Response to the

Building a Better Understanding of Bushfire Risk Consultation Paper

01 July 2021

Energy Grid
ALLIANCE

Energy Grid Alliance was established with the purpose of engaging with energy transmission companies, industry regulators, market operators, relevant peak bodies, government and communities to establish best planning practices for new energy transmission infrastructure and to inform on the benefits of working with communities to acquire and maintain social license.

Introduction and Context

Victoria is one of the most bushfire-prone areas in the world. The state's extreme weather events are becoming more frequent and intense, which is leading to more severe bushfires that burn more land. The recent 2019–20 bushfire season had a devastating impact on human life, wildlife, flora and infrastructure, and adversely affected Victoria's economy. It is not possible to eliminate the threat of bushfires. However, the government plays a key role in reducing the risks they pose to people, property and the environment. *(Building a better understanding of bushfire risk consultation pp. 6)*

The health, safety and prosperity of the Victorian community are reliant on essential services supported by certain infrastructure. Emergency events – whether natural or human-induced – pose a risk of disrupting the ability of critical infrastructure providers to deliver essential services to the community. Furthermore, the complex, interconnected and often interdependent nature of critical infrastructure in modern society increases the risk of a disaster-causing systemic failure. *(IGEM - Inquiry into the 2019–20 Victorian fire season pp. 110)*

Increasingly, energy system vulnerabilities to heightened climate impacts, particularly extreme weather, are recognised as material risks to individual assets, the integrated energy system, and society.

Scientists warn that extreme weather will increase in both frequency and severity as climate change accelerates. The Australian Energy Market Operator (AEMO) is acutely aware of this, warning climate change poses "*material risks to individual assets, the integrated energy system, and society*".

A Grattan Institute energy expert and bushfire mitigation specialist, Tony Wood, says "*the government should move to bury power lines underground where possible in the storm and fire-prone area*". Tony has called for "*a serious assessment of whether electricity wires should go underground in communities vulnerable to storms and fire*".

While the reference here is to power lines, the same risk mitigation measures should be applied to energy distribution and transmission lines too.

The 2019-20 summer was particularly challenging for Australia's physical gas and electricity infrastructure, with notable increases in heat and fire impacts consistent with climate change projections. These impacts highlight the need to integrate resilience measures into the planning, routing, design and assessment of transmission projects and upgrades. The vulnerability of key transmission lines and other major energy infrastructure to fire impacts and extreme weather events needs to be addressed.

Routing critical transmission infrastructure away from bushfire prone areas or underground, would enable our energy networks to better withstand extreme weather events and build increased network resilience.

Increasing frequency of dangerous fire weather poses a threat to most assets, with a particularly high operational risk to transmission lines due to heat and smoke. It is also an important consideration in transmission line route selection and design.

According to AEMO, "*good engineering design will ensure that any new infrastructure does not lead to unsustainable deterioration in grid resilience. Building additional transmission lines along a bushfire prone transmission corridor would be an example of resilience deterioration*". *(2020 ISP Appendix 8. Resilience and Climate Change pp. 9)*

> Building transmission lines along a bushfire prone transmission corridor would be an example of resilience deterioration
>
> *AEMO*

Responses to Guiding Questions

1. How we can improve community understanding around bushfire risk and fuel management.

Following catastrophic fire weather events over the past decade, Energy Grid Alliance believe the community has a clearer understanding of bushfire risks, the devastating impacts and need for fuel management.

There is strong public interest in, and there are polarising views on, fuel management activities, particularly prescribed burning. There is clear benefit in public land managers improving the public's knowledge and understanding of the fuel management through education by highlighting the benefits of prescribed burning as a bushfire management tool.

2. In developing a whole of sector bushfire strategy, what are the areas of bushfire management that should be considered and prioritised?

