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Re: Burrendong Wind Industrial Development SSD-8950984

We object to this Project.

The Burrendong Wind Farm is one of many projects which is in the process of development in the Central West Orana region. Table 6-124 of the EIS acknowledges eight operational, approved or proposed wind farms currently on record in the region. There are many other additional wind farms in preliminary stages including the Piambong Wind Farm which the proponent has specifically acknowledged will contribute to cumulative impacts of the Burrendong Wind Farm in the local area. In close proximity to the Burrendong Wind Farm is the pumped hydro storage project being developed by Phoenix. And these are without taking into account the numerous solar projects and ancillary infrastructure. Overall, the Central West Orana region is the site of the State's experimental energy transformation and the communities impacted by the Burrendong Wind Farm are at the forefront of those bearing the brunt of the impacts of these developments.

Justification

Ark Energy seeks EIS approval on the basis that the project is justified on a number of grounds. The most important of these grounds (asserted as generalizations or substantiated by material which is inaccurate) are demonstrably incorrect. The proponent should respond specifically to the matters raised below.

1. The Proponent asserts that "the evolution of Australia's electricity system has resulted in solar and wind energy currently providing the cheapest sources of new bulk electricity supply (CSIRO 2021)."

The first document cited by the proponent as the basis for this assertion is the GenCost 2021 report. It is described as a collaboration between AEMO and the CSIRO and as a "transparent and coordinated approach to updating Australia's electricity generation costs annually."

We now know that the basic documents - CSIRO Generation Cost Report and AEMO ISP - have provided neither proper comparisons with other technologies nor comprehensive and accurate figures of the cost of wind and solar. These documents are publicly discredited as a basis for the proponent's justification. CSIRO figures purported to prove that solar and wind were the most cost effective technologies but did not and do not include almost all transmission, backup and firming costs needed by solar and wind between now and 2030 - tens of billions of dollars! The ISP costs, which are said to include the missing seven years of initial work, don't include essential and extensive distribution network upgrades and transmission projects which are already underway. Moreover, the REZ costs in NSW have now been removed from the transmission investment tests to which ISP projects were subject. REZ costs have been shifted sideways (out of the ISP investment rules) presumably because they were unable to satisfy them. These matters are not disputed.

The second document cited by the proponent is the LCOE formula. This is particularly fallacious as it does not include any transmission costs. It is the same as claiming that a new type of car is the cheapest to build, run and maintain without including the costs of the entirely new road system which it requires.

In the same vein, the proponent asserts that the price of wind farms has reduced by 55-60% since 2009. This has apparently been driven by falling costs of turbines and improvements in technology. Recent publicly available statements however confirm that western world WTG manufacturers are struggling due to increased costs.

The proponent should make available its figures to demonstrate the veracity of its assertion.

We also know that the costs of the essential transmission infrastructure for the Central West Renewable Energy Zone simply continue to escalate. James Hay, CEO of EnergyCo, stated last year that the numbers had blown out considerably from those originally envisaged but that he didn't have "an updated number" at the time! More recent estimates are that the cost of poles and wires only is \$10 billion and climbing. The Network Infrastructure Strategy has reported a five fold increase in the original cost of the CWO REZ taking it to \$3.2 billion on its own.

The proponent is required to justify its assertions in relation to costs by including all of the costs which have not been included in GenCost and the ISP.

The proponent is required to justify its assertions in relation to costs by including all of the costs associated with the transformation to a renewable grid including transmission and dispatchable storage.

2. The proponent asserts that there have been continued improvements in wind farm reliability. Unfortunately, it also asserts that the global weighted average for a WTG has now increased to 36%.

The proponent should explain how an average capacity factor of approximately one third can be justified as "reliable" in any circumstances.

The proponent should provide actual, real data in relation to NSW wind farms and their recorded average capacity factor.

The proponent should disclose the capacity factor which it has used in its calculations in relation to the viability of the Burrendong Wind Farm.

3. The proponent acknowledges that as a result of the low capacity factor of intermittent generators, government policy requires huge increases in the number of wind and solar generation facilities to ensure sufficient generation.

It is possible to compare energy generators on the basis of the resources that are consumed to produce them. The greater the resources consumed by a power generator, the lower the power density. This is one of the most important calculations in physics. The "Iron Law of Power Density" helps explain why wind energy requires too much land and resources to power our modern society.

The proponent should provide a comparison of the resource intensity required by onshore wind energy c.f. nuclear, coal and natural gas. In so doing, the proponent must factor in the kilograms of metals and minerals needed per MWh and the land use.

4. The proponent asserts that "increasing the number of wind and solar generation facilities does not threaten reliability of the grid when developed in a way that ensures appropriate infrastructure is provided to support intermittency. This includes investors responding to market requirements and building sufficient dispatchable generation such as battery storage"

The proponent should explain why the costs of the infrastructure required as a direct result of the unreliability of wind generation have not been included in its references to the low cost of renewables.

The proponent should explain how it's assertion that wind generators are reliable can be supported when it acknowledges that it will require backup dispatchable generation to be built.

