

**Submission  
No 36**

**THE ELECTRICITY OUTAGES AFFECTING FAR WEST NSW IN OCTOBER  
2024**

**Organisation:** Outback Astronomy

**Date Received:** 9 February 2025

Partially  
Confidential

Committee on Environment and Planning  
Inquiry into the electricity outages affecting Far West NSW in October 2024  
Attention: Chair Clayton Barr  
22 January 2025

**Submission from Travis and Linda Nadge**

Outback Astronomy  
18817 Barrier Highway  
Broken Hill NSW 2880  
Ph. 0448 182 941 (Travis)

We wish to provide a submission in respect of this outage. Our tourism business and residence suffered due to the outage and subsequent variable power supply quality, from Wednesday 16 October 2024 until the transmission line repairs enabled power to be restored Friday 1 November 2024. The impact period for us was 16 days.

We have both had many years experience in the electricity industry and understand the situation from this perspective.

***a. the preparation and mitigation strategies in place by electricity providers in Far West NSW in the event of a major electricity outage***

A replacement back up supply for Broken Hill is proposed by Hydrostor.

Because of our insights gained from trying to understand how the power station was able to progress so far in Transgrid's RIT-T process, we are sceptical that the interests of the communities in Far West NSW were at the heart of decisions made by Transgrid to select the Hydrostor project over the refurbishment of two, what should be, reliable diesel generators.

Broken Hill City Council (BHCC), not elected to make decisions for the whole of Far West NSW in respect of electricity arrangements, has imposed its opinions on all by supporting this power station (currently before NSW Planning in the assessment phase). A review of media statements and publications of the BHCC demonstrate it lacks understanding of the national electricity market (NEM) and how the Hydrostor power station, as proposed, is damaging to council's net zero by 2030 goal. This strategy, developed after extensive community consultation, was changed overnight when BHCC signed a letter of support for this project and sent it to Transgrid, 19/11/21.

The Hydrostor power station (capacity 200 MW) is much bigger than needed for the prime task – emergency electricity supply in the event of a transmission outage. The capacity of back up power needed in Far West NSW is 40-50 MW.

- The Hydrostor power station is more about earning revenue from the NEM rather than primarily “emergency supply”.

- We object to this project because it will ruin our tourism business and our environmental lifestyle, located at 1.13km from its surface plant. We have learned also from media reports that BHCC know this is a project damaging to us. BHCC has never spoken to us about the impacts on us or this project in general, so they cannot speak on our behalf.
- Why is it so important that BHCC continues to support this project – ever since the 19/11/21 letter of support was given to Transgrid?
- Nowhere have we found any indication from Hydrostor that their “solution” for emergency supply is reliable (they have no operation anywhere at scale in the world).

We have looked everywhere for the technical detail to answer this very question. We cannot find anything in the public domain. We could not find it in the RIT-T documentation.

The Hydrostor power station is energy intensive and will represent an additional load on the electricity grid (words of the NSW EPA in the Planning Portal) – in effect it results in additional net greenhouse gas (GHG) emissions. Please take time to compare the three letters of support for this project that were supplied to Transgrid (from Hydrostor, Energy Estate and BHCC). The spin in the language is obvious. Most people in our community are completely unaware that Hydrostor has engaged a registered lobbyist to frame language around their project.

BHCC seems to have very hastily offered its strong support for this power station with very little assurance that the project is even capable of being reliable.

Hydrostor engaged spin doctors/registered lobbyist, some years back, and the messaging was repetitive, quite thorough.

Unfortunately, to the energy industry jargon “unwary”, like BHCC, it was led to believe it was a clean, renewable project.

BHCC told the community it was a renewable project. BHCC has not responded to our feedback, dated 3/12/24, letting them know that the Hydrostor power station will cause BHCC to never achieve its Sustainability Strategy goal of Broken Hill being net zero by 2030.

Within this context, therefore, we ask further questions.

- Is it fair to assume that Transgrid so enthusiastically welcomed the proposed Hydrostor power station that the current back up supply was “forgotten”?
- Did Transgrid make maintenance decisions in respect of these turbines on the basis of having Hydrostor ready to supply power by 2027?