As stated in the introduction, increasing frequency of dangerous fire weather poses a threat to most assets, with a particularly high operational risk to transmission lines due to heat and smoke. Bushfire risk to critical energy assets is an important consideration in transmission line route selection and design. Routing critical transmission infrastructure away from bushfire prone areas or underground, will enable our energy networks to better withstand extreme weather events and build increased network resilience into Victoria's energy grid.

To help defend Victoria's economy, society and environment against extreme weather events and future-proof critical energy infrastructure, the Victorian Government and network operators needs to adopt best planning practices and design resilience into the grid by avoiding or undergrounding bushfire prone regions and heavily forested corridors.

3. How should fire agencies be responding to, mitigating, and adapting to climate change?

Energy grid alliance support the view of Australasian Fire and Emergency Service Authorities Council that fire agencies should integrate adaptation and mitigation measures into disaster risk management and emergency management planning if they are to effectively deal with current and future climate change risks. A commitment to allocate the appropriate resourcing, develop the necessary governance structures, invest to develop initiatives and foster a learning culture around climate change adaptation and mitigation is necessary.

4. What you consider to be a realistically achievable percentage for bushfire risk reduction through fuel management and your reasoning for it?

Without detailed research any analysis, Energy grid Alliance are unable to respond to this question in broad terms regarding prescribed burning and fuel management as a bushfire management tool.

In relation to reducing the bushfire risk to Victoria's energy infrastructure. Engineering resilience into the grid by adopting the least-regret approach and avoiding bushfire prone areas should realistically achieve a 90-95% reduction in risk to critical energy infrastructure. Energy grid Alliance support AEMOs position that; "*Building additional transmission lines along a bushfire prone transmission corridor would be an example of resilience deterioration*". This should be avoided, irrespective of the initial project costs.

Considering the long terms economic and social costs, caused by recent extreme weather events, the risk in building overhead transmission infrastructure through bushfire prone regions is that investments will not be optimally designed for the needs for resilience to bushfires or future climate change. This inherent limitation may not be fully appreciated until the future climate is experienced. And by then it will be too late.

Case Study:
Western Victoria Transmission Network Project (WVTNP)

A proposed high-voltage overhead transmission network project that is receiving noteworthy objection and push-back from local communities is the proposed Western Victoria Transmission Network Project (WVTNP).

Overhead transmission infrastructure, proposed through bushfire prone areas and nearby township settlements, is highly inappropriate and represents one of the worst locations in the state for this project to be routed.

According to Forest Fire Management Victoria, the eastern half of the Grampians region is where the greatest bushfire risk sits, particularly for settlements in and around the Wombat State Forest and Lerderderg State Park, such as Daylesford, Trentham and Darley.
(Grampians Bushfire Management Strategy 2020 pp. 18)

In 1983, on Ash Wednesday, a fire claimed seven people's lives in the Macedon, East Trentham area. The fire reached a final size of 29,500 hectares, destroying 157 homes and 628 other buildings. Whilst fires of this magnitude have not occurred in this area since, the potential consequence of large fires in this area remains extremely high.

The risk to human life and deterioration in grid resilience directly contravenes strategic planning and bushfire mitigation objectives which are to minimise the impact of major bushfires on human life, communities, essential infrastructure, economy and the environment. Human life should and will be afforded priority over all other considerations.

The Planning and Environment Act requires Responsible Authorities to administer and enforce the planning scheme.

This includes bushfire protection measures required "***to strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life***".

(IGEM - Inquiry into the 2019–20 Victorian fire season pp. 78)

The WVTNP proposes the development of a new transmission line starting at Bulgana, near Stawell in Victoria's west, and covering approximately 190km to the north-western Melbourne suburb of Sydenham.

The WVTNP is critical infrastructure required to unlock the renewable energy potential of western Victoria as a key Renewable Energy Zone and will help to deliver clean and affordable energy to Victorians. The project will also drive economic growth and bring new job opportunities to the region.

The project will include:

- a new terminal station to the north of Ballarat
- new 220 kilovolt (kV) double circuit overhead transmission lines from the new terminal station to Bulgana (via Waubra)
- new 500kV double circuit overhead transmission lines from Sydenham to the new terminal station
- several minor upgrades, including to existing electricity infrastructure.

