



Community Engagement Review Taskforce

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By Save Our Surroundings (SOS)

Dear Taskforce

Non-equivalence of electricity generation sources

A point that must be considered in any discussion of wind and solar works power generation is the non-equivalence of capacity with other sources of power generation. It is important that the reader understand the terms and acronyms used when discussing electrical energy. For example, the net **Capacity Factor (CF)** is the ratio of an actual electrical energy output over a given period of time to the maximum possible electrical energy output over that period e.g. a wind turbine with a stated capacity of **1MWac** may produce **2,637MWh** in a year out of a possible **8,760 MWh**, therefore its **capacity factor is $2,637/8760 = 30.1\%$** , which is a typical value for modern wind turbines. A photovoltaic (PV) solar Industrial Electricity Generating Plant with a rated nameplate capacity of 400 megawatts alternating current (MWac) produces little more than a quarter of the electricity over its first year of operation than does a modern HELE coal fired plant or combined cycle gas turbine (CCGT) power plant or a nuclear reactor, which can have capacity factors over 90%. The electricity output of a power plant is described as megawatt hours (MWh).

A further complication is the economic lives of wind works, solar works and battery storage is their very short lives compared to a modern HELE coal fired plant or combined cycle gas turbine (CCGT) power plant or a nuclear reactor, which can have lives beyond 75 years.

What the Taskforce should recommend is a method of making the nominal nameplate capacity of any wind or solar works stated in equivalent terms for comparison with base-load electricity generation technologies. Much the same as greenhouse gases are described collectively in terms of carbon dioxide equivalents (CO₂e).

Our suggestion is to set a benchmark that takes in both economic life and capacity factor but as yet ignores the intermittency and declines in efficiency of wind and solar works electricity generation. For example:

1. Assume an economic life of a 400MW capacity nuclear power plant is engineered for is 50 years life and a capacity factor of 90%. This becomes the benchmark (BM).
2. Now assume, somewhat generously, that a 400MW claimed capacity PV solar works (SW) has an economic life of 25 years and a capacity factor of 26.6%.
3. The capacity equivalence (MWe) of the 400MW solar works would become equal to
CW stated capacity times SW life/ benchmark life times ratio of SW capacity factor/benchmark capacity factor = $400\text{MW} \times (25\text{yrs}/50\text{yrs}) \times (26.6\%/90\%) = 59\text{MWe}$.



This crude method demonstrates that solar works equates to about 15% of the benchmark capacity. Wind works would be not much different at 53MEe (20 years life, 30% CF used) as they have shorter life spans (15-20 years) but slightly higher capacity factors (30%) than solar works. Of course wind, solar and BESS works deteriorate in efficiency at about 0.5% to 1.6% a year (a BESS is about 2.4%/yr)

Our submission

The DCCEE's own words in the Community Engagement Review Terms of Reference suggest that the Taskforce will not take any negative feedback seriously because the whole review is based on flawed assumptions. For instance, point 5 states:

"5. The AEIC may assess current relevant government, and industry, policies and reforms, and suggest changes that improve community support for the necessary and rapid expansion of clean energy generation, while:

- a. Preserving and expanding Australia's unique flora, fauna and fragile ecosystems;*
- b. Supporting agriculture and other land uses, including innovative colocation approaches;*
- c. Respecting First Nations people and ensuring they have opportunities to benefit from the transition;*
- d. Delivering community benefits in consultation with communities including any financial benefits, local employment opportunities and skills development;*
- e. Supporting regional development; "*

Our governments and the advocates of wind and PV solar electricity generation have not made a credible case for improving "... **community support for the necessary and rapid expansion of clean energy generation.**" This is especially true for regional and country communities who have already been directly impacted by the dozens of simultaneous pre-planning work for multiple wind, solar, BESS and transmission proposals over the last several years. Once some community members have been "consulted" the Environmental Impact Statement (EIS or equivalent) is put on exhibition. To lodge a submission the thousands of pages of each EIS has to be read first and then individual and community submissions made in a four week period, only to be ignored by the recommending and approving authorities. These EIS and Social Impact Assessments (SIA) are full of inconsistencies, unsubstantiated claims, inaccurate information, obscurity, untruths, omissions and misleading statements. They are in fact just unregulated marketing documents. We list at Appendix A some of the information we currently think is missing from the documents of Proponents. For example, this extract from a recent Council submission supports the frustrations and huge amount of wasted time SOS, other community groups and community members have to endure:

"Council objects to the proposal as the provided documentation is both inaccurate and inconsistent, further it fails to appropriately consider the cumulative impacts of surrounding renewable energy projects within the region.

