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Dear Natasha

Liverpool Range Wind Farm – Modification 1

Thank you for your referral through the Major Projects Portal dated 13 September 2022 to the Biodiversity, Conservation and Science Directorate (BCS) and National Parks and Wildlife Service (NPWS) of the Department of Planning and Environment (DPE) inviting comments on the Modification Application for the Liverpool Range Wind Farm.

BSC understands that the modification proposes to:

- decrease the maximum number of turbines from 267 to 220;
- increase the maximum tip height from 165 metres to 250 metres;
- amend the ancillary infrastructure and transport route; and
- increase the native vegetation clearing limits.

BCS have identified instances where the Biodiversity Assessment Method (BAM) has been incorrectly applied or assessment has been inadequate. These matters will require rectification in order to ensure the final biodiversity credit obligation can be calculated correctly. Areas of incorrect BAM application and inadequate assessment include:

- assessment of all entities at risk of Serious and Irreversible Impacts;
- clarification of land categorisation;
- mapping of native vegetation, particularly relating to Critically Endangered Ecological Communities;
- representation of native vegetation within BAM-Calculator (BAM-C) cases, potentially resulting in key threatened species not being assessed;
- vegetation transects and plots not being representative of the full suite of vegetation conditions and IBRA subregions across the entire project footprint;
- potentially inadequate survey effort being undertaken for some species credit species;
- justification and scientific evidence on partial loss;
- uncertainty regarding whether the entire disturbance footprint has been assessed for impacts to biodiversity; and
- assessment and identification of residual impacts from indirect and prescribed impacts.

Appropriate assessment of these matters may require additional survey work, the assumption of presence or the preparation of expert reports; more refined vegetation mapping; updates to the BAM-C and spatial data; and additional assessment and justification in the BDAR.

The currently presented development footprint proposes to clear a cumulative 427.0 hectares of the Critically Endangered Ecological Community (CEEC) Box Gum Woodland. BCS considers that this loss would be consistent with both Principles 1 and 2 of Serious and Irreversible Impacts (SII)

and as such would contribute significantly to the risk of Box Gum Woodland becoming extinct in NSW. BCS recommend the proponent revise the currently presented development footprint and avoidance and minimisation strategies to further reduce impacts of the proposed development.

Recommendations are provided in **Attachment A**, BCS's detailed biodiversity comments are provided in **Attachment B** and NPWS comments in **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) 6883 5335.

Yours sincerely



Sarah Carr
Director North West
Biodiversity, Conservation and Science Directorate

14 October 2022

Attachment A – Recommendations

Attachment B – BCS detailed biodiversity comments and recommendations

Attachment C – NPWS detailed comments and recommendations

Liverpool Range Wind Farm Modification 1

BCS's recommendations

- 2.1 Recalculate the percentage of native vegetation cover for each IBRA sub-region intersected by the project.
- 2.2 Review the list of candidate species in each IBRA subregion to determine whether any additional threatened species require assessment.
- 2.3 Biodiversity credits be recalculated for each IBRA subregion.
- 3.1 Undertake finer scale vegetation extent mapping and include both woody and non-woody vegetation within mapping.
- 4.1 Revise the plot duplication method to meet the principles outlined in this response.
- 4.2 Submit a plot duplication proposal for review.
- 5.1 That the consent authority notes BCS advice in relation to SAI impacts to Box Gum Woodland CEEC when considering the adequacy of avoidance and minimisation to biodiversity impacts proposed, conditioning of the project and potential project approval.
- 5.2 The proponent revises the currently presented development footprint and avoidance and minimisation strategies proposed to further reduce impacts to Box Gum Woodland CEEC.
- 6.1 Provide further justification for Category 1 land use and clearly define all land use in the Indicative Development Footprint and Modified Development Corridor clearly in spatial data and the BDAR.
- 7.1 Vegetation Zone 3 should be reassessed and assigned as the original PCT from which the derived PCT has developed
- 8.1 Where vegetation plots are not located in the project footprint, justification must be provided, including evidence that the plot is in the correct PCT and vegetation zone.
- 9.1 Review PCT selection in the Biodiversity Vegetation Classification System.
- 9.2 Provide further justification to BSC to demonstrate why PCT's were selected.
- 10.1 Provide evidence that all vegetation has been appropriately surveyed in detail to inform TEC equivalency assessments and support the determination of non-equivalence to EPBC Act listed TECs.
- 10.2 If evidence has not been collected, assume the presence of the EPBC Act listed TEC.
- 11.1 Provide further scientific and spatial data to justify partial loss of vegetation integrity scores or assume total loss
- 12.1 Provide further justification for the exclusion of candidate species in accordance with the BAM.
- 12.2 Conduct surveys for threatened flora and fauna in woodland patches in the modified development corridor adjacent to Coolah Tops National Park
- 12.3 Revise threatened species mapping in the BDAR
- 13.1 A detailed analysis of the potential cumulative impact (considering all known wind farm proposals within 200 km of this project) be provided for all threatened species with a moderate or high risk rating and non-threatened species where it is known that these species are commonly recorded as casualties at wind farms.
- 14.1 The potential impacts of turbine spacing and the configuration of turbine arrays across the wind farm in relation to the displacement of home ranges, or the sterilisation of suitable habitat through fauna avoiding turbines, thus disrupting movement patterns should be addressed as prescribed impacts.

- 15.1 Provide a more detailed BBAMP framework giving reference to the specific points identified in this response and in consultation with BCS.
- 16.1 A minimum buffer of double the rotor swept height be established between turbines and known raptor nests.
- 16.2 Clearing of the transmission line in the vicinity of the Square-tailed Kite nest be restricted to the months March to June.
- 17.1 Provide further detail regarding the installation of glider poles, or other measures, in order for their potential value as a mitigation measure to be assessed.
- 17.2 Provide further detail regarding the assessment of residual prescribed impacts to connectivity.
- 17.3 If residual prescribed impacts for connectivity are unavoidable, or if matters are uncertain, provide an offsetting method and quantum which is justifiably commensurate to the residual prescribed impacts expected to occur.
- 18.1 Ecosystem credits be calculated for the indirect impacts of turbine operation on native vegetation and threatened species habitat.
- 19.1 The Consent Conditions relating to offsetting must be consistent with the BOS under the BC Act which requires retirement of credits prior to any impact occurring.
- 20.1 The proponent should ensure any relevant referrals have been made to the Department of Climate Change, Energy, the Environment and Water (DCCEEW).
- 20.2 BCS recommend the proponent liaise with DCCEEW.

NPWS Recommendations

- 21.1 Provide further evidence or modify the project to ensure that wind turbine sound will not reach any established camping or day use areas within Coolah Tops National Park. This may include a field demonstration of expected noise levels at key visitor nodes for comparison.
- 22.1 Ensure access to the western entrance to Coolah Tops National Park is maintained and available for emergency services, visitors and park operational staff at all times, seven days a week, 24 hours a day during construction and ongoing operations of the wind farm.

BCS's detailed comments and recommendations

Liverpool Range Wind Farm Modification 1

1. The BDAR should assess the impact of the original development as proposed to be modified.

BCS notes that throughout the BDAR the modification and the approved project have been compared when identifying the impacts to SAI entities and methods of avoidance and minimisation rather than the cumulative loss of this entity from the “as modified” project.

Clause 30A of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* states:

(d) the biodiversity development assessment report submitted with the application for modification

(i) **is to take into account any measures already taken to avoid, minimise or offset the impact on biodiversity values in connection with the planning approval before the proposed modification, and**

(ii) *is to take into account only the additional impact on biodiversity values resulting from the modification of the development and not those associated with the development as approved, and*

(e) if an application for the original development as proposed to be modified would have been required to be refused because of serious and irreversible impacts on biodiversity values, the application for modification is required to be refused.

The BDAR for the modification of a consent granted after commencement of the *Biodiversity Conservation Act 2016* (BC Act) should assess the impact of the original development as proposed to be modified regardless of whether an assessment was previously submitted with the development application. For entities that are at risk of a SAI, for example, this includes an assessment of the cumulative risk of extinction arising from the original development as proposed to be modified (not the discrete risk from the modified component). Measures taken to avoid and minimise impact must therefore consider the merit of the development as a whole, to avoid and minimise biodiversity values.

