

Climate Council of Australia

**Submission to: Hunter Power Project (Kurri Kurri
Power Station): Environmental Impact
Statement**

Addressed to: New South Wales Department of Planning, Industry
and Environment

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About the Climate Council

The Climate Council is an independent non-profit organisation funded by donations by the public. Our mission is to provide authoritative, expert advice to the Australian public on climate change and solutions based on the most up-to-date science available.

To find out more about the Climate Council's work, visit www.climatecouncil.org.au.

1. Overview

The Climate Council welcomes the opportunity to comment on the Environmental Impact Statement (EIS) for the Hunter Power Project.

The Climate Council has serious concerns about this proposed gas power station. As we continue to feel the impacts of climate change amid the growing consensus that no new fossil fuel infrastructure can be built, we are extremely concerned that this proposal will add a large amount of unneeded new fossil fuel capacity to the electricity grid when we need to be phasing out fossil fuels. We also do not believe the justification provided for this project in the EIS is backed up by evidence.

This submission will:

- Explain the urgent need to rapidly reduce greenhouse gas emissions and bring to an end new development of fossil fuels, based on the latest science,
- Critique the justification for this project and outline the authoritative evidence that new gas power station capacity is not needed,
- Explain how gas drives up power prices, and
- Question the reliability of gas power stations.

The Climate Council finds that there is no case to build a large gas power station and recommends that the department should reject this EIS. If Snowy Hydro is intent on building 750MW of new dispatchable capacity, they should submit an EIS for a similarly sized battery or pumped hydro project. This would help reduce New South Wales' emissions, improve grid security and put downward pressure on electricity prices.

For more information on any of the topics discussed in this report, we refer the Department to the Climate Council's reports [Passing Gas: Why Renewables are the Future](#) and [Aim High, Go Fast: Why Emissions Need to Plummet this Decade](#) (Climate Council 2020a; 2021a).

2. To avoid dangerous climate change, there can be no new fossil fuel infrastructure

The impacts of climate change are already being felt in Australia. We are already in the grip of a climate crisis having recently lived through one of the most extreme and dangerous years ever recorded, even before COVID-19 hit. Over the past two years, Australians have lived through record-breaking drought, the Black Summer bushfires, intense heatwaves and yet another mass bleaching of

the Great Barrier Reef; the third in five years (Climate Council 2020b). Every mainland state was severely affected.

These extreme weather events were driven by climate change. Global average temperatures have increased 1.2°C since the second half of the nineteenth century (World Meteorological Organization 2021). The planet has almost certainly not experienced such a rapid increase in temperature at any time in the past several million years (Hansen et al. 2013).

The burning of coal, oil and gas is driving climate change. It is not possible to tackle climate change unless we rapidly phase out all fossil fuels, including gas. Expanding or developing new fossil fuel infrastructure of any kind means that we put more Australian lives and livelihoods in danger.

Recent analysis has found that existing coal, oil and gas infrastructure is more than enough to push the world past 1.5°C of warming (Tong et al. 2019). Existing and planned fossil fuel infrastructure is sufficient to push the world past 2°C of warming (Stockholm Environment Institute et al. 2019). There is a clear benefit to holding global temperatures to the lowest level possible, with 1.5°C, 2°C or higher global average temperatures representing step changes along a path to catastrophically dangerous levels of warming (Hoegh-Guldberg et al. 2018). Every degree matters.

The Climate Council has found that Australia's emissions must fall by 75% by 2030 and reach net zero by 2035 to do its fair share to keep global temperature rise well below 2 degrees (Climate Council 2021a). The International Energy Agency (IEA 2021) recently found that to reach net zero emissions by 2050 there must be "a huge decline" in the use of fossil fuels over the next decade. According to this ordinarily conservative organisation, no new coal, oil and gas infrastructure is possible anywhere in the world to meet this goal. This puts approval of the power station at odds with the New South Wales government's stated aim of reaching net zero in 2050 (NSW Government 2016).

We are particularly concerned that this project will run on highly polluting diesel until a gas pipeline is built. Should this be delayed, the project may run on diesel for months or years, worsening climate change and local air quality through increased nitrogen oxide and PM2.5 levels.

The science is clear: we cannot build any new fossil fuel infrastructure or expand fossil fuel production. This includes new gas power stations. Given that the project is not needed, the proposal must therefore be rejected.

