

Delburn Wind Farm

Bushfire Risk Analysis Update – August 2019

Project overview

The proposed Delburn Wind Farm developed by OSMI Australia will see the construction of up to 35 wind turbines in the existing HVP land that is utilised for plantations. The development of wind farms in softwood and hardwood plantation areas is a relatively new initiative in Australia. However, in Europe these developments in pine forests are seeing an expansion where traditional agricultural land available for renewable energy projects is dwindling.

The proposed development site is over the plantation land centred in the Delburn area, covering Hancock Victoria Plantations' (HVP) Darlimurla, Silver Creek and Thorpdale plantations.

The site is generally bounded by Hernes Oak to the north, Thorpdale, Narracan and Coalville to the west, Darlimurla to the south, and Boolarra, Yinnar and Driffield to the east.

The site covers land from three local municipalities: Latrobe City, South Gippsland and Baw Baw.

Bushfire risk in south eastern Australia

Victoria is one of the most fire-prone areas in the world, with a history of catastrophic bushfires such as Black Friday (1939), Ash Wednesday (1983) 2003 Alpine Fire (2003), Great Divide Fire (2006) and most recently, Black Saturday (2009).

Victoria's high bushfire risk is the result of factors that increase the likelihood and consequences of fire. These factors include large areas of the state comprising highly flammable dry eucalypt forest, protracted droughts and an increasing population density in bushfire-prone areas.

While bushfire is a significant risk facing Victoria, it is also a natural part of the environment and many plant species rely on fire to regenerate.

Expert bushfire risk analysis

OSMI Australia has engaged the services of Fire Risk Consultants Pty Ltd to assess the bushfire risk in all areas of the proposed development.

Fire Risk Consultants is a Gippsland based company that works across Australia and offers a range of operational and strategic services in the Fire, Emergency Management, Risk and Community sectors. Fire Risk Consultants has extensive experience in assessing fire risk, identifying and implementing



risk management treatments that are both effective and sensitive to the needs and values of local communities and the environment.

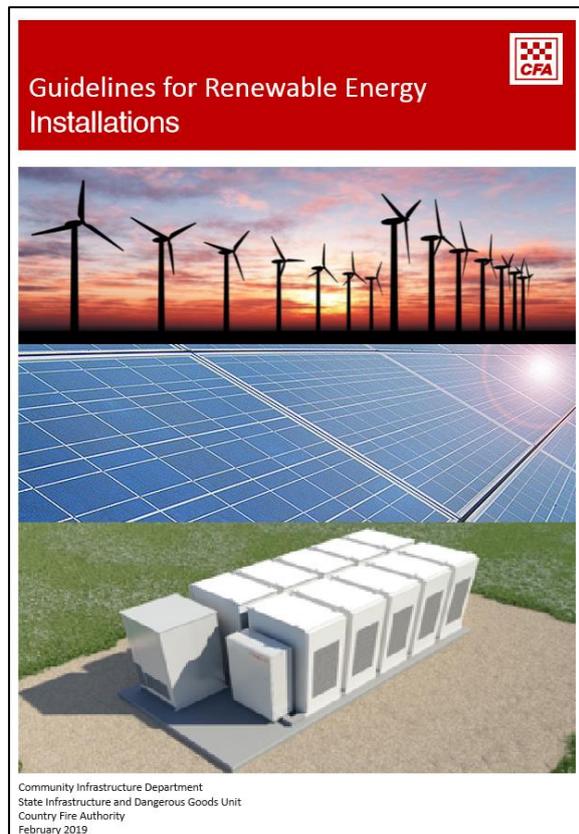
The recommendations and treatments that will be developed will holistically address fire risk within the turbines and surrounding landscape, the impact of bushfires on the turbines, emergency vehicle access / egress and firefighting suppression including the use of fire bombing aircraft and water supplies.

Wind farms and bushfires

Wind farms have been part of the Victorian landscape for approximately 20 years. Locally, this has included the Toora Wind Farm in the rolling hills of South Gippsland. The concept of a wind farm in a forested area is new for us here in Victoria but is prevalent in Europe and parts of northern America.

