

17 April 2020

By email: inquiries@bushfireinquiry.nsw.gov.au

Endeavour Energy's response to the NSW Independent Bushfire Inquiry

Thank you for the opportunity to provide a submission to the NSW Independent Bushfire Inquiry.

Who we are

Endeavour Energy plans, builds operates and maintains the electricity distribution network that provides an affordable, safe and reliable power supply to and from households and businesses across Sydney's Greater West, the Blue Mountains, Southern Highlands, the Illawarra and the South Coast.

Our network serves a diverse population of 2.4 million people, or almost one million customers located across 24,980 square kilometres.

While bushfires have always been a reality in New South Wales and something we diligently plan and prepare for, our network is by its very nature, vulnerable to extreme bushfires.

For this reason, Endeavour Energy invests considerable resources to assess the risks of bushfires and takes steps to mitigate these risks on an annual basis. We conduct an annual pre-summer bushfire inspection program, which involves identification and rectification of bushfire defects, as well as conducting an annual program of extensive vegetation management.

We also design our network to be resilient to natural disasters, including bushfires, and pride ourselves on our incident management capability and response.

The 2019-20 fires burned across more than 45% of our network supply area in three major fires: Gospers Mountain, Green Wattle Creek and Currowan, from late November to mid-January 2020 and required a sustained, whole-of-organisation major incident management response.

Our priority, at all times, was the safety of our people and the communities we serve.

Impact of the fires

The 2019-20 bushfires had an enormous impact on our customers and their property. Twenty-nine lives were lost in NSW and 840 homes or businesses damaged or destroyed across our area. Electricity supply was interrupted by bushfires to 54,000 customers in total between December and January, with 20,000 people left without power at the peak of the fires over the New Year period, mainly on the South Coast.

The worst affected areas saw some customers without power for more than 10 days as our crews worked to rebuild large sections of the network destroyed or extensively damaged by bushfire in the Blue Mountains, the Southern Highlands and the South Coast in less than two weeks.

The fires caused more than \$16m damage to Endeavour Energy's electricity infrastructure, with the final repair bill expected to climb significantly as we inspect and make permanent repairs across approximately 13,000 square kilometres of the area serviced by our network. Thousands of kilometres of network were rebuilt, including around 800 damaged or destroyed power poles. This entailed a massive effort which saw more than 92% of our field staff responding to the event.

Endeavour Energy recognises that there are key lessons to be learnt from the 2019-20 bushfire season from a wide range of stakeholders, and we outline our feedback, including four key recommendations, for consideration by the Inquiry.

Four recommendations:

1. Improved coordination protocols to ensure the safety of electricity workers and emergency service workers in fire grounds. Please see our response to Terms of Reference (ToR) 10.
2. Steps need to be taken to remove the regulatory burden on networks installing Stand Alone Power systems and/or islanded microgrids to enhance the resilience of power supply to isolated rural communities in bushfire prone areas. Similarly, other community infrastructure such as petrol stations, grocery outlets and community halls should be encouraged to make use of privately-owned or community-owned generators during bushfire seasons to improve community resilience. Please see our response to ToR 3 and 7.
3. Regulatory action is taken to ensure telecommunication providers do more to provide sufficient emergency standby power supply to improve the security of service from their critical mobile telephone infrastructure. This is so mobile phone and data services remain available to customers in communities isolated by fires to receive important emergency information and public safety updates throughout the duration of large bushfire events. This also requires consideration for reducing the regulatory burden imposed on network operators to ensure that they can undertake vegetation clearing in a measured, planned and appropriate manner. Please see our response to ToR 3.
4. To minimise the loss of electricity supply during bushfires, there needs to be greater cooperation from National Parks and Wildlife Service to allow network operators to maintain access and suitable clearances between trees and powerlines along critical electricity easements in National Parks that form the backbone of essential electricity supplies to whole communities and regions. Please see our response to ToR 6.

The remainder of this submission responds to the Terms of Reference in more detail and provides material relevant to the above recommendations.

