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Review of the ecological assessment of the impact of the proposed Bango Wind Farm

In response to your request, AWS has reviewed the Ecological Assessment (EA) of the Environmental Impact Statement for the proposed development of the Bango Wind Farm, New South Wales. The project incorporates the construction and commissioning of up to 122 wind turbine generators and the construction of associated infrastructure. The Environmental Impact Statement dated September 2016 was prepared for the Bango Wind Farm Pty Ltd by CWP Renewables Pty Ltd. The EA which was conducted by Environment Resource Management Australia Pty Ltd commenced in July 2012 and continued to February 2013.

The AWS review has identified potential issues and inconsistencies throughout the report. We consider that several of the conclusions drawn from the data collected for threatened species and ecological communities should be treated with caution. We believe that others should be disregarded until more information is provided; either through more detail being incorporated in the Assessment, or in some instances by conducting further field work.

The major issues are summarised below and are described in more detail in the following pages.

- The EA states that the project will have an impact on the Golden Sun Moth; however it does not detail sufficient key avoidance, mitigation or offset measures for those impacts.
- The EA states that the proposed project will not have a significant impact on the Superb Parrot. We have doubts about
    - the survey periods and survey effort used to reach this conclusion
    - the lack of breeding and foraging habitat (constraint) mapping; and
    - errors in the data used to model the collision risk.
- The EA does not appear to comply with the guidelines provided by the Australian Department of Environment and Energy (DoEE) for 'Matters of National Environmental Significance' and the processes set out in SEPP 44 for koalas:
- Studies have been completed for Biobanking assessments, but the data are investigative and have not been approved.
- Many statements throughout the report are vague and not quantified. References or supporting information will reduce the risk that assertions are incorrect.
- Details of study area surveyed are inaccurate or inconsistent.
- There is a lack of figures to illustrate habitat type, habitat surveyed and disturbance from project components.
- Maps to show how important high constraint areas have been avoided are lacking, or to note where turbines have been sited close to high constraint areas (e.g. buffer to important habitat).
- Data for several surveys are not supplied.
- Methodology is not described clearly or not sufficient detail for detecting species.
- Figures are referred to incorrectly throughout the report making the report difficult to follow.

In conclusion, the Ecological Assessment lacks the detail that would provide proof that the proposed project has or can avoid or mitigate its potential impacts

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Koalas – A significant impact on a vulnerable species?

AWS recommends that a more comprehensive study of koalas and their habitat is needed in order to comply with the 'Matters of National Environmental Significance' guidelines provided by the Australian Government DoEE and the processes set out in NSW SEPP 44.

The EA needs to confirm that the project will not have a significant impact on koalas because the NSW population is listed as a vulnerable species under the Environment Protection and Biodiversity Conservation Act 1999. Listing triggers the 'Matters of National Environmental Significance, Significant Impact Guidelines 1.1'. These require proponents to consider if there is a real chance or possibility that the project will:

- lead to a long-term decrease in the size of an important population of a species;
- reduce the area of occupancy of an important population;
- fragment an existing important population into two or more populations; or
- adversely affect habitat critical to the survival of a species.

A project that will have, or is likely to have a significant impact on a listed species, must refer the proposed action to the Minister prior to commencement. The Guidelines explain that an action that has, will have, or is likely to have a significant impact on the koala must not commence until the Minister makes an approval decision (without approval penalties up to $8.5 million or criminal penalties including up to 7 years imprisonment apply).

The DoEE has developed the 'EPBC Act referral guidelines for the Vulnerable Koala'. The primary intent of the guidelines is to help proponents proposing actions within the distribution of the listed koala to avoid significant impacts. Koalas are capable of moving long distances and are affected by a range of threats making significant impacts very complex; the guidelines aim to address this complexity. It is possible that the project area constitutes potential koala habitat.

The EA states that "under Part 3A of the EP&A Act there is no requirement for a development application and accordingly there is no trigger for the need for a Koala Plan of Management"; however, Part 3A of the EP&A Act has been repealed. The report should correct this error and comply with the processes set out in NSW SEPP 44.

