News Queensland

‘Lights will go out’: Grid in trouble within year under wind, solar, hydro

The electrical grid would face trouble as soon as next year under a renewables model where all coal power is closed, it has been revealed.

Brendan O'Malley
Follow

3 min read November 16, 2024 - 3:38PM

AA

The Nogent-sur-Seine nuclear power plant in France. A parliamentary inquiry has heard nuclear won’t come online fast enough to help Australia. Picture: Bertrand GUAY/AFP

The “lights will go out” under a wind, solar, hydro model where all coal power is closed, the final day of a parliamentary inquiry into nuclear energy has heard,

with concerns the nation cannot build fast enough to avoid huge price rises.

But critics told the inquiry in Brisbane on Friday, November 15, that nuclear had huge problems including restrictions on how much rooftop solar power could be allowed.

It would also take at least 15 years to open the first plant, the idea did not have bipartisan support, costs had been greatly understated and longterm waste storage problems ignored.

Consultants Gamma Energy Technology gave evidence that the lowest-cost solutions always had a mix of nuclear, carbon capture, storage, biomass, renewables and peaking coal and gas power plants.

“The solution gets more expensive or unreliable if a technology class is restricted or unavailable,” Gamma’s Geoff Bongers said in his submission.

Genex Power’s 250MW Kidston pumped hydro project on the site of the disused Kidston gold mine, northwest of Townsville. An inquiry has heard efficiently connecting such projects to the grid is a better option than nuclear. Picture: Supplied

“We are now running a risk that the lights will go out if the system follows AEMO’s (Australian Energy Market Operator’s) change scenario, closing all coal and building only wind, solar, storage and interconnectors.

“There will be a detrimental impact on grid security as early as 2025.”

Gamma's latest report said the lowest-cost, realistic grid would include 4GW of nuclear power by 2050, when power demand was expected to have more than doubled.

Do you support nuclear power stations in Australia?

Yes

No

Unsure

Cast your vote

It would also have 11GW of carbon capture by 2050, plus 42GW of gas peak plants, four to five times more wind and solar and six times as much pumped hydro.

There would be no coal by 2050 under that scenario, but 11GW would still be in use by 2030.

Matt Rennie, the co-CEO of consultants Rennie Advisory, said generation would need to ramp up three times by 2040 and five times by 2050.

But renewable plants were usually no more than 1GW each and most were only 500-600MW.

Matt Rennie, co-CEO of Rennie Advisory.

When asked by Labor MP Graham Perrett if his government's strategy of "renewables backed up by storage backed up by gas" was a good one, Mr Rennie said it was — but he was not sure it could be built in time.

"I'm genuinely concerned about energy affordability in the future. We need to consider a pensioner tariff," he said.

Mr Rennie said a lot more effort needed to go into lifting battery capacity in homes, which would require government subsidies, and more work on the impacts of decarbonisation on low-voltage power transmission.

"For example, four EVs (electric vehicles) in a street will overload transformers," he said.

He said the fastest way to decarbonise was to replace coal, not necessarily with nuclear but it made sense to consider it as a "backstop".

The Nogent-sur-Seine nuclear power plant in France. A parliamentary inquiry has heard nuclear won't come online fast enough to help Australia. Picture: Bertrand GUAY/AFP

Sunshine Hydro, which has developed a 24/7 software-based energy connection system said many people did not realise nuclear reactors could not be turned off, although they could ramp down.

"However, this may take an hour or two and it comes with a cost," founder and director Chris Baker said in Sunshine's submission.

"Therefore, a nuclear power plant is likely to be generating with substantial capacity even on mild sunny days when solar could provide more energy than needed.

"Solar generators, particularly rooftop solar that Australian households have invested

in, will have to be turned off to make room for nuclear power in the grid."

Mr Baker told the inquiry that while nuclear was 98 per cent reliable it would take at least 15 years for the first power plant to be operational in Australia, although others following every few years.

"The length of the process and the various layers and successive steps of the regulatory pathway increases the risks of delays, particularly in the lack of bipartisan support," he said.

“Pumped hydro stations could be operational within a five to 10-year timeframe and developed in parallel with each other.

He said the latest CSIRO report found power from small modular reactors cost an average of $287/MWh but its system of efficiently connecting non-carbon power was 50 per cent cheaper.

University of Queensland economics professor John Quiggin told the inquiry that nuclear power was “a bet on unproven technologies with no track record of success”.

He said third generation designs were supposed to cut construction costs and be safer, but the “nuclear renaissance” in the US and other western countries had failed.

Professor John Quiggin. Picture: Steve Pohlner

The handful of completed medium-scale projects had been plagued by cost overruns and delays, leading to a focus on small “modular” designs that could be mass produced in factories.

But so far none of the 40-odd designs were up and running and many were not even in prototype form.

“The costs and operating performance of these designs remains purely speculative,” Prof Quiggin said.

“For Australia in the 2020s and 2030s, nuclear power represents a leap into the unknown. “(Meanwhile) solar PV is already the cheapest source of new electricity generation in most places and cheaper than existing coal and gas in sunny locations such as Australia.

“Recent development of battery technology is now well-established, on a scale

larger than Gen III nuclear, with utility-scale battery storage in the United States expected to

reach 30GW by 2025.”

More Coverage

Grim warning amid nuclear power inquiry

Crisafulli says ‘no, no, no’ to Dutton’s nuclear energy plan

More related stories

Police & Courts

Police & Courts