Response to the terms of reference

- 1. The causes of, and factors contributing to, the frequency, intensity, timing and location of, bushfires in NSW in the 2019-20 bushfire season, including consideration of any role of weather, drought, climate change, fuel loads and human activity.**

Endeavour Energy understands that the three major fires that burned across its network area were due to lightning strikes in bushland. We strongly support the appropriate clearing of vegetation around powerlines in National Parks and other Crown lands to minimise the risk of their damage which results in the loss of supply to thousands of customers, and even whole communities, for many days and weeks during large bushfire events.

- 2. The preparation and planning by agencies, government, other entities and the community for bushfires in NSW, including current laws, practices and strategies, and building standards and their application and effect.**

In New South Wales, studies have projected that the probability of extreme fire risk will increase by around 25 per cent by 2050. These predictions are especially worrying for energy utilities that have network infrastructure servicing customers who live and work in areas of high bushfire risk. By way of example, Endeavour Energy has around 13,000 kilometres of overhead powerlines in areas considered to be bushfire prone by the NSW Rural Fire Service.

To ensure public safety and continuity of power supply, Endeavour Energy is applying new technology to better manage the risks that trees pose to the safety and reliability of electricity supply to customers.

The aim of this initiative is to create a holistic multi-year picture of vegetation threats to Endeavour Energy's electrical network, so it can not only identify current hazards, but see how these will change in the future, and put steps in place to proactively manage them. This helps to better manage the risk of bushfires started by vegetation contact with powerlines and makes maintenance operations more targeted in reducing risks and efficient in terms of their overall cost.

The project uses spatial analysis and model building to combine multi-temporal LiDAR data with data from other sources, including historical meteorology and vegetation work patterns, as well as actual observations of tree fall.

The findings will be used to assist Endeavour's maintenance teams in targeting specific areas for ongoing inspection trimming and tree removal works. The results of the modelling using data from this project are due to be finalised by June 2020.

3. Responses to bushfires, particularly measures to control the spread of the fires and to protect life, property and the environment, including:

- **immediate management, including the issuing of public warnings**
- **resourcing, coordination and deployment**
- **equipment and communication systems.**

Endeavour Energy is acutely aware of its role in safely and responsibly managing network assets to reduce the risk of bushfires.

We continually inspect, prune and clear vegetation around powerlines to reduce the chance of powerlines starting bushfires. In addition, to mitigate the impact of lines contacting the ground or each other, Endeavour Energy makes use of a range of technical solutions to mitigate the risk of bushfires in the design and maintenance of its network:

- fitting spacers/spreaders between low voltage conductors to prevent power lines clashing together in high winds
- installing covered conductors (insulated coatings on powerlines) to reduce the danger from faults or fallen lines where this is justified on a cost-benefit basis and;
- using sensitive earth fault protection relays to detect and eliminate dangerous faults on those parts of the network supplying customers in bushfire prone areas.

Stand-alone power systems (SAPS) have the potential to play an important role in maintaining power supply to customers in areas prone to long interruptions due to bushfires. SAPS - which generally involve a combination of solar PV, batteries and a back-up diesel generator - allow electricity services to be delivered to customers without the extensive interconnected upstream network used in traditional grid connections.

SAPS can be appropriately sized to either supply a single customer or a town, most commonly in regional and remote locations where the customer/s are at the edge of the grid, sitting at the end of long sections of powerlines that are prone to extensive damage – and lengthy repair times – after bushfires.

SAPS have the potential to reduce the amount of infrastructure exposed to a natural disasters hazards like lightning, floods and damage from damaging winds as well as the possible risks of powerlines starting fires. Eliminating sometimes hundreds of kilometres of powerlines also reduces maintenance costs and increases reliability. Being at the edge of the grid usually means more frequent power outages than in urban areas and they often last much longer, especially in natural disasters where they can be significant delays restoring power back to the main grid.

SAPS are currently subject to various jurisdictional arrangements in the National Electricity Market and are not generally captured under a consistent national regulatory framework. The Australian Energy Market Commission has published its draft recommendations for a package of proposed rules to implement a new regulatory framework for stand-alone power systems provided by electricity distributors such as Endeavour Energy in the National Electricity Market (NEM).

Endeavour Energy is working with the Energy Networks Australia to engage in the review process with the objective of ensuring that the proposed regulatory arrangements are fit-for-purpose and enable an efficient rollout of distributor-led SAPS for the benefit of customers.

4. Any other matters that the inquiry deems appropriate in relation to bushfires

It became clear that there was strong industry collaboration needed in the face of the bushfire crisis.

