Bruce Robertson, LNG/Gas Analyst
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Institute for Energy Economics and Financial Analysis
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Submission to the Kurri Kurri Lateral Pipeline project – Environmental Impact Statement

Executive Summary

The Kurri Kurri Lateral Pipeline project – Environmental Impact Statement points to a vastly different project to the Kurri Kurri Gas Power project that was approved by the Independent Planning Commission.

Snowy Hydro maintained that the Kurri Kurri gas power project would cost $600m with a further $100m for the gas lateral.

The budget has blown out by $164 m to $600m for the power plant and $264m for the gas lateral and storage system. Snowy Hydro will lease the gas lateral and storage system off APA. The $264m cost for the gas lateral understates the true cost to Snowy Hydro as it is before financing costs and a profit margin for APA, the owner of the asset.

The Kurri Kurri Gas power project is not "Hydrogen ready" for even the smallest percentages of Hydrogen blends as the gas storage system proposed in the Kurri Kurri Lateral pipeline EIS is not hydrogen compatible.

Snowy Hydro is misleading the public as to the Hunter Power Projects ability to utilise Hydrogen. The company's website gives the impression that the plant is Hydrogen ready:

"The OCGTs will operate on natural gas and will be hydrogen-ready. Diesel is available on-site as back-up for the extreme and rare cases where the NSW power grid needs it to keep the lights on. Over the power station's life, diesel usage is negligible.

This means the OCGTs will be capable of running initially on up to 10% hydrogen and with some minor additional investment they will be capable of up to 30%, subject to fuel logistics."1

In public statements Snowy Hydro has been keen to give the impression that the plant will convert to Hydrogen in repeated press statements:

- "Energy Minister Angus Taylor confirms Hydrogen will gradually be used to fuel Kurri power plant." Newcastle Herald 13 March 2021
- "Expanded Kurri Kurri gas plant an option to replace Coal closures" Australian Financial Review 18 February 2022

[1] Snowy Hydro Web Site

The proponent of the project, Snowy Hydro has misled the Senate on the Kurri Kurri gas power project being hydrogen ready.

It has also misled the senate as to the costs of the project.

The Independent Planning commission should not condone government business enterprises misleading the Senate or the public.

The Independent Planning commission should not condone government business enterprises misleading them as to the ability of the plant to utilise hydrogen.

The Kurri Kurri Gas Lateral Pipeline project should be rejected.

The Kurri Kurri power project is not "Hydrogen ready"

For a gas fired powered station to be "Hydrogen ready" the infrastructure to supply it must be Hydrogen compatible. The gas storage system seeking approval in the current EIS at Kurri Kurri is not Hydrogen compatible.

The Kurri Kurri Lateral Pipeline project EIS stated that:

"With regards to the gas storage pipeline, a significant increase in capital expenditure would be required to construct the storage pipeline for it to be capable of storing a hydrogen blended fuel. This is due to the dimensions of the gas storage pipeline, and construction materials and methods required to mitigate the increased embrittlement of pipeline material when storing a hydrogen blended fuel. Snowy Hydro have advised that the associated level of capital expenditure would be uneconomic, and consequently the storage pipeline will not be built to specifications that would enable it to store hydrogen blended fuel."2

Snowy Hydro has misled the Independent Planning Commission as to the Kurri Kurri gas power project being Hydrogen ready

The Hunter Power project EIS in April 2021 wrote repeatedly of how Hydrogen ready the project was.

"The Roadmap also recognises that Commonwealth funding of new generation investments, and investment in large-scale storage and firming capacity, will also be needed to balance the supply of variable renewable energy.

[2] APA- Kurri Kurri Lateral Pipeline Project EIS – March 2022 Page 39

This can include fast start gas fired or bioenergy generation, which are less dependent upon meteorological conditions, to provide backup to renewable energy, transmission and storage. Gas fired generation also has the potential to be converted to zero-emissions hydrogen firing as this technology becomes more economic."[3]

The Kurri Kurri gas power project does not have the potential to be converted to Hydrogen even if that fuel was economic today as it would require the expensive infrastructure that is being approved in this application to be scrapped as it is not hydrogen compatible.

The Hunter Power project EIS does mention that the proposal's gas turbines can be fired on a certain percentage of hydrogen with some modification to the power station and gas turbines. It neglects to mention that this is not possible as the infrastructure that will be built to service the project is not hydrogen compatible.

"Long Term Energy Services Agreements for firming are technology neutral. Projects would be eligible to bid for firming contracts if AEMO would register them as Scheduled Generators and they satisfy eligibility criteria similar to that required for Long Duration Storage Long Term Energy Services Agreements. Gas peaking plants would need to be hydrogen ready, which would mean that the plant is capable of running on mixture of hydrogen fuel for a minimum proportion of its operating time each year. Most of the potential gas turbine equipment suppliers for this Proposal are continuing to investigate the use of hydrogen as a fuel and have tested operation with a blend of up to approximately 20-30 per cent hydrogen in gaseous fuels on some of their large industrial frame machines (similar to this Proposal). There is the potential for the Proposal's gas turbines to be fired on a certain percentage of hydrogen in the future when the technology and infrastructure becomes more economic, but this would require some modification to the power station and gas turbines."[4]

Snowy Hydro has misled the Independent Planning Commission. The Kurri Kurri gas power project is not "Hydrogen ready" as the infrastructure proposed in the Kurri Kurri gas lateral EIS is not Hydrogen compatible.

