

FROM:

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TO:

Director - Energy Assessments  
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Parramatta, NSW 2124

Date: \_\_ 29 January 2021

TO WHOM IT MAY CONCERN

RE: HILLS OF GOLD WIND FARM APPLICATION NO. SSD 9679

- I am attaching my submission to the above mentioned development application
- I hereby declare that I object to the Hills of Gold Wind Farm proposal ID no. SSD 9679
- I would like my personal details withheld
- I have not made any reportable political donations in the previous 2 years



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Signature

## SUBMISSION FOR OBJECTION

I hereby declare that I object to the Hills of Gold Windfarm proposal ID no.SSD9679

**SUBURB: Nundle**

### REASON FOR OBJECTION:

#### SUMMARY OF OBJECTION

The Nundle Wind Farm proposal is built upon a set of assertions regarding the net benefit to the environment and to Nundle which are flawed. The follow assertions are flawed:

- The project can guarantee a net ecological and climate benefit through reduced greenhouse gas emissions and offsets.
- The project will bring economic benefit to Nundle
- As a 'green' project, the wind farm will highlight Nundle and its proponents as progressive

This submission will briefly outline some of the issues with the project assumptions in order to demonstrate the significant risk that the benefits will be outweighed by harm done by the project:

- **Risk to the environment and climate:** Reducing emissions are only one component of ecological and climate benefit. It appears that the research supporting the EIS may have underestimated the potential for climate mitigation, increased bushfire risk, compromise to the local small water cycle, and impact on biodiversity, etc
- **Risk to tourism and limited economic benefit:** Much tourism in Nundle is driven by attraction to nature, cultural history, and being a little off the beaten path - this project is at odds with those attractors and may be better placed where tourism is lacking. Furthermore, Nundle itself will not receive much in the way of direct economic benefit through ongoing jobs or land sale
- **Risk to reputation:** Because of the potential for multiple negative ecological and economic impacts, we are concerned that the project will reek of greed, self-serving interest and short-sighted ecological and economic objectives, which will reflect poorly on the community of Nundle as well as the project proponents and the Green movement more broadly. The project is self-defeating.

In conclusion, by rejecting this project we aim for Nundle to remain a progressive community that is known for long-term investment and regard for our environment and our economy, which are intrinsically linked. We believe that wind energy is an important part of a broader sustainable energy strategy to reduce our society's dependence on fossil fuels and emissions that harm our climate - we just believe that the benefits will be better realised in a different location.

Nundle was my birthplace. Nundle and its landscape was my early home. My father Max and mother Dorothy moved to Nundle in 1967 to pursue a life connected to nature working the landscape for honey with their bees, market gardening, and promoting environmental measures like rainwater tanks and campaigned for water quality and security long before they were accepted.

My father witnessed the clearcutting of forests across NSW, much of which had been red cedar - a rainforest species. In my lifetime I have seen big projects like coal mining irrevocably wreck the landscape in service of an energy source that we are now moving away from - and experienced powerlessness to stop it. Let's not repeat the same mistakes.

COVID-19 has brought us the opportunity to reassess what is important and to see the power of nature when humans aren't so busy running around everywhere. Nature fixes herself astonishingly quickly, when we aren't intervening. Let's follow her lead, and think more carefully about where we decide to intervene, and what purpose it serves.

## **RISKS OF THE PROPOSED NUNDLE WIND FARM - OBJECTION DETAIL**

### **Risk to the environment and climate**

#### *Risk of net negative climate mitigation*

The EIS makes assertions about the **net** climate moderating outcome of the Hills of Gold Wind Farm, and these are flawed because they omit other factors that contribute to climate change.

The goal of climate change mitigation is to limit global warming to a sustainable level. The main purpose of Renewable energy is to lower greenhouse gas emissions implicated in **global warming**. That is: Global temperature moderation. The overall goal of CO2 sequestration or emission reduction is to limit global average temperature increase. Reducing greenhouse gas emissions is only one strategy. Whole systems approaches to climate change mitigation involve the entire ecosystem. Mitigation of global warming by way of vegetation increase is another way to help cool the planet - one seen to be more effective than reducing emissions alone, as cited in the recent book 'Drawdown'.

