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To: Director Energy Assessments

Planning and Assessment

Department of Planning, Industry and Environment

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Friday, 29th January, 2021

Re: Development Title: Hills of Gold Wind Farm

Application Number: SSD- 9679

The points below are in direct response to the development proposal and the recent EIS. I have lodged an earlier submission which addressed traffic. In this submission I am focusing mostly on endangered communities and flora as this is my previous area of expertise, given my background in Ecology with a focus on Botany. I have not personally undertaken any field studies as part of this project, so my on-the-ground knowledge is based on some familiarity to this general region which I grew up in, and an understanding of the ecological science presented in this proposal due to my studies and career in Environmental Science.

Unique Location

- The altitude of this project is around 1100m, which makes it a unique ecosystem containing species that are limited by the growing conditions linked to this elevation. In Australia, this altitude would be considered sub-alpine and parts of the project area lies within the alpine range (>1200m). In Australia, the alpine region accounts for less than 1% of our total landmass. Increasing threats from drought, a pattern of rising temperatures and altered seasons e.g. longer, hotter summers, may potentially marginalise this unique landscape further, forcing species and vegetation communities into higher altitudes. Given this is a mountainous area, it is geographically bound and is in essence, an island-type ecosystem. Therefore, species are unable to migrate to higher altitudes as they are at their limit and face local extinction as a worst case scenario. Clearly the area we are dealing with is highly vulnerable to disturbance both natural and man-made, and disturbance from this development is likely to lower the resilience of an already sensitive ecosystem potentially leading to irreversible damage.

Threatened and Sensitive Plant and Ecological Communities

- The community Snow Gum-Mountain Gum- Mountain Ribbon Gum is stated in this development proposal, to be faced with potential direct impact to 2% of the total community (based on area). This may sound like a negligible amount, however even a small

direct impact to an already fragmented community may be devastating. Extensive clearing and die-back from drought has increased the vulnerability of these remnant communities. Any land clearance, however small may threaten the critical role they play as corridors for wildlife. There is much documentation about the "edge effects" in reducing the quality of habitat in the fragmented communities (Williamson, 2018).

- Even though the Snow Gum-Mountain Gum- Mountain Ribbon Gum community is not threatened, it is very distinctive and unique to this region and holds strong cultural significance to many of the local Nundle, Hanging Rock and Barry residents. A recent land clearance on Barry Road demonstrates this social and cultural attachment. There was a massive community outcry following this land clearance and further clearing of this community is likely to cause similar a similar community response, even if it is only 2.2% of the total area said to be impacted (Table 9).
- I would suggest that any "estimations" related to the size of this community and area impacted is not a true indication of the potential impact. And therefore "size/area" as an estimation for potential impacts is not a true or accurate measure of the extent of damage which may occur as a flow-on impact. I would recommend much more rigorous testing to measure "true" impact such as number of mature trees, number of trees with hollows, potential for and quality of existing regrowth (see Williamson, 2018).
- The report states that there are no threatened ecological communities on the ridgeline within the proposed development 'corridor'. If this is in fact the case, this can not be said about the adjacent areas to the corridor and that species that are linked to any threatened communities in the area e.g. Snow Gum-Mountain Gum- Mountain Ribbon Gum may regularly move between fragmented 'Threatened Plant Communities' (TPCs) and potentially through the area of the proposed wind farm. Increased movement of displaced animals can lead to increased transport of weed seed as they move through disturbed and infested areas. Movement can also lead to increased risk of predation, direct kills by machinery and more. A parallel can be drawn with the current increased roadkill of native species in this area as they are searching for resources outside their normal range. Multiple studies have made the link between drought and habitat fragmentation on roadkill, especially in macropods (Bond & Jones, 2013). Several of the vulnerable macropods known to be in this area and listed in Table 7 have been noted by the author as roadkill in recent times e.g. Red-legged Pademelon and Brush-tailed Rock Wallaby. The increased movement of vehicles linked to this development will only increase the risk of species loss from road kill.

Invasive and Exotic Weeds

- The spread of weeds due to disturbance during construction is a very real concern. Changes in land-use in this area in the past and associated land-clearance, has resulted in the establishment and invasion of Blackberry bush *(Rubus fruticosis*) in native forest. This highly invasive weed is very difficult to control and is easily spread, especially by animals. There are many other opportunist species that are known to this area that may spread as a result of landscape disturbance and listed as potential weeds of national significance such as Green Cestrum (*Cestrum parqui*) and Broad-leaved privet (*Lingustrum lucidum*) (Australian Government, 2019).

Ecosystem Values

- The Environmental Impact Statement for the project (p iv) discusses the value of this project in reducing carbon emissions by 654, 500 tonnes per annum. Does this take into account the carbon emissions released during transport? Appendix G states that over a 2 year period

there will be on average 1350 vehicles per day. This equates to 985, 500 vehicles over 2 years

- In 2017, the average combined CO2 emissions for a new light vehicle sold in Australia was 0.182 kg per kilometre (g/km). If each of these vehicles drove 100km, this equates to 179 tonnes of carbon for light vehicles only. It is estimated that this amount is likely to be 10 times as much given the size of the vehicles, the distance travelled and the terrain.
- My greatest concern is the enormous loss of established forest not only in terms of carbon sequestration, but ecosystem services
- An established forest has the ability to sequester up to 23 tonnes of carbon per hectare per year. With over 200 hectares proposed to be cleared, another 4600 tonnes in a single year may be lost. Again, these are rough figures and no doubt a gross under-estimate
- I have barely scratched this surface on what habitat and ecosystem lost means for this project. However it is of my sincere and absolute belief that the ecological cost far outweighs the saving of carbon emissions despite the very best intentions of the clean energy bill.

References

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