See the following extracts from the Transgrid 2024 Transmission Annual Planning Report:

## Broken Hill

Backup power supply at Broken Hill has historically been provided by two diesel-fired gas turbines. Transgrid acquired these turbines from Essential Energy in 2022 and is seeking to phase out their operation due to their age, asset condition and carbon footprint. The RIT-T for Maintaining Reliable Supply for Broken Hill, completed in May 2022, found that Hydrostor’s proposed advanced compressed air energy storage (A-CAES) facility, operating in conjunction with existing local renewable generation, is the preferred option that will maximise whole of energy market net benefits.

In November 2023, Transgrid entered into a network support agreement to procure network services from Hydrostor’s A-CAES facility to support backup supply arrangements to meet demand in the Broken Hill area. The Silver City Energy Storage project is intended to store sufficient air to generate up to 1,600 MWh of electricity that can be exported to the grid at up to 200 MW, with a reserve of 250 MWh set aside to provide backup supply during network outages. It is intended to operate the A-CAES facility in an islanded ‘mini-grid’ with other local renewable generation. The A-CAES facility is expected to be available in 2027. The feasibility of the mini-grid, including timing for its implementation, and comfort on cost recovery, must be established prior to the A-CAES project achieving financial close.

Transgrid is working to finalise arrangements with relevant third parties and stakeholders for the planned mini-grid operations, and has submitted a rule change request to the AEMC seeking to address uncertainties around cost recovery over the term of the network support contract (see **Chapter 3.4**).

**Table 2.6:** Planned projects in South Western NSW

Project description	Proposed in-service date	Total cost (\$2023/24 million)	Purpose and options	Project justification
Maintaining reliable supply to Deniliquin Coleambally and Finley area	Dec 2025	9	To address the high voltage issues during low demand periods by installing two 66 kV 11 MVAR reactors at Deniliquin. The RIT-T has been completed and the project is currently in progress.	Compliance
Maintaining a reliable supply to the Broken Hill area during negative demand	2025	TBD	To address the need to manage negative operational demand in the Broken Hill region when line X2 is out-of-service. The Broken Hill region has recently observed periods of negative operational demand due to large rooftop solar generation. These emerging periods of negative load are becoming more frequent and extreme. When line X2 is out-of-service, the backup diesel-fired gas turbines cannot operate without additional network support during periods of negative load.	Reliability
Darlington Point 330/220/33 kV Tie Transformer cross tripping scheme	2025	0.4	To enable high flows of renewable generation in far west NSW towards Darlington Point. Currently the dispatch from renewable generation in far west is constrained pre-contingent to prevent overloading of 200 MVA 330/220/33 kV transformers during a trip of the other transformer. This project implements a remedial action scheme to trip the remaining tie transformer hence allow the tie transformers run at their maximum MVA rating.	Economic benefits
Relieving X5 voltage stability constraints	2026	6.3	To address the very high power flows in the 220 kV network, which are leading to severe under voltages at Balranald and issues with voltage stability limit on Line X5, on a contingent trip of a transmission line in North West Victoria. This project proposes to install a 220 kV 20 MVAR capacitor bank to provide additional reactive support hence relieve the Line X5 stability limit.	Economic benefits
Maintaining a reliable supply to Broken Hill	2027	Non-Network Solution	To provide backup supply when line X2 is out-of-service, to meet the IPART reliability standard for Broken Hill. The RIT-T identified option is to implement a 200 MW / 1,500 MWh advanced compressed air storage system, to be provided by Hydrostor, to supply up to 250 MWh, in conjunction with local renewable generation. As an interim measure, Transgrid will continue to use the existing diesel-fired gas turbines to provide the backup supply for the Broken Hill area.	Reliability

- Did Transgrid approve the media statement attributed to them (as published on the Hydrostor website, dated 26 May 2022), that claims the Hydrostor solution is “in the long-term interests of electricity customers ...” and that it was “prioritised” because it was a “clean energy solution”? It is quite clear from the EIS and subsequent documents produced by Hydrostor that their power station is not a renewable project.

See the following extracts from the Transgrid website, dated 21 October 2022, in

a statement headed “Transgrid welcomes \$45 million Federal funding for Broken Hill Compressed Air Energy Storage”:

“Hydrostor proposes to use compressed air storage in a disused mine, in conjunction with existing local wind and solar generation, to help meet demand. The new technology would replace existing diesel turbines.

Transgrid Executive General Manager of Network Marie Jordan said: “We welcome the Federal Government’s vote of confidence in this project which demonstrates that clean energy solutions can provide the highest net benefit for consumers. This technology would be an Australian first, providing a reliable back-up supply for 17,000 people who live in Broken Hill and could see the mining city host one of the largest renewable mini-grids in the world.

