# Bushfire Emergency Management & Operations Plan

## Stubbo Solar Stage 2a

## Stubbo, NSW

**Prepared for**

**PCL Constructors Pacific Rim Pty Ltd**

**22 May 2023**

**Version 1.3**

COOL BURN FIRE + ECOLOGY

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

## Project Details

| | |
|---|---|
| **Cool Burn Project Name** | J170 - Stubbo Solar Stage 2a BEMOP |
| **Applicant** | ACEN Australia |
| **Plan Prepared For** | Construction Contractor: PCL Constructors Pacific Rim Pty Ltd |
| **Development** | Construction of solar farm and associated infrastructure<br><br>State Significant Development SSD 10452 |
| **Project Location** | Stubbo, NSW<br>Blue Springs Road and Barneys Reef Road<br>Approximately 10km north of Gulgong |
| **Local Government Area** | Mid-Western Regional Council (FDI 80) |
| **Bushfire Prone Land** | Not mapped as bushfire prone |

## Document Control

| Version | Primary Author(s) | Description | Date Completed |
|---|---|---|---|
| V1.0 | Dan Pedersen | Draft | 1 March 2023 |
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## Consultation Register

| Stakeholder | Name/s | Details of Consultation | Date |
|---|---|---|---|
| Accent Environmental | IF/MC | Draft V1 | 13 Mar 2023 |
| ACEN Australia | PM/ DM$^{c}$K | Draft V1.1 | 30 Mar 2023 |
| Accent/Acen | | Draft V1.2 | 24 Apr 2023 |
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# Contents

# 1. Introduction

The Stubbo Solar Stage 2a (the Project) is a 400 megawatt (MW) alternating current development. The project is located between Blue Springs Road and Barneys Reef Road, approximately 10 km North of Gulgong and 85 km east of Dubbo in New South Wales (NSW) in the Central West and Orana Region (Figure 1).

ACEN Australia is the Applicant and project owner and has engaged PCL Construction Pacific Rim Pty Ltd (PCL) as the engineering, procurement and construction (EPC) contractor to manage the works for the 400 MW AC solar project, solar project substation ancillary operational facilities.

ACEN Australia has also engaged Transgrid to connect the Project to the transmission network used by Transgrid to provide transmission services, which includes certain works that need to be completed by Transgrid to enable Transgrid to connect the Project to the transmission network.

The Development Consent (DC) - Application Number: SSD-10452 in combination with commitments were made by ACEN Australia in the environmental impact statement (EIS) and the response to submissions (RtS) report, require the consideration of bushfire risks and management, which has been provided in the format of a Bushfire Emergency Management and Operations Plan (BEMOP), and consistent with NSW RFS Planning for Bushfire Protection 2019 (PBP 2019).

On 29 June 2021, the Executive Director, Energy, Resources and Industry Assessments granted consent to the development application for the Stubbo Solar Farm subject to conditions, under delegation from the Minister for Planning and Public Spaces and section 4.38 of the Environmental Planning and Assessment Act 1979 (the Act).

In a letter dated 24 August 2022, the Secretary approved the Applicant's proposal to develop the project in two stages, comprising:

- Stage 1: Road upgrades including construction of the main site access; and
- Stage 2: Construction of the solar farm.

In a subsequent letter dated 10 May 2023, the Secretary approved the Applicant's request dated 8 May 2023 seeking the Planning Secretary's approval to revise the

staging of the Stubbo Solar Project under Condition 3 of Schedule 4 of SSD-10452, and to develop the project in four stages comprising:

- Stage 1: Road upgrades (Blue Springs Road) and construction of the main site access.
- Stage 2: Solar project construction and operation including:
- Stage 2a: Construction and commissioning of the solar facilities including solar array, substation and all ancillary infrastructure, including the switchyard and transmission line connection to be constructed by Transgrid.
- Stage 2b: Operation of the Stubbo Solar Project.
- Stage 3: Construction, commissioning and operation of the Battery Energy Storage System (BESS), including substation and switchyard expansion (within the development footprint).
- Stage 4: Decommissioning of the Stubbo Solar Project at end of life.

This management plan is for Stage 2a of Stubbo Solar, as approved by the Secretary in the letter dated 10 May 2023.

This Bushfire Emergency Management and Operations Plan (BEMOP) has been prepared to support PCL and Transgrid in bushfire management and response.

The Stubbo Solar Stage 2a is not mapped within bushfire prone vegetation areas, but bushfire has been deemed a potential hazard and bushfire protection requirements detailed in the NSW RFS Planning for Bushfire Protection 2019 (PBP) have been applied to the planning/approvals and design stages and are required to be incorporated into the construction stage.