The EA should consider whether any part of the project area could be described as potential or core habitat for koalas as required under SEPP 44. 'Potential habitat' is an area of native vegetation in which trees listed in Schedule 2 of SEPP 44 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. 'Core habitat' is an area of land with a resident population of Koalas, evidenced by attributes such as breeding females, and recent and historical records of a population. A survey has not been conducted to determine if Schedule 2 trees make up 15% of the total number of trees in the upper or lower strata of the tree component.

Adequacy of surveys

The EA surveyed koalas over 4 sessions of call playback. These surveys were conducted at the same time as other nocturnal mammal surveys. The methods state that **four** call back sessions were undertaken during the survey period, yet further in the paragraph the methods state that **two** call playback sessions were completed on **two** separate nights. This suggests that there were only two nights when surveys were conducted and two surveys were conducted on each night. As koala calls (and the other 4 nocturnal animal calls) were played for 4 minutes followed by 4 minutes listening time (followed then by spotlight scan), it would take over 40 minutes to complete five species call back of 4 minutes playing and 4 minutes listening (plus spotlight scan) suggesting that the koala call was only played two to three times per night (over 2 hours). If surveys were only conducted on two nights then the koala call was only played 4 to 6 times for the entire survey area. It is unclear how much of the habitat was surveyed? Why were other techniques not used – for example identification to tree scratches and scats?

Superb parrots

The proposed Bango Wind Farm, along with the Rye Park, Conroy's Gap and Yass Wind farms (proposed / approved) occur within the key breeding area for the Vulnerable Superb Parrot (BirdLife International 2013). The area forms part of the South-west Slopes of NSW Important Bird Area which supports most of the largest known population of the Superb Parrot between September and January, migrating from the area for the autumn and winter. Where wind developments are proposed, flight path surveys are extremely important in areas of high bird use and Important Bird Areas. Behavioural observations across multiple seasons are important to inform wind farm design and buffer zones to reduce impact (Smits 2014).

It is disappointing that greater attempts were not made to delineate superb parrot breeding and foraging habitat and detail more specifically superb parrot flight paths around all turbines. Delineating superb parrot breeding habitat and foraging areas can help map flight path corridors which can then be avoided by wind farm infrastructure. Habitat mapping can also inform constraint mapping to help prove that avoidance and mitigation measures have been undertaken by the proponent, thus not satisfying the Director General's Requirements (DGRs).

The surveys conducted to detect the Superb Parrot at Bango Wind Farm were imperfect. They were conducted from November 2012 to February 2013, over only one breeding season. While the birds are known to reuse breeding trees between seasons (Rayner et al 2016), local abundance will vary year to year (Department of Environment Conservation Advice *Polytelis swainsonii* 2016).

The surveys started too late in the breeding season; therefore missing important flight information and site usage. When parrots first arrive in August-October, they may spend more time looking for hollows and therefore be more flight active, thereby increasing the chance of being impacted by the turbines and construction. Flight height may also change and increase while looking for potential nesting hollows. Superbs can have different flight paths in the evening and can have different foraging grounds at different times of the season, (Davey 2013; 2014; Manning et al 2000; Webster 1988).

Poorly sited wind farms can have negative effects on birds where proposals coincide with areas of high activity for species of conservation concern (RSPB 2013). The impact maybe a combination of direct and indirect impacts including collision mortality, habitat removal and fragmentation, barrier effects and habitat alienation/displacement due to disturbance (Pearce-Higgins et al 2009; 2012; BirdLife Australia 2012). However, these impacts may vary between species and landscapes, and during and after construction (Pearce Higgins et al 2009; 2012). BirdLife International's (2005) policy statement on wind farms stipulate "precautionary avoidance" of wind farm developments in IBAs and Birdlife Australia's (2012) policy specifies wind farms proposed in IBAs "are not developed where there is a demonstrable risk to important bird populations or their habitat".

Superb Parrot collision risk

AWS has concerns about the model used to calculate the avian collision risk for the Superb Parrot. First, the Superb Parrot wingspan is reported as 15cm. Manning et al. (2006) nominate 53–57 cm. Thus it appears that model has used the length of one wing making no allowance for body diameter or the other wing.

