



Office of Environment & Heritage

Your reference : Crookwell 3 Wind farm
(MP10_0034)
Our reference : DOC12/44804
Contact : Martin Henery (02) 62297062

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

Dear Mr Osborne

RE: Exhibited Environmental Assessment for Crookwell III Wind Farm (MP 10_0034)

Thank you for your letter dated 24 October 2012, seeking comments from the Office of Environment and Heritage (OEH) in relation to the exhibited Environmental Assessment (EA) for the proposed Crookwell III Wind Farm.

OEH has considered the EA and our comments are included at Attachment 1.

In summary, OEH considers that these issues need to be addressed before OEH would support the project proposal:


- OEH considers that information for both flora and fauna surveys are not sufficiently comprehensive and are lacking in detail e.g. vegetation mapping is incomplete, time and locations of targeted fauna surveys are not presented. Therefore the nature and extent of the potential impacts on threatened species caused by the project is difficult to determine and the precautionary principle should be applied.
- OEH does not support the location of turbines within remnant woodland or forest, particularly in large remnant patches in otherwise cleared and fragmented rural landscapes. Of primary concern to OEH is the location of turbines A12, A18 and A19 within large remnants. Turbines A18 & A19, in particular, are proposed to be located in a vegetation type that has been 90% cleared, i.e., an over-cleared vegetation type, the clearing of which would not be supported under either the Property Vegetation Plan (PVP) tool or BioBanking Assessment Methodology (BBAM). Medium sized remnants in heavily cleared rural landscapes, such as the area proposed for turbine A12, are likely to provide habitat for several threatened fauna species known occur in the region. It is the view of OEH that, given the inadequacies of the fauna survey, turbine A12 should also be removed from the design to minimise potential impacts on threatened species.
- OEH considers that the size of the proposed offsets for the clearing of vegetation appear to be reasonable relative to the potential size of the development footprint. There is, however, a deficiency of information regarding the location of the offset, the vegetation types it contains, proposed management actions, and the legal instrument to secure the offset.
- OEH considers the Indigenous Archaeological Heritage report is not sufficiently comprehensive, is lacking in detail, and therefore does not adequately consider the full nature and extent of impacts of the Project on Aboriginal cultural heritage values. Most notably, the report clearly states that not all impact areas were subject to inspection such as the majority of proposed access roads and

overhead transmission lines were not. OEH is therefore concerned about the adequacy of the current assessment in terms of the number of changes that may occur during detailed design and the extent and significance of additional Aboriginal cultural heritage values that may be subsequently located.

- Following a detailed review of the Indigenous Archaeological Heritage report it appears that the Aboriginal consultation may not have been undertaken in accordance with the "Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DEC, July 2005), although there is insufficient information supplied within the report to clarify this.
- Given the inadequacies of the report OEH recommends that the 2010 Indigenous and non-indigenous archaeological heritage for proposed Crookwell 3 Wind Farm be updated so as to adequately address the requirements of the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005).

OEH is happy to discuss this further with the Department of Planning and Infrastructure and the proponent, if required. If you have any questions on the above, please contact Martin Henery (02) 6229 7062 for biodiversity matters or Jackie Taylor (02) 6229 7089 for Aboriginal heritage matters.

Yours sincerely



06/02/2013

JACKIE TAYLOR
Acting Manager Landscape & Aboriginal Heritage Protection (South)
Regional Operations Group

Attachment 1: OEH detailed comments on the Environmental Assessment for Crookwell III Wind farm (MP10_0034)

ATTACHMENT 1 - OEHL detailed comments on the Environmental Assessment for Crookwell III Wind Farm (MP 10_0034)

Ecological Impacts

NOTE: This includes additional material provided to the proponent from OEHL, and forwarded through DoP&I, regarding specifications for flora / fauna survey.