## 1.1.Project Location and Description

ACEN Australia proposes to develop a new 400 megawatt (MW) solar farm located approximately 10 kilometres (km) north of Gulgong in the Central West and Orana Region of NSW.

Key activities for Stage 2a include:

- Site compound
- Fencing works, including security fencing;

- Access roads including drainage and rehabilitation;
- Solar arrays that include:
    - General site wide cut to fill earthworks
    - Piling installation
    - Tracker installation
    - Above ground and below ground cable installation and termination
    - Module installation
- Substation, Switchyard and control buildings works that includes:
    - Earthworks
    - Structures and Footings
    - Gantries and HV Switchgear
    - Transformer installation and connection (Substation only)
    - Control building installations (both Substation and Switchyard)
- Operations & maintenance building, including warehouse facility;
- Cold Commissioning works;
- Hot Commissioning works including Hold Point testing for compliance to AEMO requirements;
- Site wide rehabilitation;
- All other associated infrastructure.

The project is located in close proximity to the regional road network via Blue Springs Road and the electricity network via TransGrid's 330 kilovolt transmission line, which extends along the southern boundary of the site.

The site is located in a rural area, with eight non-associated residences located within 2 km of the development footprint. The project would also be located in an area that could contribute to the pilot Renewable Energy Zone in the Central-West Orana Region.

The project is classified as State significant development under the Environmental Planning and Assessment Act 1979 (EP&A Act) as it is development for the purpose of electricity generating works with a capital investment value of more than $30 million.

## 1.2.Project Consent and the Bushfire Management Plan

The Stubbo Solar project was granted development consent (State Significant Development SSD 10452) in July 2021. Specific consent conditions (Conditions 30 and 31, **Table 1**) require the preparation of emergency management plans, including bushfire emergency management.

**Table 1: Specific consent conditions (Conditions 30 and 31) and where detailed in this BEMOP**

| Condition | Condition Requirement | Document Reference |
|---|---|---|
| Operating Conditions 30. | The Applicant must:<br>a) minimise the fire risks of the development, including managing vegetation fuel loads on-site;<br>b) ensure that the development:<br>• includes at least a 20 metres defendable space around the perimeter of the solar array area that permits unobstructed vehicle access;<br>• manages the defendable space and solar array areas as an Asset Protection Zone;<br>• complies with the relevant asset protection requirements in the RFS's Planning for Bushfire Protection 2019 (or equivalent) and Standards for Asset Protection Zones;<br>• is suitably equipped to respond to any fires on site including provision of a 20,000 litre water supply tank fitted with a 65mm Storz fitting and a FRNSW compatible suction connection located adjacent to an internal access road;<br>c) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site; and<br>d) notify the relevant local emergency management committee following construction of the development, and prior to commencing operations. | Section 3.2<br><br>Section 3.2<br><br>Section 3.2<br><br>Section 3.2<br><br>Section 3.4<br><br>Section 3.7<br><br>n/a |

| Condition | Condition Requirement | Document Reference |
|---|---|---|
| Emergency Plan<br>31. | Prior to commencing construction, the Applicant must develop and implement a comprehensive Emergency Plan and detailed emergency procedures for the development and provide a copy of the plan to the local Fire Control Centre. The Applicant must keep two copies of the plan on- site in a prominent position adjacent to the site entry point at all times. The plan must:<br>a) be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning' and RFS's Planning for Bushfire Protection 2019 (or equivalent);<br>b) identify the fire risks and hazards and detailed measures for the development to prevent or mitigate fires igniting;<br>c) include procedures that would be implemented if there is a fire on-site or in the vicinity of the site;<br>d) list works that should not be carried out during a total fire ban<br>e) include availability of fire suppression equipment, access and water;<br>f) include procedures for the storage and maintenance of any flammable materials;<br>g) notification of the local RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation proposed to be carried out during a bushfire danger period to ensure whether conditions are appropriate;<br>h) detail access provisions for emergency vehicles and contact details for both a primary and alternative site contact who may be reached 24/7 in the event of an emergency;<br>i) include a figure showing site infrastructure, Asset Protection Zone and the on-site water supply tank;<br>j) include location of hazards (physical, chemical and electrical) that may impact on fire fighting operations and procedures to manage identified hazards during fire fighting operations; | Emergency Plan |

| Condition | Condition Requirement | Document Reference |
|---|---|---|
| | k) include details of the location, management and maintenance of the Asset Protection Zone and who is responsible for the maintenance and management of the Asset Protection Zone;<br>l) include bushfire emergency management planning; and<br>m) include details of the how RFS would be notified, and procedures that would be implemented, in the event that:<br>• there is a fire on-site or in the vicinity of the site;<br>• there are any activities on site that would have the potential to ignite surrounding vegetation; or<br>• there are any proposed activities to be carried out during a bushfire danger period; and<br>n) include details on how the battery storage facility and sub-systems can be safely isolated in an emergency.<br>The Applicant must implement the Emergency Plan for the duration of the development. | Section 3.10<br>This BEMOP<br>Emergency Plan |

In relation to Condition 30 above, ACEN wrote to DPE (on 4 May 2023) proposing an approach to asset protection that meets the requirements of RFS Planning for Bushfire Protection 2019 and Standards for APZs while excluding the solar arrays (which are the key asset being protected) from the APZ.