Western (V3) Stage 1 | Category 2 refers to constructing a new 500kV double circuit overhead transmission line from North Ballarat to Bulgana. This represents an alternative to the proposed WVTNP.

Planning assessments underway as part of WVTNP need to be amended to include 500kV to Bulgana.

Case Study:
Proposed WVTNP Corridor Represents Highest Risk

According to Forest Fire Management Victoria, Darley is in the Highest Risk category for the region. Coimadai, further to the north is in the High Risk category.

Overhead transmission infrastructure amplifies the risk of fire ignition and increases bushfire risk to one of the highest risk towns in the region.

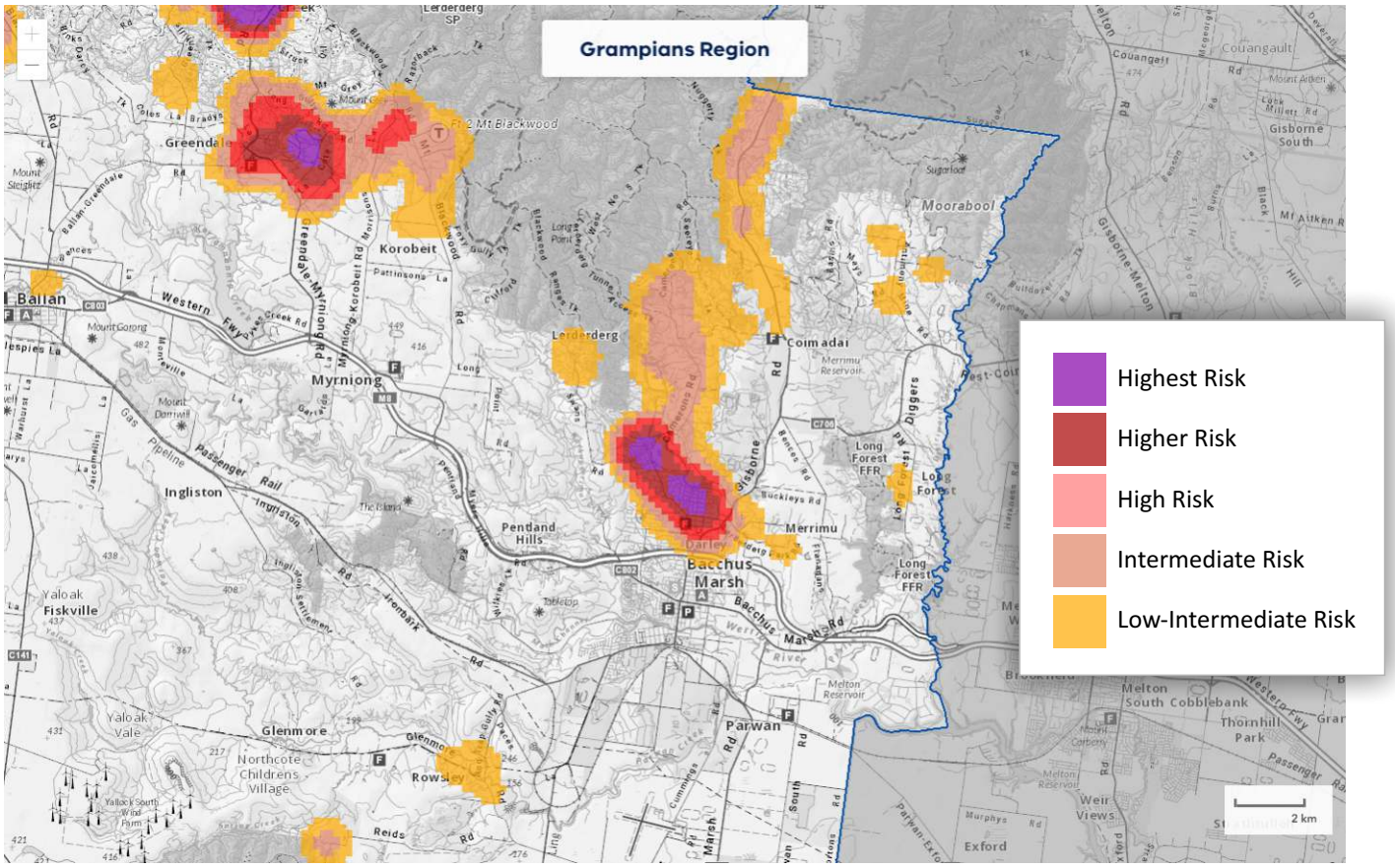
Overhead transmission infrastructure, proposed to the north of Darley, is highly inappropriate for this area and represents one of the worst locations in the state for critical infrastructure assets to be routed. (*refer pp. 9*)

