

Presentation to the
Independent Planning Commission
by Erika Dawson

30 November 2023

SSD-21208499 - Glanmire Solar Farm

Introduction

- I am a Town Planner (Registered Planner – PIA) and Bushfire Consultant (Accredited Level 3 BPAD Practitioner).
- I have over 23 years' experience in the industry, both government and private sector.
- I have been engaged by the Glanmire Action Group
- Discussion points:
 - Bushfire Considerations
 - Visual Impact
 - Site Suitability
 - Cumulative Impacts

Bushfire

- The site and surrounds comprise vegetation that constitutes a bushfire hazard.
- The development will introduce new bushfire hazards:
 - Infrastructure (PV cells, electrical cabling, battery hazard)
 - Layout (long uninterrupted rows of solar panels with limited access)
 - Revegetation (requirement for reintroduction of pastures within solar array area, riparian corridors, woodland pockets, and boundary screening vegetation)

Bushfire (cont.)

- *Planning for Bush Fire Protection 2019* (PBP) guides development on bush fire prone land.
- The consideration of bushfire within the EIS was not based on a specific site assessment as required by PBP.
- The assessment did not consider:
 - impact of revegetation of the site as part of the development,
 - nor the agricultural activities on adjacent lands as a potential bushfire hazard impacting the development.

Bushfire (cont.)

- For developments like subdivisions, dwellings and special fire protection purpose developments there are very clear Acceptable Solutions for compliance with PBP.
- For other developments, such as solar farms, there are no clearly stated Acceptable Solutions → a far more considered approach is required.

ACCEPTABLE SOLUTIONS

- an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.
- APZs are managed in accordance with the requirements of Appendix 4 of PBP.
- APZs are wholly within the boundaries of the development site.
- APZ are located on lands with a slope less than 18 degrees.
- an APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.

Bushfire (cont.)

- Requirements for Solar Farms:

8.1 Introduction

There are other developments where bush fire provisions or requirements need to be applied, that align with the unique features of the development type.

In order to comply with PBP the following conditions must be met:

- satisfy the aim and objectives of PBP outlined in Chapter 1;
- consider any issues listed for the specific purpose for the development set out in this chapter; and
- propose an appropriate combination of BPMs.

It is important to ensure that a defensible space is provided for the size and scale of the development. Proposed measures must operate in combination to minimise the impact of bush fire and ensure that access and services are adequate.

8.3.5 Wind and solar farms

Wind and solar farms require special consideration and should be provided with adequate clearances to combustible vegetation as well as firefighting access and water.

The following should be provided for wind and solar farms:

- a minimum 10m APZ for the structures and associated buildings/infrastructure; and
- the APZ must be maintained to the standard of an IPA for the life of the development.

Infrastructure for the purposes of requiring APZ excludes:

- road access to the site; and
- power or other services to the site and associated fencing.

Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush.

Bushfire (cont.)

A Bush Fire Emergency Management and Operations Plan should identify all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm. This should include:

- detailed measures to prevent or mitigate fires igniting;
- work that should not be carried out during total fire bans;
- availability of fire-suppression equipment, access and water;
- storage and maintenance of fuels and other flammable materials;
- notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and
- appropriate bush fire emergency management planning.

It is important to be aware of operations that may be carried out on days of Total Fire Ban and any prohibited activities or exemptions that are notified by the Commissioner of the NSW RFS under the RF Act s.99.

8.3.9 Hazardous industry

Some developments are considered by their very nature to be hazardous, as much for their ability to start bush fires as their susceptibility to bush fire impacts. New developments of this nature should be avoided on BFPL. However, where hazardous industries are proposed, prior consultation with the NSW RFS and preparation of a performance based solution, potentially including a BFDB, will be required.