The BEMOP has been drafted to complement the Site Emergency Plan and the Emergency Plan (Mendham and Associates). PBP 2019 details the requirements for a BEMOP for solar farms. A BEMOP should identify relevant bushfire risks and mitigation measures associated with the 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 s.99 of the RF Act.

## 2. Bushfire Assessment

The Large-Scale Solar Energy Guideline for State Significant Development (NSW Government 2018) lists bushfire hazard and risks associated with construction of a solar farm as issues to be considered. In particular, the potential for fire spreading to the solar development or being caused by the onsite infrastructure or works or transmission lines.

RPS (2019) prepared a Bushfire Due Diligence Threat Assessment Report that included a Bushfire Hazard Assessment for the project site. This report has been prepared in accordance with the methodology and procedures outlined in Appendix 1 of PBP and clause 44 of the Rural Fire Regulation 2013 (RF Regulation).

### 2.1.Bushfire Risk Assessment

The Bushfire Risk Assessment has been detailed in the Stubbo Solar Farm Environmental Impact Statement (EIS) December 2020 (Ramboll EIS 2020).

While no land within the study area is mapped as bushfire prone, the RPS Assessment concluded that the site constitutes a bushfire risk. The RPS Assessment found the land surrounding the project contains vegetation consistent with grassland and woodland. The vegetation that forms a bush fire threat exists in all direction on and surrounding the study area.

The study area has low relief, rolling hills with a slope gradient not greater than 5 degrees. It does include small patches woodland vegetation downslope with a gradient of 0 to 5 degrees, as well as upslope with a flat gradient.

The project is situated in the Central Tablelands of NSW within the Mid-Western Regional Council area and has a designated Fire Danger Index (FDI) of 80.

Bushfire weather is associated with long periods of drought, high temperatures, low humidity and gusty often north-westerly winds. The main potential sources of ignition of, and fuel for, unplanned fires caused by construction of the project are:

- vehicle and machine movement over long, dry grass.
- human error, such as non-compliance with hot works procedures (and associated generation of sparks) or incorrect disposal of cigarette butts.
- diesel (stored and used in generators).

- flammable liquids (stored and used in machinery).
- mobile plant engine failure, causing spark/ignition.
- Arson.Other potential sources outside of the project include escaped back burning; lightning strikes; incorrect disposal of cigarette butts and litter; arson; and arcing, sagging or damaged to the adjacent transmission lines.

Bushfire risk (Ramboll EIS, 2020) was classified to be a Medium Risk based on a Very Unlikely potential to occur, and Major potential consequences (to life and safety and assets).

## 2.2.Bushfire Protection Measures

Several Bushfire Protection Measures would be inherent to the project design and layout (Ramboll EIS 2020) and would also be incorporated into the construction and operating procedures. These measures include:

- vegetation control along and around access roads, parking areas and temporary assets (such as site offices) during construction
- minimising vehicle movements off access roads and through long grasses
- the construction induction would highlight the bushfire risks and the importance of compliance with construction procedures, in particular hot works procedures, vehicle movement restrictions, material storage requirements and the bushfire emergency response procedures.
- the construction induction would also discuss the importance for the correct disposal of cigarette butts. In times of high fire risk, restrictions on where and when smoking can occur may be implemented (designated areas).
- establishment and maintenance of one of the following Asset Protection Zones (APZ) strategies:
    - to establish a BAL of 12.5 (as defined under AS3959) **a 20 metre APZ to grassland**, 22 metre APZ to woodland (where vegetation is upslope of flat from infrastructure) and a 28m APZ to woodland (where woodland is downslope) would be required. A BAL of 12.5 requires a construction level of BAL-12.5 under Australian Standard AS 3959 Construction of buildings in bushfire prone areas or the National Association of Steel Framed Housing (2014) Steel Framed

Construction in Bush Fire Areas (NASH Standard). and section 7.5 of Planning for Bushfire Protection 2019 is to be applied

- no combustible fencing would be installed within 10 metres of any structure
- the ground below the individual photovoltaic modules would be fuel reduced to both prevent direct flame contact from grassfires and reduce the likelihood of sparking from the modules, potentially causing ignition
- internal roads would be maintained within the study area to allow for the safe movement of construction personnel in the event of a fire event, and designed to accommodate emergency services vehicles
- static water tanks would be provided in strategic locations throughout the project infrastructure, and in accordance with the requirements of Planning for Bushfire Protection 2019
- wherever possible electricity supply and distribution within the study area would be underground and so not contribute to fire risk
- any fuels and chemicals stored as part of the project would be stored in accordance with their Safety Data Sheet and Planning for Bushfire Protection 2019.