“We will continue to support the nation’s efforts to accelerate the transition to renewable energy by seeking and implementing solutions which support Australia’s clean energy targets,” Ms Jordan said.”

- Is the Hydrostor power station even appropriate in the Far West NSW section of NEM when there is no alternative transmission line? Note it is a novel technology in Australia and Hydrostor has never commissioned a project at this scale anywhere in the world.
- How does this comment make any sense (taken from Hydrostor’s input to NSW Planning):  
***“...at times the SCES Facility may need to draw electricity from the grid (during low renewable electricity generation) to assist with backup generation for Broken Hill ...”?***
- What happens if Hydrostor’s project is not successfully commissioned?
- What is the relationship between Transgrid and Hydrostor, and the Australian Renewable Energy Agency (ARENA)? Note there are different messages about project construction timeframes, and when it is expected to be operational. Transgrid media messages and documentation say that the Hydrostor proposed power station would be completed by 2027. However, here we are now, in early 2025, and Hydrostor still has not achieved project approval. Hydrostor admitted to NSW Planning by August 2024 that they have a four year construction period. Late December 2024 Hydrostor said they didn’t expect “financial close” until mid 2025. Without financial close the ARENA \$45m is not secured. It was the \$45m from ARENA that made the project top-ranked.  
Also, why did ARENA announce this funding in October 2022, after the publication of the Transgrid PACR in May 2022? (Note- apparently the \$45m helped the PACR decision-making process and the power station had not yet even lodged its EIS – where we now learn the project is not renewable but in fact energy intensive and responsible for net-greenhouse gas emissions.)

- What are the implications of ongoing delays and project confusion? Are the current back up generators to be maintained? Were these economic and physical asset maintenance considerations included in the RIT-T assessment process? How much additional cost is being incurred?
- Will the option of refurbished diesel generators come back into consideration as a more reliable option, especially now that the facts about the Hydrostor's energy intensiveness are being aired?
- Did the RIT-T consider greenhouse gas emissions or did it dump consideration of them at some point in the process to accommodate Hydrostor?
- Did the RIT-T focus on reliability of supply in any way? How?
- How long would it take to refurbish two diesel turbines? The community is already exposed to heightened risk of ongoing transmission outages due to increasing ferocity of storms.
- Would the two diesel turbines have already been refurbished and in reliable operation if Transgrid didn't go down the path of the Hydrostor project?
- Would the October 2024 outage not have been as impactful if that had happened?
- Are transmission costs of an oversized Hydrostor solution being passed on to the customers in Far West NSW?
- What does PIAC currently think with all this new information on the table? How will transmission costs be translated into expenses for every household and business in Far West NSW due to a proposed oversized back up system?

The whole of the Far West NSW community really should be given answers to these questions as we were all impacted in some way with the outage. We want to know what the future will hold for us.

Are we to expect load shedding in the future when we experience a week or more of cloudy, still weather, in the event of any planned or unplanned transmission outage?

Reliability is paramount.

Transgrid needs to provide more information about the RIT-T process and why it did not gain the views from all of Far West NSW's various communities.

***b. the overall effectiveness of the preparation and mitigation strategies***

If the Hydrostor power station is approved, we are concerned about its key risks – confusion over construction timeframes, untested at scale, proponent's inexperience, commissioning failure, unexplained reliability standards, etc.

No details have been released anywhere in public that guarantee reliability for two to three weeks in the event of a similar transmission outage in the future ie if the Hydrostor power station is approved.

- If the Hydrostor solution was in place at the time of the 2024 transmission outage, what exactly would our communities have experienced? Would we have experienced 99.9% reliable power supply, under what weather scenarios (potentially impacting solar and wind generation)?

**c. the role of relevant NSW Government agencies and local government in preparing for and responding to major electricity outages**

There has been no meaningful consultation in Far West NSW about back up electricity supply. It seems BHCC met frequently with Hydrostor behind closed doors and kept information to themselves. When they made comment on the project in our community, they got facts wrong and spread misinformation. Location, for example, remains uncorrected after five years! No one is taking responsibility for the miscommunications.

Hydrostor's power station is not on brownfield Potosi (at end of mining life) which is what Hydrostor told our community and ARENA, and all others it seems.

Hydrostor's power station is on greenfield Flying Doctor deposit (never been mined before) at 1.13 km from our property.