As AEMO have stated "***Building transmission lines along a bushfire prone transmission corridor would be an example of resilience deterioration***".

Forest Fire Management Victoria (FFMVic) seasonal objectives identifies one of the following priorities for delivery: **Reducing risk to Victorian communities, priority assets and critical infrastructure, and ecosystem health and resilience.**

(Building a better understanding of bushfire risk consultation - 4.5.1 Objectives of the 2019-20 fire season pp. 11)

The following map demonstrates potential risk of house loss in the Grampians region. It compares where houses could be destroyed by bushfire across the region. Different shades represent different levels of risk. As the shades progress from yellow through red to purple, more and more houses are potentially destroyed. The purple areas have the highest risk of house loss. More houses could potentially be destroyed by bushfire in these areas than in any other areas in this region.



(Map: Bushfire Planning - Fire Forest Management Victoria - Grampians Region)

References

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https://files.igem.vic.gov.au/2021-03/Inquiry%20into%20the%202019%2020%20Victorian%20Fire%20Season.pdf

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https://files.igem.vic.gov.au/2021-03/Inquiry%20into%20the%202019%2020%20Victorian%20Fire%20Season.pdf

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https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/8016/2432/9071/Summary_Report.pdf

Code of Practice for Bushfire Management on Public Land - DELWP
https://www.ffm.vic.gov.au/__data/assets/pdf_file/0025/25747/Code-of-Practice-for-Bushfire-Management-on-Public-Land-1.pdf

Delivering Bushfire Reform - DELWP
https://engage.vic.gov.au/delivering-bushfire-reform

Bushfire Planning - Fire Forest Management Victoria - Grampians Region
https://bushfireplanning.ffm.vic.gov.au/grampians/

AFAC - Climate Change and the Emergency Management Sector
https://files-em.em.vic.gov.au/public/EMV-web/AFAC-Climate-Change-Discussion-3July2018FINAL.pdf