The SSD 10452 Development Consent Condition No. 30 issued with consultation from the NSW RFS also states the Applicant must:

a) minimise the fire risks of the development, including managing vegetation fuel loads on-site;

b) ensure that the development:

i. includes at least a 20 metres defendable space around the perimeter of the solar array area that permits unobstructed vehicle access;

ii. manages the defendable space and solar array areas as an Asset Protection Zone;

iii. complies with the relevant asset protection requirements in the RFS's Planning for Bushfire Protection 2019 (or equivalent) and Standards for Asset Protection Zones;

iv. is suitably equipped to respond to any fires on site including provision of a 20,000 litre water supply tank fitted with a 65mm Storz fitting and a FRNSW compatible suction connection located adjacent to an internal access road;

c) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site; and

d) notify the relevant local emergency management committee following construction of the development, and prior to commencing operations.

## 3. Bushfire Emergency Management Plan

### Location Information

| | |
|---|---|
| **Address** | Stubbo Solar Stage 2a,<br>Access Point: Blue Springs Road |
| **Number of staff, contractors, visitors** | Up to 400-500 people could be on site during construction phase |
| **Site Muster Points Locations** | Muster Points PCL compound and TransGrid compound. Alternate muster point at Barneys Reef Road (See the site Emergency Plan). |
| **Off Site Evacuation Location** | Gulgong – Billy Dunn Oval, Nandoura Street, Gulgong – open space Neighbourhood Safer Place (NSP) |

In the event of a fire on or adjoining the Stubbo Solar Stage 2a site, the following contacts must be notified as per order of priority in the table below:

### Emergency Contact Information

| | |
|---|---|
| **Fire, Police, Ambulance** | **CALL 000** |
| **SSF Emergency Controller** | Derek Erlendson 0499 819 339 |
| **SSF Site Manager** | Jeff Ewert 0499 495 455 |
| **NSW RFS**<br>**NSW RFS (Cudgegong Office)** | Phone: 1800 679 737<br>Phone: 02 6372 4434 |
| **Fire and Rescue NSW (Gulgong Local Station)** | Phone: 02 6374 1049 |

The response to a fire on the Stubbo Solar Stage 2a site are primarily to **report and evacuate.** The following actions need to take place:

### Actions

| | |
|---|---|
| **1.** Raise alarm, call 000 | **5.** Determine bushfire threat |
| **2.** Call SSF emergency controller | **6.** Follow site emergency instruction |
| **3.** Observe Triggers for Evacuation (BEMOP Appendix 2) | **7.** Evacuate to Gulgong NSP |
| **4.** Report to site Muster Point | **8.** Contact SSF emergency controller, confirm evacuation |

## 3.1.Fire Weather - Situational Awareness

During the fire season, which can extend from September to April, daily Fire Danger Ratings (FDR) would be monitored by the site health, safety, environment (HSE) Supervisor. FDR is issued daily by BOM for the Central Tablelands BOM Forecast District. Focus would be given to days of 'Extreme' or 'Catastrophic' FDR. On these days, consideration should be given to:

- Whether hot work (e.g. welding, grinding) should be limited to enclosed buildings, or cease altogether (i.e. hot works shall be prohibited on Total Fire Ban or TOBAN days);
- Reducing workforce numbers and/or redirecting work activities to areas farthest removed from potential bushfire attack on site on extreme fire danger days;
- Evacuating or closing the site on catastrophic fire danger days.

NSW RFS and BOM issue bushfire level alerts, and these will also be monitored by the site HSE Supervisor on days of 'High' or higher FDRs. Three levels of alert issued:

- Advice
- Watch and Act
- Emergency Warning

| | |
|---|---|
|  | **Advice**<br>A fire has started. There is no immediate danger. Stay up to date in case the situation changes. |
|  | **Watch and Act**<br>There is a heightened level of threat. Conditions are changing and you need to start taking action now to protect staff and visitors. |
|  | **Emergency Warning**<br>An Emergency Warning is the highest level of Bush Fire Alert. The site may be in danger and need to take action immediately. Any delay now puts the lives of staff and visitors at risk. |

It is important to stay informed of local fire weather conditions and alerts and not rely on one form of communication as mobile phone coverage and power can fail during major incidents. Tune in to local media including radio, official social media feeds and websites, such as:

- Hazards Near Me (nsw.gov.au)
- Major Fire Updates - NSW Rural Fire Service (during times of major incident activity, such as during bush and grass fires)
- Hazard Reductions - NSW Rural Fire Service
- Find your local ABC Radio Station

## 3.2.Defendable Space, Asset Protection Zones and Vegetation Clearance

Defendable space would be managed as Asset Protection Zones (APZ). APZ are considered areas managed by keeping fuel loads low, to mitigate potential flame contact, radiant heat and to provide a space for defending an asset. The objective of APZ is to protect life and safety, assets and infrastructure.

