Our ref: DOC23/652268
Your ref: SSD-60247211

Jess Watson
Planning Officer
Energy Assessments
Department of Planning and Environment
jess.watson@planning.nsw.gov.au

Dear Jess,

Wallaby Creek Wind Farm – Request for SEARs

I refer to your email dated 17 July 2023 seeking input into the Department of Planning and Environment Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the Wallaby Creek Wind Farm (SSD- 60247211).

The project proposes to construct and operate approximately 44 wind turbine generators (WTGs), a 132kV overhead transmission line or 132kV underground able connecting the project to the existing Narromine South Switching Station, a battery energy storage system, electrical infrastructure and ancillary facilities.

The proposed WTG array, as currently presented, is largely located on pastoral and cropping areas although WTGs in the eastern portion of the windfarm are on or adjacent wooded ridgelines, which would provide high value habitat for a variety of threatened and protected flora and fauna. This is evident from the significant number of threatened species which have been detected within the project area and surrounding habitat.

These wooded areas also form part of a key landscape corridor linked to Goobang National Park in the south. This would likely be utilised by a variety of fauna species travelling between foraging resources and refuge habitat.

In addition to the direct impacts proposed via vegetation clearance, BCS has concerns about the potential indirect and prescribed impacts on threatened species utilising this landscape corridor.

The preliminary biodiversity report, prepared to support the proponents scoping study, recommends that impacts be effectively minimised through appropriate implementation of the mitigation hierarchy: avoid, minimise and mitigate. The report makes several recommendations in regards minimising the potential impact of the project:

- *Avoid PCTs, notable PCT 45 and PCT 77, that are generating substantially higher credit obligations than other PCTs.*
- *Location of WTGs and other infrastructure within areas of non-native vegetation and derived grasslands should be a primary objective of the design process, where practicable*
- *PCTs associated with box gum and red gum should be avoided due to their value as threatened species habitat*

BCS notes that the Scoping Report states that "*At least three pairs of Wedge-tailed Eagles were observed to potentially hold territories and nests within the Disturbance Footprint*". This statement is omitted from the Preliminary Biodiversity Assessment. Both reports however state that the level of use of the site by this species was considered low. BCS has on-going concerns regarding the strike rate of Wedge-tailed Eagles at wind farms. The BDAR must provide an assessment of the

impacts of the development on raptors including cumulative impacts of other wind farms in the Central West Orana Renewable Energy Zone. We encourage the proponent to explore blade strike mitigation actions such as painting one blade of WTGs black. This measure has resulted in 70 percent fewer bird fatalities when implemented at northern hemisphere wind farms (May et al. [1]).

We welcome the opportunity to work with the proponent to ensure the full extent of impacts of this proposal are identified and appropriate avoidance measures determined.

BCS's standard environmental assessment requirements are provided in **Attachment A**. Environmental assessment requirements specific to this project are in **Attachment B.**

It is recommended that the proponent consult with BCS during the assessment process to ensure that the bird and bat utilisation surveys are suitably robust and comprehensive to adequately identify the likely impacts of the project.

In addition to the above input to the SEARs, BCS have also attached guidance to assist with the biodiversity assessment for key aspects of the project at **Attachment C**.

If you have any questions about this advice, please do not hesitate to contact David Geering, Senior Conservation Planning Officer, via david.geering@environment.nsw.gov.au or (02) 6885 0335.

Yours sincerely,

Liz Mazzer
A/Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

24 July 2023

Attachment A – Standard Environmental Assessment Requirements

Attachment B – Specific Environmental Assessment Requirements

Attachment C - Guidance Material

[1] May R, Nygård T, Falkdalen U, Åström J, Hamre Ø, Stokke BG. Paint it black: Efficacy of increased wind-turbine rotor blade visibility to reduce avian fatalities. *Ecol Evol*. 2020;10:8927–8935. https://doi.org/10.1002/ece3.6592

Standard Environmental Assessment Requirements

AEP	Annual Exceedance Probability
BAM	Biodiversity Assessment Method 2020
BAM-C	Biodiversity Assessment Method Calculator
BBAMP	Bird and Bat Adaptive Management Plan
BC Act	*Biodiversity Conservation Act 2016*
BCS	Biodiversity, Conservation and Science Directorate of the NSW Department of Planning and Environment
BDAR	Biodiversity Development Assessment Report
EIS	Environmental Impact Statement
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
SEARs	Secretary's Environmental Assessment Requirements
NPWS	National Parks and Wildlife Service

Ancillary development components
The assessment should include all components of the proposal, including any ancillary activities such as road/track widening to enable transport of infrastructure components, connecting pipelines and transmission lines etc.

