

Chris Smith

& ASSOCIATES

PTY LTD

- CIVIL ENGINEERS
- URBAN & REGIONAL PLANNERS
- LAND SURVEYORS
- PROJECT MANAGERS



Approved Company

ISO 9001 - Quality System Management System
ISO 14001 - Environmental Management System
ISO 45001 - OH&S Management System

Planning Report

Solar Energy Facility & Utility Installation
(Micro Solar Farm & BESS)

**ADVERTISED
PLAN**



birdwood energy

Baddaginnie–Benalla Road

Baddaginnie

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

Ref: 22105

Rev. 2 | August 2024

Level 1, 135 Fryers Street, Shepparton, Vic, 3630
Telephone (03) 5820 7700 Facsimile (03) 5822 4878

- Visiting Offices: ■ Shop 3, 11-13 Sydney Street, Kilmore, Vic. 3764 ■ Ph: (03) 5781 1939
- Suite 7, 33 Nish Street, Echuca, Vic. 3564 ■ Ph: (03) 5482 9100

Document Ref: 22105, Rev. 2_R_Birdwood Solar Energy Facility, Baddaginnie_070824

Table of Contents

Solar Energy Facility and Utility Installations
Baddaginnie-Benalla Rd, Baddaginnie

1	Introduction	1
2	Birdwood Energy – Company Profile	2
3	Site and Context Description.....	2
3.1	The Landholder's Property.....	2
3.2	The Subject Site.....	4
3.3	The Locality	2
4	The Proposal	5
4.1	Overview	5
4.2	Components.....	7
5	Design Considerations.....	10
6	Solar Energy Facilities Design & Development Guidelines.....	10
6.1	Identifying suitable locations.....	10
6.2	Community Consultation.....	12
6.3	Design	13
6.4	Landscaping	13
6.5	Construction Stage.....	14
6.6	Operational Stage.....	16
6.7	Decommissioning	17
7	CFA Design Guidelines and Model Requirements.....	18
8	Planning Permit Triggers	27
9	Other Statutory Considerations	28
9.1	Aboriginal Heritage Act 2006.....	28
9.2	Building Act 1993	28
9.3	Flora and Fauna Guarantee Act 1988.....	28
10	Strategic Justification	28
10.1	Victoria's Climate Change Act 2017	28
10.2	Victoria's Renewable Energy (Jobs and Investment) Act 2017	28
10.3	Victoria's Climate Change Strategy (2021)	29
10.4	Building Victoria's Climate Resilience (2022).....	29
10.5	Hume Regional Growth Plan (2014)	29
10.6	Goulburn Broken Regional Catchment Strategy 2021	30
10.7	Benalla Rural City Council Plan 2021-2025	30
11	Benalla Planning Scheme	31
11.1	Municipal Planning Strategy	31

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

11.2	Planning Policy Framework	32
11.3	Farming Zone (Clause 35.07)	41
11.4	Signs (Clause 52.05)	44
11.5	Car Parking (Clause 52.06)	44
11.6	Native Vegetation (Clause 52.17)	45
11.7	Renewable Energy Facility (Other than Wind Energy Facility)	48
11.8	Decision Guidelines	49
12	Conclusion	49

ADVERTISED PLAN

**This copied document to be made available
for the sole purpose of enabling
its consideration and review as
part of a planning process under the
Planning and Environment Act 1987.
The document must not be used for any
purpose which may breach any
copyright**

1 Introduction

Birdwood Energy Pty Ltd (the applicant) propose to establish a sub-5 megawatt (MW) solar farm, including the ancillary battery energy storage system (BESS) (the proposal) at Lot 1 TP106246 on Baddaginnie-Benalla Road, Baddaginnie (the "subject property" herein). The proposal would cover approximately 6.5 hectares of land.

The application also includes the ancillary power lines and infrastructure within the adjacent road reserve to connect the facility to the existing AusNet 22kV Line that runs east-west along Baddaginnie-Benalla Road.

The proposal would power homes, businesses, farms, and other industries in the area. The BESS would store electricity for peak-time use.

Chris Smith & Associates (CS&A) have been engaged by Birdwood Energy to prepare a Planning Report to accompany a planning permit application for the proposal.