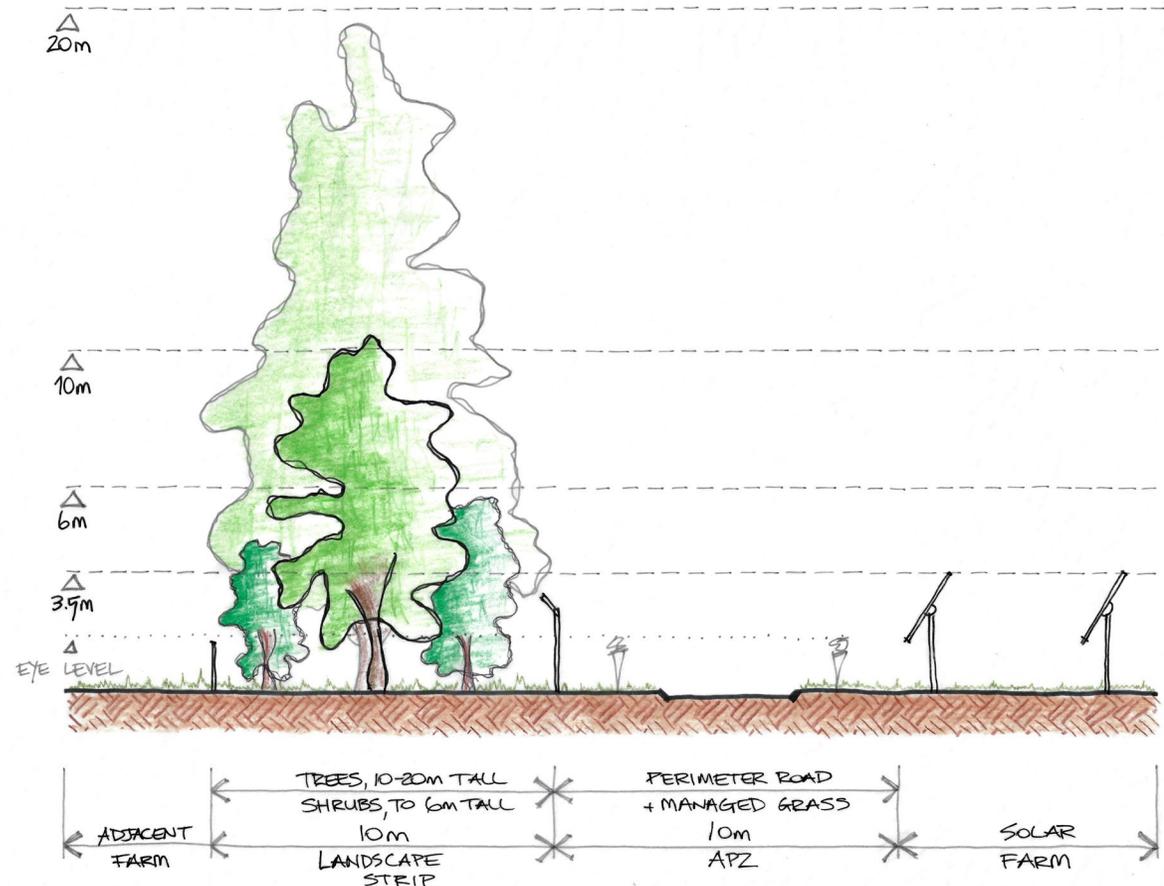
In preparation of a performance based solution or BFDB, the Fire Safety Study prepared under the DPIE *Hazardous Industry Planning and Assessment Papers* (HIPAPs) should be considered. This study provides details of all credible fire hazards and the associated fire prevention and mitigation measures for the development. The BFDB must address the appropriate protection measures to be provided commensurate with the bush fire hazards and associated risks. Care should also be taken to ensure that such facilities do not impact on existing developments.

Bushfire (cont.)

- The development has proposed bush fire protection measures:
 - Apply the minimum APZ size, in the absence of the specific site assessment to determine whether the width is adequate.
 - The APZs proposed will not achieve their required function (discussed later)
 - Apply requirements relating to a single dwelling (i.e. the proposed access requirements of section 7.4a of PBP (i.e. 4m wide driveway) and water tank storage of 20,000L).
 - There is one (1) access point to the site from the public road.
- No consideration has been given to the actual likely requirements of the development in terms of bushfire risk and what is actually appropriate protection:
 - What is actual an acceptable level of radiant heat on the development? And thus, how large should the APZs be?
 - How will the fire authorities respond to a fire approaching or within the development? What access do they need?
 - What amount and where does the water supply need to be located to adequately respond to a fire within or approaching the site?
 - What specialty skills are required for a fire within a solar farm or affecting the battery storage? Do the local brigades have these capabilities? Should the local community be burdened by having to provide this as a result of the development?

Bushfire (cont.)

- APZ functions:
 - Reduce impacts of bush fire on asset (flame contact, radiant heat, embers)
 - Provide an area of defensible space for emergency services to work to protect the asset
- The proposed APZ with the vegetation screening does not achieve the APZ functions.
- RFS procedure does not allow fire fighters within 8m of solar panels.



Bushfire (cont.)

Scenario (all 10m APZ)	Flame Length	Radiant Heat
Grassland Flat/Upslope	7.94m	26.19kW/m ²
Grassland Downslope 5°	9.43m	30.13kW/m ²
Woodland Flat/Upslope	8.98m	29.69kW/m ²
Woodland Downslope 5°	11.68m	37.3kW/m ²
Forest Flat/Upslope	18.06m	61.57kW/m ²
Forest Downslope 5°	23.72m	76.03m ²

Radiant Heat Flux	Likely Effects	Approx. distances
>29 – 110 kW/m ²	Flame Zone	0 - 20 metres
29 kW/m ²	Ignition of most timbers without piloted ignition (3 minutes exposure) (Level 3 construction) during the passage of a bush fire. Toughened glass could fail.	20 metres
19 kW/m ²	Screened float glass could fail (Level 2 construction) during the passage of a bush fire.	27 metres
12.5 kW/m ²	Standard float glass could fail (Level 1 construction) during the passage of a bush fire. Some timbers can ignite with prolonged exposure and with piloted ignition source (eg embers).	40 metres
10 kW/m ²	Critical conditions. Firefighters not expected to operate in these conditions although they may be encountered. Considered to be life threatening < 1 minute in protective equipment. Fabrics inside a building could ignite spontaneously with long exposures.	45 metres
7 kW/m ²	Likely fatal to unprotected person after exposure for several minutes	55 metres
4.7 kW/m ²	Extreme conditions. Firefighter in protective clothing will feel pain. (60 seconds exposure)	70 metres
3 kW/m ²	Hazardous conditions. Firefighters expected to operate for a short period (10 minutes)	100 metres
2.1 kW/m ²	Unprotected person will suffer pain after 1 minute exposure – non fatal.	140 metres