The APZ will be provided initially and for successive infrastructure construction stages. Key project infrastructure components and their recommended APZ are detailed in **Table 2.**

**Table 2: Project component and associated APZ**

| Project Component | Recommended APZ |
|---|---|
| Infrastructure:<br>• Solar array<br>• Site buildings<br>• Substations and Switch Yards | PCL are required to maintain a 20m defendable space around all project infrastructure (that permits unobstructed vehicle access) and manage the defendable space and solar array areas as an Asset Protection Zone (as detailed Appendix 4 PBP). The APZ maintenance performance criteria would be:<br>• Maintained as low-cut grass less than 10cm height as a guide, or non-combustible surfaces (e.g. gravel access tracks).<br>• Trees and shrubs (existing and regrowth) will not encroach onto the 20m APZ. |

| Project Component | Recommended APZ |
|---|---|
| | • Areas adjacent to roads and along fences and gates will be maintained free of fuel (i.e. no tall grasses and weeds).<br>• The ground below the individual photovoltaic modules would be fuel reduced to both prevent direct flame contact from grassfires and reduce the likelihood of sparking from the modules, potentially causing ignition. |
| Powerlines | Powerlines are predominantly underground.<br>Any overhead powerlines are to have standard overhead powerline minimum easement widths in accordance with Transgrid easement regulations:<br>• ~15 m cleared zone<br>• ~12 m low growth<br>NB: the areas of low growth will only be cleared of vegetation greater than 3.5 m in height. |
| Storage and maintenance of fuels and flammable materials (HAZMAT) | All fuels and flammable materials will be stored and maintained in accordance with:<br>• the requirements of all relevant Australian Standards (including AS1216:2006: Dangerous Goods and AS1940:2017 Flammable Liquids Storage and Handling)<br>• NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook if the chemicals are liquids<br>Minimum 20m APZ applies |

The APZ will be monitored on a weekly basis for the life of the project, by the site HSE Supervisor and any maintenance undertaken based on that monitoring information. APZ monitoring and maintenance would be reported annually ahead of the declared bushfire season (e.g. August).

## 3.3.Access

All access roads will enable safe access, egress and defendable space for emergency services.

The project will be accessed via Blue Springs Road, which is a public through road that supports capacity for emergency management and evacuation purposes. All vehicles associated with the development must enter and exit the site via the preferred site access point off Blue Springs Road (BEMOP PLAN).

Barneys Reef Road is a designated emergency access only, and provides an alternate egress/ access to be used in the event of any site access constraints (BEMOP PLAN).

All access provided within this development site will be designed and constructed to support heavy vehicle access (i.e. weight and manoeuvrability capacity), and subsequently would support emergency services.

The Applicant must ensure (bushfire specific):

a) all internal roads are constructed as all-weather roads;

b) there is sufficient parking on site for all vehicles;

c) a 20 metre defendable space around the perimeter of the solar array area (within the perimeter fence) that permits unobstructed vehicle access;

d) Ensure that access is maintained entirely unobstructed around the buildings.

The standard of access will be monitored on a weekly basis by the site HSE Supervisor (consistent with the CEMP and the EMS) and any maintenance undertaken based on that monitoring information. The access standards would be reported annually ahead of the declared bushfire season (e.g. August).

## 3.4.Water and Suppression

The Development Consent Operating Condition 30 states that the development will be suitably equipped to respond to any fires on site including the provision of a 20,000 litre water supply tank fitted with a 65mm Storz fitting and a FRNSW compatible suction connection, and be located adjacent to an internal access road.

All buildings and site vehicles will be fitted with portable fire extinguishers, checked on a 6 monthly basis.

A specific project vehicle or fire trailer will be fitted with a water tank (e.g. 600L), pump and minimum 30m fire hose, for hot works management.

The water supply provisions will be monitored on a frequent and regular basis (weekly) by the site HSE Supervisor, and reported annually ahead of the declared bushfire season (e.g. August).