In addition, because fight directions for the Superb Parrot are unknown for the area, the width of the assessment area should be a conservative distance. The report uses a value of 41 km; however, the figures used in the report show the width of the assessment area is approximately 17.25 (to 22.5 km if you consider the north cluster a separate entity). These values will have a large effect on the number of birds passing through the rotor area as the total rotor as a proportion to the flight risk window will substantially increase.

It is unclear where the value 41 km was derived for the collision risk model; it is possible that the length of the project area was used instead of the width (however the term "width" was reported). It would be incorrect to use the length to determine the flight risk window because the flight path direction is unknown. If the Superb Parrots were known to habitually fly east to west, the length of the project area could be used to calculate the flight path window; however, as the flight path direction is not reported (although we would assume it to be north-south), the more conservative width should be used.

Superb Parrot flight path surveys across years and within seasons and vantage point surveys conducted at all turbines are still needed to increase level of confidence that all superb populations / habitat usage on site has been identified and the level of impact and collision risk has been adequately described as required by the DGRs.

Wedged-tailed eagle

Turbines can cause severe mortality rates for wedged-tailed eagles. NGH estimate 0.4 WTE /turbine/yr. Thus on these figures, the proposal to construct 122 turbines poses the potential risk of almost 50 wedged-tailed eagles per year. A population estimate of wedged-tailed eagles for the area is needed to use of annual determine the mortality rate and the short and long term effect the wind turbines will have on the population.

The PA states that significant cumulative impacts on the wedge tail eagle could occur but are unlikely due to species abundance in NSW. However there is no further discussion on the species abundance in NSW. If the report is to make these claims it should report the abundance of the wedged-tailed eagle in NSW and the significance of the area as wedged-tail eagle habitat. Is it an

important breeding or foraging area for wedged-tailed eagles and the quantitative affect the project would have on the population should be estimated.

Little Eagle

The Little Eagle was observed in November flying at RSA height. The Little Eagle is a rare vulnerable species in NSW and considered as a key species by ERM (pF38). The proposal will remove 8.62 ha of potential breeding habitat for the Little Eagle (and Spotted Harrier). Despite this, there appears to be no avoidance or mitigation measures applied to the turbine location at the observed sighting. At the very least, further surveys are required to detect breeding pairs and habitat range at the Bango Wind Farm site. Oddly, the collision risk modelling does not suggest the species would occur in any other month but November.

Golden Sun Moth

AWS is concerned about the approaches identified in the assessment to minimise the impact of the proposal on the Golden Sun Moth. In addition the survey method and reporting show a number of inconsistencies.

Approach to minimise impact on the Golden Sun Moth

The EA states that the project will have a "significant impact on the Golden Sun Moth" because a large amount of Golden Sun Moth habitat (82.48 ha) will be removed. As habitat loss is greater than 0.5ha in a large or contiguous habitat (greater than 10 ha), this project is considered to have a significant impact.

The approach to minimise impacts includes movement minimised during flying period, areas of habitat delimited by barrier tape and vehicle movement contained to road. There are no figures showing the GSM habitat with respect to the project area, and thus it cannot be assessed how the project components are implicated with the GSM habitat.

Survey method to detect GSM and reporting

Detailed information on survey methods are required to understand how ERM arrived at the conclusion of the impact of the project on the GSM.

Critical information for assessing populations is missing from the report. For example, it is unclear where in the study area the surveys were conducted. The report states in "derived native grasslands", "preferred habitat" or "areas of suitable habitat - the figure the reader is referred to (Figure 4.2) does not make mention of surveys for golden sun moths. The reports states that 82.48 ha of GSM will be removed; however it is unclear how this area was determined based on the survey method.

It is unclear what area (size) was surveyed and while the report states that 103 males and 1 female were observed at 22 sites it is unknown how many sites were surveyed. Were GSM observed at all sites surveyed? What percent of the study area was surveyed (and why) and what percent of the study area is "preferred habitat" (and why)?

The report states that the targeted surveys were undertaken for the GSM in accordance with the "Survey guidelines for detecting golden sun moth"; however the survey guidelines propose fixed point or transect methods while the Bango Windfarm was surveyed by "random meandering".

There were some inconsistencies throughout the report with respect to the amount of GSM habitat that will be removed; for example, in one section of the report there is 782.57 ha of GSM habitat in study area with 98.1 ha impacted verses 810 ha in study area with 100.87 ha impacted (82.48 permanent) while table J.2.1 reports that 51.94 ha of GSM habitat will be removed.