We read that the NSW Local Government Minister Ron Hoenig plans to ensure greater transparency and increase community confidence in council decision making throughout NSW (media release, 17 December 2024).

We welcome this change, to prevent councils from holding private briefings with developers, [REDACTED]

[REDACTED] we would also suggest to this Parliamentary Inquiry that BHCC be made to justify why it sent to Transgrid its letter of support for Hydrostor, on 19 November 2021?

This is key for all of us being in this situation – transmission failure with no backup maintained, and the reason why we will lose everything we've worked hard for if the project is approved.

What were they told at that time, ie 19/11/21, that makes this back up power solution so great for Far West NSW? What real detail was BHCC provided, beyond well-crafted developer orientated presentations?

Given this project is still in the NSW Planning assessment phase, answers to all the questions must be shared among the communities of Far West NSW so that accurate facts about this project, and its risks, can be better understood.

The back up supply solution for Broken Hill has everyone's attention now.

The Transgrid RIT-T process should now be repeated, with accurate project facts put to the communities in Far West NSW, using a weighted scale to rank risks vs opportunities.

Now that “renewable” is known not to be a strong feature it can be taken off the table as a consideration.

***d. the implementation of recommendations from previous electricity outages in Far West NSW***

No information.

***e. recommendations on future alternative power supply emergency response and effective redundancy***

Refurbishment of the existing diesel turbines, was the original top-ranked solution for Broken Hill in the Transgrid RIT-T process. The refurbishment of the diesel turbines should have been the winning solution at this point in time. They have been reliable and effective over past decades. They are rarely used. In terms of GHGs, the turbines are also the least offensive, considering they are only rarely operated. Hydrostor plans to operate its power station 24x7, trading in the NEM.

The diesel turbines are designed and operated for the key task – reliable supply.

The diesel turbines are often disparaged as being dirty GHG emitters, with an implication (or misunderstanding) that they are used frequently or constantly. **This is not the case.** Their purpose is backup supply only.

***Greenhouse Gas Impacts***

It is yet to be provided to NSW Planning, however, the NSW EPA recommended that Hydrostor compare GHG emissions from its 200 MW proposal with the refurbished diesel turbine 50 MW proposal.

- Will the Parliamentary Inquiry consider this information based upon five years of this community being led to believe this proposed power option was renewable?
- Assuming Hydrostor is able to successfully commission its 200 MW proposal, what impact will it have on the environment as it trades electricity 24x7, 365 days for the next 50 years?

This must be fairly considered next to the alternative impact on the environment as posed by the refurbished diesel generators, 50 MW, operating, say, monthly for short duration maintenance and testing routines, and then as necessary in response to planned and unplanned transmission outages.

The NSW EPA noted that the proposed Hydrostor power station puts an additional load on the existing grid:

***The proposed operations will be energy intensive...If approved, the project will represent an additional load on the existing electricity grid during all operational years.***



**Based on information specified in the GHG assessment, the anticipated net electricity consumption<sup>1</sup> (i.e., additional load) for the project is 370,120 MWh per annum.<sup>1</sup>**

***f. the effectiveness of providers' communications strategies regarding electricity outages and responses***

Like all others in the area, we suffered because of the recent outage.

As a tourism business it was costly, like the pandemic lockdowns.

The SES and possibly other government departments, told people not to travel to Broken Hill – we are not sure about the purpose of that message and whether it was appropriate, but that is what was done.

However, no one effectively corrected the message when power was restored or if they did the media did not do justice to the message.

We refunded guests who did not go through with travel plans. We cancelled events when the area was abandoned. We took phone calls from customers more than a month after power was restored querying if Broken Hill still had power issues.

Normal visitor travel plans were not seen until the week or two before Christmas.

The outages, fluctuating power and other supply issues also caused equipment damage at our property. Our insurance covered the matters but not at great expense in terms of administrative time and ongoing premiums.

Our suggestion to authorities going forward is to act less recklessly. If travel is to be restricted due to power shortages, something not to be expected in this country under normal circumstances, then aim to put quadruple the effort into reversing the messages when the time comes.

- The Far West NSW community must never be put in a situation again where it relies upon critical messaging being filtered through persons with no technical expertise or professional experience in the energy industry.

***g. any other related matters***

No further information.

---

<sup>1</sup> NSW EPA, 17 September 2024, response to NSW Planning, published in planning portal in response to the Hydrostor project Amendment Report containing the Revised Air Quality and Greenhouse Gas Impact Assessment produced by Airen Consulting, July 2024.