Controlled Actions under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
If the proposed development is likely to be a 'Controlled Action' under the EPBC Act, the accredited assessor should contact the BCS North West Planning team at *rog.nw@environment.nsw.gov.au* prior to submission of the EIS. The BCS North West Planning team can provide guidance on the minimum information requirements for the EIS for any entities that have been or are likely to be deemed a 'Controlled Action'.

Biodiversity

1. Biodiversity impacts related to the proposed development are to be assessed in accordance with *Section 7.9 of the Biodiversity Conservation Act 2016* the *Biodiversity Assessment Method 2020* and documented in a *Biodiversity Development Assessment Report (BDAR)*. The BDAR must include information in the form detailed in the *Biodiversity Conservation Act 2016* (s6.12), *Biodiversity Conservation Regulation 2017* (s6.8) and *Biodiversity Assessment Method 2020*, unless the Department determines that the proposed development is not likely to have any significant impacts on biodiversity values.
2. The BDAR must document the application of the avoid, minimise, and offset framework; including assessing all direct, indirect, uncertain and prescribed impacts in accordance with the *Biodiversity Assessment Method 2020*.
3. The BDAR must include details of the measures proposed to address the offset obligation as follows:
    a. The total number and classes of biodiversity credits required to be retired for the development/project;
    b. The number and classes of like-for-like biodiversity credits proposed to be retired;

c. The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules;

d. Any proposal to fund a *biodiversity conservation action*;

e. Any proposal to make a payment to the Biodiversity Conservation Fund.

If seeking approval to use the variation rules, the BDAR must contain details of the *reasonable steps* that have been taken to obtain requisite like-for-like biodiversity credits.

4. The BDAR must be submitted with all spatial data associated with the survey and assessment as per Appendix K of the BAM.

5. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the *Biodiversity Conservation Act 2016*.

NOTE – A BDAR template and guidance document has been created to assist accredited assessors to prepare a BDAR. It has been developed in accordance with best practice, the minimum information requirements, and to support BDAR reviewers. The BDAR Template can be found *here* and the Guidance for the BDAR Template can be found *here*.

Residual Prescribed Impacts within the BAM 2020

Prescribed impacts can be difficult to quantify as they may result in discrete impacts, spatially undefined impacts, ecological regime shifts and/or impact cascades over time. Consequently, avoiding or minimising such impacts is critical and will likely be a key consideration for the consent authority in determining conditions of approval for relevant proposals.

If avoidance and mitigation measures are not applicable or will not result in the complete reduction of prescribed impacts occurring, the assessor and proponent will need to consider options to compensate for unavoidable residual prescribed impacts.

The Biodiversity Assessment Method Calculator (BAM-C) does not calculate biodiversity credits to offset a prescribed impact. However, the consent authority has the discretion to increase the number of biodiversity credits to be retired (or other conservation measures to be undertaken), under a planning approval.

The assessment and calculation of a predicted offset obligation for any prescribed impacts must be presented prior to project determination and any impact occurring, in accordance with Section 7.14 of the *Biodiversity Conservation Act 2016*. The purpose of this requirement is to ensure:

- commitments to proposed mitigation measures for residual prescribed impacts are described and can be captured in the projects consent conditions; and
- the total offset obligation can be embedded in the project approval

It is recommended that the proponent and assessor consult with BCS during the assessment process on prescribed impact assessment and calculation, when required.

Water and soils

6. The EIS must map the following features relevant to water and soils including:

a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map);

b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method*);*

c. Wetlands as described in s4.2 of the Biodiversity Assessment Method;

d. Groundwater;

e. Groundwater dependent ecosystems;

f. Proposed intake and discharge locations.

7. The EIS must describe background conditions for any water resource likely to be affected by the development, including:
    a. Existing surface and groundwater;
    b. Hydrology, including volume, frequency, and quality of discharges at proposed intake and discharge locations;
    c. Water Quality Objectives (*as endorsed by the NSW Government*) including groundwater as appropriate that represent the community's uses and values for the receiving waters;
    d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the *ANZECC (2000) Guidelines for Fresh and Marine Water Quality* and/or local objectives, criteria or targets endorsed by the NSW Government;
    e. *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions.*

8. The EIS must assess the impacts of the development on water quality, including:
    a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction;
    b. Identification of proposed monitoring of water quality.

9. The EIS must assess the impact of the development on hydrology, including:
    a. Water balance including quantity, quality, and source;
    b. Effects to downstream rivers, wetlands, estuaries, marine waters, and floodplain areas;
    c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems;
    d. Impacts to natural processes and functions within rivers, wetlands, estuaries, and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity, and access to habitat for spawning and refuge (e.g., river benches);
    e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water;
    f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options;
    g. Identification of proposed monitoring of hydrological attributes.