The key reference documents used to guide the site selection and design process for this proposal are:

- Victoria's Climate Change Strategy
- Solar Energy Facilities Design & Development Guideline, October 2022
- CFA Design Guidelines & Model Requirements Renewable Energy Facilities, V4
- Benalla Planning Scheme

The site and proposal assessments, plans and documents produced to support this application are:

- **Certificate of Title**
Vol. 9672, Fol. 644
- **Planning Report**
by Chris Smith & Associates
 - **Appendix A – Glint and Glare Assessment**
by Environmental Ethos, Ref. 22015
 - **Appendix B – Noise Impact Assessment**
by ADP, Ref: MEL3349, Rev. 01
 - **Appendix C – Native Vegetation Impact Assessment**
by Confluence Ecology and Community, Ref: SUC1222, Ver. 3
 - **Appendix D – Visual Impact Assessment**
by Geoscene International, January 2024
 - **Appendix E – Construction Environmental Management Plan**
by Birdwood Energy, Ver. 2
 - **Appendix F – Plan of Existing Conditions**
by Chris Smith & Associates, Dwg. No. 22203/01, Rev. 0
 - **Appendix G – Traffic Impact Assessment**
by Traffic Works, Proj. No. 230732
- **Plans of Proposed Development**
by Birdwood Energy and Solar Mounting Systems
- **Signed Application for Planning Permit Form**
Signed by authorised representative of Birdwood Energy

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

**ADVERTISED
PLAN**

2 Birdwood Energy – Company Profile

Birdwood Energy was founded by Australian energy and renewables experts in the fields of investment, technical engineering, and operations. Over the last 25 years, Birdwood have built and/or led investment in the renewable energy sector across the globe, including Europe, US, Asia, and Africa. Birdwood’s project portfolio includes:

- \$750 million portfolio of renewable and storage projects.
- 1.8 GWh of battery augmenting solar projects.

Solar energy projects undertaken by Birdwood are both large and small scale, adapting technology and proposals to fit within the site, surrounds and supporting infrastructure seeking to ensure the most adaptive, appropriate, efficient and reliable power generation and storage.

In addition to responding to the climate and need for a secure energy sector, Birdwood’s projects also bring significant benefits to the regional communities they are located in by creating jobs, providing local economies with the assets to improve energy infrastructure, and creating stronger, more sustainable communities.

3 Site and Context Description

3.1 The Baddaginnie Locality

The locality is characterised by medium to large rural landholdings, with the dominant land use being grazing. Reflecting this, the prevailing zone within the area is the Farming Zone (FZ), with some land being within the Public Conservation and Resource Zone (PCRZ), reflecting biodiversity corridors along watercourses and state forest.

Baddaginnie–Benalla Road is a two-way, two-lane, sealed road with a broken centre line marking and a default rural speed limit of 100 km/hr. It provides access between Baddaginnie in the southwest and Benalla in the northeast. In Benalla, the road terminates at an intersection with Midland Highway/Bridge Street West, Midland Highway/Mansfield Road, and Faithfull Street. The Midland Highway is an arterial road managed by the Department of Transport and Planning (DTP).

The locality is relatively flat, with the exception of Reef Hills State Park – approximately 2.2 km to the east of the subject property.

North

The northern boundary of the subject property fronts Baddaginnie-Benalla Road, beyond. Beyond Baddaginnie-Benalla Road, the North East Railway line runs parallel to the road and provides the main railway connection between Sydney and Melbourne.

Beyond this transport corridor, the land is characterised by dryland farming properties, with a mix of sizes and some significant areas of established native vegetation.

East

Immediately to the east of the site (beyond Forshaw Road) the land is a mix of dryland rural properties and larger grazing properties. Several of these properties are horse studs which include training facilities. These properties are evenly distributed along Baddaginnie-Benalla Road.

