Submission No 46

THE ELECTRICITY OUTAGES AFFECTING FAR WEST NSW IN OCTOBER 2024

Organisation: Telstra Corporation Limited

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TELSTRA GROUP LIMITED

Submission to the

NSW Legislative Assembly Committee on Environment and Planning:

Parliamentary inquiry into the electricity outages affecting Far West NSW in October 2024

Telstra public submission

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Introduction:

Telstra welcomes the opportunity to provide a submission to the *Parliamentary Inquiry into the electricity outages affecting Far West NSW in October 2024* (the "**Inquiry**"). Our submission sets out our overall approach to preparing for, responding to and recovering from severe weather events that impact our network. We thank the Committee for the opportunity to make a submission and look forward to working constructively with the Committee as it completes this important work.

We know that staying connected is especially crucial during times of crisis. Over our history, we have had extensive experience in dealing with disasters, and we work year-round to ensure we are as prepared as possible to respond when severe weather hits. However, with customers in every part of the country being serviced by networks as vast and technically advanced as Telstra's, some interruption or degradation of connectivity is often unavoidable during natural disasters.

To do our best to mitigate this risk, Telstra invests heavily in network resilience with redundancy and diversity designed into our network topology, including using terrestrial fibre, microwave, and satellite systems, including moving to the latest LEO satellite technology.

An important element of our approach and preparedness to both seasonal and imminent event preparedness revolves around information provided by the Bureau of Meteorology (**BOM**). Telstra attends the daily weather and weekly climate briefs presented by the BOM and facilitated through the National Situation Room (**NSR**) in Canberra. In addition, we attend the many individual state, territory and agency briefing sessions that BOM delivers in the lead up to both the High-Risk Weather Season and real time events. In a natural disaster, we activate Telstra's cross-functional Incident Management Team (**IMT**) to coordinate the response of our operational teams to the incident. We also have Emergency Service Liaison Officers (**ESLOs**) who engage directly with the NSW Telco Authority to ensure there is a clear line of communication between Emergency Services organisations and Telstra.

In the lead-up to, during, and after a disaster, our teams are working 24 hours a day to mitigate impact to Telstra's network, while also actively responding to the impact that does occur. Where possible, we prepare in advance with the strategic deployment of staff, hardware spares, portable generators, and refuelling regimes. Our technicians are usually first on the ground when it's safe to do so, during and after the event to restore services as soon as possible. In terms of operational response, the emergency service organisations in States and Territories are the first responders to any natural disaster in their jurisdiction and have primary responsibility for the protection of life, property, and the environment. Telstra has long-standing relationships with all state-based agencies including in New South Wales and receives excellent support during disaster recovery.

NSW Severe Weather Event: 17th October – 1st November 2024

The Storm Event

On the evening of 16 October 2024, severe thunderstorms played out across the Northern SA/NSW border region that resulted in severe impact to the mains power transmission network impacting the Broken Hill, and wider surrounding region. By the morning of 17 October there was recorded loss of commercial mains power to 32 Telstra mobiles and exchange sites combined.

Our Incident Management Team (IMT) was stood up in the early hours of the 17 October and continued to operate 24 hours per day across the entire event. We brought in additional field and operational resources to continue to coordinate our restoration response. We also had Emergency Services Liaison Officers (ESLOs) engaged with to the NSW Telco Authority, to communicate our response efforts.

The cumulative impact from the event to our customers and network included:

- 18 individual Mobile sites
- 3,521 Telstra NBN services
- 409 Fixed Line services
- One community isolation across the event (from a Telstra network perspective)
- 32 Telstra Network sites were impacted by a loss of mains power.

It must be noted that the loss of power across a large geographical location that occurred during the October storm event had a significant impact on Telstra's network. While the sites have battery back-up, they were depleted due to the prolonged impact of the loss of mains power.

In response to the event, we mobilised field crews and power back-up solutions (generators) to the region. At the peak of the event, we had over 20 temporary generators operating to keep our sites operating and these were supported by on-ground crew who also arranged diesel refuelling.

We know this event had an impact to Telstra services for our customers. While telecommunications providers build resiliency and redundancy into their networks, terrestrial network infrastructure located in possible disaster affected areas may be damaged or impacted, leading to potential interruption to telecommunications services. For this reason, it is important for government, first responders, support organisations (e.g. hospitals, medical centres, community facilities), businesses and consumers to take steps to prepare for possible impacts to telecommunications services during natural disasters and power outage events, such as having Satellite phones that are fully charged ahead of the disaster event, or Fixed Satellite Broadband services with Wi-Fi connectivity.

Engagement with the NSW Government

From an operational response perspective, Telstra's Emergency Services Liaison Officers (ESLOs) proactively engaged with the NSW Telco Authority from the outset of this event. This engagement included the provision of Telstra network impact updates and communication of Telstra's site prioritisation restoration list for the duration of this event.