## 3.5.Storage of hazardous and flammable materials

There is likely to be some permanent chemical and fuel supplies kept on site. Temporary storage of chemicals and fuels will be required during construction and will be moved around. Storage and handling of flammable and combustible liquids will be undertaken in accordance with AS1940:2017 and NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants Handbook. Storage and handling locations will be identified clearly on a site plan located at the entrance to the site and displayed in the site offices.

## 3.6.Bushfire Response Training and Awareness

It is not expected that staff will be involved in bushfire fighting, and the emergency response will be to report a fire and evacuate to the designated onsite muster point.

All on-site personnel will be briefed in the site induction on the contents of this BEMOP and the Site Emergency Plan, and in particular:

- Areas of hazardous materials and/or bushfire prone vegetation and most likely direction of potential bushfire attack;
- Bushfire emergency evacuation procedures consistent with the Site Emergency Plan (requirement to be physically tested on 6-monthly basis) including: activation of emergency alarms; evacuation (and timing) of all areas to the site muster points; primary and emergency escape routes; communication protocol; and location of NSP.

## 3.7.Assist Emergency Services

The project will assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site. This assistance will be provided by way of:

- Provision of the BEMOP and Emergency Plan.
- Maintaining clear and open vehicle access across the site, and maintenance of APZ to minimise fuel loads within the site.
- Maintaining clear access to water storage tank, and maintain water supply and connections.
- Storing and detailing locations of hazardous materials correctly.

## 3.8.Evacuation and Shelter in Place Options

Consideration must be given to the safety of employees and contractors occupying the site during an incident. Depending on the nature of the emergency, it may be safer to remain on site and seek shelter in a safe place. The action to evacuate off-site would be at the direction of the site emergency controller and the relevant authority.

During any evacuation, all personnel on site will be always contactable. In the event of a RFS issued Bushfire Emergency Warning that affects the Project area, all personnel will retreat to the site muster point prior to evacuation to the designated Off site Evacuation Location (Gulgong NSP).

Once accounted for, personnel will be instructed whether to Shelter in Place or evacuate following the primary escape route or alternative route identified in BEMOP PLAN. The Evacuation process is summarised below:

# Evacuation

## The Safest Option Is To Leave Early

**Authority to evacuate can be directed by:**

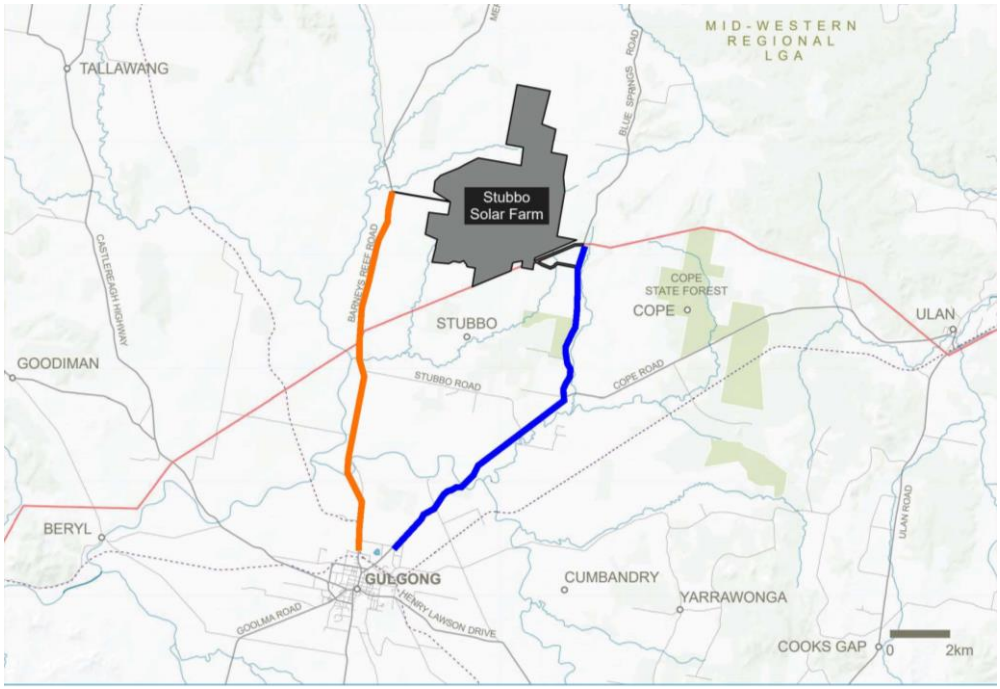
- Instructions from the NSW Police Service or Fire Authority (NSW RFS, NSW Fire & Rescue Services)
- Instruction from site emergency controller

**Evacuate if directed & it is safe to do so. Communicate evacuation and destination.**

## Evacuation Mode

- Evacuate if instructed and if safe to do so
- Move to emergency muster point
- Use route to Gulgong NSP, as indicated below
- Driving | Via site access road

## Evacuation Route




Main access from Blue Springs Road (14.5km, 11 mins)
Emergency access from Barneys Reef Road (13km, 11 mins)

## 3.9.Monitoring and Review

This draft BEMOP will be reviewed and finalised before construction commences. The BEMOP will be reviewed annually by the HES Supervisor or other suitably qualified person ahead of the fire season and updated as required.