3. There is no justification for this project

The proponent acknowledges that "*The cost of batteries is falling, making storage an increasingly commercially viable option*" but go on to say that "*storage alone will not be able to meet the shortfall in generation that will accompany the planned closure of the Liddell Power Station in 2023.*"

There is no evidence provided for this sweeping and, quite frankly, baseless statement.

The proponent states that the Australian Energy Market Operator (AEMO) has identified "*a gap in dispatchable capacity*" and that the proposal's "*primary aim is to substantially contribute to meeting this need*" for new dispatchable capacity. However, AEMO's Electricity Statement of Opportunities report, released in August 2020, found that New South Wales was not expected to exceed the Reliability Standard at any point between now and 2028-29 (AEMO 2020a). On the stricter Interim Reliability Measure, a capacity shortfall of just 154MW is identified after the Liddell power station closes in 2023-24. AEMO expects this small gap to be filled by "*the New South Wales Government's commitment to provide capital projects funding to 170 MW of dispatchable capacity under its Emerging Energy Program*".

Two batteries are already under construction in New South Wales, with another 12 proposed or announced (RenewEconomy 2021a). The batteries under construction have a combined capacity of 100MW/135MWh and the total capacity of all batteries planned or announced in the state is 3,658MW/3,771MWh. These projects are more than sufficient to cover any potential supply gaps over the next decade, even under the stricter Interim Reliability Measure.

With new clean dispatchable capacity already on the way and in the pipeline, there is simply no rationale whatsoever to build a new gas power station in New South Wales.

4. A new gas power station will not reduce power prices

Burning gas is a very expensive way to provide electricity. The growth in gas exports and Australia's increased exposure to the international market doubled the price of gas in Australia between the 2016 and 2017 calendar years in Queensland, New South Wales, Victoria and South Australia (Australian Energy Regulator 2020a, 2020b).

It may once have been thought necessary to shift from a coal-dominated electricity grid to a gas-dominated electricity grid in Australia on the way to a

zero-emissions future. For Australia, as we head further into the 21st century, making such a transition is not only unnecessary, but far more expensive than choosing a lower emissions pathway (AEMO 2020b). There are other, significantly cheaper ways to provide dispatchable capacity in 2021 than by increasing the share of fossil fuel use.

In the Integrated System Plan, AEMO notes that gas would only play an increased role in firming the grid if it can outcompete zero emissions solutions, such as batteries and pumped hydro, on price (AEMO 2020b). Such gas prices – which must remain in the \$4-6 per gigajoule range and be sustained over decades – appear to be unachievable in the regions connected to Australia's largest grid, including New South Wales.

For the most part, AEMO forecasts the cheapest paths will bypass new coal and gas infrastructure (AEMO 2020b). The most ambitious scenario in the Integrated System Plan results in nearly 95% of coal-fired generation capacity retiring within the next two decades, as wind and solar generation capacity more than triples. Storage capacity in the grid increases nearly ten times over. Around half of all gas power stations would retire over the same period, with those that remain only used in short bursts during peak periods.

The Integrated System Plan does not envisage a greater role for gas in a least-cost pathway. But we do not need to rely on studies; we can analyse the behaviour of existing gas power stations to understand what their effect is on electricity prices.

Currently, there are four major gas power stations in New South Wales with a combined capacity of around 2,000MW. In 2020, these gas power stations operated with a collective capacity factor of just 1.6%. The state's gas fleet generated the lowest amount of power since 2007 (Climate Council 2021b). This is because gas power stations struggle to compete with cheaper energy sources like coal, wind and solar.

The proponent already owns a large gas power station in New South Wales: the Colongra gas power station. Colongra had an even lower capacity factor of just 0.9% in 2020 (VEPC 2021). It begs the question why Snowy Hydro are intent on building 750MW of new gas capacity when their existing gas power station of similar size hardly ever turns on.

On the rare occasions when Colongra did turn on last year, it bid in almost all of its capacity at over \$5,000 per MW on average (VEPC 2021). For comparison, the Liddell power station provided most of its capacity at or below \$0 per MW (VEPC 2021). There are no operating big batteries in New South Wales, but the Hornsdale battery in South Australia provided almost half of its capacity below \$1,000 on average (VEPC 2021).

Much has been made in recent times of spikes in the wholesale price of electricity, which drove the price of electricity higher than major electricity users in the state would have liked, with these spikes being used as justification for this proposal (Australian Financial Review 2021). While this debate has been clumsy, and conflates the issues of a lack of supply with a lack of affordability, the price was not driven high by a lack of supply but because Snowy Hydro – the same proponent of this project – is “*not in the business*” of ensuring supply for “*someone else’s customers*” (The Guardian 2021).