We emphasise the risk that the Hills of Gold Wind Farm will contribute to a direct and local net gain in temperature, rather than a reduction in temperature.

The project is premised on clear-cutting a forested ridge. The term 'forest' hides the complexity of what is proposed to be removed. As we know, dense, complex and multi-strata areas of vegetation including trees and other plants (known as forests) are critical to moderating temperature and, therefore, climate. How can removal of climate moderating organisms (eg plants) result in a positive global or local temperature moderation? We acknowledge that the forest will likely be replaced by grassland, but this will be inferior in climate moderation for decades, if not in perpetuity.

#### *Disruption of the local small water cycle and other impacts to the local micro-climate*

The proposed wind farm project will significantly alter the local micro-climate, with adverse effects that will extend far beyond the proposed section of the ridge. These impacts will include:

- Disruption of the small water cycle and groundwater diffusion. To understand the small water cycle and its significance, view this short video that presents the research of Dr Jan Pokorný: [https://youtu.be/FMOW\\_0lxxKk](https://youtu.be/FMOW_0lxxKk) The current forested area contributes to the ecosystem services that keep the local ecosystem functioning. Two critical services provided by the forest are

contribution to the small water cycle and groundwater storage and diffusion. Dense, complex and multi-strata areas of vegetation harvest dew from the atmosphere through condensation, feeding plants and their fungal and bacterial symbionts, in turn enabling capacities for groundwater storage and diffusion of water through the soil and plant layers. In other parts of the cycle, plants also release water vapor through evapo-transpiration, which serves to cool the air via latent heat exchange. The forest, in aggregate, serves to regulate groundwater as well as the area's temperature. In an area with limited and variable precipitation, every drop of water is precious. Nundle and its surrounds cannot afford to live with *less* water. We also will suffer if local temperatures rise due to a reduced capacity of the forest to provide its fundamental 'air conditioning' role.

- The small water cycle also distributes humidity more evenly over the seasons/time, which also contributes to moderating the highs and lows of temperature cycles. Measuring temperature near land surface and at different vegetation strata levels is good way of measuring the functionality of a microclimate/local ecosystem. Abundant plant biomass, photosynthetic surface area and ecosystem functionality has a direct correlation with temperature moderation. High daily fluctuations of temperature are an indicator of an ecosystem and plant system dysfunctionality. In other words if vegetation is removed or negatively altered, the ecosystem no longer self regulates. This results in drying local microclimate and negative biological changes.
- Alteration of the local nutrient distribution cycle: For the past 30 years Peter Andrews, who pioneered Natural Sequence Farming (NSF), has been demonstrating key principles endemic to Australia that our European-derived land management practices have overlooked. Peter Andrews and NSF are well known to many Nundle community members. Drawing upon lessons learned from practice, Peter has observed that plants manage the health of the landscape, and that nutrient cycles begin at the top of the system and move downward and to the sea. As part of the land management practices that take into account this dynamic, trees are maintained on ridges, tops of hills and high points in order to keep the nutrient cycle working. Nundle has many farmers who are dependent on a functioning nutrient and water cycle and who cannot afford for them to be disrupted.
- The removal of the forested area and the replacement with a wind farm will increase wind through the new forest edges. Among other effects, this serves to increase evaporation rates, drying out the local area, and increasing the temperature on average.
- An increase in roads and hard surfaces together with reduced vegetation leads to increased water runoff, lower infiltration, potentially erosion, 'heat island' effects, and further disrupted hydrological function

### *Increased bushfire risk*

Nundle is already prone to bushfire risk, and experienced a bushfire that started on a ridge not far from the proposed project site in 2019. The combination of raising the local temperature, creating space for more wind, and reducing the amount of water available to the vegetation and groundwater reserves by disrupting the small water cycle (to name a few potential impacts), present the likelihood of an increased risk of bushfire to the area. This is unacceptable.