Engagement with Essential Energy

Importantly, where the primary cause of Telstra network outages is attributed to loss of mains power, Telstra seeks to engage with electricity providers, which in this case was Essential Energy. For the duration of this event, Essential Energy provided ongoing updates on the status of their network restoration efforts as well as target timeframes for remediation. We appreciate the complexity of restoration of the energy assets physically damaged during this storm event, and the competing priorities for locations where energy may be restored first. This high level and very informative feedback by Essential Energy gave us the understanding that there would most likely be little to no mains power restoration over the next 72 hours and that we would need to maintain generator and refuelling to our sites during this period.

Once we became aware that several major power transmission towers had been brought down by the storm, we also engaged directly with the Essential Energy operation lead to gain further intelligence on what this damage meant in terms of restoring power and potential timeframes. From this engagement we understood there were no alternate Transgrid transmission feed paths for the power to be switched to.

We also learnt that both gas turbines in Broken Hill, which ordinarily could have supported the impacted region, were unavailable. The first gas turbine was offline for long-term maintenance work, and the second was experiencing technical issues supporting the load.

Regular engagement with Essential Energy was maintained right throughout both the initial storm response and then the subsequent secondary failure of the gas turbine that occurred on 21 October 2024. The regular engagement provided us with situational awareness of the power network impacts and ongoing progress of restoration and expected restoration timeframes throughout the disaster event.

Communicating with our customers

We know that during times of extended telecommunication outages it's important to communicate to our customers how we're responding and repairing our network. Our Regional General Manager provided ongoing updates through the media, and we also utilised other channels of communication such as through our government stakeholders as well as the Local Emergency Management Committee (LMEC) daily.

Triple Zero

We are aware of concerns from customers and government about the ability to call Triple Zero during the disaster event. This section of our submission explains the working of the Emergency Call Service at a high level.

Telstra has Triple Zero Emergency Service Answer Points located around Australia that function as the Emergency Call Person (ECP) for 000 and 112 emergency call numbers, as required by the Telecommunications (Emergency Call Service) Determination 2019.[1] When a person calls 000 or 112, they speak to a Telstra Triple Zero Emergency Call Service Operator first. As directed by the caller, Telstra transfers the call to the required Emergency Service Organisation (ESO) – Police, Fire or Ambulance services. The emergency response is provided by the requested ESO.

To mitigate this, Australia has the availability of emergency call camp-on, which is a globally standardised mechanism which enables a mobile caller, who is outside the coverage of their own Mobile Network Operator's (MNO) network coverage, but is within coverage of another MNO's network, to make an emergency call to Triple Zero. The most common scenario where emergency camp-on is used is when a device is outside the coverage of its own network, or when it's unable to attach to its own network due to an outage affecting the network radio base stations (such as during a natural disaster). Emergency call camp-on is not available to fixed line customers; it only works for mobile services.

We note concerns raised about an inability to call Triple Zero where telecommunications were impacted by the disaster event. For the duration of this event, there was no impact to the Triple Zero platform. However, where no telecommunications were available, there may have been instances where calls to Triple Zero were not possible.

1 Telecommunications (Emergency Call Service) Determination 2019, available at: https://www.legislation.gov.au/F2019L01509/latest/text

Appendix 1: Supporting information

Network Resilience and Reliability:

Loss of mains power

Power outages to Telstra's network are a fact of life and something that we manage every day. To demonstrate this in more detail, last year alone, Telstra's network experienced 90,000 power outages to our sites which equates to over 400,000 hours of network outages.

Loss of mains power is the primary cause of Telstra network outages during natural disasters. To provide resilience against the loss of mains power, we invest in backup power systems including batteries, diesel and petrol generators, and solar generation. The backup solutions vary depending on location. Our backup power systems are designed to keep our services running long enough to cope with most power outages – however they are unable to keep a site running for prolonged periods. Further, road access to sites to deploy or refuel generators and undertake other restoration activities is often delayed by hazards such as fallen trees, flooding, or bushfires.

While larger battery reserves are often raised as a solution to power resilience, it is important to note:

- The role of the battery reserve is to maintain continuity of telecommunications services during short power interruptions only. Where power interruptions are expected to extend beyond the battery reserve limits, this reserve also provides the valuable time needed for technicians to attend sites when safe to do so and support the network with a portable back-up power supply (generator). The back-up solutions we implement are tailored to each site, delivering resilience whilst balancing practical constraints – in some cases this will be 12 hours, while in other cases, shorter duration reserves are adequate.
- We assess battery performance and battery life on an ongoing basis and have a mature investment programme to upgrade and renew battery reserves in line with the required design requirements of the service, the geography, availability of mains power and other factors
- We have an ongoing program to improve battery life at our mobile network sites. The program focuses on battery replacement, power resilience and reliability using disaster risk data to prioritise battery replacement. In FY23, we completed battery lifecycle replacement at 640 mobile sites throughout the network. Battery lifecycle and upgrade works were carried out at around 1,455 network transmissions sites. This is critical in supporting services to mobile sites and legacy customer services.
- Each site is individually assessed for resilience – in some cases we install permanent generators or Standalone Power Systems (SAPs) or increased battery capacity – however this depends on the location of each site and whether we have approvals or suitable space to construct the infrastructure