Flooding

10. The EIS must map the following features relevant to flooding as described in the *Floodplain Development Manual 2005* including:
    a. Flood prone land;
    b. Flood planning area, the area below the flood planning level;
    c. Hydraulic categorisation (floodways and flood storage areas);
    d. Flood hazard.

11. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event.

12. The EIS must model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:

    a. Current flood behaviour for a range of design events as identified in 14 above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.

13. Modelling in the EIS must consider and document:

    a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies;

    b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood;

    c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories;

    d. Relevant provisions of the NSW *Floodplain Development Manual 2005*.

14. The EIS must assess the impacts on the proposed development on flood behaviour, including:

    a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets, and infrastructure;

    b. Consistency with Council floodplain risk management plans;

    c. Consistency with any Rural Floodplain Management Plans;

    d. Compatibility with the flood hazard of the land;

    e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land;

    f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site;

    g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses;

    h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council;

    i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council;

    j. Emergency management, evacuation and access, and contingency measures for the development considering the full range or flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES;

    k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

Specific Environmental Assessment Requirements

1. The BDAR must assess the likely impacts of the project on biodiversity in Momo State Forest and surrounding conservation areas. This should include a detailed assessment on fauna species utilising the landscape corridor linking to Goobang National Park.
2. Fauna survey is to be conducted where native vegetation is adjacent to the development site. Fauna survey must identify and quantify the presence, location, and utilisation of specialist breeding and nesting habitat for all species at risk from wind turbine strike, in accordance with sections 6.1.5, 8.2, and 8.3 of the BAM 2020. BCS should be consulted regarding the application of BAM where land access issues on adjoining land occur.
3. The BDAR must demonstrate in detail how the proposal has investigated and implemented all reasonable options to avoiding and then minimising impacts to all biodiversity values. These investigations should consider site selection, the location of development components (including infrastructure, turbines, and ancillary development components), and project design (including turbine design). Evidence to demonstrate avoidance and minimisation efforts should be supported by available data and scientific research.
4. The BDAR must provide an assessment of the impacts of the development on birds and bats, including blade strike, low air pressure zones at the blade tips (barotrauma), alteration to movement patterns, and cumulative impacts of other wind farms in the vicinity.
5. The assessment must include preparation of a Bird and Bat Adaptive Management Plan (BBAMP) for the development, informed by mitigation measures proposed to manage impacts. Strategies for adaptive management and associated monitoring for the project will need to conform to the most current standards and guidelines present for windfarm developments.
6. Due to the nature of the development the project must document commitments to address the residual prescribed impacts on threatened species or Threatened Ecological Communities which may occur during the construction and operational phases of the project. Significant residual prescribed impacts may require the retirement of additional biodiversity credits to offset these impacts in accordance with Section 10.1 of the BAM 2020.

Guidance Material

Title	Web address
Relevant Legislation	
Biodiversity Conservation Act 2016	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2016-063*
Environment Protection and Biodiversity Conservation Act 1999	*https://www.legislation.gov.au/Details/C2014C00140/Download*
Environmental Planning and Assessment Act 1979	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1979-203*
Fisheries Management Act 1994	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1994-038*
National Parks and Wildlife Act 1974	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1974-080*
Protection of the Environment Operations Act 1997	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1997-156*
Water Management Act 2000	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2000-092*
Wilderness Act 1987	*https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1987-196*
Biodiversity	
Biodiversity Assessment Method (OEH, 2020)	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-2020*
Changes to the Biodiversity Assessment Method from 2017 to 2020	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/changes-to-the-biodiversity-assessment-method-from-2017-to-2020*
Biodiversity Development Assessment Report Template	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-development-assessment-report-template-220210.docx?la=en&hash=1A4829C7ACA5A51ECE414A767C27361893706CEC*
Guidance for the Biodiversity Development Assessment Report Template	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/guidance-for-the-biodiversity-development-assessment-report-template*
BAM 2020 Operational Manual Stage 1	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-manual-2020-operational-manual-stage-1*
BAM Operational Manual Stage 2	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-operational-manual-stage-2*
BAM 2020 Operational Manual Stage 3	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-operational-manual-stage-3*

