NSW RURAL FIRE SERVICE

Nicole Brewer
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Resource Assessments/Planning Services
NSW Planning and Environment
GPO BOX 39
SYDNEY NSW 2001

Your reference: SSD 6277

Our reference: S14.0001

6 March 2017

Dear Madam,

PROPOSAL : Jupiter Wind Farm - Environmental Impact Statement

Reference is made to correspondence dated 29 November 2016 seeking comments on the Environmental Impact Statement prepared in relation to the above State Significant Development in accordance with the *Environmental Planning and Assessment Act 1979.*

The New South Wales Rural Fire Service (NSW RFS) has reviewed the information provided, including the Bush Fire Risk and Hazard Assessment (Appendix N) prepared by EPYC Pty Ltd (dated 2016_F02) and provides the following recommendations;

Asset Protection Zones

Intent: The intent of this measure is to :

- *minimise the risk that a bush fire will damage a wind turbine by providing sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels are below critical limits and to prevent direct flame contact with structures; and*
- *minimise the risk that the construction and/or operation of the wind farm will create a fire that could spread from the site.*

1. Asset Protection Zones (APZ's) are to be established around each structure and building to prevent direct flame contact from the hazard and a minimum APZ of 10m is required around each tower and a minimum 20m APZ (including a defendable space) will also be provided around each substation and compound.

2. The APZ must be free of surface fuel and elevated fuel and should have minimum canopy.

3. In addition to the above, APZ's are to be maintained for the operating life of the building and structures in accordance with *Planning for Bush Fire Protection 2006* and the NSW Rural Fire Service document titled *Standards for Asset Protection Zones*

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Fire Management Plan

Intent: The intent of this measure is to :

- *ensure fire safety for fire fighting personnel, workers and visitors during the construction and operation phase; and*
- *ensure there is appropriate fire fighting equipment and water on site to provide an operational response to a bush fire; and*
- *provide for consultation with NSW RFS District with regard to operational responses.*

4. Prior to the commencement of works, the proponent shall prepare and implement a Bush Fire Management and Response Plan for the site. The proponent shall consult with NSW RFS in the preparation of this plan. The plan shall provide measures which address the following matters;

    a) details of the internal road and APZ network.
    b) where locked gates are proposed, procedures and/or systems to ensure access for fire fighters.
    c) prevention of fires igniting during the construction and operation phase.
    d) proposed management to limit the spread of fire within the site.
    e) procedure for an operational response for fire suppression and mitigation in and around the site and the response to emergencies in the vicinity of the site.
    f) maintenance of the required Asset Protection Zones around all buildings on site.
    g) actions to minimise the risk of bush fire on the site.
    h) details of water supply available including access to the water supply.
    i) identification of work which may increase the risk of ignition during the bush fire danger period and details of when this work should not be carried out.
    j) process for the notification of the NSW Rural Fire Service District when works are to be carried out during the bush fire danger period.
    k) procedures for the emergency management of staff and visitors to the site.
    l) a program for the monitoring and reporting on the effectiveness of the above measures.
    m) details of the location of the Wind Turbine Generators and monitoring towers must be made available to the NSW RFS.

Access

Intent: The intent of this measure is to:

- *provide safe operational access to structures and water supply for emergency service; and*
- *to provide safe access to/from the public road system for fire fighters and staff during fire fighting operations .*

5. An internal road network plan shall be prepared and will include the following;

    a) details of the location of the internal road network within the site; and
    b) constructed road should be a minimum of 4.5m in trafficable width (1m clearance on either side) with a minimal vertical clearance of four metres to any overhanging obstructions, including tree branches.
    c) roads and bridges should be constructed to a standard so that they are accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes for the trafficable road width;

d) dead end roads should incorporate a loop around any structure or incorporate a turning circle with a minimum 12m outer radius.
e) curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress
f) the minimum distance between inner and outer curves is six metres
g) the cross fall is not more than 10 degrees.
h) maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.

(*Note: some short constructions in the access may be accepted where they are not less than the minimum 3.5m and extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed.*

Water, Electricity and Gas

Intent: The Intent of this measure is to;

- *provide adequate serves of water for the protection of structures during and after the passage of a bush fire and tom manage the spread of fire from the site.*

6. The fire management plan shall include;

- details of the location and availability of water supplies; and
- measures to the water supply that are easily accessible and located; and
- above ground tanks are to be manufactured of concrete or meal and raised tanks must have their stands protected. Plastic tanks are not to be used; and
- suitable connections for fire fighting purposes are made available .

It is noted that an aeronautical impact assessment report is included in the documentation which states that "any fire fighting activities in the vicinity of the project by either fixed wing or rotary wing aircraft would need to be conducted in consideration of the location of the Wind Turbine Generators and monitoring towers." The location of the wind turbine generators and monitoring towers must be made available to the NSW RFS.