Historically, there is some evidence of bushfires impacting wind turbine sites, however these are very rarely caused by the actual wind farm itself. The fire safety systems installed within turbines and associated equipment is designed to either prevent a fire from starting or suppressing the fire if one does start. There are also strict controls in place to ensure that high risk work is not undertaken on high fire risk days.

Strong consideration also provided to ensure that firefighters' ability to suppress fires around wind farms is not affected by the presence of the wind farm infrastructure. There are examples of firefighting resources including aircraft operating safely in between wind turbines to effectively contain or suppress bushfires.



Guidelines have been developed by the fire agencies and developers to address the bushfire risk associated with wind farms. These include:

1. Australasian Fire and Emergency Service Authorities Council 2018, Wind Farms and Bushfire Operations (AFAC Publication No. 2053), AFAC, Melbourne, Australia - https://www.afac.com.au/docs/default-source/doctrine/afac_doctrine_windfarmsbushfiresoperations_position_2019-08_04-v1-0.pdf
2. Country Fire Authority 2019, Guidelines for Renewable Installations, CFA, Melbourne, Australia - <https://www.cfa.vic.gov.au/documents/3554830/3558078/CFAGuidelinesforRenewableEnergyInstallations.pdf/eb29e41a-18a4-998e-97a7-9a4c9350574e>
3. HVP and OSMI Australia
Delburn Wind Farm Operational Protocols

So what's next?

Fire Risk Consultants is continuing to work with OSMI Australia to develop the Delburn Wind Farm Bushfire Risk Assessment and Mitigation Plan. It's hoped that this assessment will be available in mid-August 2019.

The Plan will utilise the best available information from all parties, including CFA and HVP, the developers, the community and other stakeholders. We will also be using a world class bushfire predictive program called Phoenix Rapidfire. This program is regularly used by the agencies to assist them in assessing bushfire risk and treatment options.

Specific areas being investigated by Fire Risk Consultants include:

- Access and egress to the proposed turbine locations
- Past fire history, including location and fire cause
- Vegetation present in the wind farm area
- Likely fire scenarios
- Availability of surrounding fire resources
- Opportunities for fuel reduced corridors and fire breaks to reduce bushfire spread and intensity



Photo: Air Tanker dropping retardant on fire impacting the Waubra Wind Farm, January 2018.

Fire safety and fire prevention measures will be built into the project design by OSMI Australia. These mitigation measures include:

- All wind turbines will be fitted with lightning protection, heat and/or smoke detection systems for early notification of fire, dedicated monitoring systems within each wind turbine that detect temperature increases in the turbines, to either place the turbine in a "safe state" or shuts them down when the threshold temperature is reached, and a system to prevent overheating when the temperature inside the nacelle is too high.

- Unless the risk to human life is deemed to be unacceptable or the product is not available on the market, the wind turbines must use non-combustible hydraulic and lubricant oils where these are available and contained nacelle fire suppression systems, either being water or foam type.
- The cleared area immediately under the turbines must be kept free of flammable material.
- All plantation trees within 100m of the perimeter surrounding the base of each turbine is to be high pruned to develop a ladder fuel free fire break.
- All met masts and high voltage equipment must have adequate lightning protection installed.
- A fuel reduced area (free of flammable material) of four-ten (4-10) metres width must be maintained around the perimeter of all above ground electrical facilities.

Firefighting and response capability will also be included in the operation of the Delburn Wind Farm. This includes:

- A static water supply of at least 22,500 Litres effective capacity that will be maintained at all site compounds or substations and otherwise located in consultation with CFA and GRP. All static water supplies will be installed in accordance with CFA requirements and specifications.
- At least one mobile firefighting unit will be maintained on-site during construction and operations and be available for rapid response for use by Project staff, GRP staff or CFA as required.
- GRP and OSMI employees operating the wind farm will jointly undertake training exercises prior to each Forest Operations Restriction Period.
- OSMI employees operating the windfarm will have accreditation in firefighting and maintain their currency