Frogs

The assessment of the impact of the proposed windfarm on frogs is incomplete and confusing. As it stands, it is unclear where frog habitat is located in the area (a figure highlighting potential habitat would be useful) and what amount of habitat has been surveyed (a figure showing survey effort in relation to habitat would also be useful). Therefore, it is unclear if frog species will be impacted by this project.

Table 4.1 states that for diurnal frog survey effort "habitat searches undertaken in conjunction with habitat assessment"; what habitat assessment is the table referring to? There are no hours recorded as to how long the habitat search was conducted. The table also states that creeks, waterways and soaks were surveyed. Where were these surveys conducted? A link to a figure highlighting search effort and habitat assessment is required along with further description of the searches.

For nocturnal frog surveys, more information was provided. However, only one transect was searched by foot and one (or two? see comment below) by vehicle for the entire area and both of these areas were outside of the study area. Figure 4.2 also shows only two areas where surveys were undertaken (presumably these are the nocturnal searches) for frogs (both of these areas were outside of the study area). Why were there no frogs surveys undertaken in the study area (see figure 4.2)?

Section 4.7.2 states that one road survey was undertaken on a wet evening in February, yet table 4.1 states that 2 road based surveys were undertaken. It is unclear how much habitat is frog habitat and how areas were selected for searches as the report uses vague descriptions such as frog searches were undertaken in areas of "observed habitat", "microhabitat" and "surveys targeting potential habitat".

The pitfall traps designed to catch reptiles appears to be highly successful in trapping frogs (125 frogs caught in pitfalls verses 8 recorded from field surveys). Can the Booroolong and Growling Grass Frog be detected using pitfalls? And if so perhaps pitfalls should be distributed in their potential habitat to enable a more detailed assessment.

In the 'likelihood of assessment section' (Annex E), a table describes the Booroolong frog as living along streams and the likelihood of occurrence as unlikely due to lack of swamps while the Growling Grass Frog is reported to live in swamps and its likelihood of occurrence is unlikely due to the nature of the streams in the study area.

Survey area

The project area is described as including the "development foot print", the "study area" and the "locality". The study area is defined as a buffer of 100 m radius around the development footprint. However, a number of the fauna surveys included in the EA were conducted outside the study area (see Figure 4.2 of report). For example, Anabat detectors, harp traps, trap lines, call playback and spotlighting, and frog survey, all include survey sites outside of the study area.

Additionally, the hollow bearing tree search area extends substantially further out than the study area.

It is unclear why the study area was not increased to include all relevant survey sites? The report should be revised to justify the areas surveyed and their relationship to the project area.

Survey timing

Surveys were conducted from August 2012 to February 2013. The surveys therefore missed half the year. There are significant seasonal variations in abundance of species or detectability. The survey period was also described as a dry period.

Turbine height

The reports states proposal to change blade tip height of turbine from 192 m to 200m. With original wind turbine height of 192 m and rotor diameter of 144 m, the distance would be 48 m from ground to bottom of the blade tip and with new height the distance would be 56 m from the ground to the bottom of the blade tip; however, the report states that "this adjustment increases the distance from the ground to the bottom of the blade tip from 64 m to 72 m". We may have missed something in the structure of blades and measuring their diameter. Regardless changes in the heights both at the top and bottom have important implications in relation to flight paths of birds and bats of varying shapes and sizes.

Biobanking Assessment Methodology and Credit Calculator

Two new bills, the Biodiversity Conservation Bill 2016 and the Local Land Services Amendment Bill 2016, were passed by NSW Parliament on 17 November 2016. They will repeal and replace the Threatened Species Conservation Act 1995, the Native Vegetation Act 2003 and the Nature Conservation Trust Act 2001. Further details, including draft land-clearing Codes and Regulations, are likely to be exhibited in early 2017 and are likely to have a bearing on the Biobanking processes described in the EA.

Notwithstanding this uncertainty, the Biobanking credit results reported in the PA should be treated with caution because there is no indication that the results of the assessment were submitted to DECC as part of an application for a Biobanking statement or Biobanking agreement. DECC is required to review the application and, where approved, the Director General will issue a Biobanking statement or the Minister will approve an agreement. There is no indication that the assessment has been approved.