DGRs point 1. *Include an assessment of all project components on the flora and fauna and their habitat consistent with the Draft Guidelines for Threatened Species Assessment (OEHL, 2005), including details on the existing site conditions and quantity and likelihood of disturbance.*

Flora and Vegetation Survey

OEHL is concerned that the requirements of the DGRs with regard to the mapping of vegetation and habitats within the development envelope have not been met. OEHL additionally requested in the Assessment of Adequacy that the EA accurately map, describe and classify all vegetation within the development envelope, including remnant woody vegetation not previously described in the preliminary EA. This has not been completed satisfactorily. Information deficiencies include:

- Not all woody remnants within the property have been identified, nor is there any description of vegetation types for these. This is particularly important for areas within the development footprint. For example, the remnant to the immediate west of turbine A13, which is undescribed in the EA, was identified during a site visit by OEHL on Monday 17th December 2012 as likely to be the Endangered Ecological community of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland due to containing a high proportion of mature yellow box (*Eucalyptus melliodora*).
- The vegetation assessment (Appendix 8) noted that all areas outside the described woodland remnants are improved and heavily grazed pastures. However, no data from quadrats, transects or species counts have been provided that substantiate this, i.e., there is no assessment of the composition of ground cover and the proportion that is native. There is insufficient information to determine whether turbines or access track construction will impact on Native Grassland, including that derived from Box-Gum Woodland. OEHL requires a single figure for how much of each vegetation type in all conditions will be impacted by the proposal, both permanently and temporarily. This includes areas affected by trenching activity to bury power cables to connect turbines to the grid.
- The area of impact of the proposal on native vegetation is referred to in the text and figures in the EA (Section 14.3) and the Flora and Fauna Impact Assessment (EA Appendix 08 Sections 2.4.2.5 and 2.4.2.6). The figures calculated and presented in the EA include an area of 5000sqm of vegetation to be cleared along the preferred access to Crookwell III East via Greywood Siding Road reserve. This vegetation is not mapped in either the EA or the Flora and Fauna Impact Assessment.

Without adequate mapping of the vegetation within the Development Footprint, it is difficult to assess potential impact on threatened species, populations or communities, and to determine appropriate offsets for the project.

OEHL's own desktop and field assessments support the EA's conclusion that, with the current turbine layout, 2.34 ha of woody vegetation will be cleared. OEHL considers that this includes approximately 0.5 ha of LA201 with the remaining hectares comprising vegetation type LA124 (see DGRs point 2 below for details on these vegetation types).

There is no information in the assessment regarding the area of native grassland (including derived grassland) but the site is certainly not all improved and heavily grazed. The photographs below demonstrate this. In the absence of any information in the EA, OEHL estimates to construct 12 of the turbines, 6.9 ha of native grassland will be cleared in the course of the project.



Figure 1
Native Grassland,
Crookwell III property



Figure 2
Native Grassland in the
foreground. "Improved"
(fertilised) pasture in the
background.



Figure 3
Native ground cover
adjacent to a woody
remnant.

Fauna Surveys

OEH considers that insufficient detail has been provided regarding the locations, the time of year, or the intensity of the surveys. Specific deficiencies include:

- Incomplete information has been provided within the EA regarding the timing and locations of the targeted fauna surveys. The EA indicates this detail occurs in the targeted survey report however the report has not included that level of detail and it is difficult to determine exactly what surveys were undertaken, where, and when. Lack of sufficient survey does not prove absence and therefore the precautionary approach should be applied. The DGR's required large scale maps showing survey locations, timing of surveys and a full description of survey methods used for each species.
- The DGR's require the EA to assess the impacts of any potential alteration to movement patterns resulting from turbines on such species. This requirement cannot be dismissed based on the claim that "there are no high quality habitats within the local area" (p48 Flora and Fauna Impact Assessment). The remnant woodland in the area provides potential habitat for migratory threatened species including the Regent Honeyeater and thus the potential impacts of installing wind turbines in this landscape must be considered in the EA.
- Similarly, the potential impacts of turbines adjacent to Pejar Dam on any species of flocking waterbirds likely to occur in the area also needs to be addressed despite no flocks of waterbirds having been observed during surveys.