It is simply unrealistic to assume that this attitude toward affordability will change. Alleged gaming of the electricity market in New South Wales – including by functionally withdrawing supply of gas-powered generators through strategic bidding at the times when the power is most needed – is at the heart of this price increase (RenewEconomy 2021b), and very many others (McConnell and Sandiford 2020). Accepting the myth that the proposed power station will lower gas prices in the state requires accepting the proposition that the proponent, which may already be misusing its dominance of the New South Wales electricity market, will voluntarily change its behaviour after that dominance is further entrenched.

It is clear from high-quality studies, like AEMO’s Integrated System Plan, and the real-world behaviour of gas power station operators – including the recent conduct of the proponent of the proposed power station – that gas power stations cannot provide an affordable supply of electricity. As a result, building a new gas power station will not bring down the price of electricity in New South Wales.

5. Gas power stations are not so reliable

The proponent states that “*a peaking power station using natural gas virtually has no restriction on when it can produce dispatchable energy within a day, and the duration for which it can continuously provide that energy across that day*”. This claim ignores the major achilles’ heel of gas power stations: they are reliant on a steady supply of affordable gas via pipeline to operate. This is questionable on two separate grounds. First, this ‘reliability’ is contingent on the availability of affordable gas. Second, it is contingent on the ability of the gas to be delivered via the pipeline.

To the first point: whether affordable gas is available is highly dependent on the Australian gas market, which is in turn linked to the international gas market. The international price of gas is famously volatile, and it is a boom-and-bust market *par excellence* (Climate Council 2020a). Should the price rise

significantly, it is questionable if the power station would be viable to operate commercially.

To the second point, relying on gas delivered via pipeline is a significant weakness of the proponent's proposal. Noting that the pipeline does not yet exist, and the concerns we have raised about potential delays in construction, reliance on gas delivered via pipeline places intractable constraints on the power station's flexibility, rather than adding to that flexibility. There are real world examples of gas power stations and associated infrastructure failing when they are most needed and being unable to provide peaking power.

One of the proponent's other facilities – Colongra – highlights this problem, that has had catastrophic effects in the past. In short, the power station can only use what gas is physically in the pipeline. In the case of Colongra, it can only be run for five hours at full capacity before the power station must be shut down to allow the pipeline to recharge (Delta Electricity 2009). This real-world constraint has been associated with some of the most catastrophic failures of electricity supply in the history of the National Electricity Market.

In February 2017, Snowy Hydro's existing Colongra gas power station failed to start due to low gas pressure in its supply lines, forcing AEMO to protect the grid by ordering the Tomago Aluminium Smelter to cut demand. The result was *"the smelter's three potlines were shut down for 75 minutes each and workers were forced to work in 80C heat in the smelter to save the plant's equipment"* (AEMO 2017a, The Guardian 2017).

On another day in February 2017, AEMO was forced to undertake load-shedding in South Australia after the owners of the Pelican Point combined cycle gas turbine advised that it would take a "minimum" four hours to get it up and running (AEMO 2017b).

The proponents claim that such constraints do not exist is derisive. Given the literal hazards to life that have occurred because of these supposedly non-existent constraints in the past at its own facilities, it also borders on offensive. If New South Wales has not been able to rely on Snowy Hydro's 600MW Colongra open cycle gas power station to provide reliable power in summer peak demand periods, it would be misguided to expect another 750MW open cycle gas power station owned by the proponent to be any more reliable.

6. Conclusion

The Hunter Power Project clearly does not stack up. It is a solution looking for a problem that does not exist. The justification for it is baseless.

The proponents state that this proposal will begin operation between August and December 2023 and is anticipated to operate for 30 years. This means it would not close until the end of 2053. This is inconsistent with the state government's plans to reach net zero emissions by 2050 and jeopardises the Federal Government's commitments under the Paris Agreement to limit warming to well below 2 degrees above pre-industrial temperatures.

With batteries increasing in size, increasingly affordable and more reliable than gas power stations, the proponent should seriously consider whether they are backing the right technology.

If New South Wales' commitments to be a responsible actor on climate change are to be taken with any seriousness, it is simply not acceptable for any new fossil fuel infrastructure to be built. The Department must reject this proposal.

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