Snowy Hydro has misled the Senate on the Kurri Kurri gas power project being hydrogen ready

Snowy hydro stated to the Australian Senate that the Kurri Kurri gas fired power project was Hydrogen ready from day one for 15% Hydrogen mix and up to 30% quite easily.

"Senator SMALL: You mentioned that Kurri Kurri has a role to play in firming renewables in the grid. What consideration has been given to making Kurri Kurri hydrogen ready?

[3]Snowy Hydro - Hunter Power Project Environmental Impact Statement – April 2021 page 57
[4] Snowy Hydro – Hunter Power Project Environmental Impact Statement – April 2021 page 58

Mr Broad: It was hydrogen ready from day one, up to 15 per cent. Mitsubishi tells us they can take it up to 30 per cent quite easily. Beyond that, we can get it up further, but that would need some upgrades in the burners. So we're ready.
Mr Whitby: It can take, in theory, up to 100 per cent with the burner modifications.
Senator SMALL: So, effectively, the input energy into the generator can be, without upgrade, 30 per cent hydrogen, and, with upgrade, 100 per cent hydrogen?
Mr Broad: Yes, and that goes back to Senator McAllister's question about our considerations or the reason we delayed. We need to do all that against the alternatives without giving away what the alternatives away or saying bad things about them; we don't wish that at all. It was not the most compelling offer when we first got it. It got more compelling and the business case got better and better because of that. The connection agreements—you will appreciate, it is one thing to have a gas plant but you have to connect it to the networks. All that process of connecting, they sold it in a heartbeat for us. That is how that evolved. The total life benefits of the units improved significantly.
Senator SMALL: To be really clear on that, the proposition of having a hydrogen-ready gas-fired plant now has changed significantly over what period of time?
Mr Broad: It was over the last couple of years that, really, it has come more into its own." [5]

It would appear that Snowy Hydro has misled the Senate. The Kurri Kurri gas power station cannot run "without upgrade, 30 per cent hydrogen, and, with upgrade, 100 per cent hydrogen?" as the gas storage system proposed in the Kurri Kurri Lateral Pipeline Project EIS is not Hydrogen compatible.

Gas Snowy Hydro has misled the Senate as to the costs of the gas lateral pipeline project

It would appear that Snowy Hydro has misled the Senate as to the costs of the gas lateral and storage system. Snowy Hydro stated to the Senate that the cost of the gas lateral would be in the ballpark of $100m in October of 2021:

"Senator McALLISTER: Back on the capex, the high-level overview document says that the $600 million doesn't include the gas lateral. Some experts have said that the cost of that would be around $100 million. Is that about right?
Mr Wymer: That is a process that is currently being negotiated with the constructor of the pipeline. That's certainly a ballpark figure. That isn't capex. We have a spend, just to be clear. The builder of the pipeline charges us a lease, which Snowy Hydro will pay annually to pay off that pipeline.
Senator McALLISTER: Right, but if that was capitalised, it would be around $100 million roughly?
Mr Wymer: That's not totally out of the money, no.
Senator McALLISTER: I understand that there is around $200 million in inspection costs forecast.
Mr Wymer: Are you talking about the 25-year lifetime gas path inspection profile? Probably. When you run one of these things over 25 years it gets very expensive because you've got to keep going through and maintain them. So in the business case, the O&M cost, which includes gas path inspections, is a very large part of the total NPV of the opex of the plant.

[5] Australian Senate – Environment and Communications Legislation Committee – 25 October 2021 Page 58

Senator McALLISTER: You're saying both the inspection costs and the payments for the gas lateral are incorporated in the business case?
Mr Wymer: Absolutely, yes."[6]

In December of 2021 Snowy Hydro quietly signed up for 10 hours of gas storage up from the 6.5 hours previously proposed. The costs of the project have blown out from approximately $100m to $264m.7 The $264m cost stated in the EIS understates the true cost to Snowy Hydro as it is not the owner of the asset and intends to lease the gas lateral and storage system off APA. Snowy Hydro will have to pay the financing costs and a profit margin to APA significantly inflating the costs.

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About the Author

Bruce Robertson

Energy Finance Analyst – Gas/LNG, Bruce Robertson has been an investment analyst, fund manager and professional investor for over 36 years. He has worked with Perpetual Trustees, UBS, Nippon Life Insurance and BT. (brobertson@ieefa.org)

[6] Australian Senate – Environment and Communications Legislation Committee – 25 October 2021 Page 63
[7] Reneweconomy – Snowy faces higher costs for Kurri Kurri after quietly signing up for more gas storage – 2 December 2021