Given the inadequacies of the survey, OEH considers that it is appropriate to remove Turbines A12, A18 and A19 from the proposed project, as these are within larger and highest quality remnants where fauna are more likely to be impacted by construction and operation of turbines.

DGRs point 2. *The EA must specifically consider impacts to threatened species and communities listed under both State and Commonwealth legislation that have been recorded on the site and surrounding land, impacts to riparian and/or instream habitat in the case of disturbance of waterways, and to biodiversity corridors. In addition, impact of the project on bird and bats from blade strikes, low air pressure zones at the blade tips, and alteration to movement patterns resulting from the turbines must be assessed, including demonstration of how the project has been sited to avoid and/or minimise such impacts.*

Development Footprint and Turbine Layout

The proponent has not demonstrated that the first principle of 'avoidance' has been applied to the location of turbines across the landscape. The Flora and Fauna Assessment (Appendix 8 within the EA) classified the largest remnant on the site and the proposed location for turbines A18 and A19, as Western Tablelands Dry Forest according to Thomas et al. (2000). The site of the turbines, however, is dry sclerophyll forest with a canopy dominated by *Eucalyptus sieberi* and *E. dives* which the current Vegetation Types Database on the OEH website

(http://www.environment.nsw.gov.au/resources/nature/BioMetric_Vegetation_Type_CMA.xls) classifies as LA201 *Silvertop Ash - Broad-leaved Peppermint dry shrub forest of the South Eastern Highlands*. This vegetation types grades into LA124 *Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands* which occupies the lower slopes of the remnant. Vegetation Type LA201 is classified as 90% cleared compared to its pre-European extent and therefore is an area of high biodiversity conservation value and a red flag area. (See definition of red flag areas in the Biobanking Assessment Methodology:

<http://www.environment.nsw.gov.au/resources/biobanking/08385bbassessmethod.pdf>) A development is not consistent with the principle of improve or maintain biodiversity values if it directly impacts upon red flag areas.

OEH therefore does not support the current project design, and recommend that it be amended to re-site or remove turbines A18 and A19 from within high conservation value remnant woodland.

In addition, the listing of threatened species characteristics available on Biobanking section of the OEH website (<http://www.environment.nsw.gov.au/resources/biobanking/ThsppcharaCMA.xls>) identifies several threatened species including Brown Treecreeper, Hooded Robin, Superb parrot, Turquoise Parrot and Speckled Warbler that are likely to utilize low condition woodland remnants <25 Ha in size in the region. In addition OEH's Atlas of Threatened species has 2006 records for Varied Sitella and Powerful Owl less than 10km from the Crookwell III site. Given the paucity of suitable habitat in this highly fragmented landscape OEH requests that turbine A12 (located within Remnant E on the site) should also be removed from the design to avoid potential impacts on threatened species that are likely to utilise patches of remnant woodland.

DGRs point 3. *Details of how flora and fauna impacts would be managed during construction and operation including adaptive management and maintenance protocols (including mitigation and/or management of weeds)*

OEH considers that the proposed mitigation measures in the EA to be undertaken to control weeds and to restore vegetation in areas disturbed as part of the construction of the project are appropriate. OEH supports the recommendation for a bird and bat monitoring scheme that was made in Flora and Fauna Assessment to determine baseline data before and after turbine installation. This data will assist in management of impacts of wind turbine operation and installation on fauna.

DGRs point 4. *Measures to avoid, mitigate or offset impacts consistent with "improve or maintain" principles. Sufficient details must be provided to demonstrate the availability of viable and achievable options to offset the impacts of the project*

Offsets

OEH notes the EA describes how clearing of vegetation will be offset by two new Property Vegetation Plans (PVPs). These PVP's will be entered into if the project is approved, with the proponent providing sufficient funds each year for feral animal control and management of these two areas. It is proposed that these new PVPs would provide an offset of approximately 60 hectares for extent of clearing required for the project, being:

- 15 ha in perpetuity; and
- an additional 45 ha for the life of the wind farm.