Ongoing Resilience Initiatives:

Planning for Climate Change

Building a resilient network in the face of Australia's environment is no small feat and requires planning which involves identifying, assessing, and managing climate-related risks. Climate change is predicted to cause more frequent and extreme weather events, and to better identify how this could impact our networks we've undertaken Climate Scenario Planning. This planning involves identifying, assessing, and managing climate-related risks that are integrated into operational decision-making.

The infrastructure assets that we deploy and operate now need to be designed for the climate of the future, and our focus is to build simplified and resilient infrastructure, identifying and removing single points of failure where possible, replacing end-of-life equipment, and increasing automation.

Telstra's climate scenario planning work also guides our annual summer disaster preparedness initiatives. This activity involves modelling specific areas or locations that may be more susceptible to climate events and develop mitigation plans accordingly. This planning contributes to our activities such as access track clearance, site vegetation cut-backs, battery upgrades, detailed site inspections, emergency maintenance, and the pre-deployment and testing of backup generators.

Renewable Energy

Telstra acknowledges Australia is currently experiencing one of the largest power system transformations on the planet as we move from centralised coal-fired to decentralised renewables. To this end, Telstra has committed to enable renewable energy generation, equivalent to 100% of our consumption, by 2025. We are well on our way to meeting this target.

Telstra recognises that underwriting the supply of renewable energy means the transition to a cleaner energy system and a zero-carbon economy, and as we see more renewable energy come into the grid, we are also looking to bring online dispatchable capacity to help firm the output of those renewable generators to maintain a stable and secure supply of energy across the grid at all times of the day.

Innovative Energy Solutions

Telstra has an ongoing program of work to identify new innovative technology to improve our power resilience. For example, we are currently installing hydrogen fuel cells at five mobiles sites which is being co-funded under the Victorian Government's Renewable Hydrogen Commercialisation Pathways Fund. These systems will have enough hydrogen storage for 3-7 days of operation.

Telstra is also working on another 100% renewable standalone power system, utilising solid state storage for hydrogen, produced using the excess energy from solar, which we hope to announce at a future date.

Standalone Power Systems (SAPs) are another solution to provide power to telecommunications infrastructure without the need of the electricity grid. They typically consist of a large array of Solar PV panels, a large battery, inverters, and a diesel generator (for sites with a large load). They require a large amount of space for installation, regular maintenance, and refuelling. We are also working with Western Power, and other energy providers to transition from electricity grids to SAPs at selected sites as part of their rollout programs. We appreciate working together on these deployments.

Auto-Transfer Units (ATUs)

The ATU is a new locally manufactured solution that we developed with a Western Sydney company. It facilitates a simpler and faster process for switching a site from mains power to generator supply. Previously we needed to deploy a technician to changeover a site from mains to generator and start the generator. This is sometimes impossible due to site inaccessibility in a disaster. The ATU automatically detects loss of mains power and facilitates the start-up and switchover remotely.

The ATU also enables the deployment of temporary generators by emergency services or Local Governments directly to site as needed. Many local communities have called for the ability to do this, and we think this will be important going forward.

To date, we have installed ATU's at some of our high-risk sites across Australia and have commenced collaborative discussions with State Authorities and local communities on further deployments and service arrangements. More specifically, late last year Telstra and the WA Government entered into the Transfer Unit Pilot Deployment Program that will seek to increase continuity of mobile coverage for emergency services and communities where there is loss power for an extended period of time. This

technology, known as Automatic Transfer Units (ATU) will facilitate a member of the community to transfer power to a portable generator supply when the mains power fails.

Temporary deployable assets

Telstra has a range of deployable assets used to provide interim connectivity in the aftermath of major disasters, and we participated in the Commonwealth Department's Mobile Network Hardening Program (MNHP).[2] Within that program, the round relevant to power resilience is Round 1, which was run in two stages. While the first stage funded enhancement to battery backup power, the second stage funded other resilience upgrade types, including the funding of portable generators.

Telstra's participation in the MNHP for NSW is as follows:

- MNHP Round 1 – Stage 1: Telstra delivered enhancement of the battery backup power at 87 Mobile sites in NSW. This work was completed in 2021.
- MNHP Round 1 – Stage 2: Telstra has deployed 29 Portable Generator solution in NSW (delivered in 2023) to supply additional back-up power at Telstra network sites during power outages.

[2] Mobile Network Hardening Program - https://www.infrastructure.gov.au/media-communications-arts/phone/mobile-network-hardening-program