A significant proportion of the data used continuously draws upon outdated sources. To list a few, the reports have drawn upon 2016 census data, tourism data from 2017/2018, household expenditure data from 2015/2016 and outdated accommodation data among many other inaccuracies. In particular, the current unemployment rate was identified as 6.3% within the SIA and 4% within the EIS where the actual unemployment rate is currently 2.3%



(June 2022). Ultimately, the use of such data has led to the creation of many misleading assessments, skewing predicted accommodation requirements and local employment ratios along with many other predicted impacts.

To further speak to the inaccuracies throughout the documentation, the provided EIS has identified multiple sources of infrastructure that simply do not exist. Gulgong is said to have an IGA and Coles supermarket, hospital and 8 commercial accommodation providers. Gulgong has only a small IGA supermarket (no Coles Supermarket) and a Multi-purpose Service (not a Hospital). Likewise, Dunedoo's Medical Centre has been categorised as a hospital when it is actually a single doctor operated Multi-Purpose Service (MPS). Additionally, the report identifies there are 20 flights between Sydney and Mudgee each week when there are only between 6 and 10. Such discrepancies have exaggerated the capabilities of Mid-Western Region to cater for such a large scale project. In conjunction to the multiple inaccuracies identified, the provided documentation has further inconsistencies."

The claims that there is a need for the "necessary and rapid expansion of clean energy generation" that will result in clean, cheaper and reliable energy generation are unsubstantiated and are contrary to the real world facts evidenced by both domestic and overseas experiences. The "transition to renewables" actually immediately increases CO₂e globally and substantially increases the cost of NEM electricity delivery. It therefore fails the two fundamental justifications of reducing greenhouse emissions and lowering electricity prices to all consumers. Short-life "ruinables" are environmentally toxic destructive technologies and have no social licence from those directly affected, which should be all consumers of electrical energy in Australia.

This current Federal and States' policies on energy will do little to address the already compromised energy needs of the NEM grid, let alone all of Australia. In fact, it will make it worse as evidenced by overseas experiences in recent years and our own experiences in 2021-2023, with soaring electricity prices, blackouts, energy rationing and more business closures happening now and predicted to get worse for years to come.

The costs in net jobs, environmental damage, destruction of wildlife and habitats, visual pollution of natural landscapes, immediate significant increase in global greenhouse gas emissions, increased cost to electricity consumers and tax payers, cumulative disruption to local communities and others along transport routes, health and fire risks, possible use of slave labour, energy and sovereign security risk, and unfunded end-of-life costs, are just a few more reasons this energy transition should not proceed. Australia, as our then Chief Scientist in 2017 stated in a Senate hearing, that even if Australia had no GHG emissions it would make "virtually no difference to the Earth's temperature."

While obvious to many Australian citizens, it is not obvious to those that push "ruinables" because their funding or political agenda often depends on promoting "green energy". If the Taskforce only consults with the same organisations that have totally failed Australia in energy policy advice already in this space then your conclusions and recommendations to the Minister and indeed to the PM will be flawed.



Other countries now recognise these shortcomings and are rapidly turning to better alternatives such as safe, long-life, 24/7 output electricity generation options, such as modern efficient low CO2 producing HELE plants, CCGT plants, nuclear reactors and in the near future small modular reactors. Australia is the laggard in this shift to a more sensible energy policy.

Despite trillions of dollars spent and subsidised on "ruinables" CO2 levels continue to slowly rise. Meanwhile, in countries and jurisdictions that have more than 30% of installed wind and solar electricity generation capacity installed their energy costs to consumers have rapidly risen to amongst the highest in the world and availability became less reliable.

Save Our Surroundings research papers entitled "Wind and Solar Electricity Generation are the Answer. Seriously?" researched the negatives of the transition to "renewables" and the non-factual benefits claimed about them reducing CO2 emissions, providing cheaper electricity, creating rewarding jobs, being safe, being good for the environment, being clean source of energy, will eliminate fossil fuel use, have strong community support, are reliable, and are sustainable. The November 2020, May 2021 and November 2022 papers, which all form part of this submission to the Taskforce, can be accessed at these Submissions – Parliament of Australia (aph.gov.au) locations:

[Submissions – Parliament of Australia \(aph.gov.au\)](http://aph.gov.au) Inquiry into Australia's Transition to a Green Energy Superpower, Sub 028. SOS was called as a witness.