Bushfire conclusion

- The DPE Assessment Report:
 - Does not consider the actual bush fire risk,
 - Does not consider whether the bush fire protection measures are appropriate and commensurate to the risk.
- The recommended consent conditions relating to bushfire are:
 - Prepare and implement a detailed Emergency Plan and Emergency Services Information Package, that identifies procedures for managing risks on site.
 - Implement procedures and controls for managing fire hazards, including maintenance of an asset protection zone in accordance with requirements of the RFS's Planning for Bushfire Protection guidelines 2019.
 - Prepare a Fire Safety Study for the development.
- What do these conditions ACTUALLY require of the developer? No specific standards identified.
- These conditions are contrary to DPE's own guidance on writing conditions, as they are unclear, uncertain, and require further impact assessment.
- **It cannot be reasonably concluded that the development would not result in an increased in bushfire risk and that risk would be appropriately managed.**

Visual Impacts

- The development relies upon vegetative screening along the boundaries of the site to make visual impacts acceptable.
- Land & Environment Court Planning Principle - relates to use of landscaping to mitigate visual impacts:
 - 6 ***... where proposed landscaping is the main safeguard against overlooking, it should be given minor weight.*** *The effectiveness of landscaping as a privacy screen depends on continued maintenance, good climatic conditions and good luck. While it is theoretically possible for a council to compel an applicant to maintain landscaping to achieve the height and density proposed in an application, in practice this rarely happens (The Super Studio/Eva-Marie Prineas v Waverley Council).*

Site Suitability

- The DPE report states:

Overall, the Department considers the site to be appropriate for the project as it has good solar resources, available capacity on the existing electricity network and is consistent with the Department's revised Large-Scale Solar Energy Guideline.

- This overall consideration fails to mention the consideration of any hazards, attributes, or constraints of the site.
- In terms of site suitability, the DPE report fails to consider whether there are adequate services to respond to the new (and very different) hazard and bushfire risk being introduced into the area.
- To 'avoid' the impact on agriculture, the recommended conditions are requiring revegetation of the site with pasture grasses → bush fire hazard
- The suitability of the site, from a visual impact perspective, relies upon what the LEC considers to be an unreliable mitigation measure, and one which directly conflicts with bush fire protection measures.

Cumulative Impact

- Agricultural land is a finite resource, much of which is becoming more marginal due to our changing climate.
- It is critical that productive agricultural land, particularly in proximity to the end market, is protected.
- Primary Industry Production is the preferred and predominant land use in the RU1 Primary Production zone. Other uses are only permissible where they are compatible, do not unnecessarily convert rural land to non-ag uses, minimise impact on environmental qualities and avoid land use conflicts. The application has not demonstrated this is the case.
- The Project → direct removal of agricultural land from productivity for the duration of the construction, operation and decommissioning/remediation of the project (i.e. 50 years). The draft conditions allow for refurbishment of the infrastructure → no guarantee that the use won't continue beyond the 50 years. Erroneous to consider this a temporary loss of agricultural land.
- The project will result in direct and indirect impacts on the adjacent land (bushfire risk, insurance issues), which need to be thoroughly and realistically considered. The DPE assessment report has not done this.
- Proper land use planning should ensure that appropriate buffers are provided around solar farms, like is required for other land uses that cause off-site amenity or risk issues.
- Need to consider the cumulative impacts of the proponent driven ad hoc/sporadic location of solar farms popping up in rural areas. There is no strategic direction for the location of solar farms outside the REZ areas.
- → incremental creep of impact on productive agricultural land and its immediate surrounds, and benefit of the electricity generated is not being provided to the locals.

Cumulative Impact (cont.)

- The insurance issues = a real issue in terms of land use conflict and cumulative impact upon the preferred and predominant land uses in the locality.
- The DPE response (in the RTS report):
 - ...recognises the concerns raised by landholders in relation to fire and insurance risks as a result of neighbouring renewable developments **and considers further information and analysis is required to understand the extent of the problem and to respond appropriately.** The NSW Government is undertaking this analysis to determine appropriate action on the issue, including further consultation with the Australian Energy Infrastructure Commissioner and the Clean Energy Council (p.76).*
- On this basis, it would be erroneous to approve the application in the absence of full and proper information. Such a decision would be contrary to the objects of the EP&A Act.



Conclusion

- Both the application and the assessment report dismiss many of the impacts of the development without full and proper consideration. They are written with a bias for the need to move away from the use of fossil fuels and replacement with renewables without considering the real cumulative impacts to both the local and wider environment.
- The application has not adequately considered many matters that are statutorily required to be considered, including bush fire impacts, visual impacts, site suitability and cumulative impacts.
- For these reasons, the application is not suitable for approval in its current form.