When the Stubbo Solar Stage 2a is operational, the plan will be reviewed by the HSE Supervisor (or other suitably qualified person) and updated.

The Bushfire Preparations and Response Actions (BEMOP sect. 3.10) will be monitored monthly during the bushfire danger period, and any corrective actions undertaken in a timely manner.

## 3.10.Bushfire Preparations and Response Actions

Table 2 details how the construction stage satisfies the relevant risks and mitigation measures for a BEMOP, as detailed in PBP.

**Table 3: Project component and associated APZ**

| Activity and relevant risk impact | Mitigation and management measure | Responsible Party | Monitoring / Timing | Corrective actions |
|---|---|---|---|---|
| Construction Stage | | | | |
| Detailed measures to prevent or mitigate fires igniting | A minimum 20m defendable space (as APZ, Section 3.3 of this Plan) will be provided ahead of any infrastructure construction works (excluding road access, fencing and power services provisions) | Construction Manager | Prior to construction | |
| | Ensure local firefighting services have suitable and unobstructed vehicle access to the site, the defendable space and the 20,000L static water supply (or multiple static water supplies) | Construction Manager | Prior to construction | |
| | Monitor and maintain access throughout construction stages | HSE Supervisor | Prior to construction | |
| | Minimising vehicle movements off access roads and through long grasses | Construction Manager | During construction | |
| | Ensure all site personnel are familiar with fire prevention and emergency response actions | Construction Manager | During construction | |

| Activity and relevant risk impact | Mitigation and management measure | Responsible Party | Monitoring / Timing | Corrective actions |
|---|---|---|---|---|
| | Monitor RFS and BOM website for bushfire alerts | HSE Supervisor | During construction | |
| Work that should not be carried out during total fire bans | Manage work as controlled or permitted activities during TOBAN days:<br>• any works that have potential to cause a spark or ignition<br>• any work that involve vehicle operation over unmanaged grass areas | HSE Supervisor | During construction | |
| Availability of fire-suppression equipment, access and water | Provide firefighting equipment on site, including:<br>• firefighting water supply (minimum of 20,000 L water tanks) to be provided in strategic locations throughout the project infrastructure<br>• fire extinguishers in buildings and vehicles<br>• specific project vehicle or fire trailer fitted with a water tank, pump, 30m fire hose for initial response.<br>*The above equipment is not to be used by site personnel for bushfire fighting, but is available for use by emergency services personnel*. | Construction Manager | During construction | |

| Activity and relevant risk impact | Mitigation and management measure | Responsible Party | Monitoring / Timing | Corrective actions |
|---|---|---|---|---|
| Storage and maintenance of fuels and other flammable materials | Development of a site layout which includes an inventory and location of all hazardous and combustible chemicals on site.<br>Combustible chemicals will be stored in accordance with the most stringent of (in each specific case):<br>• State Environmental Planning Policy No. 33 – Hazardous and Offensive Development<br>• NSW EPA's Storing and Handling of Liquids: Environmental Protection – Participants<br>• Handbook<br>• Australian Dangerous Goods Code<br>• Australian Standard 4452 Storage and Handling of Toxic Substances." | Construction manager | During construction | |
| Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, | Eliminate the risk - avoid any works that have the potential to ignite surrounding vegetation. | HSE Supervisor | During construction | |

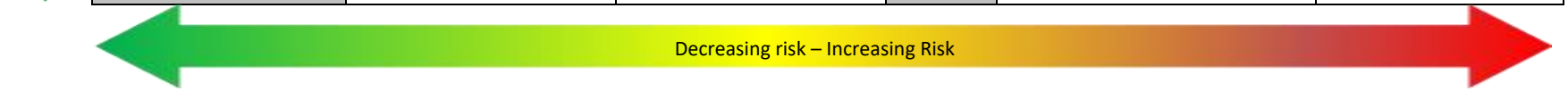
| Activity and relevant risk impact | Mitigation and management measure | Responsible Party | Monitoring / Timing | Corrective actions |
|---|---|---|---|---|
| proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate | | | | |
| appropriate bush fire emergency management planning | Implement the BEMOP during on-site activities.<br>Ensure all site personnel are familiar with bushfire prevention and emergency response actions | HSE Supervisor | During construction | |