[Submissions – Parliament of Australia \(aph.gov.au\)](http://aph.gov.au) Greenwashing, sub 031

[Submissions – Parliament of Australia \(aph.gov.au\)](http://aph.gov.au) Federal House Committee on Energy - a new inquiry into dispatchable energy generation and storage capability in Australia. Sub 050

[Submissions – Parliament of Australia \(aph.gov.au\)](http://aph.gov.au) Climate Change (National Framework for Adaptation and Mitigation) Bill 2020 and Climate Change (National Framework for Adaptation and Mitigation) (Consequential and Transitional Provisions) Bill 2020 Submission 520 - SOS Central West NSW was one of the 32 witnesses called

Since the last issued research paper of November 2022 a lot more of what we indicated since 2019 has occurred, such as:

- The National Electricity Market (NEM) grid has become more unstable, which necessitates the AEMO using its emergency powers to frequently intervene in the market. Recently the AEMO issued warnings of impending supply shortages (blackouts) starting this 2023/4 summer. SOS stating in 2019 that this was inevitable based on facts and engineering practicality.
- With wind and solar electricity generation capacity having passed 30% of installed NEM capacity the delivered electricity to consumers has very substantially risen by jumps of 20% or more at a time in 2022/23.



- NSW's Liddell coal-fired power station ceased operation in April 2023, which resulted in higher wholesale electricity prices, as occurred when SA and Victoria closed their base-load power stations.
- South Australia, who have about 60% of wind and solar capacity and the once world's biggest battery energy storage system (BESS), have had periods of virtually no electricity supply from these sources due to wind droughts of varying durations
- Following the Moorabool-Geelong BESS fire of July/August 2021, another BESS fire occurred at Bouldercombe Queensland at the end of September 2023. Both lithium battery pack fires burnt for four days and released chemically-laden toxic smoke over residents who were told to stay sealed indoors, have their respiratory medicines close by and be prepared to evacuate if requested by the police. It is unclear the extent that the toxic smoke may have contaminated the local dams and tank water. SOS has been raising the issue of INCREASED fire risks of ruinables works to regional communities since 2019.
- Following three fires in and near the Beryl NSW solar works in 2022 a fire occurred in the works on 24 April 2023 and reportedly destroyed 18 hectares of solar panels with a damage bill around \$7 million. Residents of Gulgong are trying to establish when, where and how the highly toxic thin film PV solar panels were/will be transported and disposed of safely. SOS has been raising the issue of INCREASED fire risks of ruinables works and potential contamination of soil, water and air to regional communities since 2019.
- On 5 January 2023 a wind turbine at Breadalbane wind works caught fire. It was reported six crews responded (20 RFS personnel) to ensure the fire did not spread beyond the turbine until it burn itself out. SOS has expressed the risks to fire-fighters and residents as well the enormous emergency services resources and duration required to just contain, not extinguish, fires involving ruinables.
- On 12 July 2023 a worker at the died after an accident a the Wellington North solar works in NSW. SOS was told that escaping toxic gas may have been involved.
- Communities are now more aware of the some of the negatives of ruinables and are objecting in larger numbers, whether it be the destruction of wilderness areas, such as Chalumbin in Queensland, the proposed Hume Link and other high voltage transmission lines, wind turbines and solar works on increasing areas of Australia's meagre 6% of productive food producing land or wind turbines off our shores, all of which also destroy the local ecologies.

The Taskforce has been asked to "*...suggest changes that improve community support for the necessary and rapid expansion of clean energy generation, while:*

- a. Preserving and expanding Australia's unique flora, fauna and fragile ecosystems;*
- b. Supporting agriculture and other land uses, including innovative colocation approaches;*



- c. Respecting First Nations people and ensuring they have opportunities to benefit from the transition;*
- d. Delivering community benefits in consultation with communities including any financial benefits, local employment opportunities and skills development;*
- e. Supporting regional development;"*

but increasingly more affected communities and others are seeing that there is not a need for the *necessary and rapid expansion of clean energy generation* because renewables are not clean sources of energy and are extremely detrimental to the Australian environments. The points a to e are not being achieved and in fact the opposite is the reality. While a small number of people may financially benefit from renewables projects in the short-term there is a very high price to pay by everyone else both locally and across Australia through destruction of their local environments to every person, household, business, and manufacturer because of ever increasing electricity prices and unreliable supply.

We hope our submission will help the Taskforce appreciate why community support is falling as more and more communities are experiencing firsthand the numerous negatives associated with building an unreliable, destructive and very expensive electricity system based on wind and solar works as the almost exclusive method of electricity generation.