2. Important areas of BAM-C calculations for native vegetation cover % require revision – errors will impact credit obligation

BCS has reviewed both the BAM-C and the BDAR and note that the project footprint spans across three Interim Biographic Regionalisation for Australia (IBRA) subregions. In the BDAR, native vegetation cover (%) has been aggregated and calculated for the entire development, rather than a separate calculation for each IBRA sub-region.

Section 3.2 of the BDAR states that there is a 500m buffer which totals 47,310 ha, supporting 37,198 ha (79%) of native vegetation. A breakdown of this per IBRA Sub-region is provided below.

- **Brigalow Belt South – Liverpool Range IBRA Sub-region**
26,705 ha of native vegetation was mapped in the 500m buffer area (56%)
- **Brigalow Belt South – Pilliga IBRA Sub-region**
8,656 ha of native vegetation was mapped in the 500m buffer area (18%)
- **Sydney Basin – Kerrabee IBRA Sub-region**
1,837 ha of native vegetation was mapped in the 500m buffer area (4%)

BAM 2020 (Section 3.1.3 and Section 5.2.1-7) requires that for linear-shaped proposals, native vegetation cover be assessed separately for each IBRA sub-region.

“If a vegetation zone covers more than one IBRA subregion, the IBRA subregion in which most of the proposal occurs must be used. For linear-shaped proposals, the assessor must assess the habitat suitability for each IBRA subregion separately”.

BCS does not consider the native vegetation cover proposed in the BDAR and BAM-C to be representative of individual assessments for each subregion. For example, within the Kerrabee IBRA sub-region, approximately 2,000 hectares is included within the LRWF native vegetation buffer, of which 1,837 hectares is native vegetation (See Figure 1). Therefore, the native vegetation cover for the Kerrabee IBRA sub-region BAM-C should be approximately 91% rather than 4%.

Native vegetation cover is an important filter for candidate threatened species within the BAM-C and errors in this aspect of the assessment may have significant flow on effects on the BAM-C results and overall credit obligation of the project. Once the BAM-C is updated it will be important to ensure that the BDAR aligns with the revised BAM-C.

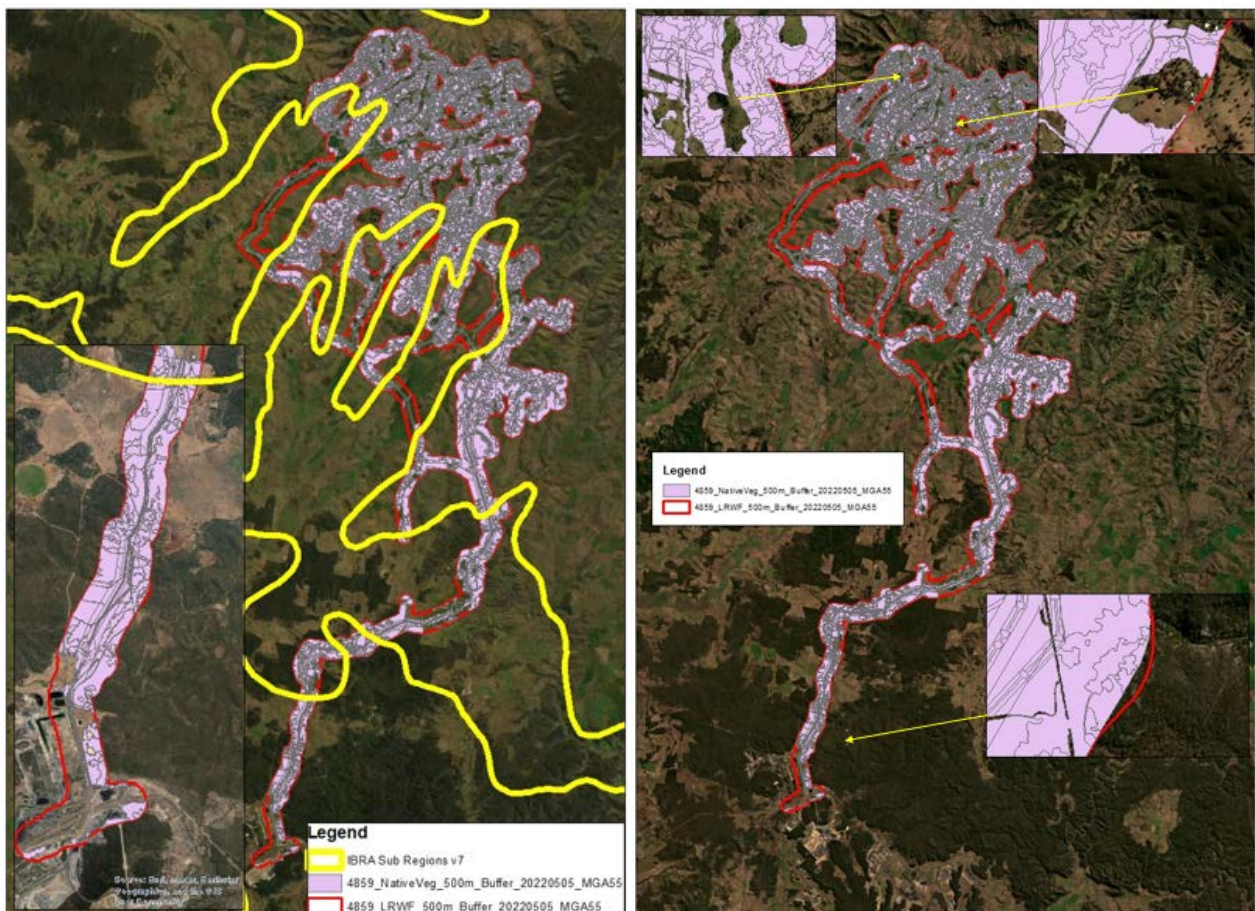


Figure 1: Native vegetation cover in Kerrabee IBRA sub-region

Recommendations

- 2.1 Recalculate the percentage of native vegetation cover for each IBRA sub-region intersected by the project.
- 2.2 Review the list of candidate species in each IBRA subregion to determine whether any additional threatened species require assessment.
- 2.4 Biodiversity credits be recalculated for each IBRA subregion.

3. Revise vegetation mapping to include all native vegetation cover

BCS notes that the native vegetation cover within the 500m buffer has been coarsely mapped across the project site. In Figure 1 above, BCS has provided examples of native vegetation which has not been included within the vegetation cover class assessment. It should be noted that native vegetation extent identified and mapped within the subject site (Inclusive of both woody and non-woody native vegetation) is required to be included within the native vegetation cover polygon on the landscape assessment map and the vegetation % cover class assessment (Section 3.2 of the BAM 2020).

Finer scale vegetation extent mapping, including both woody and non-woody vegetation, is required in accordance with the requirements set out within Section 3.2 of the BAM 2020. If areas of native vegetation extent are changed within the BDAR, this must also be made consistent within the BAM-C. As vegetation cover estimates function as a habitat suitability filter for candidate threatened species this may also impact the species list generated for the project.

Recommendation

- 3.1. Undertake finer scale vegetation extent mapping and include both woody and non-woody vegetation within mapping

4. Vegetation integrity plots should not be duplicated across IBRA subregions

BCS notes that most plots have been duplicated across IBRA sub-regional boundaries to meet minimum survey requirements. This method of plot duplication is not detailed within the BAM and has not been discussed with BCS.

It should be noted that BCS are not supportive of duplicating plots across differing IBRA subregions and do not consider it appropriate for this linear and expansive project site.

Whilst the duplication of plots may be accepted in some circumstances, the following principles will need to be met:

- Plots cannot be duplicated for a single vegetation zone spanning across multiple IBRA subregions. If plot duplication is required in this case all duplicated plots will need to duplicate benchmark condition.
- If a vegetation zone has been adequately sampled (within a given IBRA subregion) but a minor number of duplicated plots i.e., 1 or 2, are required to meet minimum plot numbers, the sampled plot with the highest VI score (contained within the same IBRA subregion) may be proposed to be duplicated. If this is proposed evidence will need to be provided to justify that:
 - the vegetation zone within the IBRA subregion has been adequately sampled and is representative of the variability of condition that is present; and
 - that the duplicated plot represents the highest vegetation integrity score likely to be present within the portion of the subject site intersecting the relevant IBRA subregion.

If this justification cannot be provided additional plots will need to duplicate benchmark condition.

As methods of plot duplication are not detailed in the BAM, its application to the project is likely to require further consultation. BCS recommends a plot duplication proposal is submitted for review, prior to the submission of the RTS.