In response, Endeavour Energy initiated a National Bushfire Networks Coordination Group across the electricity networks industry. This group brought together networks from across NSW, Victoria, South Australia and Queensland to share information, compile an industry stocktake of essential equipment, including poles and human resources, and problem solve.

Another positive to come out of collaboration was the Ministerial Roundtable at Parliament House held to discuss the Electricity Sector Bushfire Response and Recovery. This led to the Australian Defence Force assisting us by removing some hazardous trees near our assets.

5. Preparation and planning for future bushfire threats and risks.

Endeavour Energy conducts an annual Pre-Summer Bushfire Inspection Program (PSBI Program) in bushfire prone areas to keep our network safe and reliable at the time of highest electricity use over summer and identify issues that could potentially lead to the ignition of a bushfire.

The PSBI Program primarily uses aerial patrols conducted before the start of the official bushfire season focused on both network asset defects and vegetation encroachments affecting Endeavour Energy's network.

The aerial patrols identify pole top defects or trees too close to its 13,000 kilometres of powerlines, allowing time to fix these issues ahead of summer and the bushfire season.

The survey is completed using LiDAR, an innovative light detection and ranging technology, which creates a model to provide practical pictorial evidence of the condition of the network.

The intensity of the task has led to innovation with technology.

These advances have now become a part of BAU activities and will drive further productivity.

These include GPS tracking of staff and contractors allowing for the monitoring of their locations, importing fire maps from the RFS into our mapping system to know what areas were safe for staff, and what areas required extra precautions, and the innovative use of thermal cameras, employed to identify smouldering trees that had the potential to fail.

Bushfire risk management and mitigation

Endeavour Energy has developed an Electricity Network Safety Management System (ENSMS), with one of the objectives aimed at minimising the bushfire risk from the electricity network.

The primary objective of the safety management system is to support those actions, programs and controls to:

- protect the safety of the public, and people working on or near our network
- safeguard property and network assets
- raise public awareness about electrical safety in and around the network
- manage the risk of powerlines starting bushfires
- manage the safety risks arising from loss of electricity supply to customers.

This results in a risk-based system to safely manage our network through a system of risk assessments that identify hazards and develop controls to prevent and mitigate these hazards.

Our ultimate objective is to provide a safer, more reliable and more cost-efficient network to our customers and communities. Endeavour Energy's performance in managing the risk of network-initiated bushfires is detailed in Endeavour Energy's annual ENSMS Performance Report which is available on our website www.endeavourenergy.com.au.

6. Land use planning and management and building standards, including appropriate clearing and other hazard reduction, zoning, and any appropriate use of indigenous practices.

Since trees have the potential to damage powerlines that cause fires and disrupt services to customers, Endeavour Energy invests considerable resources to keep electricity infrastructure clear of vegetation for safety purposes. Damage to powerlines from trees lead to extended power interruptions to customers during total fire bans, where automatic protection systems are at times disabled to maintain public safety which means that all powerline lines need to be physically inspected by a qualified technician before power supply can be safely restored.

The amount of clearance from trees is dependent on a range of factors including the voltage of the powerline, the type of conductor and the length of spans between poles or towers. As a result, Endeavour Energy's transmission lines tend to be located within significant "corridors" of cleared vegetation.

These easements and corridors can act as natural breaks in vegetation and could perform as strategic firebreaks in the landscape as part of broader bushfire mitigation programs, particularly within national parks and other heavily vegetated areas on Crown reserves.

Endeavour Energy believes its transmission network should be regarded as critical infrastructure with appropriate consideration in federal, state and local government planning instruments to ensure they are treated appropriately.

Back burning activities can be performed safely near transmission lines (with appropriate notification to the network operator), but this can only be achieved safely within strict conditions to ensure that flame heights don't exceed 1m in height within 25m of the transmission lines.

In contrast to back burning, firefighting, either from the ground or from the air, cannot be performed safely near transmission lines.

It should be recognised that smoke represents a significant arc hazard near electricity powerlines.

Vegetation management is a significant and costly focus of operating an electricity network safely and the coordination of vegetation management (vegetation maintenance and back burning) around transmission corridors between network operators and local jurisdictions may result in efficiencies while delivering the benefit of strategic fire breaks.