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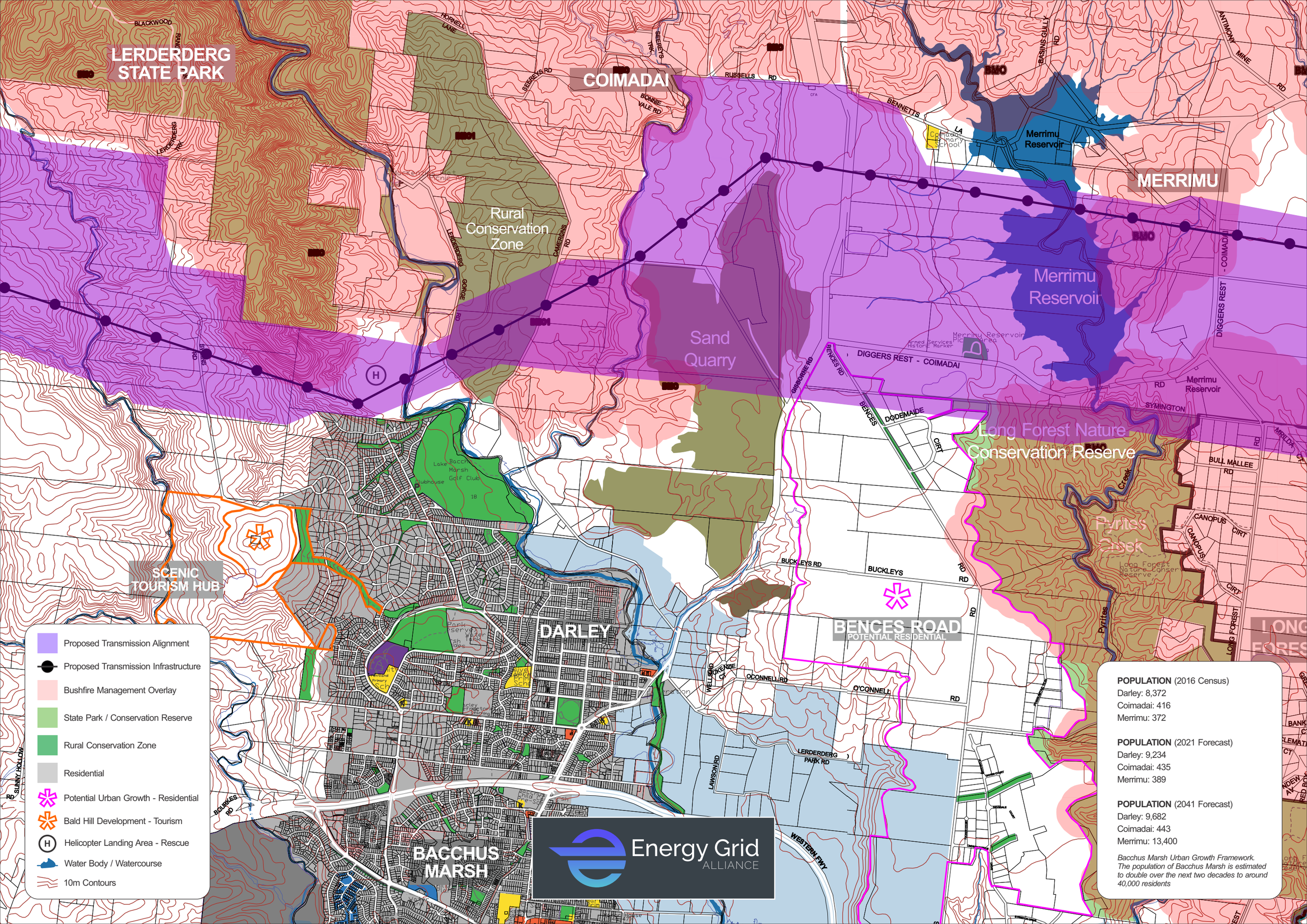
LERDERDERG STATE PARK
COIMADAI
MERRIMU
Merrimu Reservoir
Rural Conservation Zone
Sand Quarry
Merrimu Reservoir
Long Forest Nature Conservation Reserve
SCENIC TOURISM HUB
DARLEY
BENCES ROAD
POTENTIAL RESIDENTIAL
BACCHUS MARSH
Energy Grid ALLIANCE
Proposed Transmission Alignment
Proposed Transmission Infrastructure
Bushfire Management Overlay
State Park / Conservation Reserve
Rural Conservation Zone
Residential
Potential Urban Growth - Residential
Bald Hill Development - Tourism
Helicopter Landing Area - Rescue
Water Body / Watercourse
10m Contours
POPULATION (2016 Census)
Darley: 8,372
Coimadai: 416
Merrimu: 372
POPULATION (2021 Forecast)
Darley: 9,234
Coimadai: 435
Merrimu: 389
POPULATION (2041 Forecast)
Darley: 9,682
Coimadai: 443
Merrimu: 13,400
Bacchus Marsh Urban Growth Framework. The population of Bacchus Marsh is estimated to double over the next two decades to around 40,000 residents