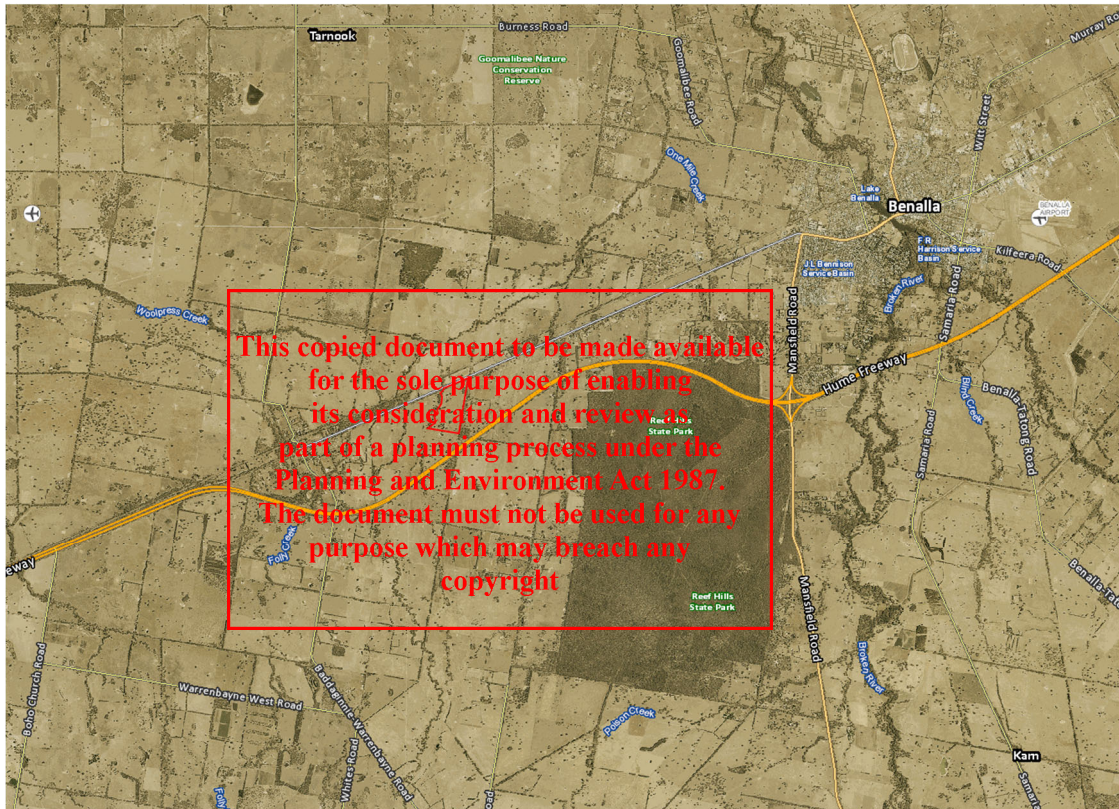
Beyond the highway, approximately 2.5 km east of the site, the Reef Hills State Park represents a major environmental corridor and habitat area over an area exceeding 20 square kilometres.

South

Beyond the Hume Freeway, the land south of the site is wholly rural, albeit with a wide spectrum of differing rural uses, ranging from lifestyle rural properties, niche agricultural properties to larger commercial grazing properties. Typically, each of these properties contains an ancillary dwelling to support the respective rural uses.

West

The western border of the subject property adjoins the riparian corridor of an unnamed ephemeral watercourse within the PCRZ, which is a tributary of Baddaginnie Creek. Beyond this, the small township of Baddaginnie is location approximately 2.1km south-west of the property, which is accessible via Baddaginnie-Benalla Road.