OEH notes that these are proposed given that 2.34 ha of woody vegetation and approximately 7 ha of native grassland will be cleared. Offsets are not described in sufficient detail in the EA, however, for OEH to agree to these at this stage, prior to project approval. OEH accepts that the proposed 15ha PVP is an appropriate offset for the loss of 2.34 ha of woody vegetation, but the location of the 15 ha offset, the vegetation types and habitat features that it contain, the management actions proposed, and the legal mechanism proposed to secure the offset, need to be documented in the EA.

However, as stated above, OEH does not support the location of turbines A12, A18 and A19 within large remnant patches of woody vegetation. If these are removed from the project proposal, no offsets may be required for losses of woody vegetation.

To offset the loss of non-woody native vegetation, including derived native grasslands, OEH considers 45 ha of offset appropriate, but this should be ongoing ('in perpetuity'). Again, its location, vegetation types and habitat features, the management actions proposed, and the legal mechanism proposed to secure the offset, need to be included in the EA. The 13 principles that offsets must meet were included in the material provided by OEH to the proponent. The offset proposal must be assessed against these principles.

Hollow-bearing Trees (HBTs).

OEH requires accurate numbers of HBTs to be cleared for the project so that the value of the proposed offset in maintaining HBT numbers can be considered. Locating significant HBTs (both within remnants and as isolated paddock trees) can also assist in minimising the likelihood of impact on bird and bat populations by blade strike by avoiding the placement of turbines near HBTs that may contain roost or nest sites.

Due to the absence of a description of the methodology in the EA used to derive a value of 5 hollow bearing trees per hectare, OEH is unable to assess the accuracy of this value in determining the number of HBTs to be removed. The flora/fauna survey has not met OEH's request that the number of hollows in the areas cleared for wind turbines and access tracks be quantified. HBTs are increasingly scarce in heavily cleared agricultural landscapes and removing them is a significant loss of local habitat for threatened and protected species that utilise hollows.

As stated above OEH considers that removing the turbines A12, A18 and A19 from woody remnants will remove the need for the proponent to offset HBTs removed as hollows in other areas in the development footprint can most likely be avoided during construction.

References

Thomas, V., Gellie, N. and Harrison, T. (2000) Forest Ecosystem Classification and Mapping for the Southern CRA Region. Volume I & II. NSW National Parks and Wildlife Service, Southern Directorate

Aboriginal Cultural Heritage Impacts

Subsequent to the OEH advice forwarded on 11 April 2011, OEH has now undertaken a detailed review of the September 2010 report: Indigenous and non-indigenous archaeological heritage for proposed Crookwell 3 Wind Farm prepared by Anderson Environmental Consultants Pty Ltd and advises the assessment is inadequate with regard to considering the full nature and extent of impacts of the Project on Aboriginal cultural heritage values and as a result, does not adequately provide appropriate measures to manage and mitigate impacts to Aboriginal cultural heritage values, for the following reasons:

OEH considers the Indigenous Archaeological Heritage assessment does not currently identify all potential impacts on Aboriginal cultural heritage values across the Project area due to the fact that detailed design for the Project has not been finalised with regard to access roads and other disturbances (s.6, page 42). The report itself states that "the site surveys were undertaken before the final proposed internal connections of roads and electrical connections were available" (Executive summary, no page number). OEH is therefore concerned about the adequacy of the current assessment in terms of the number of additional changes that may occur during detailed design and the extent and significance of additional Aboriginal cultural heritage values that may be subsequently located.

OEH is concerned that the report recommends further investigations, in the form of subsurface excavations (s. 6, page 42), be undertaken at Sites 2 and 8 as well as areas where sites may be found along the proposed access track extents and other disturbance areas so as to determine the extent of significance which would be potentially impacted. OEH considers any subsurface excavations should occur at the environmental assessment stage to ensure an adequate understanding of the Aboriginal heritage values prior to Project approval and to allow for appropriate management measures to be considered before the Project design is completed. OEH is therefore concerned about the adequacy of the 2010 assessment in terms of the number of changes that may occur during detailed design and the extent and significance of additional Aboriginal cultural heritage values that may be subsequently located.