Title	Web address
BAM Calculator User Guide	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/biodiversity-assessment-method-user-guide*
Serious and irreversible impacts of development on biodiversity	*https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/biodiversity-offsets-scheme/serious-and-irreversible-impacts*
Practice Note - Guidance for assessors and decision makers in applying modified benchmarks to assessments of vegetation integrity: Biodiversity Assessment Method	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/guidance-assessors-decision-makers-applying-modified-benchmarks-to-assessments-vegetation-integrity*
Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017)	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/guidance-decision-makers-determine-serious-irreversible-impact-190511.pdf*
Accreditation Scheme for Application of the Biodiversity Assessment Method Order 2017	*https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2017-471*
Ancillary rules: Biodiversity conservation actions	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-biodiversity-conservation-actions-170496.pdf*
Ancillary rules: Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-reasonable-steps-like-for-like-biodiversity-credits-170498.pdf*
Ancillary rules: Impacts on threatened species and ecological communities excluded from application of variation rules	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/ancillary-rules-impacts-on-threatened-entities-excluded-from-variation-170497.pdf?la=en&hash=C38840BFF49F012433532DF72E3D90C741E4DAC1*
The Department's Threatened Species Website	*https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species*
NSW BioNet (Atlas of NSW Wildlife)	*https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet*
Surveying Threatened Plants and their Habitats - NSW Survey Guide For The Biodiversity Assessment Method (DPIE 2020).	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/surveying-threatened-plants-and-their-habitats-survey-guide-for-the-biodiversity-assessment-method*
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - November 2004	*https://www.environment.nsw.gov.au/surveys/BiodiversitySurveyGuidelinesDraft.htm*
Threatened species survey and assessment guidelines: field survey methods for fauna – amphibians	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-species-field-survey-methods-for-fauna-amphibians*

Title	Web address
NSW Survey Guide for Threatened Frogs	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/nsw-survey-guide-for-threatened-frogs*
Surveying 'species credit' threatened bats and their habitats – NSW survey guide for the Biodiversity Assessment Method	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/species-credit-threatened-bats-nsw-survey-guide-for-biodiversity-assessment-method*
Bat calls of NSW - region-based guide to the echolocation calls of Microchiropteran bats	*https://www.environment.nsw.gov.au/surveys/Batcalls.htm*
Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/koala-phascolarctos-cinereus-biodiversity-assessment-method-survey-guide-220249.pdf*
Threatened reptiles Biodiversity Assessment Method survey guide	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/threatened-reptiles-biodiversity-assessment-method-survey-guide-20220563.pdf*
Community Biodiversity Survey Manual	*https://www.environment.nsw.gov.au/surveys/CommunityBiodiversitySurveyManual.htm*
BioNet Vegetation Classification - NSW Plant Community Type (PCT) database	*www.environment.nsw.gov.au/research/Vegetationinformationsystem.htm*
The Departments Data Portal (access to online spatial data)	*http://data.environment.nsw.gov.au/*
Determining native vegetation land categorisation for application in the Biodiversity Offsets Scheme	*https://www.environment.nsw.gov.au/research-and-publications/publications-search/determining-native-vegetation-land-categorisation-for-application-in-the-biodiversity-offsets-scheme*
Fisheries NSW policies and guidelines	*https://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/fish-habitat-conservation*
List of national parks	*https://www.nationalparks.nsw.gov.au/conservation-and-heritage/national-parks*
Revocation, recategorisation and road adjustment policy (OEH, 2012)	*https://www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/park-policies/revocation-recategorisation-and-road-adjustment*
Guidelines for consent and planning authorities for Developments adjacent to National Parks and Wildlife Service Land (NPWS, 2020)	*https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Parks-reserves-and-protected-areas/Development-guidelines/developments-adjacent-npws-lands-200362.pdf*
Water and Soils	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via Data.NSW	*https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c*

Title	Web address
Acid Sulfate Soils Manual (Stone et al. 1998)	*https://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf*
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	*http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf* This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding	
Floodplain development manual	*https://www.environment.nsw.gov.au/topics/water/floodplains/floodplain-manual*
Floodplain Risk Management Guidelines	*http://www.environment.nsw.gov.au/topics/water/coasts-and-floodplains/floodplains/floodplain-guidelines*
NSW Climate Impact Profile	*http://climatechange.environment.nsw.gov.au/*
Climate Change Impacts and Risk Management	*https://www.environment.gov.au/climate-change/adaptation/publications/climate-change-impact-risk-management*
Water	
Water Quality Objectives	*http://www.environment.nsw.gov.au/ieo/index.htm*
ANZECC & ARMCANZ (2000) Water Quality Guidelines	*https://www.waterquality.gov.au/anz-guidelines/resources/previous-guidelines/anzecc-armcanz-2000*
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	*http://deccnet/water/resources/AWQGuidance7.pdf*
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	*http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf*