Submission No 34

THE ELECTRICITY OUTAGES AFFECTING FAR WEST NSW IN OCTOBER 2024

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Submission Regarding the loss of Electricity supply in Broken Hill and surrounding districts in October 2024.

Introduction

The recent power outage in Broken Hill and the surrounding districts of Menindee, Silverton, White Cliffs, Tibooburra and Wilcannia has caused significant disruption and concern among residents, graziers on remote stations and businesses alike. This document aims to provide an overview of the incident, its impact, the subsequent response efforts and suggestions for improvements going forward.

Background

Broken Hill, a regional mining town in New South Wales, Australia, is no stranger to extreme weather conditions and infrastructure challenges. However, the power outage experienced on 17th October 2024 was unprecedented in its scale and duration.

Cause of the Outage

To the best of my knowledge the outage was primarily caused by a high wind event/storm. The ageing transmission towers may have exacerbated the situation, leading to a prolonged disruption in electricity supply, when seven were toppled.

Impact on the Community

The power outage affected thousands of residents and numerous businesses, leading to significant inconvenience and economic losses. Essential services such as hospitals and schools faced operational challenges, and reduced capacity, while households experienced discomfort and potential safety risks.

Two backup generators should have been easily able to supply the town and region with power. These were at best highly problematic resulting in only one being operational at reduced capacity and only being kept operational by scavenging components from the broken generator. Load rotation was implemented around the town to give residents a few hours of electricity a day, if and when possible. Eventually some large diesel gensets were trucked in to help out.

There is massive solar and wind power generated in the region (enough to supply the region several times over) but none of this could be utilised due to disconnection from the network caused by the storm. These massive local power generators had to be switched off.

Voltage spikes damaged a lot of equipment in homes and businesses. We were asked to turn off our rooftop solar to prevent voltage spikes, as the battery bank built for that purpose was not connected. Eventually it was reinstated. The mines were asked to turn large equipment on, on

demand to try and minimise voltage spikes throughout the region due to rooftop solar which became a hindrance not a help.

Mobile communication towers were problematic after only a few hours without power.

Residential Impact

Residents endured hours, and in some cases days, without electricity. This affected daily activities, refrigeration of food, heating and cooling systems, and communication channels. Vulnerable groups, including the elderly and those with medical conditions, were particularly hard-hit including those on life support systems.

Business and Economic Impact

Local businesses reliant on electrical power for their operations, suffered considerable losses. Retailers, restaurants, coffee shops, hotels etc and service providers faced closures, leading to lost revenue and potential spoilage of perishable goods. Many tried to operate on portable generators where they could, some travelling to capital cities to purchase a generator after local supplies were exhausted.

Mining company's reliant on grid power were without electricity for their major operations for the duration of this event. This left them in a situation whereby underground pumps were not operational with associated flooding etc. No production could take place at all over the period and workers were sent home. All work sent to outside contractors was halted. Even when grid power was eventually restored to the mines, the ramp up period took several weeks.

Broken Hill is a town based on mining. The onflow effect of the sudden loss of work to businesses reliant on servicing the mines took months to recover from. This was a sudden event and could not be planned for. Some saw their turnover drop by up to 80% for 2 – 3 months. This then has a flow on effect around the town where money is not available to spend in retail stores and hospitality venues etc.

Impact on Essential Services

Hospitals and emergency services had to rely on backup generators, which, while effective, were not a sustainable solution for prolonged outages and their service capacity was reduced. Schools faced closures or had to operate under challenging conditions, impacting students' education.

Response and Recovery Efforts

The response to the power outage involved coordinated efforts from various stakeholders, including local government, nsw parliament, utility providers, and emergency services. These people/organisations should be commended.

Long-term Recovery

In the aftermath of the outage, we can only hope that efforts have been made to assess the vulnerabilities in the power grid and implement measures to prevent future occurrences. This includes upgrading infrastructure, enhancing maintenance protocols, and exploring connection of alternative energy sources such as the existing infrastructure of solar and wind.

Suggestions

Point 1 :

The Towers … A little bit of background from my memory. In the early 1980's while studying my Engineering Diploma, our class did an exercise utilising the Broken Hill to Buronga transmission line tower details. (the same towers that failed and collapsed causing the major outage) They had not long been erected at that stage and were relatively new.

To try and put it in a nutshell, we did calculations on wind loads based on many different scenarios and using the structure dimensions. We were told that the original design criteria was based on costing scenarios. Design 1 was to manufacture them from the actual calculated thickness material that would then be hot dip galvanised to prevent corrosion. Design 2 was to manufacture from a thicker material and allow for a rate of rust erosion, at part of a millimetre per year, over, from memory a forty year design life. They chose the cheaper of the two options which was option 2. I feel the design life would be long expired by now. My best guess is that the towers are around 45-50 years old. They are no doubt weakened by corrosion from rust.

My concern is that we could have the exact same scenario with downed towers at any time again. With increased weather events it is imperative that we act now to try and prevent this scenario happening again. Building a new transmission line will take years. My suggestion is to fit "guy" wires to the existing towers. This could surely be a relatively cheap option to almost guarantee structural integrity for many years to come, until a new transmission line can be constructed.

Even if the Broken Hill Backup Generators are rectified and made 100% operational, my understanding is that they cannot supply alternative power to the Perilya mine site to run their underground operations. As mentioned earlier Perilya are a major employer and also customer of many businesses in Broken Hill. The flow on effect of shutting them down goes on for months, as I have personally experienced in my business. This greatly effects the businesses involved and also significantly effects the money spent around the town and region.

Point 2 :

The Broken Hill Region has from my understanding, approximately 50 Mw of solar generation and 200Mw of wind generation. This could not be utilised once it was disconnected from the grid due to the failure of the towers.

There needs to be a lot more thought put into all the green energy systems around Australia that are rendered useless once they are disconnected from the main transmission lines connecting them to a coal fired generation system or the like. Large battery banks or some other form of power storage eg pumped hydro etc are required. It is ridiculous to think that the renewables cannot be used without a grid connection. I note that in years to come, Hydrostar may help in this area.

Point 3 :

It seems almost unbelievable that in this day and age, mobile phone towers drop out after only a few hours operation without mains power. It would be a very cheap insurance to have a small backup generator installed. This goes not only for Broken Hill and surrounds but for almost every regional area where there are limited towers. I cant help thinking of those caught in the bushfires on the east coast that lost mobile coverage and hence access to help, due to batteries going flat on mobile phone towers. Unbelievable ! We are reliant on mobile phones for not only daily business and general communication, but also for any emergency's including medical emergency's.

For me personally it wasn't life and death, but very inconvenient to lose mobile coverage right when we were trying to deal with organising backup generators and other arrangements during the early stages of the outage.

Conclusion

The power outage in Broken Hill has highlighted the critical need for robust and resilient infrastructure to support the community. While the immediate response was commendable, long-term strategies are essential to ensure such incidents are mitigated in the future. Continued investment and collaboration among stakeholders will be key to achieving this goal.

If we don't act now this WILL happen again, its just a matter of when. It could be tomorrow !

Regards

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