It is a requirement of the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005) that an archaeological investigation comprises an analysis of previous archaeological work (overview) within the study area and vicinity. The 2010 report does not discuss or consider, within the text of the report, any of the previously assessed similar wind farm developments adjacent to, or in close proximity, of Crookwell. These include the Gullen Range, Crookwell 1 and 2, Collector, Gunning, Woodlawn and Capital wind farms.

There are a large number of archaeological reports that should have been considered as part of the assessment process in order to adequately review and predict the potential of Aboriginal cultural heritage values to occur within the project area. This background research, at the very least, should have included a consideration of the following reports:

- Austral Archaeology 2005 Archaeological Test Excavations, Proposed Gunning Wind Farm NSW. Test Excavation Report
- Austral Archaeology 2009 Aboriginal Archaeological and Cultural Heritage Assessment Gunning Wind Farm NSW. Additional Assessment Report
- Biosis 2005 Archaeological Sub-Surface Testing at the Proposed Crookwell 2 Wind Farm, New South Wales.
- Dibden, J. 2007 Proposed Gullen Range Wind Farm: Archaeological Assessment.
- Lennox, J. 2010 Crookwell II: Modification Subsurface Testing Interim Report. (relates to AHIPs 2339 and 2340).
- McDonald, J. 2003 Archaeological Survey for an Aboriginal Heritage Assessment, Gunning Wind Farm, Gunning, NSW
- Reeves, R. and Atkinson, F. 2008 Crookwell II Wind Farm modification to DA-176-8-2004 i: Heritage impact assessment.

OEH notes that the 2004 Biosis survey report for Crookwell 2 is referenced but not discussed in the report.

As the assessment report is dated September 2010, it should also be updated to include descriptions of the recent changes to NSW legislation with regard to the *National Parks and Wildlife Act 1974*, as the information outlined in s 1.6 (page 11) is outdated. A new AHIMS search should also be undertaken to ascertain whether any new Aboriginal sites have been recorded within the Project area since the September 2010 report was prepared.

Although the report is dated September 2010, OEH advises that no Aboriginal Site Recording Forms have been submitted to the Aboriginal Heritage Information Management System (AHIMS) for the ten sites recorded during the Indigenous and non-indigenous archaeological heritage assessment. This is a requirement under section 89A of the *National Parks and Wildlife Act 1974* which is not turned off by Part 3A of the *Environmental Planning and Assessment Act 1979*. Data from these site recordings also contributes to the body of knowledge about site distribution patterns associated with Aboriginal use of the Crookwell area and Southern Tablelands and assists with the assessment of cumulative impacts to Aboriginal Cultural Heritage values within the region.

- Copies of the OEH Aboriginal Site Recording Forms can be found at:
http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf.
- There is a new guide on OEH website that may assist with completing Aboriginal Site Recording Forms: <http://www.environment.nsw.gov.au/resources/parks/20121008SiteRecordGuide.pdf>

Following a detailed review of the Indigenous Archaeological Heritage report it appears that the Aboriginal consultation may not have been undertaken in accordance with the "Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" (DEC, July 2005), although there is insufficient information supplied within the report to clarify this.

Given the inadequacies of the report OEH recommends that the 2010 Indigenous and non-indigenous archaeological heritage for proposed Crookwell 3 Wind Farm be updated so as to adequately address the requirements of the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005).

Given the issues, as outlined above, OEH is also concerned that statement of commitments within the EA do not adequately incorporate the Aboriginal cultural heritage recommendations so as to formulate appropriate management and mitigation measures for the Aboriginal cultural heritage values recorded to date and any new Aboriginal cultural heritage values that be subsequently recorded following the outcomes of the Project detailed design layout.