Recommendations

- 4.1 Revise the plot duplication method to meet the principles outlined in this response.
- 4.2 Submit a plot duplication proposal for review.

5. Further avoidance should be proposed to reduce SAI impacts to Box Gum Woodland

For the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland) Critically Endangered Ecological Community (CEEC), Section 5.4.1 of the BDAR states that the entire project will result in a loss of:

- 42.1 ha of good to moderate condition woodlands
- 384.9 ha of derived native grassland or woodland in low condition.

Box Gum Woodland CEEC is listed as a candidate SAI entity under Principle 1 and Principle 2 in accordance with Section 6.7 of the *Biodiversity Conservation Regulations 2017*. These Principles state:

An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct because -

Principle 1: it will cause a further decline of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline, or

Principle 2: it will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size.

The Final Determination for this community lists the clearing of native vegetation as a key threatening process for the CEEC. In addition, there is no minimum clearing threshold identified within relevant databases which could be considered an insignificant decline in this community, therefore any incremental loss in any extent would be contributing to the principles above.

As such, BCS considers that the loss of a cumulative 427.0 hectares of Box Gum Woodland would be consistent with the above SAI Principles, and the proposed project as currently presented would contribute significantly to the risk of this entity becoming extinct within NSW. BCS could not support impacts resulting in such a significant loss to this CEEC. It is recommended that the proponent revise the currently presented development footprint and provide avoidance and minimisation strategies to further reduce impacts of the proposed development to Box Gum Woodland.

Although unrelated to the SAI assessment criteria of Box Gum Woodland, BCS would also like to highlight that a substantial proportion of the Box Gum Woodland extent within the project area is potentially represented by a unique formation of the community: PCT 483 (vegetation zones 6, 7 and 8). The vegetation community within the project area is often dominated by an intergrade of *Eucalyptus albens* (White Box) and *Eucalyptus moluccana* (Grey Box) known as *Eucalyptus 'albemol'*. The description of Vegetation Zone 6 indicates that both *E. albens* and *E. moluccana* occur, but no indication is given as to whether the intergrade is present.

This formation of Box Gum Woodland, based on available information, appears to be regionally restricted to the Merriwa region within the Upper Hunter Valley where the Great Dividing Range is low enough, and the climate suitable for, the incursion of species from the west of the divide. BCS considers that preserving the diversity of woodlands representing Box Gum Woodland, especially those which are regionally restricted and rare, to be an important consideration for the future conservation of the CEEC.

Recommendations

- 5.1 That the consent authority notes BCS advice in relation to SAI impacts to Box Gum Woodland CEEC when considering the adequacy of avoidance and minimisation to biodiversity impacts proposed, conditioning of the project and potential project approval.
- 5.2 The proponent revises the currently presented development footprint and avoidance and minimisation strategies proposed to further reduce impacts to Box Gum Woodland CEEC.

6. Clarification of land categorisation is required

The land categorisation method provided in Section 2.1 of the BDAR is unclear and contains some concepts which have not been explicitly linked to land category definitions. In future projects, BCS recommend that early consultation is sought regarding land categorisation methods and outcomes to gain advice and potential endorsement on a proposed approach prior to preparing a BDAR.

In order for BCS to provide an informed review of the proposed land categorisation outcomes clarification will be required for the following components of the assessment:

- An indication of what datasets have been given precedence over others in determining final land categorisation outcomes across the subject land;
- Explanation on the method used to determine the absence of Sensitive Regulated Land values from areas of proposed Category 1 Exempt Land i.e. CEEC presence, native grasslands or habitat for a Critically Endangered species of plant;
- Whether reference to the 2013 Land Use Map datasets is an error, as the shape file provided is labelled NSW Landuse 2017; and
- Further clarification on the basis for assigning Category 1 land to the 'not native' areas mapped in the Native Vegetation Extent layer (which has not necessarily been consistently applied).

In addition to the above, the approach taken to categorising woody vegetation seems to have resulted in a significant amount of vegetation (mapped on the NSW native vegetation extent layer) being classified as Category 1, when they should be Category 2. In Figure 2 below, BCS has provided examples of native vegetation which has been classified as Category 1.

When submitting the updated proposed land categorisation assessment, it is recommended that a decision matrix is provided, ideally within the shapefile attribute table for the proposed land category spatial layer, to explain the reasoning for all land categorisation outcomes.

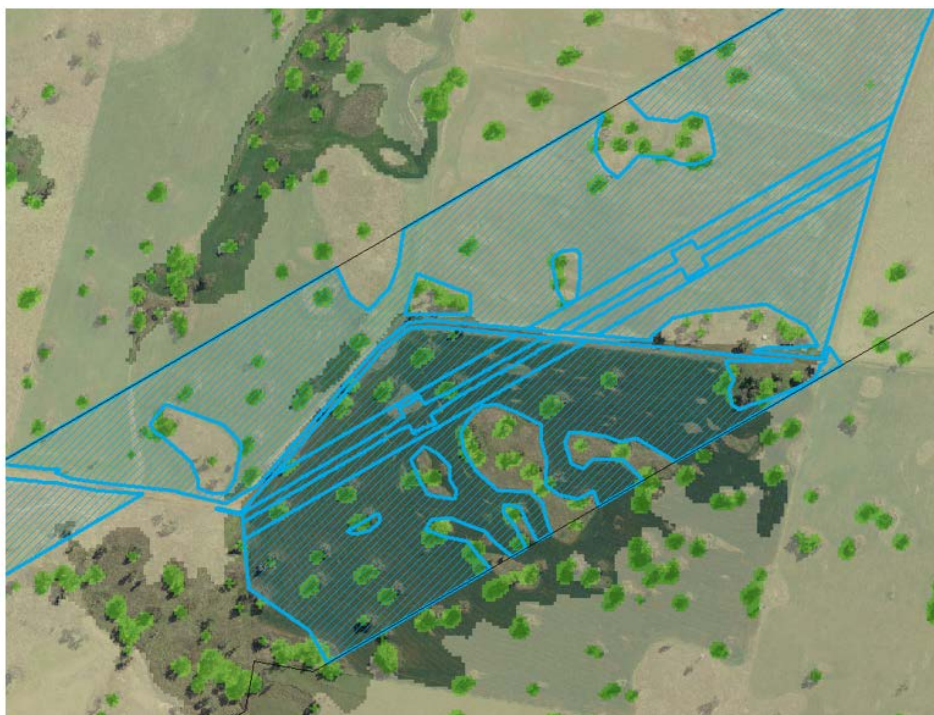


Figure 2. Example of woody vegetation mapped as Category 1 Land ¹

¹ Legend

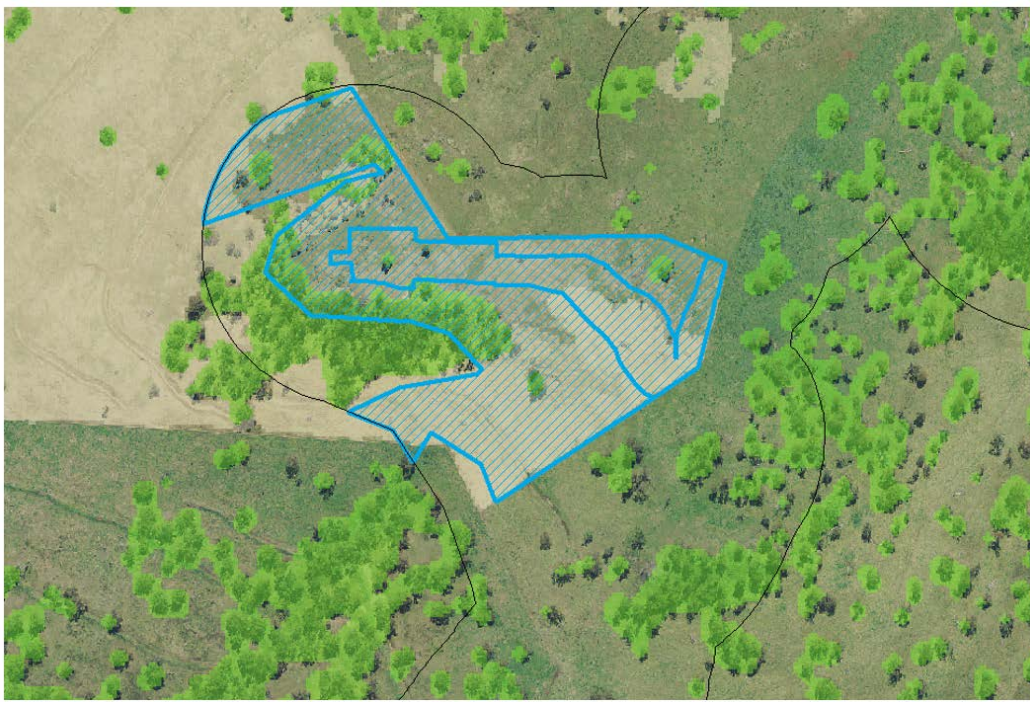


Figure 3. Example of woody vegetation mapped as Category 1 Land

Recommendation

- 6.1 Provide further justification for Category 1 land use and clearly define all land use in the subject land clearly in spatial data and the BDAR

7. Assessors must not identify native vegetation as a derived PCT

It is noted the BDAR updated PCT allocation in the Biodiversity Assessments of the approved project, which were conducted under the Framework for Biodiversity Assessment (FBA), where it was appropriate to do so.