Under the former TSC Act, a Biobanking statement can only be issued for a proposed development if the Director General makes a determination under the methodology that the development will improve or maintain biodiversity values. The methodology establishes the circumstances under which the development can be regarded as improving or maintaining biodiversity values. This includes circumstances where the impacts of clearing on biodiversity values at the development site are offset against the beneficial impacts of management actions that create biodiversity credits at the biobank site.

There are no management actions listed to create biodiversity credits at a biobank site to offset any direct impacts of development.

Comments on specific sections of the ERM Ecological Assessment

Further general comments and notes on the Ecological Assessment regarding Section 5 are detailed below.

Section 5 Results

5.1 Weather conditions

In the EA, weather details are provided as an average for each month rather than the detail during surveys. Rainfall and temperature can affect survey results; for example, fewer birds may be reported during bird surveys in very warm or very cool temperatures when compared to intermediate temperatures. Average conditions offer little insight to those that applied on the day or night of the actual surveys.

The statement "while the survey period was warmer and drier than average, this was offset by the wetter, cooler than average conditions in the years and months leading to the survey period" demonstrates that different weather conditions occur over different years. As weather conditions can affect species present and species abundance it is imperative that surveys be conducted over multiple years. For example, frogs may be more abundant in wetter years compared to drier years.

For table 5.1 monthly weather observations during survey period, January and February are reported as 2012 – is this a typographical error, should this be 2013 as surveys were reported to be conducted in January and February in 2013 or were data supplied for January and February 2012?

The lowest daily maximum temperature was reported – it would be more beneficial to report minimum to gain complete range of temperatures of the study period.

What does superscript 1 refer to in the rainfall column?

Why is the minimum wind speed reported as calm and the maximum as a figure?

5.2 Literature search

The methods state that database searches were conducted from June to August 2012 and then updated again in March 2013; the results don't state whether or not there were any changes from the 2012 to 2013 searches.

In table 5.3 there are 5 flora species listed as threatened are identified in the database search; however, there are only 2 species shown in figure 5.1 threatened flora and fauna recorded in the locality. Where were the silverleaf candle bark, Hoary sunray and Omeo stork bill located?

For the fauna database search the text states that "searches undertaken with approximately 10 km buffer around the study area" and that 58 species were recorded; however figure 5.1 showing records of threatened species within 10 km of study area are shown, but only the golden sun moth, superb parrot, brown treecreeper, speckled warbler and koala are shown.

Only 36 birds are recorded in table 5.4 yet the text states that 48 species of bird were identified.

5.3 Vegetation mapping

The reports states “A likelihood of occurrence assessment was conducted on remaining species and 10 species are likely to occur or have the potential to occur in the study area” and refers to Annex E; however there are 5 flora species listed in Annex E. Additionally, in the results summary (5.14) the reports states “nine threatened flora species listed under EPBC Act and/or the TSC Act were considered likely to, or have the potential to occur in the study area”.

With reference to the above statement – what are the remaining species? “Remaining species” cannot refer to the 127 flora taxa in the study area as these as these were observed as occurring in the area, while it cannot refer to species identified in database search as only 5 species were identified and the results go on to say “10 species are considered to be likely or have the potential to occur”.

5.5 Fauna habitat

A map/figure is required to indicate where fauna habitat (including hollow bearing trees, paddock trees, tussock grassland, deserted mines, farm dams and creek lines etc) are located in comparison to the project components.

The test refers the reader to figure 5.5 for information relating to 449 hollow bearing trees which were identified within 500 m of proposed turbine; however figure 5.5 is a species accumulative curve. Figure 5.4 is a distribution of hollows recorded by size and does also not provided information relating to 449 hollow bearing trees within 500 m of turbines.

The information regarding disused mines states “very little activity was recorded from these sites” – this suggests that some activity was recorded. What was this activity?

5.9 Birds

Threatened birds are listed but not the number recorded. The speckled warbler and spotted harrier were not recorded in text.

All months were not surveyed, which is an issue because species may be missed. Additionally, the number of individuals may change over different months as habitats are used in different ways at different times of the year.

