NSW GOVERNMENT | Office of Environment & Heritage

DOC16/507736-17

Resource Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001
Attention: Elle Donnelley elle.donnelley@planning.nsw.gov.au

Dear Ms Donnelley

Crookwell 2 Wind Farm – DA 176-8-2004-I – Modification to consent

Thank you for providing the Office of Environment and Heritage (OEH) with the opportunity to provide comment on the above mentioned modification application, received by OEH on 7 October 2016. I note that the application is seeking to reduce the number of turbines from 46 to 33, increase the blade tip height from 128 to up to 160 metres, increase the turbine rotor diameter from 96 to up to 130 metres, the inclusion of a 50 metre siting allowance, and changes to lighting and telecommunications infrastructure. OEH understands that this will result in the total wind farm RSA increasing by 32% with a lower minimum RSA height of 30m.

OEH has reviewed the modification application, in particular the Environmental Assessment, and has concerns about the following;

- The increased impact of the modification on bird and bat strike and no site specific assessment of the risks to both birds and bats located on the site from the RSA increase.
- The lack of current assessments of significance based on the proposed modifications.
- OEH prefers that micro-siting does not occur as it is preferable for the proponent to identify all site constraints in the planning phase, and considers that the micro-siting has the potential to increase the impacts on biodiversity values. We don't consider that these have been adequately addressed in the Micro-siting Biodiversity Management Plan, in particular the assessment of appropriate buffer distances from vegetation and raptor nests.
- There have been no on site biodiversity surveys since 2004 for fauna (which were undertaken during a prolonged drought) and since 2009 for vegetation.
- There is reference to the lower minimum RSA height of 28m in the Executive Summary of the Supplementary Ecological Impact Assessment (Supplementary EIA).
- The Bird and Bat Adaptive Management Program (BBAMP) should be prepared and implemented before construction starts, and should include 12 months of pre-construction surveys.
- It is unclear which paddock trees will be removed, and why they need to be removed.

Insufficient information has also been provided to be able to assess the impact of the modification on Aboriginal Cultural Heritage. Before we can provide comments we require:

- A map showing the location of the remaining turbines, cabling, lay down areas and access tracks in relation to the known archaeological sites.

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- Clarification as to whether archaeological sites were actually impacted under previous permits.
- Commencement of a new process of Aboriginal consultation.
- Development of an Aboriginal Heritage Management Plan (AHMP) prior to construction.

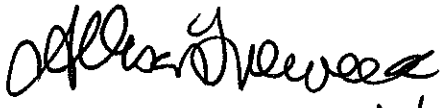
Given the above concerns, OEH recommends that the proponent provide further information as set out below;

1. Carry out s5A assessments of significance (7 part tests rather than the outdated 8 part tests) for each species listed in Attachment B, that take into consideration the increase by 32% of the total wind farm RSA), the increase in the footprint of individual turbines, as well as the impact from the proposed microsite allowance of 100m diameter.
2. A Bird and Bat Risk Assessment detailing potential impacts on all at risk birds and bats should be carried out which including the impact on raptors.
3. Clarify that the lower minimum RSA height is 30m, not 28m.
4. The BBAMP should be prepared in consultation with OEH, implemented prior to construction and include at least 12 months of pre development surveys.
5. Provide justification as to why micro-siting needs to occur rather than detailed assessments as part of the MOD application. The Micro-siting Biodiversity Management Plan should include information on how buffer distances will be calculated in accordance with the Natural England Technical Information Note TIN051.
6. Provide justification for the removal of paddock trees and a map showing where they are located. OEH considers that given the lack of trees on the site it should be possible to site the turbines away from any paddock trees.
7. Consultation with OEH on the preparation of the Construction and Operation Fauna and Flora Management Plans.

Further information on our concerns and recommendations in relation to Aboriginal Cultural Heritage is detailed in Attachment A and Biodiversity in Attachment B.

If you would like to discuss the above comments further, please contact Lyndal Walters on 02 6229 7157 in relation to biodiversity matters and Sarah Robertson on 02 6229 7088 in relation to Aboriginal cultural heritage matters.