Section 4.2.3 of Biodiversity Assessment Method 2020 states “Assessors must not identify native vegetation as a derived PCT in the BioNet Vegetation Classification. Assessors must identify the original PCT from which the derived PCT has developed, e.g. for the derived PCT, shrubby mid-storey in an open woodland, the original PCT is open woodland.”

Vegetation Zone 3 has been classified as PCT 395 – Derived speargrass - wallaby grass - wire grass mixed forb grassland mainly in the Coonabarabran - Pilliga – Coolah region. BCS notes that the vegetation surveyed in this PCT as part of the current assessment aligns with the description of the same vegetation community provided in the original assessments. The vegetation zone is described as supporting scattered mature canopy trees across its extent but is not considered to support distinct patches of treed vegetation.

The presence of mature canopy trees in the vegetation zone should provide a starting point whereby a best fit native derived grassland of a wooded PCT could be identified. It should be noted that changes to PCT allocation may result in a different list of candidate species required to be assessed for this vegetation zone.

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- Blue hatched areas: Category 1 Exempt Land
 - Bright Green Areas: Woody Vegetation - NSW native vegetation extent layer

Recommendation

7.1 Vegetation Zone 3 should be reassessed and assigned as the parent PCT from which the derived PCT has developed

8. Inclusion of vegetation plots located outside the project footprint must be justified

A review of the project's spatial data has identified six BAM plots that are located a significant distance (between 800m to 1.5km) from the development footprint, outside of the subject site. Where vegetation plots are not located in the project footprint/subject site justification must be provided that the plot is in the correct PCT and vegetation zone and that the plot data is consistent with other plot data collected in that vegetation zone.

This should include, but not be limited to, a table listing:

- each plot located outside of the subject land
- justification, referencing appropriate evidence, to demonstrate each plot's representativeness of its equivalent vegetation zone within the subject land and consistency with other plots collected within the same vegetation zone
- a distance between the plot and the nearest area of vegetation within the subject land the plot is representing
- reference to an informing map.

Recommendation

8.1 Where vegetation plots are not located in the project footprint, justification must be provided, including evidence that the plot is in the correct PCT and vegetation zone.

9. Further justification is required in the BDAR regarding the selection of PCT's

BSC has reviewed the PCT allocation conducted for the project and are requesting further justification for the selection of PCT's.

Section 4.2 of BAM 2020 states that:

The assessor must identify the most likely PCTs where vegetation on the subject land, or on part of the subject land:

a. is missing structural layers, or

b. has no distinct linear boundary to determine differences between PCTs on the subject land, or

c. includes planted native vegetation (unless it is planted native vegetation eligible to be assessed in accordance with Appendix D).

BSC has audited a sample of plot vegetation data from the BDAR using the PCT filtering tool within the BioNet Vegetation Classification system. The results of the analysis did not support the selection of some PCT's identified in the BDAR. For example, when conducting an audit of PCT 483 based on the most abundant vegetation across three strata (15 species tested), it was noted that there were a significant number of potentially better fit PCT's for the Kerrabee IBRA sub-region. When reviewing the justification for selecting this PCT in the BDAR there was limited explanation on the reason as to why PCT 483 was considered to be the PCT of best fit. It would be beneficial if at least a short-list of candidate PCTs was provided based on the key diagnostic features collected through the field survey, with a final justification describing why the selected PCT was the best fit.

BSC notes that the BioNet Vegetation Classification system cannot account for site specific conditions and habitat degradation and acknowledges that the PCT's selected for this project may be appropriate if more context and justification is provided.

Recommendations

- 9.1 Review PCT selection in the BioNet Vegetation Classification System.
- 9.2 Provide further justification to BSC to demonstrate why PCT's were selected.

10. Mapping of EPBC Act Box Gum Woodland requires revision and further evidence

Section 4.2.1 of the BAM states that *“The assessor must identify and map the distribution of PCTs, or the most likely PCTs, and all TECs on the subject land. The identification of TECs must be consistent with the Threatened Species Scientific Committee Final Determination for the TEC.”* This component of the BAM applies to both *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and BC Act listed representation of TECs.

The BDAR states *“vegetation communities identified in the Modified Development Corridor were compared to TECs listed under the NSW BC Act and Commonwealth EPBC Act and an assessment of similarity with the NSW Scientific Committee Final Determinations and the Commonwealth Threatened Species Scientific Committee Listing and Conservation Advice was undertaken. The following approach was used:*

- *full-floristic quadrat assessment, rapid assessments, and meandering survey to determine floristic composition and structure of each ecological community”*

BSC has noted that the BDAR includes quantifiable metrics for assessing TEC equivalency in plot surveys. However, when reviewing spatial data, BSC notes that there is approximately 1,500ha of potential EPBC Act Box Gum Woodland which contains no vegetation plots, rapid assessments, or meandering surveys. This area has been determined to be non-consistent with the EPBC Act representation of the community. It is unclear to the BCS what evidence has been relied upon to determine the absence of EPBC Act listed Box Gum Woodland from these areas.

Furthermore, PCT 484, which is associated with TEC's, is present throughout the unsurveyed area and intersects with the Modified Development Corridor (Figure 3) but is not mentioned in the BDAR. A TEC equivalency assessment for all PCTs identified within the BAM-C as potentially equivalent to a BC Act or EPBC Act listed TEC, should be conducted. TEC equivalency assessments require detailed and systematic comparison of a vegetation patch's compositional, structural and functional attributes against the diagnostic criteria held in both NSW listings and Commonwealth conservation advice.

Equivalency assessments should be supported by evidence and data collected during the field survey. The compositional, structural, and functional aspects of a vegetation patch should not be assumed to be non-equivalent if no data has been collected or if access to a patch could not be obtained.

If data has not been collected within a given patch of vegetation a precautionary approach should be followed, and the patch should be assumed as equivalent to both BC Act and EPBC Act TEC listings.

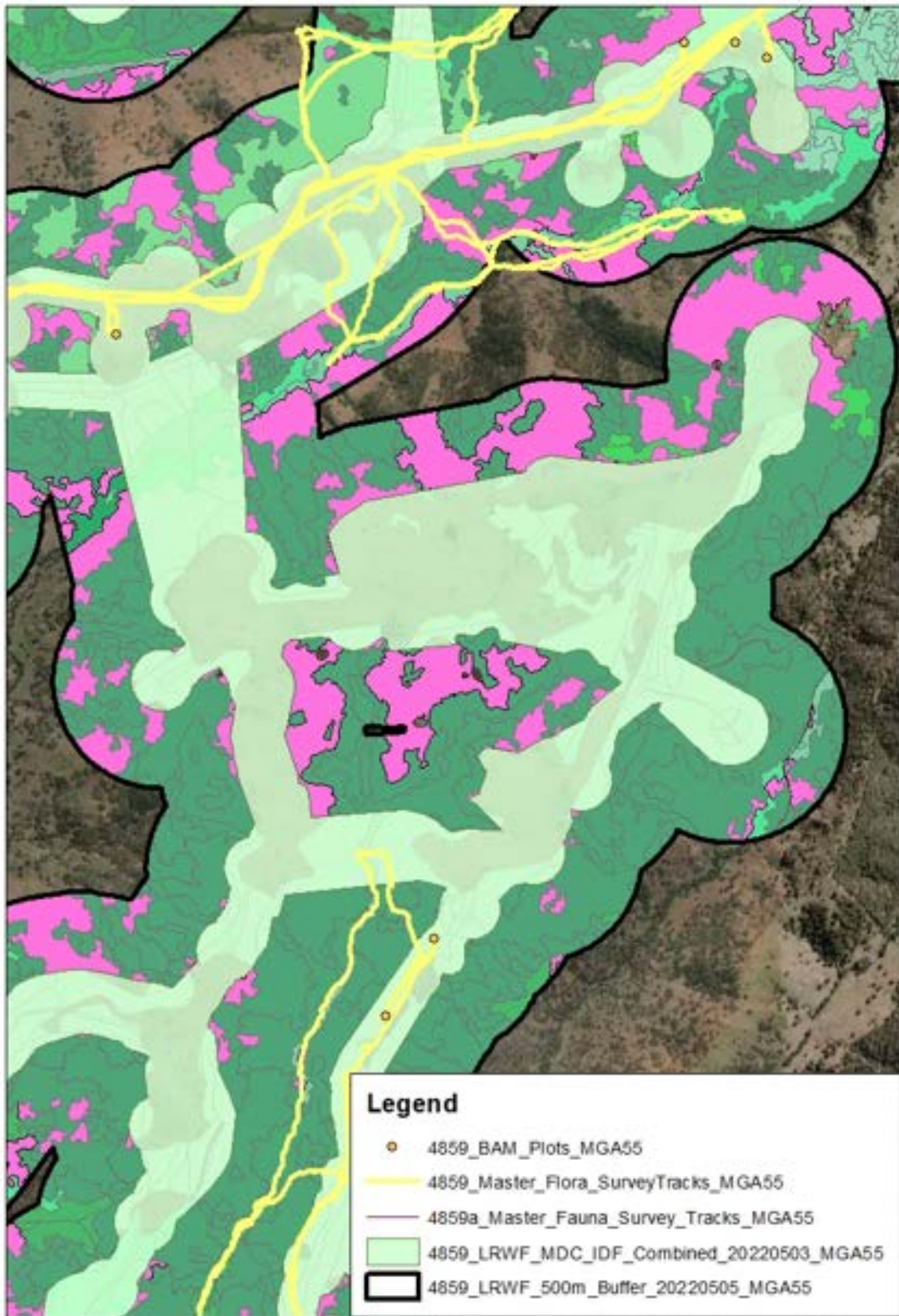


Figure 4. Potential EPBC representative Box Gum Woodland (pink zones) intersecting with the proposed development corridor

Recommendations

- 10.1 Provide evidence that all vegetation has been appropriately surveyed in detail to inform TEC equivalency assessments and support the determination of non-equivalence to EPBC Act listed TECs.
- 10.2 If evidence has not been collected, assume the presence of the EPBC Act listed TEC.

11. Further justification is required to support partial loss when calculating vegetation integrity scores

The method applied for calculating vegetation integrity scores is outlined in section 5.12 of the BDAR. This states that *“Transgrid’s easement guidelines recommend an approximately 60 m wide easement for the transmission line within vegetation that is currently or can grow equal to or greater than 4 m tall. For vegetation zones that meet these characteristics, partial direct impacts have been calculated within the 60 m wide easement (excluding the pole and string pad locations) as per Section 8.1.1.2 of the BAM (DPIE 2020a). Pole and string pad locations, and access tracks associated with the transmission line are included in the direct impact calculations outlines in Section 5.1.1. Within these easements, a proportion of biodiversity values will remain within select vegetation zones following the construction and during the operation of the wind farm”*.

Section 8.1.1.2 of the BAM 2020 states that the future value of attributes such as easements may be amended to reflect the impacts of partially cleared land but that they must be mapped separately. Furthermore, an evidence-based approach should be used to define how biodiversity values will be maintained.

Credit calculations for multiple management zones have assumed only a partial loss in Vegetation Integrity (VI), limited to the vegetation growth forms and functional aspects proposed to be selectively cleared. BCS requires further clarification regarding the assumption that no loss in vegetation integrity will occur for the remainder of the native vegetation within the easement management zones given that key structural layers and functional aspects equal to, and above 4 meters would be selectively removed.

Further justification and evidence is required to support this assumption, beyond reasonable doubt, that only a partial loss of vegetation integrity will occur when removing this vegetation. BSC requests that all assumptions related to partial loss within the easement site and offset calculations be supported and justified by adequate scientific data and evidence.

BSC considers that there may be further direct impacts to vegetation composition and function during the construction of the easement, including the widening of access tracks and the potential for the introduction of feral animals and weeds, particularly high threat weeds. BSC requires further scientific data and spatial information associated with the easement construction footprint to evaluate whether the impacted vegetation will persist and regrow to the species richness, composition cover or structure indicated by the percentage reductions entered into the BAM calculator.

Recommendation

11.1 Provide further scientific and spatial data to justify partial loss of vegetation integrity scores or assume total loss

12. Further survey effort justification is required regarding the exclusion of candidate species

Several species have been removed from the candidate list (species credits) generated from the BAM-C. The removal of these species is not consistent with the assessment requirements set out in steps 2 and 3 of section 5 of the BAM. A species can only be removed from the list if the species:

- a) *has habitat constraints listed in the TBDC and none of these constraints are present on the site. Documentation in the BDAR should reflect the TBDC information and evidence that the features are not present (field data); or*
- b) *where habitat constraints are not listed in the TBDC and the assessor proposes to remove the species based on absence of habitat constraints or known microhabitats that the species requires to persist, the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;*
 - i. *the specific habitat constraint(s) or microhabitat missing on the subject land; and*

- ii. *a description of the field technique used to assess the presence of the constraint or microhabitat (e.g. the survey effort and technique used to assess hollow-bearing trees) and any other data or information used to make the decision*
- c) *has geographic limitations listed in the species' NSW profile and the site is outside of the defined geographic area (note listed geographic limitations may be specific to IBRA sub regions); or*
- d) *is vagrant to the area. Vagrancy is taken as the record being well outside the species range or natural distribution. The suspect record will need to be reviewed against the species known distribution and the assessor will need to confirm with species experts that it is likely to be a vagrant. If agreed by experts the assessor should contact BCS to have the record quarantined from BioNet Atlas and re-labelled as vagrant. The BDAR will need to contain supporting information such as who was contacted, when, their credentials and the resultant response from BCS; or*
- e) *the habitat constraints listed in the TBDC or known microhabitats that the species requires to persist are degraded to the point where the species will no longer be present. Evidence in the BDAR could include reference to the attribute scores for the vegetation integrity assessment to illustrate the poor condition of the site. Other information sources include peer-reviewed or other published information relating to the microhabitats used by the species, photographic evidence and maps etc that illustrate these features are significantly degraded.*

The BAM 2020 Operational Manual provides clarification on the justification required to exclude a species credit species, by identifying that:

“Evidence to support the absence or degradation of habitat features listed in a. and b. above could include reference to the attribute scores for the VI assessment to illustrate if these conform to the habitat constraint or microhabitats on the site, photographic evidence, maps, etc.

Describing a vegetation zone as degraded or low/poor condition is not adequate justification to remove a candidate species credit species from the generated list. Evidence must support a. and b. above.”

Pale-headed Snake, Giant Burrowing Frog and Red-crowned Toadlet have been excluded from further assessment and require further justification in accordance with the BAM criteria.

In Table 4.1 of the BDAR, it is stated *“Furthermore, the Proponent engaged Umwelt to undertake extensive habitat assessment and detailed targeted surveys for threatened species of forest owls and microbats, to determine whether or not breeding habitat was likely and/or present.”*

BSC has noted that no fauna or flora surveys were conducted in one section of the Modified Development Corridor which is within 2km of Coolah Tops National Park (see Figure 4).

It appears that threatened species survey has not been adequately undertaken in this area, and therefore further survey effort will be required to justify the exclusion of potential habitat for candidate species. For example, on the western edge of Coolah Tops NP adjacent to the proposed site, there are multiple records for the Barking Owl, Powerful Owl, Little Eagle and a record of a Black Falcon. The unsurveyed area is comprised of a mosaic of woodland and agricultural land along ridges which provide ideal breeding habitat and foraging opportunities for these candidate species. BSC considers these species to be at particular risk of turbine collisions. BSC also notes that these species should be mapped in Figure 3.5 of the BDAR.

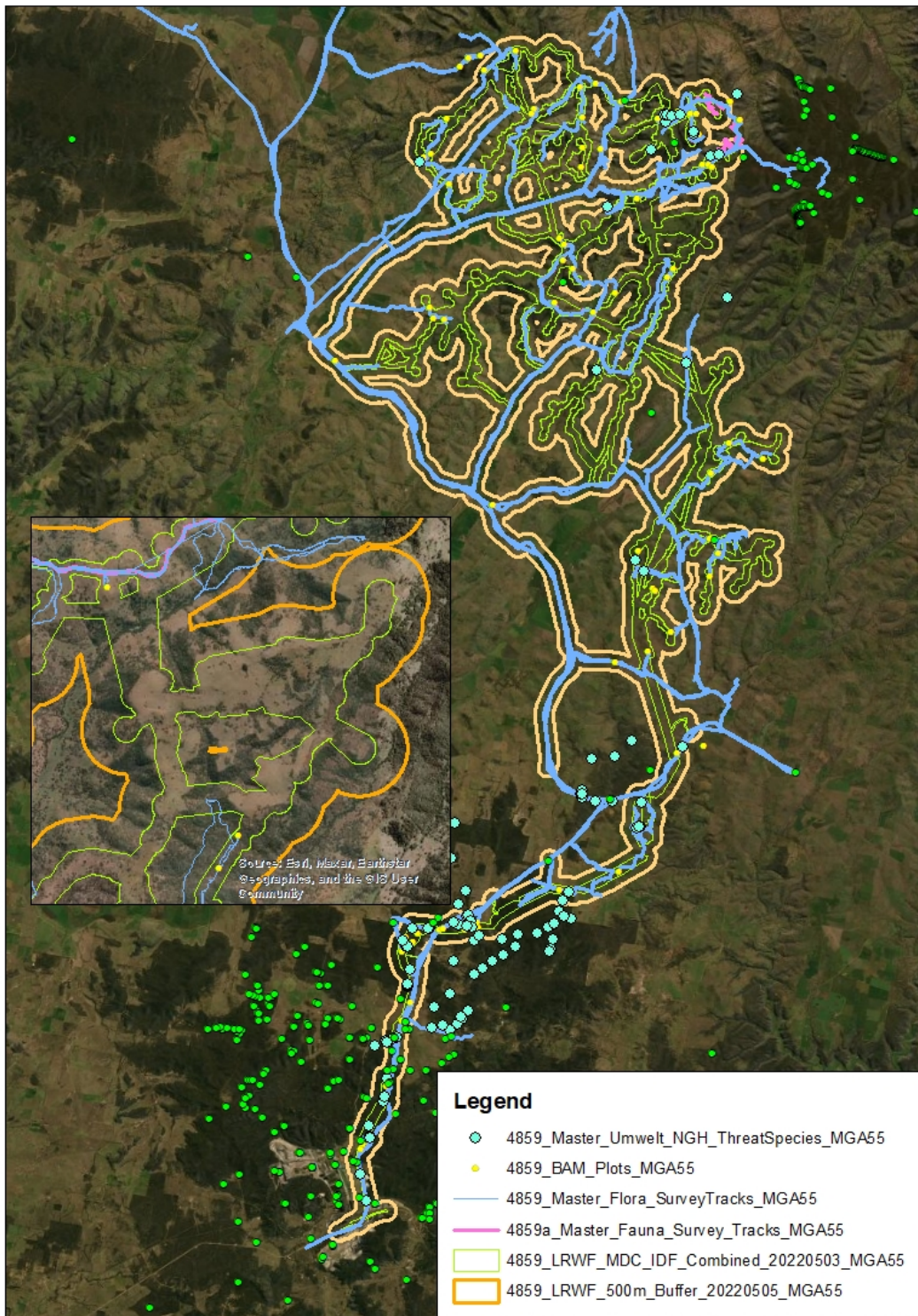


Figure 5. Area of proposed development which requires further survey effort

Recommendations

- 12.1 Provide further justification for the exclusion of candidate species in accordance with the BAM.
- 12.2 Conduct surveys for threatened flora and fauna in woodland patches in the modified development corridor adjacent to Coolah Tops National Park
- 12.3 Revise threatened species mapping in the BDAR

13 Further analysis of cumulative impacts of blade strike is required

Given the number of wind turbines proposed and the size of the proposed wind farm, particular attention should be paid to the potential impacts blade strike may have.

Section 7 of Appendix G discusses the potential cumulative impacts of this project with Table 7.1 providing details of seven wind farm projects up to 102 km from the project. It is noted that there are several inaccuracies in this table (e.g. Crudine Ridge has been operational for over a year, Burrendong proposes to have up to 105 turbines and Spicers Creek proposes to have up to 122 turbines). BCS is aware of a total of twelve wind farms projects proposed within 200 km of Liverpool Range Wind Farm:

• Valley of the Winds (assessment)	15 km	175 turbines
• Barneys Reef (assessment)	42 km	65 turbines
• Bodangora (operational)	71 km	33 turbines
• Spicers Creek (assessment)	73 km	122 turbines
• Uungula (approved)	96 km	96 turbines
• Burrendong (assessment)	102 km	105 turbines
• Crudine Ridge (operational)	~110 km	37 turbines
• Kyoto (approved)	~100 km	70 turbines
• Bowmans Creek (assessment)	~125 km	60 turbines
• Hills of Gold (assessment)	~125 km	70 turbines
• Thunderbolt (assessment)	~180 km	32 turbines
• Winterbourne (assessment)	~180 km	126 turbines

BCS has concerns regarding the long-term impact on the regional population of a number of species, such as the Wedge-tailed Eagle and White-striped Freetail Bat, that these wind farms may have.

Strike rates for Wedge-tailed Eagles at a number of NSW wind farms have exceeded what was expected in the EIS. For example, at a nearby wind farm eight Wedge-tailed Eagle carcasses were found in its two years of operation. It appears that a disproportionate number of the eagles struck by turbines are immature birds. This may have long-term implications for the regional population.

A number of studies (Symbolix 2020, Moloney et. al 2019, Smales 2012) have identified the White-striped Freetail Bat as commonly over-represented in mortalities across Victorian wind farms. Data from NSW wind farms support this. It is noted that there is no assessment of impacts to the White-striped Freetail Bat in the BDAR for Liverpool Range Wind Farm. BCS recommends that such assessments be carried out for non-threatened species where it is known that these species are commonly recorded as casualties at wind farms.

Section 5.3.3 states that “*the turbine as (SIC) a mechanism to deter fauna species (i.e., birds and bats) from being impacted by blade strike*” however no further details are available. Table 4.1 of the BDAR details the potential mitigation measures for project. This measure is not included as a potential mitigation measure.

Given the potential for 13 operational wind farms comprising almost 1,200 turbines within a 200 km radius serious consideration needs to be given to the overall cumulative impact on species that are regularly impacted by blade strike.

Recommendation

13.1 A detailed analysis of the potential cumulative impact (considering all known wind farm proposals within 200 km of this project) be provided for all threatened species with a moderate or high risk rating and non-threatened species where it is known that these species are commonly recorded as casualties at wind farms.

14. The discussion of aerial habitat connectivity does not address the potential for barrier effects and habitat sterilisation.

It is noted that the inter-turbine spacing for the project is generally around 550 to 600 metres with a minimum of 500 metres. As the proposed turbines have a rotor diameter of approximately 210 metres the effective distance between blade tips is from 290 to 390 metres. It is stated that the proposed wind turbines introduce an interruption to 34,636 m² of aerial habitat per turbine, a total of 762 ha across the windfarm.

The SEARs for this project requires an assessment of the “*impact of the project on birds and bats blade strike, low air pressure zones at the blade tips (barotrauma), and alteration to movement pattern resulting from the turbines*”.

A brief discussion of the interruption of aerial habitat connectivity is provided in Table 5.6 of the BDAR. This discussion is restricted to a general summary of potential turbine strike and barotrauma. It is stated in the BDAR that “*the proponent has modified the wind turbine layout to increase the distance between them and therefore allowing greater distances for avian fauna species to travel within the Project site*”. However, the BDAR does not address the potential for the configuration of turbines along multiple ridge lines to result in the displacement of home ranges, or the sterilisation of suitable habitat through fauna avoiding turbines, thus disrupting movement patterns. This could be particularly important for migrating birds and bats that may use the topography to navigate.

Recommendation

14.1 The potential impacts of turbine spacing and the configuration of turbine arrays across the wind farm in relation to the displacement of home ranges, or the sterilisation of suitable habitat through fauna avoiding turbines, thus disrupting movement patterns should be addressed as prescribed impacts.