The Violet Town/Baddaginnie/Benalla locality – aerial photograph
Source: VicPlan

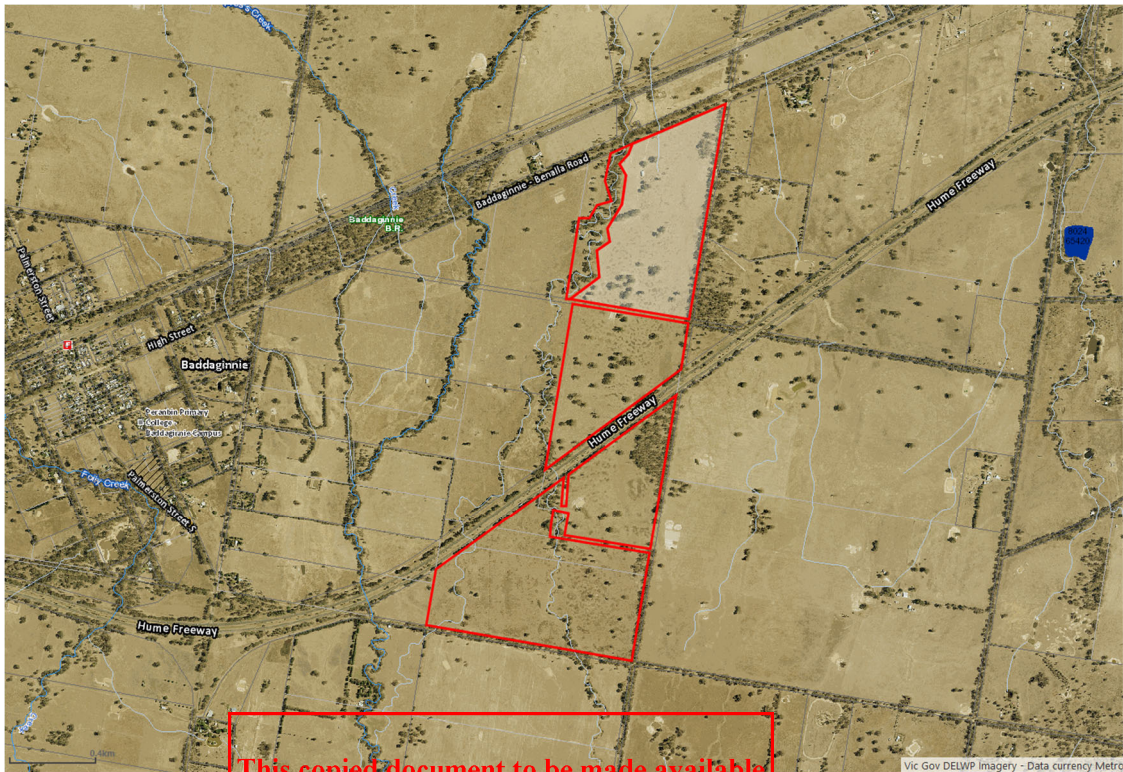
3.2 The Landholder's Property

The landholder's property at Baddaginnie-Benalla Road is a dryland farming property with an area of approximately one-hundred-and-fifty (150) hectares. This property comprises seven (7) separately transferrable titles – with the subject site containing the proposed solar farm being the northern-most title.

Three (3) of these parcels are located to the north of the Hume Highway, while the four (4) southern parcels are physically separated by the highway's 85-metre-wide road reserve.

The property is used primarily for grazing, though there are notable tracts of native vegetation that has regenerated across the property, with a particular prominent patch of vegetation on the parcel direct south of the highway.

The configuration of the broader property, illustrating the key site features is shown in the below figure:



This copied document to be made available
Landholder's Property – Baddaginnie-Benalla Road
Property outlined in Red, Site subject to development shaded white
its consideration and review as

3.3 The Subject Site

part of a planning process under the
Planning and Environment Act 1987.

The “subject site” that forms this application is the north-eastern lot – Lot 1 TP106246 – which is an irregular shaped parcel with an area of approximately 40 ha. The subject site also includes a small portion of the adjacent road reserve.

The proposed development would occupy about 6.5 ha of the subject site to the eastern site of the subject site, while the balance of the site will continue to be used independently of the proposed solar energy facility.

The subject site has 477m frontage to Baddaginnie-Benalla Road along the northern boundary, which contains a 22 kV transmission line that the proposal would connect to. The site has a 1030m frontage to Forshaw Road along the eastern boundary (with approximately 630m of this frontage being made road). The subject site has one vehicle access point, to Baddaginnie–Benalla Road via a gravel driveway which leads to the existing agricultural shed on the site.

The subject site is mostly cleared of vegetation, consisting of unimproved pastures and native grasses – which are further detailed in the appended native vegetation impact assessment. some trees and shrubs remaining. There is a large patch of remnant vegetation along the eastern boundary.

The southern boundary of the subject site is an unmade road reserve which we understand is on a 99-year-lease from the State government and has been functionally incorporated into the landholder's property. The site has a fall to the north and west of the site – to the watercourse directly west of the subject site. However, as the site has never

**ADVERTISED
PLAN**

been formally terraformed, there is notable topographical undulations across the site (albeit no more than a few hundred millimeters).