Regards

Save Our Surroundings (SOS)



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Save Our Surroundings (SOS) is part of network of like-minded groups of concerned & impacted citizens in rural Australia directly affected by the proliferation of industrial scale weather-dependent "unreliables" & their negative impacts upon local & global environments & communities. Independently run groups like SOS span multiple States. We share & distribute information, research & experiences with each other & other parties.



Appendix A: Some Suggestions of What Should be in Ruinables Applications

To enable transparency and proper community and recommending/approving authorities evaluation of a solar, wind, storage and new transmission infrastructure projects, the Proponent/Developer Application (EIS/SIA or DA) must provide:

1. That each "Independent Report" included in an application to include a declaration of any financial interests the consulting firm or their owners have in the Proponent/Applicant company or their owners.
2. The comparison with generation alternatives must be against all alternatives of similar capacity (e.g. rooftop solar, CCGT-CC, modern coal-fired plants, modern nuclear plants) on a total life-cycle basis of the longest life alternative. Comparisons to include land space required, total types and tonnes of materials required, and nature of output over each 24 hour period. This information should then be assessed on the basis of sustainability.
3. Details of how and where, if not a standalone electricity generating works, the electricity supply will come from when the solar, wind or storage plants are not supplying sufficient electricity to supply electricity consumers.
4. The life-cycle CO2 equivalents embedded in their specific project once installed.
5. The payback period for life-cycle CO2 equivalents deficit embedded in their project.
6. The payback period for life-cycle energy in/out deficit once operational.
7. Evidence for claims that their output is enough supply 'x' households with electricity (actually they can't supply households over just 24 hours without an alternate source), to ensure the public are not mislead and understand that there will be long periods of no supply from such projects.
8. Soil analysis pre, on and post installation to establish a benchmarks for future comparison.
9. Annual testing of soil for contamination, reported to the Council and government depts.
10. Confirmation that the project site boundary is not within 15km of the closest boundary of a town, national park, major dam or reservoir.
11. Minimum setback from all roads with embankments and vegetation as screening, as for coal mines e.g. 200 metres.
12. The Australian content (\$ and %) of their project, separated into labour, transport, materials, taxes and services.
13. The gross value of the project and the net amount the community can expect to gain/lose.
14. The value of any initial and ongoing subsidies, favourable loans or other benefits provided by all levels of government to the project.
15. Details of any Power Purchase Agreements (PPAs), including duration, price received, and contingency if term is not renewed, penalties for non-delivery of supply amounts.



16. Full details of a decommissioning and disposal plan, including safe-removal and disposal of toxic elements and the full rehabilitation of the land within and around the project site, including resources and estimated times and costs to complete the works.
17. Amount of decommissioning/disposal bond to be lodged with an appropriate government body and the conditions for release.
18. Value of any direct contribution to transmission and distribution networks and associated infrastructure necessary for the project to operate.
19. Value of any contribution or fees to access to the electricity network/infrastructure.
20. Total quantity of materials required for the project by type (steel, PV panels, copper wire, etc.) and by weight (tonnes).
21. Type of fire suppression methods to be installed, including type (e.g. water sprinklers, gas retardant) and the alert methods to fire-fighters (water bombers).
22. Water use plan (source and quantities) for construction and operation, including methods of use.
23. Confirmation that no part the project is within 200m of any waterway (surface and underground).
24. Risk event reporting plan e.g. when any panels or equipment is damaged by fire, storm, hail, etc, including notification to the local community.
25. Extent of compensation to be paid to nearby property owners who incur a reduction in land value as a result of the project or due to fire or contamination.
26. The value of any contributions made to independent research bodies who scientifically study life-cycle "renewables" pollution, resource requirements, impacts on the environment, wildlife and food chain and on humans.
27. Evidence that their product does not include materials obtained from the use of child labour, human rights abuses, and unacceptable impacts on the environments in overseas countries.
28. A risk analysis of the project be included (safety, obsolescence, vulnerability to damage, economic vs. physical life, etc).
29. A chart showing the decline in energy output efficiency each year and projected physical and economic life-time of the project, supported by evidence.
30. Maintenance plan to identify component deterioration on a regular basis (e.g. soil testing if cracking, de-lamination, weather-related damage, turbine blade insect build-up, etc. occurs).
31. Written confirmation from all landholders who lease their land to renewables developers that they fully understand any liabilities they have to remove infrastructure at the project's end-of-life should the then current plant owner not be able to do so (e.g. due to bankruptcy).
32. For wind turbines proof that the infrasound generated will not impact the health of any human.