15. Prescribed impacts for wind turbine strikes should be offset.

Although the BDAR does not specifically identify that wind turbine strikes on protected and threatened species will be a residual impact of the proposed project evidence from operating wind farms in Australia indicate that potential strikes on birds and bats are unavoidable.

While an assessment of prescribed impacts does not result in the generation of biodiversity credits via the BAM-C, the consent authority has the discretion to increase the number of biodiversity credits to be retired due to environmental, social and economic impacts of the proposed development, including for prescribed impacts. If mitigation measures or adaptive management do not adequately address the potential impacts and unavoidable residual prescribed impacts will occur i.e., bird and bat strikes, this should be offset via additional biodiversity credits (above the credit requirement generated by BAM-C for direct impacts) and/or other listed conservation measures in accordance with Section 6.1.2(b) of the *Biodiversity Conservation Regulation 2017* (BC Regulation).

A bird and bat adaptive management plan (BBAMP) is to be prepared to help mitigate prescribed impacts. BCS considers that the BBAMP should include:

- A proposed monitoring methodology
- Offset quanta for each threatened bird and bat collision, fatality or injury, calculated annually over the operational life of the windfarm. The proposed credit quantum should be reviewed and fully justified. Credit quanta should be calculated according to the conservation status of individual species that may be struck and based upon extrapolations from carcass monitoring data, for example:
 - For a vulnerable species – a one-off retirement of 10 credits for each individual struck.
 - For an endangered species – a one-off retirement 15 credits for each individual struck.

- For a critically endangered species – a one-off retirement of 20 credits for each individual struck.
- For protected (non-threatened) species, the impact to the protected species should be offset where:
 - There are no effective and scientifically validated mitigation measures available to reduce the likelihood of future strikes of a protected (non-threatened) species; and
 - Continued turbine strike impacts are likely to have consequences for the local persistence of populations
- A trigger, action, response plan (TARP) with specific and measurable triggers. Triggers for corrective actions should be based on strike rate extrapolations when assessed annually.
- Trials of alternative deterrent technologies
- Mitigation implementation protocols (e.g. shutting down turbines during migration events).

Given the BBAMP is an important tool for monitoring, mitigating and offsetting residual prescribed impacts resulting from turbine strikes a more comprehensive draft BBAMP framework should be included with the prescribed impact assessment and attached to the BDAR. The BBAMP framework should be prepared in consultation with BCS. We would be happy to provide guidance regarding acceptable methods for monitoring, mitigation and for offsetting strikes based on experience with other similar development types within the North West region.

Recommendation

15.1 Provide a more detailed BBAMP framework giving reference to the specific points identified in this response and in consultation with BCS.

16. Adequate buffers from raptor nests must be maintained.

Table 4.1 of the BDAR details the potential mitigation measures for project. It is proposed that a buffer of 100 metres be established between wind turbine blade tips and identified raptor nests. While it appears that no active raptor nests have been located in the vicinity of a proposed turbine, BCS regards a buffer of 100 metres to be inadequate. Nesting raptors are, in general, sensitive to disturbance. BCS recommends a minimum buffer of double the rotor swept height be established between turbines and known raptor nests, i.e. 210 metres.

It is noted that an active Square-tailed Kite nest was located in proximity to the transmission line easement and an associated access track. While the nest itself has been avoided by the project, clearing of native vegetation does occur within the 300m buffer around the nest. Wherever possible disturbance within these buffers should be avoided. Further consideration should be given to relocating the proposed access track.

BCS recommends that clearing of the transmission line in the vicinity of the Square-tailed Kite nest be restricted to the months March to June unless a qualified ecologist determines that the nest is not being used.

Recommendations

16.1 A minimum buffer of double the rotor swept height be established between turbines and known raptor nests.

16.2 Clearing of the transmission line in the vicinity of the Square-tailed Kite nest be restricted to the months March to June.

17. Prescribed impacts on connectivity should be offset.

Section 5.3.3 of the BDAR discussed the potential impacts to connectivity of habitat for threatened species due to the transmission line route creating a 60 metre wide easement cleared of vegetation over four metres in height.

The Squirrel Glider is identified as a species that could be adversely affected by the interruption of habitat connectivity. It is concluded that “*the impacts of the interruption are not considered likely to cause significant short-term or long term impacts*”. BCS consider that the Squirrel Glider is very unlikely to traverse 60 metres through vegetation without a tree component and as such the easement will effectively create a barrier to movement for this species. This may have consequences where the easement results in the fragmentation of existing large blocks of remnant vegetation, as is likely to occur in the north-western section of Durrigere State Conservation Area.

BCS notes that it is proposed to “*Install glider poles (or other suitable measures) where the Modified Project introduces a new separation of remnant vegetation of 40 m or greater within an intersection of the identified Habitat Corridors and the squirrel glider species polygon*”. BCS would like further detail regarding this proposal in order to understand the potential value of these as a mitigation measure.

Similar to prescribed impacts created by turbine strike, if mitigation measures cannot adequately address potential impacts and unavoidable residual prescribed impacts expected to occur this should be offset via additional biodiversity credits (above the credit requirement generated by BAM-C for direct impacts) and/or other listed conservation measures in accordance with Section 6.1.2(b) of the BC Regulation.

If residual prescribed impacts to connectivity cannot be avoided, or if impacts are uncertain, for candidate species the proponent should propose an offsetting method and quantum which is commensurate to the residual impacts expected to occur. BCS would be happy to provide guidance regarding acceptable methods for offsetting connectivity impacts based on experience with other similar development types within the North West region.

Recommendations

- 17.1 Provide further detail regarding the installation of glider poles, or other measures, in order for their potential value as a mitigation measure to be assessed.
- 17.2 Provide further detail regarding the assessment of residual prescribed impacts to connectivity.
- 17.3 If residual prescribed impacts for connectivity are unavoidable, or if matters are uncertain, provide an offsetting method and quantum which is justifiably commensurate to the residual prescribed impacts expected to occur.

18. Indirect impacts for rotor swept areas should be offset.

Table 1.1 of the BDAR states that the rotor swept area of each turbine will occupy 34,636 m² per turbine or a total of 762 hectares for the 220 proposed turbines.

The assessment of indirect impacts (section 5.1.3 of the BDAR) concludes that there will be little substantial change to erosion, dust pollution, noise, pollution or weed and feral animal encroachment on land adjacent to the subject land. However, the indirect impact of the turbines on adjacent native vegetation and its fauna has not been addressed.

Retained vegetation adjacent to the rotor swept areas and surrounding buffer may be subject to indirect impacts, for example discouraging birds from nesting or roosting near turbines. Where indirect impacts cannot be appropriately mitigated through the implementation of onsite measures, BCS recommends that a credit requirement is calculated to offset these indirect impacts to habitat.

It will be necessary for the proponent to determine the type and extent of indirect impacts, as well as the area of native vegetation affected by those impacts. Spinning turbine blades are likely to have an indirect impact on birds and bats by removing the availability of some habitat components, such as air space above areas of native vegetation used for foraging and movement, including for migration.

To enable the development of an appropriate offset for the rotor swept area in accordance with Section 8.6 of the BAM 2020, a circle should be drawn around each turbine. The radius of this

circle should be no smaller than the length of one turbine blade in addition to a buffer from the rotor swept area subject to indirect impacts. The selected radius is to be described and justified in the BDAR.

The area of native vegetation that lies within this 'indirect impact' area will need to be calculated. Given that indirect impacts will result in only a partial loss of biodiversity from these areas, the credit requirement generated should reflect this.

This can be achieved in two ways.

- a) A partial loss percentage could be applied to the area of vegetation present in the 'indirect impact area'. For example, the partial loss could be between 5% and 20%, or it may be less or more, but usually not more than 50%. This percentage would again depend on the nature of the indirect impacts identified, the impact mitigation proposed, the intensity of the development and the proximity and susceptibility of the retained vegetation. The partial loss percentage will need to be fully justified in the BDAR. Once the partial loss percentage has been determined and appropriately justified it can then be pro-rated, for the purposes of the credit calculation, across the total indirect impact area by splitting the area up into separate management zones. If this option is taken an accredited assessor should split the indirect impact area into a total-loss zone (defined by the indirect impact percentage) and a zero-loss zone. For instance, if a wind turbine buffer is 5ha in size and the associated indirect impacts is determined to be 50% partial loss, the management zones would include a 2.5ha zone of total-loss and a 2.5ha zone of zero loss. Each management zone should be appropriately labelled in the calculator i.e. 'indirect impact management zone', or similar, with the future site values for each zone adjusted accordingly.
- b) The total area of vegetation affected by indirect impacts within the 'indirect impact area' can be included as the 'indirect impact management zone' in the calculator, with the 'future site value scores' adjusted to reflect a partial loss resulting from the indirect impacts anticipated.

