

Subject: Opposing Submission to EnergyCo CWOREZ EIS SSI-48323210

From: Grant Piper - Father, 5th Generation Farmer, AASM, DFSM, BE(Aero)

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1. I oppose the EnergyCo EIS for many reasons, which I will not spend time detailing here, as I am sure many other individuals will cover them adequately. Rather, I shall focus on the fundamental irreconcilable flaws of the whole scheme.
2. Industrial wind, solar, pumped hydro and the enabling powerline infrastructure will forever spoil productive farmland and decrease food production, and thus food security. People need clean food, cradle to grave, before they need clean (sic) power.
3. The energy consumed in the mining, transport, manufacture and installation of industrial wind, solar, batteries, micro pumped hydro and powerlines is provided by oil, gas, nuclear and predominantly coal. Consumption of these limited resources will increase, not decrease, because of the installation of these inefficient generators.
4. The building of more wind/solar/powerlines to provide energy to build more wind/solar/powerlines is a daisy chain of delusion due to their inefficiency and energy loss at every step - please refer to the 2nd Law of Thermodynamics.
5. With wind turbines only delivering ~29% of their installed capacity (AEMO 2022 data) they are a grossly inefficient way to produce bulk power. The embedded energy and materials in them and the infrastructure needed to connect them to the grid make them expensive environmentally and expensive per kw produced, such that they are counterproductive to the stated aim of reducing emissions. That is, they cause more harm than good to the planet, and power prices will not fall. Not cheap, not reliable. Added to this is the massive local and direct environmental damage caused.
5. Industrial solar delivers less than ~20% of their installed capacity on average (AEMO 2022 data), and so are an even more inefficient way to produce bulk power. To repeat, the embedded energy and materials in them and the infrastructure needed to connect them to the grid make them expensive environmentally and expensive per kw produced, such that they are counterproductive to the stated aim of reducing emissions. That is, they cause more harm than good to the planet and power prices will not fall. Not cheap, not reliable. Added to this is the massive local and direct environmental damage caused.
6. The relatively short life of industrial wind and solar, and especially batteries, is acknowledged as less than 25 years. This means they must be replaced frequently

which incurs a whole new cycle, or a continuous cycle, of energy and materials/resource consumption with the attendant emissions. I refer you to Annex A which compares the costs, materials and other impacts of different energy generators. Note that the 'Capacity Factors' shown in the table for wind and solar are higher than the actual from the 2022 AEMO data, so wind and solar actually compare worse than shown in the table.

7. Battery storage is listed for the Merotherie sub-station, and internal to many of the proposed wind and solar projects in the REZ. Batteries do not produce any power at all and consume huge amounts of energy and resources to produce, so the economic and environmental cost to Australia and the world of using them is greater than even for wind and solar. Once again, their use yields a net result that is counterproductive to the stated aim. I refer you to Annex B - 'Calculating the Cost of Firming the New England REZ'.

8. Micro pumped hydro sites have been identified all over the State, some in the CWOREZ. Pumped hydro suffers many of the same problems as wind and solar. All the 'low hanging fruit' of hydro in Australia has been built. Australia is mostly flat, we do not have large mountains or reliable rainfall or snow. The cost of small pumped hydro is exorbitant for the limited storage and power delivery capacity, and incurs a large local environmental cost. The current bad experience with Snowy Hydro 2 should be a caution to anyone proposing pumped hydro as a solution. Please refer to Annexe C - '...Capital Costs of Firming with Pumped Hydro'.

9. Hydrogen production is also floated as an energy storage solution. Converting water to hydrogen via electrolysis takes a lot of energy and requires access to a lot of water. Water is often in short supply in inland Australia, and food production will suffer if water is taken from it to make hydrogen. Over-building wind and solar to provide capacity to produce 'green' hydrogen is being spruiked. Please refer to Section 6 of Annexe D - 'The Energy Storage Conundrum' for an analysis of this folly. The rest of the document is also very irrelevant.

10. The CSIRO GENCOST report omits all powerline infrastructure and associated expenses prior to 2030 - this is not useful for decision making and is misleading. The true cost to Australian citizens of building the AEMO ISP is unaffordable and the stated goals of providing cheap and reliable electricity can never be realised in this way. Much expert commentary and analysis has taken place on this topic so you don't need to accept my word only - it should be beyond question at this point.

11. All wind and solar generation needs baseload backup to achieve the 99.8+% reliability goal - the historically accepted standard for first-world mains power. Forcing baseload thermal power to operate off its design-point to cater for variable wind and solar leads to less efficient operation, more fuel consumption and instability in the grid. Baseload cannot be eliminated due to the variability of the wind and the

sun setting.

12. In the 21st century I cannot believe we have an energy crisis of our own making. With ample coal, gas, uranium, and wind and solar for remote areas, we should have many options to produce the cheapest power in the world with minimal emissions if intelligently used. Our grandparents who engineered and built a reliable and efficient power system would be appalled at the wasteful and incoherent plans being implemented today.

13. I urge you to diligently consider the engineering reality of electricity production before you set us irrevocably on a path to unreliable and expensive power, which we and our children will be paying for all of our lives. This, along with decreased food production and a poisoned industrial landscape, is not a legacy to be proud of.

folly 
fŏl'ē

noun

1. Lack of good sense, understanding, or foresight.
2. An act or instance of foolishness.
3. A costly undertaking having an absurd or ruinous outcome.

Annexe A - SMR, Solar, Wind Comparison

Annexe B - Calculating the Cost of Firming New England REZ

Annexe C - Capital Costs of Firming Pumped Hydro

Annexe D - The Energy Storage Conundrum