Subject property – aerial imagery
Source: Nearmap, photo taken December 2022

4 The Proposal

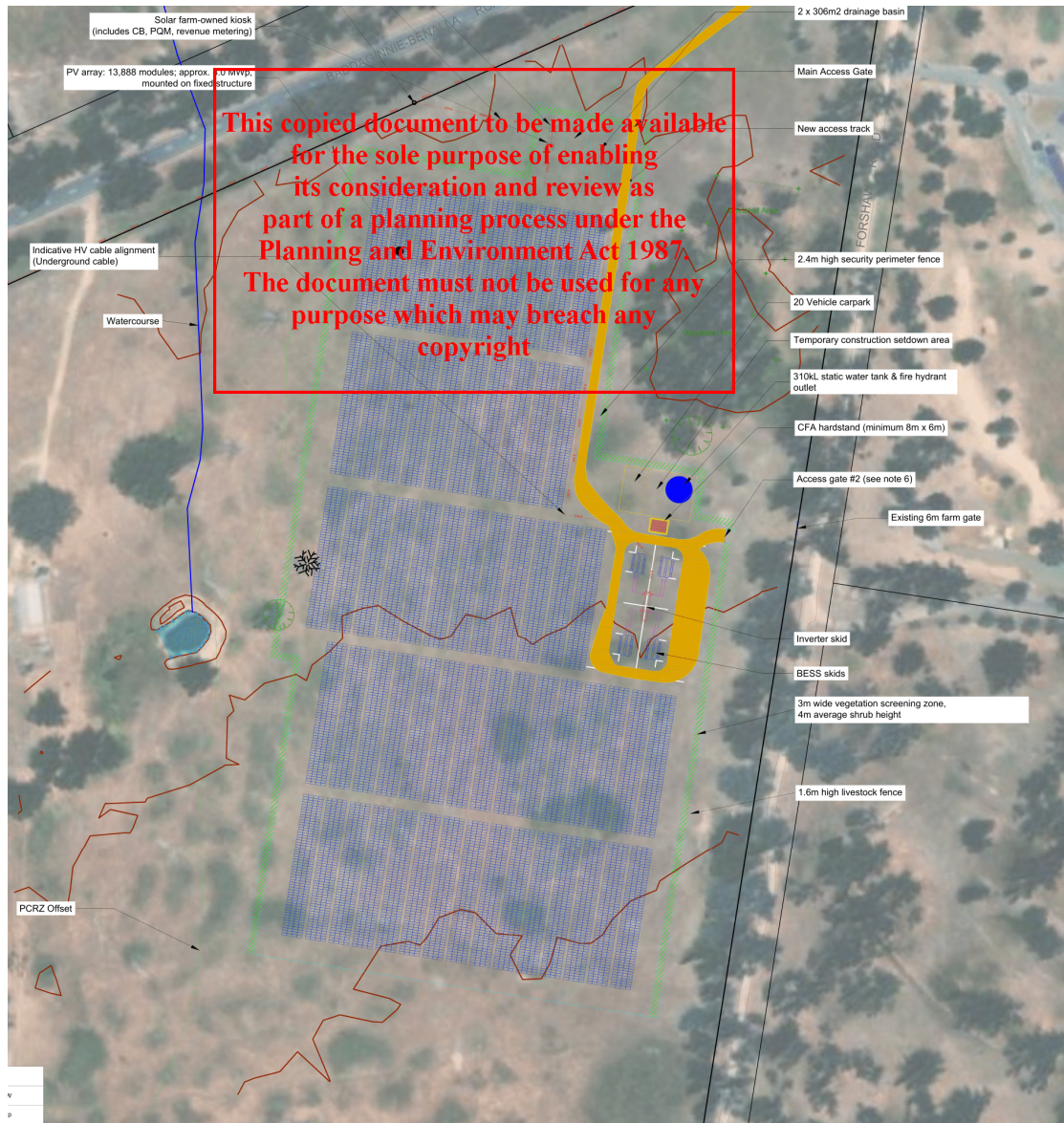
4.1 Overview

The proposal is for the establishment of a sub-5 MW solar farm, consisting of:

- **Approximately 13,888 solar panels**, each panel being approximately 2.2 m tall and 1.1 m wide, installed on static, steel SMS (solar mounting system) frames.

- **Eight (8) BESS containers**, each having general dimensions of 9m length, 3m height and 2m width.
- **One (1) Power Conversion Station (PCS)** consisting of inverters, transformer, and switchgear, being approximately 12 m long, 3 m tall and 2 m wide.
- **One (1) pad-mounted HV kiosk.**
- **Associated metering, control and protection systems** (located in HV kiosk).
- **A 1.8 m high chain mesh fence** around the perimeter of the facility, including a single gate positioned on the northern side.
- **A 1.6 m high post-and-wire stock-proof fence** around the landscaping buffer.
- **Landscaping buffer** along the three (3) sides, including facing Baddaginnie-Benalla Road frontage and the east and west boundaries, the landscaping would be located outside the chainmesh perimeter fence, but inside a post-and-wire stock fence.
- **Underground AC and DC cables**, with 60m overhead cable to connect to the 22 kV transmission line along Baddaginnie-Benalla Road.

The proposal layout is shown on the below site plan, and individual components are illustrated in the subsequent sections.



