissions Report) that includes:

- Predicted noise levels received by sensitive receivers from the Crookwell 3 wind farm alone for each integer hub-height wind speed for each turbine modelled in the NIA; and
- The allowable noise levels received by sensitive receivers from the Crookwell 3 wind farm alone for each integer hub-height wind speed in order for the Crookwell 1, 2 and 3 wind farms to meet the criteria in the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2003);

The EPA will then be in a position to propose specific noise and blasting conditions (see [Attachment D](#)). The EPA cannot licence impacts at receivers where the best case cumulative level (modelled using the quieter V90 turbine) for any hub height wind speed is above the applicable criterion. Where impacts can be licensed with appropriate noise limits:

- The predicted worst-case noise level (modelled using the noisiest MM92 turbine) received from the proposal alone at that sensitive receiver for each hub height integer wind speed will be adopted as a licence limit, where the resulting cumulative level is below the applicable criterion; then
- The noise level from the proposal alone which satisfies the cumulative criterion for each 80m AGL integer wind speed will be adopted as a licence limit, where the predicted worst-case cumulative level is above the applicable criterion but the predicted best-case cumulative level is below the criterion (this applies to receivers 58 – 62 and 71).

Construction Noise

No receiver is expected to experience construction noise above $L_{Aeq(15minute)}$ 75 dB. Construction noise of more than $L_{Aeq(15minute)}$ 40 dB is expected to be experienced by some receivers over a proposed construction period of up to 15 months and the EPA believes this level of impact warrants the limiting of construction to standard hours and requiring the proponent to develop and implement a *Construction Noise Management Plan*.

Blasting

The greatest construction noise impacts are likely to be from blasting and it has been recommended that a commitment consistent with the Australian and New Zealand Environment Council (ANZEC) Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (1990) is put in place in the Statement of Commitments to ensure any impacts are reasonable.

AIR QUALITY

The assessment and mitigation of impacts on air quality are considered to be adequate. The main issue is dust amenity. The proponent has committed to undertaking measures to minimise any potential air quality impacts on local amenity during the construction phase.

SOIL AND WATER

It is noted that the Statement of Commitments (SOC) contained in the EA includes a commitment to preparing a Construction Environment Management Plan (CEMP) which will address the construction impacts of the proposal. The EPA considers this an important component of the proposal, but it is noted that within the SOC, there are ambiguities and variations in the titling and composition of various sub-components of the CEMP, for example:

- Page 210 under Land Resources and Geotechnical mentions a **Soil and Water Management Plan**
- Page 211 under Hydrology mentions a **Water Management Plan** (also referred to as a **Water Management Strategy** on p180)
- Page 211 under Hydrology mentions a **Soil Management Plan**
- Page 212 under Deterioration of Water Quality and page 213 under Hydrology both mention a **Sediment and Erosion Control Plan** (also mentioned on p178)

The EPA suggests that, for the sake of clarity in any approval, such plans should be uniformly titled and their content identified.

Attachment B

EPA Proposed Amendments to Statement of Commitments

The following amendments to the Statement of Commitments (SOC) (Volume 1, Chapter 24 of the EA) are recommended:

Construction noise

Commitment 15, page 203. The Construction Environment Management Plan mentioned here should make reference to the following (*see Attachment C for details*),

- The proponent must prepare and implement a detailed Construction Noise Management Plan (CNMP), prior to commencement of construction activities.

Blasting

Commitment 16, page 203

- The proponent shall ensure that during any blasting event the airblast overpressure must not exceed 115dB (Linear Peak) and ground vibration peak particle velocity must not exceed 5 millimetres per second (peak particle velocity) when measured at the nearest residential premise.

Attachment C

EPA Recommended Conditions of Approval

The EPA recommends that the following conditions are included on the development consent.

Revised Noise Impact Assessment (NIA)

The Proponent shall prepare a revised NIA for the final turbine model and turbine layout selected prior to commissioning of the wind turbines. The revised NIA must demonstrate, through appropriate modelling and in accordance with the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2003), that the final turbine model and layout can meet the limits derived in accordance with those guidelines.

Noise Management Plan

Prior to commissioning of the turbines, the Proponent must prepare and implement a Noise Management Plan including (but not limited to) the following measures 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 2003);
- b) identification and implementation of best practice management techniques for minimisation of noise emissions where reasonable and feasible;
- c) measures to be undertaken to rectify annoying characteristics resulting from the operation of the project such as infrasound, tonality or adverse mechanical noise from component failure; and
- d) 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.

Recommended inclusions in a Construction Noise Management Plan

The proponent must prepare and implement a detailed Construction Noise Management Plan (CNMP), prior to commencement of construction activities, that includes but is 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 NSW 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.

Blasting

- The overpressure level from blasting operations when measured at the nearest residential receiver must not exceed 115dB (Lin Peak). 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.

- Ground vibration peak particle velocity from the blasting operations when measured at the nearest residential receiver must not exceed 5mm/sec. 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.

Noise Limits – TBA, see Attachment D.

Attachment D

DRAFT Noise and Blasting Conditions for any future Environment Protection Licence

Limit Conditions

- L6.1** Noise generated at the premises must not exceed the noise limits in the table below. The locations referred to in the table below are indicated in Table 6 of the document *Crookwell 3 Wind Farm Noise Impact Assessment* by SLR Consulting Australia Pty Ltd (30 August 2012).

		L _{eq} (10 minute) NOISE LIMITS (dBA)			
Integer Wind Speed (m/s) at hub height		0 to 10	11	12	13 to cut-out
House 58		TBA	TBA	TBA	TBA
House 59		TBA	TBA	TBA	TBA
House 60	Pejar Park	TBA	TBA	TBA	TBA
House 61	Wallarobie	TBA	TBA	TBA	TBA
House 62	Cottonwood	TBA	TBA	TBA	TBA
Any other receiver	Any other residential receiver not subject to a negotiated agreement.	TBA	TBA	TBA	TBA

NOTE: Noise limits will be determined following receipt of additional information sought by the EPA.

- L6.2** For the purposes of condition L6.1, wind speed is to be measured directly in accordance with the most recent version of Chapter 7 of *International Standard IEC 61400-11 Wind turbine generator systems – Part 11: Acoustic noise measurement techniques* (IEC 2002) by electrical power output and a nacelle-mounted anemometer at the following location:

- Turbine A23 as shown in Figure 4 of the document *Crookwell 3 Wind Farm Noise Impact Assessment* by SLR Consulting Australia Pty Ltd (30 August 2012).

- L6.3** To determine compliance:

- a) with the L_{eq}(10 minute) noise limits in condition L6.1, 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 condition L6.1, 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 L6.3(a).

- L6.4** A non-compliance with condition L6.1 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 L6.3(a) and L6.3(b); and/or
 - at a point other than the most affected point at a location.
- L6.5** For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the *Environmental Noise Guidelines: Wind Farms* (SA EPA 2003) must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

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 L6.7.
- "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.