Yours sincerely



ALLISON TREWEEK 14/11/16
Senior Team Leader, Planning - South East
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OFFICE OF ENVIRONMENT AND HERITAGE

Attachment A – Aboriginal cultural heritage matters for Crookwell 2 wind farm

The location of laydown areas, cabling and access tracks have not been mapped in relation to archaeological sites. We cannot assess the impact of a 50m micro-siting radius and change in laydown design on Aboriginal cultural heritage without seeing this information mapped. To avoid confusion, please only include the remaining turbine locations on this map.

Consents to harm (#2339, #2440 and AHIP # 1122895) have previously been issued for the archaeological sites that have been identified to occur within a 50m radius of the proposed MOD-2 turbine locations. However, these sites are still listed as valid on AHIMS (table 1 below). It must be clarified whether the sites were actually impacted under these permits. Until it can be demonstrated otherwise, we must assume that these sites have not been impacted. However, if it is established that they have been harmed then Aboriginal Site Impact Recording Forms (ASIRFs) must be submitted to AHIMS. If the sites have not been impacted then they must be avoided.

AHIMS #	Site name	Validity status
51-6-0217	PJ 29	Valid
51-6-0218	PJ 10	Valid
51-6-0229	PJ 21	Valid
51-6-0323	PJ 28	Valid
51-6-0325	PJ 30	Valid
51-6-0328	PJ 33	Valid
51-6-0329	PJ 34	Valid
51-6-0330	PJ 35	Valid
51-6-0331	PJ 36	Valid
51-6-0332	PJ 37	Valid
51-6-0333	PJ 39	Valid
51-6-0334	PJ 40	Valid
51-6-0338	PJ 44	Valid
51-6-0340	PJ 46	Valid
51-6-0343	PJ 49	Valid
51-6-0682	PJ 54	Valid
51-6-0683	PJ 55	Valid

Table 1: Valid sites on AHIMS that have been identified to occur within 50m of MOD-2.

We advise that you recommence consultation with relevant Aboriginal knowledge holders since to the best of our knowledge, they have not been consulted with since 2011. Also, an Aboriginal Heritage Management Plan (AHMP) must be developed in consultation with Aboriginal knowledge holders and OEH as recommended by Biosis in 2004 to determine how best to manage and mitigate impacts to Aboriginal cultural heritage and develop an unexpected finds procedure. These strategies must be developed prior to construction. The Plan must be informed by the results of previous archaeological surveys and test excavations. In addition, the location of all archaeological sites must be mapped with clear labels and boundaries of each site defined with a polygon.

We support the recommendation of Bowen Heritage that where vehicle access track locations are to be modified from their originally proposed route or the Mod-1 route, further archaeological investigation in the form of desk top study and field survey investigation will be required.

Appendix B – Biodiversity matters for Crookwell 2 wind farm

Supplementary Ecological Impact Assessment (EIA) of MOD 2

OEH notes that the Supplementary EIA is a desk top study only. However, given the age of the previous surveys we are concerned that a desk top assessment is not sufficient to determine the full impact of the proposed changes on the current biodiversity values of the site. These changes include;

- RSA from 7235m2 (MOD 1) to 13,267m2
- maximum height of 130m
- minimum RSA height of 30m

The EIA is relying on survey data that is up to 12 years old with fauna being last surveyed in 2004 and vegetation surveyed in 2004 and again 2009.

As there is such a long period from the last surveys and that the fauna surveys were done during an extended drought period, OEH considers that these surveys should not be solely relied upon to determine impacts from the modification proposal, and does not agree with the conclusion in the Supplementary EIA that field work was not necessary due to the lack of significant flora and fauna issues for the project As a result of several years of normal and above normal rain, Pejar dam is now at capacity this will have a significant influence on the bird and bat fauna utilising the site and has not been taken into consideration.

Assessment of Significance

OEH notes that there have been changes to the assessment of significance from the original consent in 2005 from an 8 part test to a 7 part test under section 5A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It is not satisfactory to have a table showing the differences between the 7 and 8 part tests. OEH considers that new assessments should be undertaken which take into consideration the following;

- the increase by 32% of the total wind farm RSA,
- the increase in the footprint of individual turbines, as well as
- the impact from the proposed microsite allowance of 100m diameter.

The proponent should also note that an additional Endangered Ecological Community (EEC) was listed in 2011. The EEC is *Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions* (Tablelands Snow Gum Grassy Woodland). As Figure 11-2 dated 21 July 2004 shows Manna gum snow gum woodland on site, it is likely that this vegetation type constitutes the EEC and an assessment of significance should be completed.