In order to use these transmission corridors as strategic fire breaks, it may be necessary to make changes to legislation to recognise both the critical nature of transmission infrastructure and the potential for broader community benefit.

Endeavour Energy believes specific hazard (vegetation) reduction instruments are absent, and interpretation is always required to determine what constitutes an exemption for a hazard tree(s) under emergency conditions once the threat has abated. In other words, if a building has been significantly compromised by fire under emergency conditions, the time elapsed from the initial incident does not then remove that threat. We assert that the same approach applies to trees, and this is based on actual fall-ins from damaged trees that have occurred post the recent fire season.

Maintaining network assets within National Parks

As has been previously stated in this submission, Endeavour Energy must undertake regular vegetation clearing to protect, maintain and upgrade its essential transmission assets and infrastructure which are located across many different land use zones, including within National Parks and other areas of conservation value. Endeavour Energy also has obligations under the *Work, Health and Safety Act 2011* (NSW) to ensure the safety of its workers. Often network assets are located near or within vegetation which has the potential to cause a fire or result in damage to network assets from a bushfire.

Further, the unprecedented scale of the 2019-2020 bushfires left a large number of fire-affected trees in close proximity to network assets and continue to present a safety risk for Endeavour Energy's network, the environment and the public. This has required Endeavour Energy to promptly remove canopies of trees, or whole trees, to prevent them from falling onto the network assets and ensure the ongoing safety of the network and workers.

Currently, Endeavour Energy is required to navigate a complicated regulatory regime to ensure that any vegetation clearing is carried out lawfully. Ordinarily, Endeavour Energy is able to carry out this work as exempt development permitted by the *State Environmental Planning Policy (Infrastructure) 2007* (NSW) (**ISEPP**). However, this position is less clear in areas where the *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (NSW) (**Vegetation SEPP**) applies due to the operation of clause 8(1), which states that the exemption from the requirement to obtain approval under the Vegetation SEPP "does not apply to clearing merely because it is part of or ancillary to the carrying out of exempt development". This has been exhibited recently in the case with NSW National Parks and Wildlife Service who are rejecting bushfire affected, hazard trees to be removed without a substantial environmental assessment (Review of Environmental Factors) to be undertaken.

Further, in areas which are reserved under the *National Parks and Wildlife Act 1974* (NSW), Endeavour Energy is required to obtain approval from the Secretary of the Department of

Planning, Industry and Environment (**Department**) and comply with protocols for access to reserved areas. These approvals and protocols are granted for limited periods of time, requiring regular extensions or renewals, and there are often delays in obtaining the extensions, thereby hampering Endeavour Energy's ability to protect its assets and workers while also complying with the applicable regulatory regime. The current procedures are not sufficiently adapted to enable Endeavour Energy to appropriately prepare for, prevent damage from, or respond promptly in the aftermath of, bushfires of this recent (or any other) scale.

Endeavour Energy submits that the Inquiry should consider reducing the regulatory burden imposed on network operators to ensure that they can undertake vegetation clearing in a measured, planned and appropriate manner that enables the operators to adequately and proactively protect their essential networks, workers and the public while simultaneously ensuring clearing controls and permits are user-friendly for all stakeholders. There needs to be clear guidance to what constitutes a hazard and reasonable time frames by which to process (remove or other) to remove the direct threat that such trees have on network assets. Further, network operators need to be allowed to exercise these obligations once the network risks have been assessed.

7. Appropriate action to adapt to future bushfire risks to communities and ecosystems.

Endeavour Energy is acutely aware of the deep trauma experienced by many coastal and rural communities ravaged by the bushfires. Endeavour Energy recently engaged with Shoalhaven City Council and some members of the Bawley Point community on the South Coast about new ways Endeavor Energy can help to make electricity supply more reliable and resilient during natural disasters.

Islanded microgrids, community batteries and stand-alone power systems for community facilities should be encouraged by the NSW Government.

Similarly, greater use of privately-owned or hired generators during bushfire season for local essential services such as petrol stations, grocery and food outlets and community halls would help isolated communities to adapt to future bushfire risks. Private funding of generators would help to minimise the cost of generators being passed onto all electricity customers in the form of higher Endeavour Energy network charges in future years.