The proponent should explain how the following problems which arise from the intermittency of the generation and do threaten the reliability of the grid have been overcome:

- Wind generation is an Inverter Based Resource (There are no major grids in existence that have only IBR providing grid electricity.)
- Batteries and synchronous condensers do not replace synchronous generation.
- Voltage collapse.
- Reactive power.
- Frequency control and Inertia.
- Load shedding
- System function during frequency excursions.

5. The proponent asserts that there are lower embedded emissions with wind energy generation and that the time it takes for a WTG to repay the energy used in construction and transportation ranges from 5 to 8 months.

The proponent should explain whether the following have been included in its calculations of ghg emissions:

- The manufacture of the WTG and all of its component parts, taking into account that currently most of the world's WTG's are made in China and the proponent is unable to confirm which WTG will be used for the project.
- The ghg emissions arising from the transportation of the WTG and parts from the country of manufacture to Australia.
- The ghg emissions arising from the decommissioning of the wind farm, including toxic waste disposal and non-recyclable parts.

On the basis that they have not, the proponent should provide a site and project specific ghg calculation including the above matters.

Decommissioning

Decommissioning is an environmental and financial nightmare waiting to happen. The EIS contains no details in relation to decommissioning. It deals with neither the manner nor the cost of decommissioning. Satisfactory decommissioning is essential as the footprint of the development is very large. There are no guarantees that the proponent will be able to fund these costs or will even exist at the relevant time.

The Proponent must explain the arrangements which have been made in relation to the cost of decommissioning the wind farm and security for those costs.

The components of the wind farm comprise large quantities of materials which are toxic and/or non recyclable. These include some of the largest components.

The proponent must provide specific proposals in relation to the arrangements which will be made for disposal of all components with particular reference to toxic materials and non recyclable parts.

Transport/Traffic

The EIS suggests that the heavy vehicle route to the wind farm will be through rural areas and the road will need to be upgraded. Frequently such actions necessitate private acquisitions or easements.

The proponent should address the following matters which are not addressed in the EIS:

- (a) Are private landowner consents required prior to commencement of road upgrades?**
- (b) Have these consents been obtained?**
- (c) If not, why not?**

The traffic projections for the heavy vehicle route are incorrect, both in relation to existing and projected traffic levels. The failure to use a correct existing traffic level undermines all assessments in relation to projected impacts from the traffic ranging from the impact of traffic noise to the social, biodiversity, business and amenity impacts.

The proponent must obtain accurate traffic volume figures for the heavy vehicle Yarrabin Road route and having done so, must re-assess all impacts arising including noise, biodiversity, business, social and amenity impacts.

Biodiversity and Sustainability

Sustainability involves protection of the environment. The Burrendong Wind Farm has a huge environmental footprint. There will be massive clearances of threatened and protected ecological communities. There will be irreparable damage to threatened and protected species. In addition, the pristine quality of the World's End ridgeline will be lost forever. This is killing the village to save the village. No amount of biodiversity credits will change this situation. In this context, it would have been expected that the Biodiversity Assessment would have been thorough and comprehensive. It was neither of these.

The proponent should explain why many areas were not accessed to be assessed.

The proponent should also explain why effort was not made over more protracted periods and different seasons in relation to endangered and protected species.

The proponent should explain why conclusions drawn from limited investigations should be accepted.

The proponent should explain why the precautionary principle has not been adopted.

The biodiversity assessment is inadequate given the presence of endangered and protected species, the extent of the destruction which will occur, and the limitations of time taken and area traversed. **A more comprehensive biodiversity assessment is required to prevent the irreparable loss of critical habitat and species, including the koalas.**

Community Engagement

Studies by Greenpeace concerning respondents throughout Australia supporting renewable energy do not establish community engagement for this project. Community engagement has, at a surface level, been a "tick the box" affair. There has been no genuine community engagement.

The primary examples of the proponent's failure to genuinely, honestly or transparently engage with the community are:

- **The proponent's failure to take steps to engage with the lessees and site owners at the Burrendong Recreation Park which is in close proximity to the wind farm. There are hundreds of community members who will be impacted by the project but no steps have been taken by the proponent to inform this group.**
- **The proponent's failure to engage honestly or at all with the impacted residents of the heavy vehicle transport route and**
- **The proponent's failure to provide visual impact assessments which the proponent undertook to provide.**

Cumulative Impacts

The proponent has failed to address the cumulative impacts of

- Waste disposal and
- Worker accommodation

which arise from the project. The proponent pushes these impacts aside generally on the basis that they will be dealt with at some time in the future and as required at that time. This ignores both immediate and cumulative consequences. It prevents any examination of how these matters will be dealt with.

The proponent should set out specific proposals for waste disposal and take into account the cumulative impacts for MWRC and the Mudgee community given the extent of renewable projects in the area.

The proponent should set out the specific arrangements for worker accommodation and take into account the cumulative impacts for MWRC and the Mudgee community.

This project should not be approved.

We reserve the right to make further and supplementary submissions.

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