Increased presence of infrastructure, maintenance & construction activities are also a direct bushfire risk. Beyond the origins of the 2019 Nundle fire, refer to the Tarago fire that started at a wind farm:

<https://www.goulburnpost.com.au/story/4637807/firm-launches-class-action-over-currandooley-fire/>

<https://www.goulburnpost.com.au/story/5762643/currandooley-fire-class-action-strikes-proposed-settlement/>

### *Impact on biodiversity*

We note that the EIS was conducted during extreme drought, and therefore would not be fully reflective of the full biodiversity of the area. We question the validity of the assumptions of net benefit due to the likelihood that the EIS assessment is based on incomplete data that is not reflective of a fully functioning ecosystem. We would also like to note that much of the effects of the drought are man-made -- our land management practices have worsened the effects of drought, and so an argument that drought is reflective of a natural state too does not "hold water".

Removing a mature forest means removing multiple strata of complex vegetation, and research has shown that this cannot be replaced anywhere by human intervention. So the assumptions around offsets are flawed - no man-made ecosystem can ever fully reflect or replace what is lost.

Putting mechanical devices in place of a functioning biological system is a contradiction. This project would **destroy the environment to fail at saving the environment**. It is ironic that a project purporting to lower greenhouse gas emissions and hence limit global warming directly diminishes the ability of a functioning ecosystem to perform that role - and perform that role better than the proposed project. The design of this project epitomises our madness as a society. That is: Destroying the environment to save the environment. If the full climate impacts are taken into account, is this project really of benefit? Does it actually risk doing more harm than good?

### **Risk to tourism and limited economic benefit**

The 'impact by dwelling' is an inaccurate assessment methodology.

Tourism is a major contributor to the Nundle area mainly due to its 'Natural Advantage' of non-industrialised, unique and natural beauty. Nundle has sought for decades to court tourism in order to supplant the local economy. People are drawn to Nundle for its natural beauty, just off the beaten path. Much of the visual appeal of the Nundle area is appreciated by a mobile touring, nature-loving visitor. That would mean people driving, walking, mountain biking, motorcycle riding, and camping nearby to the proposed visual impact zone. The wind turbines will be highly visible to tourists. And we believe that, unlike other wind farm sites that have created a tourist draw for areas lacking in tourism, the proposed wind farm poses a risk to the existing tourist base that Nundle has worked for so long to attract and maintain.

We also believe the risk of putting tourists off will increase into the future. The United Nations has declared a decade of ecological restoration for planetary landscape health and human health. Industrialised mechanical landscapes are the antitheses to this.

Wildness & biological beauty in all its forms will be the currency of the decade of Ecosystem restoration.

**Risk to reputation**

As this outline of potential risks of environmental and economic harm have shown, if this project is forced upon the community, it will likely have net negative impacts. This erodes the social license that wind farms and sustainable energy in general currently enjoys, setting us up for an environment of mistrust. This will jeopardise more appropriately located wind farms into the future. We believe in an energy future that eliminates emissions and dependence on fossil fuel while investing in a broad portfolio of renewable, sustainable energy. With those progressive, sustainable energy goals in mind, we are concerned that this project will be self-defeating.

In the end, there is risk that the community of Nundle, the proponents of this project, and the Green / sustainable energy movement at large will become associated with greedy, self-serving land deals that reflect only short-term environmental and economic goals -- with a net long term harm done to the environment and our economy.

We want to be known as being green and progressive, and this project represents the opposite. We're on the same side. This project does not belong here, it will reflect poorly on us all.

## REFERENCES

United Nations Decade on Ecosystem Restoration

<https://www.decadeonrestoration.org/>

Small water cycle

<https://www.rainforclimate.com/article/trees-forests-and-water-cool-insights-for-hot-world>

<https://www.rainforclimate.com/article/solar-energy-dissipation-and-temperature-control-by-water-and-plants>

<https://www.rainforclimate.com/article/water-for-recovery-of-the-climate---a-new-water-paradigm>

Makarieva, A. & Gorshkov, V. (2010) The Biotic Pump: Condensation, Atmospheric Dynamics and Climate, *International Journal of Water*, Volume 5, No. 4, pp 365 – 385.

Norris, D. & Andrews, P. (2010) Re-coupling the Carbon and Water Cycles by Natural Sequence Farming, *International Journal of Water*, Volume 5, No. 4, pp 386 – 395.

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