Endeavour Energy is also reviewing its standards and performance to improve the bushfire resilience of the company for the upcoming bushfire season.

These include:

- The statutory Bush Fire Danger Period runs from 1 October to 31 March, however the start date has been brought forward to 1 September for the past two years. Endeavour Energy is targeting 1 September as the start date for the upcoming bushfire season.
- Assessing bushfire risk zones to target installation of insulated conductors
- 40% of timber poles impacted by the recent bushfires were replaced with steel or concrete poles, and we are reviewing vegetation buffer zones around our substations

- Endeavour Energy received an expanded bushfire-risk zone from the Rural Fire Service in February 2020. We are reviewing the implications of this on the business.
- A Bushfire Prevention Working Group within our organisation is reviewing standards and benchmarking across the country. As a result of this, additional bushfire defect types have been identified for rectification next season.
- Stand-alone power supplies are being explored as an alternative to building and maintaining the network in bushfire impacted areas

8. Emergency responses to bushfires, including overall human and capital resourcing.

Endeavour Energy has extensive experience in responding effectively to natural disasters. We work in concert with other emergency services including the NSW Police, NSW Fire and Rescue, the Rural Fire Service and the NSW Government to co-ordinate responses and resources and resolve issues.

The New South Wales, Victorian, Queensland and South Australian electricity industry has had a long-standing protocol of working as an industry sector during times of major natural disasters. This enables rapid movement of additional skilled workers and equipment to other networks experiencing extensive damage, as and where needed. This protocol was enacted during the fires and proved to be a valuable strategy in restoring power to customers quickly.

9. Coordination and collaboration by the NSW Government with the Australian Government, other state and territory governments and local governments.

See our response to ToR 8.

10. Safety of first responders

During the 2019-20 bushfires, electricity transmission and distribution businesses worked closely with the emergency services. This was particularly the case when our field crews need to assess damage and commence making repairs to restore power supply to customers soon after bushfire fronts have passed through a particular area.

Electricity networks are critical infrastructure and a resilient power supply electricity is an essential service that greatly assists community and emergency response to bushfires (e.g. communications). In many areas, the lack of electricity also meant no mobile phone coverage, no water, no petrol and no access to credit facilities to pay for basics. Assessing and reconnecting electricity following a bushfire is critical to supporting an ongoing effective response.

Initially, Endeavour Energy field crews were escorted by emergency services, but as the bushfire situation escalated, our field crews were increasingly allowed into remote and damaged areas unescorted. On some occasions as our field crews attempted to exit their work area, they found roads had been closed, exits blocked or conditions changed due to back-burning.

Endeavour Energy has representatives in local and State Emergency Control Centres, but at times there were deficiencies in “on the ground” coordination between the various emergency services agencies and that led to crews in the field exposed to changing conditions with

elevated risk. When these issues were raised locally or at State levels, improvements were made.

Endeavour Energy would welcome the opportunity to work with emergency services and Governments to develop improved coordination protocols that will help improve the safety of our field crews, and also the emergency services we work alongside.

11. Public communication and advice systems and warnings.

Endeavour Energy congratulates the NSW Government on the quality and frequency on its daily updates, led by the Premier and the Rural Fire Services Commissioner and on the use and promotion of its app 'Fires Near Me.' Endeavour Energy also observed the significant role of the ABC as Australia's emergency management channel, and provided regular updates to local ABC radio and TV news stations.

Bushfire affected communities absolutely depend on emergency information from these trusted sources, and this is to no avail if electricity supplies are lost and mobile phone tower back up supplies are lost. In this regard, Endeavour Energy recommends action by telecommunication companies to strengthen their back up power supplies to ensure communities are not left in a situation where they cannot access critical safety information

Linked to this, we believe that use of broadcast safety SMSs to areas impacted or at risk of bushfires would be an area that should be explored for future use. This would depend on previously mentioned improvements to the power backup to critical communication towers.

Thank you

In closing, Endeavour Energy thanks the NSW Independent Inquiry for its interest and would be pleased to provide further detail should this be necessary.

If you wish to discuss any aspect of this submission, please contact Endeavour Energy's Deputy Chief Executive Officer, Mr Rod Howard, on [REDACTED]

Yours sincerely



Leanne Pickering
Interim Chief Executive Officer
17 April 2020