Please note that the NSW Rural Fire Service has worked with other fire fighting agencies in the Australasian Fire and Emergency Service Authorities Council (AFAC) in the development of a national position in relation to wind turbines and bush fire operations. This document is attached for your information.

Any fire fighting operations in close proximity to wind turbines will be managed in the same way as any other potential hazard in accordance with Standard Operating Procedures.

If you have any queries regarding this advice, please contact Amanda Moylan - Team Leader, Development Assessment and Planning on 02 4472 0600.

Yours sincerely,

Jeff Lucas
Director, Planning and Environment Services

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Australasian Fire and Emergency Service Authorities Council

Wind Farms and Bushfire Operations

POSITION

Version 2.0

30 October 2014

Version Control

Version	Author	Edits	Date
0.1	Gary Featherston	First draft requested by the Rural and Land Management Group at its meeting of 7 May 2013	28 August 2013
0.2	Gary Featherston	Updated wind farm numbers and included comments from earlier reviewers.	30 August 2013
0.3	Gary Featherston	Approved by the RLM group before edits to include EMR and Total fire ban legislation.	9 September 2013
0.4	Gary Featherston	Added comments provided by the Clean Energy Council.	19 September 2013
1.0	Gary Featherston	Approved by Council	24 October 2013
1.1	Gary Featherston	Minor revision to add monitoring towers.	15 September 2014
2.0	Gary Featherston	Approved by Council, published.	30 October 2014

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1 Introduction

Wind power is a rapidly expanding mode of renewable energy production in Australia with installed capacity doubling in the past five years. As of September 2013, Australia has 64 wind farms with an installed capacity of 3058 megawatts (MW), with another ten wind farms under construction.

The increasing number of wind farms makes it important for AFAC member agencies to clarify their position and to identify those issues important for their operations in and around these facilities.

2 Purpose

This is a position to state AFAC member agencies attitude towards wind farms and their development. It aims to clarify the risks in order to inform stakeholders including regulators, members of the community and the wind farm industry.

3 Scope

The scope of this paper is limited to the issues relating to planning for bushfire prevention, preparedness, response and to recovery operations in and around existing and planned wind farms.

It excludes the environmental, social and economic issues associated with wind farms. It does not provide any judgments on the values or otherwise of wind farms.

4 Position

Bushfire management issues are best treated at the planning stage of a wind farm project. This includes the impact of bushfires on the wind farm and the potential for fires to start within the development boundaries. Local planning controls are in place to regulate these issues with respect to any infrastructure development and some local planning controls refer specifically to wind farms.

Wind monitoring towers associated with wind farm investigations and planning can be very much taller than the planned turbines and can be less visible. The location and height of monitoring towers should be noted during aerial firefighting operations.

Wind farms can interfere with local and regional radio transmissions by physical obstruction and radio frequency electromagnetic radiation. Any interference can be minimised or eliminated though appropriate turbine siting at the planning stage and by moving away from the tower if experiencing local interference during operations.

Wind farms are an infrastructure development that must be considered in the preparation of Incident Action Plans for the suppression of bushfires in their vicinity. These considerations are routine and wind farms are not expected to present elevated risks to operations compared to other electrical infrastructure.

Aerial fire fighting operations will treat the turbine towers similar to other tall obstacles. Pilots and Air Operations Managers will assess these risks as part of routine procedures. Risks due to wake turbulence and the moving blades should also be considered. Wind turbines are not expected to pose unacceptable risks.

Wind farms are not expected to adversely affect fire behaviour in their vicinity. Local wind speeds and direction are already highly variable across landscapes affected by turbulence from ridge lines, tall trees and buildings.

Turbine towers are not expected to start fires by attracting lightning.

Turbines can malfunction and start fires within the unit. Automatic shutdown and isolation procedures are installed within the system. Although such fires may start a grass fire within the wind farm, planning for access and fire breaks can reduce the likelihood of the fire leaving the property. This risk from such fires is less than that of many other activities expected in these rural environments.

Wind farms may operate on days of Total Fire Ban subject to relevant national, state and territory legislation.

Liaison with wind farm operators and energy industry representatives during and after bushfires should aim to ensure minimal disruption to generation capacity and rapid resumption of essential services to the community.

5 Supporting Documentation

There's power in the wind: national snapshot.
Clean Energy Council, April 2012

There's power in the wind: fact sheet.
Clean Energy Council, June 2011

Both sourced from
http://www.cleanenergycouncil.org.au/resourcecentre/factsheets.html
on 29 August 2013

Emergency Management Guidelines for Wind Farms
Country Fire Authority, April 2007

Fact Sheet 10. Wind Farming, Electromagnetic Radiation & Interference.
Australian Wind Energy Association.
Sourced from
http://www.synergy-wind.com/documents/10Electromagnetic.pdf
9 September 2013