OEH considers that assessments of significance should be completed for the following threatened species and EECs;

- Regent Honeyeater
- Diamond Firetail
- Speckled warbler
- Hooded robin
- Brown treecreeper
- Gang gang cockatoo
- Swift parrot
- Grey-headed flying fox
- Yellow bellied sheathtail bat
- Large-eared pied bat

- Eastern falsistrelle
- Eastern bent-wing bat
- Eastern greater long-eared bat
- Greater broad-nose bat
- White Box Yellow Box Blakely's Red Gum Woodland
- Tablelands Snow Gum Grassy Woodland

Bird and Bat Risk Assessment
OEH notes that initial re-siting of turbines provides a better long term result for the project and is ultimately a cheaper alternative than having turbine shut down periods.

The supplementary EIA states that this modification has the potential to increase impacts on raptors and bats, particularly the wedge-tailed eagle, as the they more often fly at and above upper RSA height and are known to be vulnerable to collision with operating wind turbines. All 'at risk' raptors are significant due to the importance of high order predators in the ecosystem.

In addition, the previous fauna surveys were undertaken during a prolonged drought period and as such it is likely that now there will be greater numbers of birds such as pelicans and swans, which will be using water bodies in the area such as Pejar Dam.

A detailed Bird and Bat Risk Assessment should be completed to assess the collision risks that result from an increase in the total RSA of the site. This document should include;

1. Information on wind farm operation impacts on birds and bats including site factors
2. Risks associated with habitat resources on the site such as vegetation, waterways including Pejar Dam, migration corridors
3. Turbine parameter risks including total rotor swept area (RSA) and RSA height
4. Turbine layout risks including spatial arrangements of turbines
5. Species risk assessment including risk methodology and species specific risk assessment results
6. Recommendations and conclusions considering landscape position and proximity to vegetation communities.

This risk assessment can help inform the location and frequency of surveys and monitoring for the BBAMP.

BBAMP
OEH notes that there is a Bird and Bat Adaptive Management Plan (BBAMP) required by the previous conditions of consent (condition 83 2005 consent).

OEH considers that to complement this condition, at least 12 months of baseline surveys should be undertaken prior to construction, and that the BBAMP should be prepared in consultation with OEH. This is reflective of current OEH recommendations for any new wind farms and OEH is happy to work with the proponent to develop the BBAMP. The proponent should note that OEH is currently drafting a guideline for BBAMP development.

This is particularly important as there will be an increase in the risk of bird and bat strike due to the changes to the size of the RSA as outlined in the EIA, page 2 of the supplementary EIA specifically states that 'any net increase in the extent of the RSA may result in an increase in bats exposed to a risk of fatal collision with the rotating turbines".

In addition, the BBAMP should address the proposed changes to the lighting and should be considered in line with current best practice for reducing the impact on birds and bats.

Turbine Micro-siting Biodiversity Management Plan (TMBMP)
The proponent should provide justification why micro-siting is necessary, particularly as it wasn't considered for the original consent or MOD 1. The document *Wind Energy: Assessment Policy Draft for Consultation August 2016* advises that micro-siting can be allowed for, provided it does not materially increase environmental impacts. It also suggests that micro-siting may be considered if a development envelope is used to site turbines in, and that if this format is proposed the proponent must assess the effect in the EIS.

Although there has been a reduction in the number of wind turbines, the turbines that remain have a greater total RSA. This means that the larger blades are closer to tree canopies and habitat. The risk of injury and death to threatened species still exists, and there may be an increased risk to some species.

The full potential impact of a micro-siting allowance should be considered using the assessments of significance, the Bird and Bat Risk Assessment and the overall impacts on biodiversity values of the site. This would include considering location proximity to trees, in particular hollow bearing trees, and raptor nests. The proponent should detail these considerations on a map which also shows the MOD 1 turbine locations, the 100m radius around each and then the impact of the turbine placement within each of those radii.

The TMBMP should reference the Natural England Technical Information Note TIN051, and consider locations of raptor nests and threatened species in those calculations.

Other management plans
OEH notes that the original conditions of consent require both Construction Flora and Fauna Management Sub Plan and an Operation Flora and Fauna Management Plan, and requests that we are consulted in the preparation of these plans.