The report states that six different species were recorded, one was recorded at 20-40 m height class and the other two were recorded at the 40-150 m height class. What height class were the other 3 species flying at?

The report states that the Superb Parrot at 0-20m (one at 20-40 m), the Little Eagle and Spotted Harrier (40-150m) – why was the Little Eagle not recorded in Table 5.13.

5.9.2 Bird utilisation survey (and Annex D)

This section of the EA states that comprehensive results of the bird utilisation survey are found in Annex D; however, Annex D does not provide comprehensive results of the survey, only information on the survey site and month the survey was conducted.

The assessment needs to be clear which turbines the project will use. If the project uses wind turbines with the "lowest possible swept height (which) would be 25m", this puts another 59 species into the flight path of turbine rotor. If more species are going to be impacted by the turbines, additionally, impact, avoidance, mitigation and offset assessments are required.

It also leaves a number of other questions hanging. How were sites selected for the bird utilisation survey? Why were some sites surveyed up to 8 times and others only once? What are the implications of this variation? What is the difference between impact and reference sites? How were flight heights determined? What is the probability of correctly identifying the height the bird is flying?

5.10 Other birds

The Spotted Harrier is not shown in figure 5.3

5.11 Bats

It is unclear how many bats were identified from the assessment. The report states that 13 species of microbats were identified and then states a further 3 species were identified from harp traps; however only 13 species were listed in table 5.15.

5.14 Results summary

The results summary is incorrect. It refers to table 5.20 but should be 5.21. Table 5.21 is missing spotted harrier.

Comments on Section 6. Impact evaluation

6.2.2 Collision related mortality

The statement "No large concentrations of birds were recorded in the study area" is not quantified. What is a large concentration? What "concentration" of birds were recorded in the results? In order to make the claim no large concentrations of birds were recorded in the study area, the report needs to describe what a large concentration is and compare the number of birds identified in the report to support the claims that are being made.

Additionally, the statement "the area is not known to form any part of any significant migratory routes for large numbers of birds" may be misleading. What is a large number of birds? The area is a significant migratory route for the migratory Rainbow Bee-eater.

More generally to make the claim that "the area is not known to form any part of any significant migratory routes for large numbers of birds" requires the assessment to define what is a large number of birds.

The statement "turbines constructed linearly in long strings result in more collision mortality than turbines that are constructed in clusters" also needs to be quantified. How many turbines generate more collision mortality when positioned linearly than in clusters? The clusters proposed in the project consist of several linear strings, how is collision mortality affected by clusters of wind turbines constructed linearly in long strings?

The report states that “bird collision risk may vary on a seasonal basis due to bird migration or breeding. This is true for the superb parrot which occurs in the study area in high densities during the breeding season (spring – summer) and migrates northward during winter.” The bird survey was only conducted from November to February and superb parrots were recorded in November and December. There is no information provided for the remainder of the year. It is important for scientific credibility that surveys are carried out throughout the year to determine how important the habitat is to superb parrots. For example, twice as many birds were recorded in November than in December, would more birds be observed in the earlier months of September and October.

The information provided for bats is not clear and potentially misleading. The statement “it is not expected that significant numbers of individuals congregate in the study area at any stage. Therefore, the proportion of Eastern Bentwing-bat that would be at risk of rotor collision impacts in the study area is relatively low” needs to be quantified. Again, what are significant numbers and how many bats were observed in the area? Perhaps population numbers in the area are small, it is unknown if any collision would have a detrimental impact on the population.

The statement “ the only mortality rate data in the public domain in Australia... of 1.86 bats per turbine per year” is contradicted by a statement on the following page “where reliable data are available the deaths reported range from 1.6 to over 90 bat (deaths) per turbine per year “. While the second statement is recorded under the subheading barotraumas, the reference does not discriminate the method of death for the bat.

6.3 Avoidance of impacts

Table 6.2 Avoidance measures adopted into the project design has no significance without reference to a figure showing the changes and highlighting where important areas are being avoided.

6.4 Mitigation measures

An issue is described as “loss of biodiversity” in table 6.3; loss of biodiversity is an extremely vague term to use as an issue that has mitigation measures lined up against it.