## Appendix 1 Bushfire Emergency Management Plan Map

## Appendix 2 Bushfire Response Matrix

The following is provided as a guide for evacuation. Site will be closed on Catastrophic Fired Danger Days. Evacuate only if safe to do so If fires are within the region, monitor resources for situational awareness.

| Observation/ situation | Bush Fire Danger Rating (FDR) | | | | |
|---|---|---|---|---|---|
| | **Moderate**<br>Plan and prepare | **High**<br>Be ready to act | **TOTAL Fire Ban Declared** | **Extreme**<br>Take action now | **Catastrophic**<br>Leave bushfire risk areas |
| **Out of control fire <1 km from site** | • Move to emergency muster point<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller and emergency services | • Move to emergency muster point<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller and emergency services | | • Close the site for any works<br>• Situational awareness<br>• Provide assistance to emergency services | • Close and evacuate site<br>• Situational awareness<br>• Provide assistance to emergency services |
| **Out of control fire within 20 km of site** | • Normal operation<br>• Situational awareness (BEMOP Chapter 3.1)<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller | • Move to emergency muster point<br>• Situational awareness<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller | | • Close the site for any external works<br>• Situational awareness<br>• Provide assistance to emergency services | • Close and evacuate site<br>• Situational awareness<br>• Provide assistance to emergency services |
| **Bushfires within Mid Western Regional Council region but not considered a direct concern** | • Normal operation | • Normal operation<br>• Situational awareness | | • Close the site for any external works<br>• Situational awareness<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller | • Close and evacuate site<br>• Situational awareness<br>• Provide assistance to emergency services |
| **No Fires within Region** | • Normal operation | • Normal operation | | • Close the site for any external works<br>• Situational awareness<br>• Seek instruction from Stubbo Solar Stage 2a emergency controller | • Close and evacuate site<br>• Situational awareness<br>• Provide assistance to emergency services |



## Appendix 3 Australasian Fire Danger Rating System and Fire Weather Warnings

A new national fire danger rating system was rolled out nationally on 1 September 2022 replacing the old system that had been in place for more than half a century. The new AFDRS has been developed using the latest science and has four levels instead of six including moderate, high, extreme, and catastrophic. When there is minimal risk 'No Rating' will be used (the white wedge sitting under Moderate).

There are associated actions for each level, so the public and workplaces will know what to do to protect their life, family, colleagues, and property.

The updated system now uses eight vegetation types instead of two to inform the fire danger rating on any given day. This includes forest, grassland, grassy woodland, shrubland mallee health, spinifex, button grass and pine.


**Figure1. New Australasian Fire Danger Rating System adopted 1 September 2022.**

The Bureau of Meteorology (BOM) issues daily Fire Danger Ratings (FDRs) for each forecast district within NSW. FDRs are based on assessment of potential fire behaviour, the difficulty of suppressing a fire, and the potential impact on the community should a bushfire occur on a given day. A summary of the Fire Danger Ratings is provided in **Table 3**.

**Table 4: Fire Danger Rating System**

| Fire Danger Rating | Associated Bushfire Risk and Advice |
|---|---|
| No rating | |
| **Moderate** | **Plan and prepare.**<br>• Stay up to date and be ready to act if there is a fire. |
| **High** | **Be ready to act.**<br>• There's a heightened risk. Be alert for fires in your area.<br>• Decide what you will do if a fire starts.<br>• If a fire starts, your life and property may be at risk. The safest option is to avoid bush fire risk areas. |
| **Extreme** | **Take action now** to protect your life and property.<br>• These are dangerous fire conditions. Check your bush fire plan and ensure that your property is fire ready.<br>• If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts.<br>• Reconsider travel through bush fire risk areas. |
| **Catastrophic** | **For your survival leave bush fire risk areas.**<br>• These are the most dangerous conditions for a fire.<br>• Your life may depend on the decisions you make, even before there is a fire. |

The Bureau of Meteorology issues Fire Weather Warnings when weather conditions are conducive to the spread of dangerous bushfires. Warnings are generally issued within 24 hours of the potential onset of hazardous conditions. Warnings are also broadcast on radio and television. In most States and Territories, fire agencies declare fire bans (Total

Fire Ban or TOBAN) based on a range of criteria including forecast weather provided by the Bureau. The information contained in Fire Weather Warnings includes:

- The office which issued the warning.
- The local time, day, and date that it was issued.
- A description of the relevant meteorological conditions and Fire Danger Rating.
- The area where weather conditions are conducive to the spread of dangerous fires.
- The time period for which it will be in effect.
- Warnings may be issued or amended and reissued at any time if a need is identified.