This suggested calculation method should only be applied in this context, given the inherent difficulty in associating the indirect impacts associated with wind turbines to specific compositional, functional or structural attributes of vegetation zones. This method should not be considered an endorsed method for partial loss calculations associated with other development types.

The use of either approach will generate an ecosystem credit requirement for the indirect impacts of the construction and operation of the wind farm on biodiversity, via the marginalisation of habitat within rotor swept areas.

All steps undertaken to determine the offset requirement for indirect impacts in accordance with the above must be documented within the BDAR and reflected where necessary in the BAM-C.

Recommendation

18.1 Ecosystem credits be calculated for the indirect impacts of turbine operation on native vegetation and threatened species habitat.

19. The proponent must offset the credit obligation prior to construction

BCS notes that the BDAR states "*Condition 20 of the Development Consent (SSD 6696) requires that the Proponent retire the required biodiversity offsets within two years of commencement of construction; or stage thereof (as per Condition 9).*"

As the approved project has an existing credit requirement the *Biodiversity Conservation (Savings and Transitional) Regulation 2017* details the provisions for credits obligations which have yet to be retired:

Part 6 - Provisions relating to the biodiversity offsets scheme

Existing statutory obligations requiring retirement of biodiversity credits

S.22(2) If biodiversity credits that are required to be retired under any such obligation have not been retired on the commencement of the new Act, the obligation is to be construed as requiring the retirement of biodiversity credits under the new Act that remain to be retired.

As credits for LRWF have not been retired, the credit obligation for the project will need to be retired in accordance with the Biodiversity Offsets Scheme (BOS) under the *Biodiversity Conservation Act 2016* (BC Act).

The BC Act requires that credits are retired upfront prior to any vegetation clearing occurring. The BC Act states:

Division 4 - Biodiversity assessments and offsets

State significant development or infrastructure

S7.14(4) A condition to retire biodiversity credits is required to be complied with before any development is carried out that would impact on biodiversity values. If the retirement of particular biodiversity credits applies to a stage of the development, compliance with the condition for their retirement is postponed until it is proposed to carry out that stage of the development.

A credit retirement can be staged which allows proponents greater flexibility to retire credits sequentially as construction advances.

All relevant information regarding credit staging should be presented upfront in the BDAR and represented in the project's BAM-C report. This is to allow for each proposed stage to be captured and detailed in the project's modified consent, if approval is granted.

Recommendation

19.1 The Consent Conditions relating to offsetting must be consistent with the BOS under the BC Act which requires retirement of credits prior to any impact occurring.

20. The proponent should ensure that EPBC Matters have been adequately assessed

BCS note that the federal approval for the approved project (granted on 29/06/2018) allows up to 10.37 ha of White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC listed under the EPBC Act. The Modified Project will result in impacts to 42.1 ha of Commonwealth Box Gum Woodland CEEC.

The proponent should ensure any relevant referrals in relation to this proposed modification have been made to the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

Recommendations

20.1 The proponent should ensure any relevant referrals have been made to the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

20.2 BCS recommend the proponent liaise with DCCEEW.

NPWS detailed comments and recommendations

Liverpool Range Wind Farm Mod 1

21. Avoidance of Impact to Visitor Amenity at Coolah Tops National Park

The NPWS concurs and supports the detailed comments provided by BCS above. The comments provided below are in addition to those, and relate to the directly perceived impacts to Coolah Tops National Park in relation to noise, visual amenity and visitor, operational and emergency access.

Background

Coolah Tops National Park (CTNP) was gazetted on 5 July 1996. The park covers the former Bundella State Forest and part of the Warung State Forest, which came into being during the 1880's and early 20th century. Additional land has been acquired and added to CTNP since 1996.

CTNP occupies the high elevation basalt country of the Mount Royal and Liverpool Ranges. Coolah Tops is the most westerly and driest of conservation reserves that occur along these ranges and demonstrates a unique set of plant and animal communities, climate and rainfall compared to adjacent areas.

The park has a large number of scenic, natural and cultural features of interest to visitors, all within a relatively small area. These include towering eucalypts, waterfalls, cliffs, extensive views, large grass trees, easily seen wildlife and historic features.

The Coolah Tops have long been a visitor destination, however it wasn't until the area became national park that formal facilities were installed or upgraded to more adequately meet demand. The park may experience up to 25,000 visitors annually, and at peak times there may be 80-100 people camping per night in the park.

The majority of features which draw visitors to the park, i.e. waterfalls, lookouts and camping locations, are located at the western end of CTNP.

NPWS Objectives and Commitments

The *National Parks and Wildlife Act 1974* (the Act), states the conservation of nature, and the conservation of objects places or features of cultural value within the landscape as objectives of the Act.

Additionally, the Act states the fostering of public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation as another objective.

In carrying out these objectives, the NPWS encourages public access to promote the understanding and conservation of natural and heritage values, and manages a variety of recreation areas to allow visitors to learn about and appreciate the natural and cultural features at CTNP. This includes day use and camping facilities, maintained bushwalks, and lookouts.

Noise Impact

Several visitor facilities occur within proximity to the western or south-western boundary of CTNP and therefore the proposed modification site:

- Norfolk Falls day use area and lookout (3.2km)
- Cox's Creek camping area (2km)
- The Barracks camping area (2.3km)
- The Grass Tree's walking track (2.3km)
- The Pinnacles day use area and lookout (1km)
- The Pines camping area (4km)

- Bald Hill Falls walking track, picnic area and lookout (1.3km)
- Bracken's Hut (3km)

The amenity of some of these locations has the potential to be impacted by sound emanating from wind turbines, and the visual evidence of turbines and infrastructure. The majority of visitors to CTNP come for a natural experience free of man-made sounds or sights.

It is understood that there is no standard for regulating industrial noise impact on national parks or camping facilities and that the project is using the criteria set out in Table 4, Condition of Consent no. 10 for non-associated residences as a basis for estimating impact. However, for a campsite in a national park setting it is expected that a lower level of industrial noise than a non-associated farm residence would be expected.

Tilt Renewables has recently provided further information, through their contracted sound consultant, Sonus Pty Ltd. indicating various modelled predicted noise levels at key sites within CTNP, and comparing that to the measured noise levels measured in the vicinity of the wind farm. These indicate, in their view, that the current noise levels experienced at the location chosen, would be similar or greater to the noise levels experienced at CTNP key locations.

The additional modelling is appreciated, however, we remain unassured that visitors to CTNP, especially campers, will not be affected by hearing the sounds of wind turbines during their activities within the park.

To this end we would expect that Tilt Renewables can provide evidence that there is no noise impact at visitor nodes within CTNP as a result of sound produced by the turbines proposed in the modification project. The NPWS is interested in taking up the offer by Tilt Renewables of conducting an in-field demonstration of predicted noise levels as a method of guaranteeing (or otherwise) that visitors will not be impacted.

Visual Impact

The NPWS is aware of some visual impact at the Pinnacles lookout site. We have been provided with some photo-montages which approximate the visual impact from the lookout. It is accepted that there will be some visual impact to the south-west of The Pinnacles lookout. However, this is not the focus view of the lookout and forms an acceptable impact.

Recommendation

- 21.1 Provide further evidence or modify the project to ensure that wind turbine sound will not reach any established camping or day use areas within Coolah Tops National Park. This may include a field demonstration of expected noise levels at key visitor nodes for comparison.

22. No restriction to access for emergency response to Coolah Tops National Park

Background

The Forest Road access to the western end of CTNP is the only reliable access point for emergency services such as police, ambulance, State Emergency Service, and NPWS firefighting response. Additionally, this is the only access for visitors to CTNP. The access should continue to remain open, or emergency access provided throughout the construction phase, and ongoing operations to ensure access for visitors to CTNP and in the event of a fire or other emergency.

Recommendation

- 22.1 Ensure access to the western entrance to Coolah Tops National Park is maintained and available for emergency services, visitors and park operational staff at all times, seven days a week, 24 hours a day during construction and ongoing operations of the wind farm.