The tables are incorrectly referred to throughout the whole section; for example, table 6.5 is incorrectly referred to as table 6.3 in the text and table 6.6 referred to table 6.4 in text.

Again the information presented in table 6.5 really needs to be shown using a figure (as well as in the table). While it is informative to know how much of each type of habitat is going to be impacted by the project, it is imperative that the habitat types and sections to be impacted are mapped; this is important so that the reader can see where the habitat is relative to other habitat and where the habitat is relative to the projects components.

The statement “the majority of the project infrastructure has been sited to avoid areas of woodland and open forest” needs to be clarified – how much is “the majority”? The report should refer to a figure showing woodland, open forest and other habitats and how the project infrastructure avoids these areas.

The statement “the majority of vegetation to be removed comprises derived native grasslands, exotic pasture, or cropping, with only a small proportion of native woodland /open forest” is vague. Again, the report needs to quantify what “the majority” is and what “a small proportion” is. The

report again should refer to a figure so the reader can assess where the different types of vegetation are that are going to be removed in relation to other habitats and the project components. The figure would also enable a visual assessment of the amount of vegetation to be removed compared to what will not be removed.

The statement “as the majority of vegetation to be removed is in a degraded condition” is vague. Again, what is “the majority”, additionally, the report should refer to a figure so the reader can assess the different conditions of vegetation are that are going to be removed in relation to the conditions of the surrounding habitat and the project components.

A figure is required to show how “wind turbines and infrastructure have been located to avoid removal of large tracts of forest or woodland that would be associated with key wildlife corridors within the study area and locality”.

The report states that “overhead transmission line easements have the potential to impact wildlife corridor connectivity by fragmenting tracks of forest or woodland. Potential fragmentation or isolation of these habitats has been largely avoided”. Again vague, what does “largely avoided” mean? A figure is required to show where corridors are located in the study area and where the project will impact the corridor. What is being done to mitigate these impacts? Only avoidance? Are all corridors avoided? What species rely on corridors and may be impacted by the project?

6.8 Offset measures

A figure is required to show vegetation zones.

Why are there only three species listed for species credit requirements (table 6.15). Were these species identified as having residual impacts?

Only potential offset sites have been identified, further investigations are required to determine if they are suitable to provide required offset and if they can be used as an offset site.

Several potential sites have been highlighted for further investigation in providing the required offsets (see figure 6.1 and 6.3) but should be figure 6.3.

Comments on Section 7. Matters of National Environmental Significance

Methods

This section states that the “following description describe only those methods which were to specifically address matter of National Environmental Significant”. This is incorrect as the methods reported in this section are vague and appear to just be a summary of the methods described in Chapter 4.

Results

The report states that one Threatened Ecological Community was identified within the project area. The report states that the TEC is widely distributed in the project area, however it does not provide the amount of coverage of the TEC. Additionally a map is required to determine where these TEC occur in relation to ALL possible turbine plan layouts.

Again, critically endangered White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland were recorded in the area however a figure of the area and where it occurs in relation to the turbine layout are not provided. The report refers to Figure 5.2; however there is no Figure 5.2 provided.

The report notes that the project will significantly impact the TEC Box-Gum Grassy Woodland and Derived Grassland.

A Significant Impact Assessment was carried out for 9 flora species; however only one (Yass daisy) was discussed in the report. A summary describing the results of the impact assessment for all species is required. Simply stating that the project is not expected to result in significant impacts is not enough detail.

The detail provided for Yass daisy is contradictory. In one paragraph the Yass daisy is described as "has been described in the study area" and in the following paragraph "an important population of Yass Daisy has not been recorded in the study area". What constitutes an important population?

The report states that the project will have a significant impact on the Golden Sun Moth.

The report states that the Swift Parrot only breeds in Tasmania and migrates to the mainland in autumn. As the bird survey were only conducted from November to February it is likely that they were conducted at a time when the Swift Parrot was not likely to be on mainland Australia. This demonstrates the problem with only conducting surveys at one time of year. We suggest and recommend that surveys be repeated at different times of the year and over multiple years.

Legless lizard and Pink tailed worm lizard not found and even though their habitat is in the area they are said to be not significant. Suggest map showing potential habitat and impact of layout on habitat.

References

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