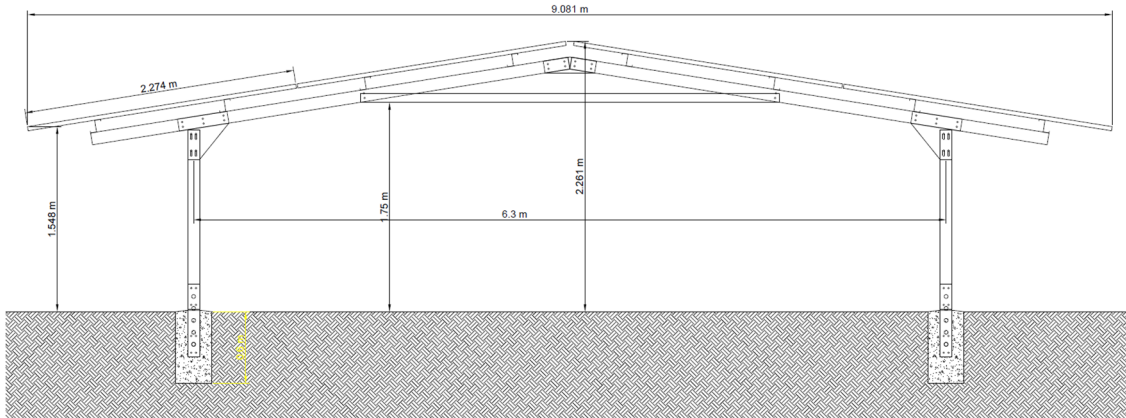
Proposed Site Layout

4.2 Components

ADVERTISED PLAN

Solar panels

Photovoltaic (PV) modules, or 'solar panels' convert energy from the sun into DC electricity through a process known as the photoelectric effect. The modules likely to be selected for the proposal are 2.2 m tall and 1.1 m wide.



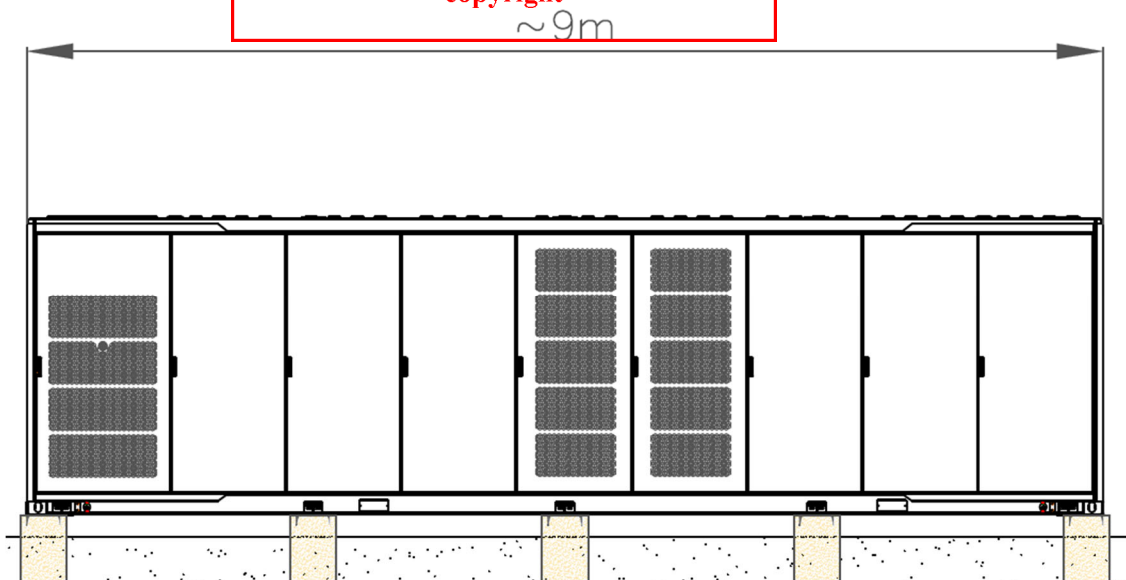
Elevation of Solar Panels

Excerpt from Solar Mounting Systems Plan submitted with this application

The panels would be installed in a on steel frames in blocks that are 4 panels high and 51 panels long, in a north-south direction. The facility would have 56 blocks of panels, a total of 13,888 panels. The rows of panels would be supported by steel poles that are 1.6 m above the ground. The poles would be set into the ground using 0.7 m deep concrete footings. The panels would be installed at a fixed angle from the horizontal.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Battery Energy Storage System (BESS)



BESS Elevations

Extract from Birdwood Energy plans

The eight (8) BESS containers would be centrally installed in a back-to-back configuration in four (4) groups of paired containers.

Each BESS is a prefabricated container and is about 9 m long, 2.8 m tall and 2.4 m wide.

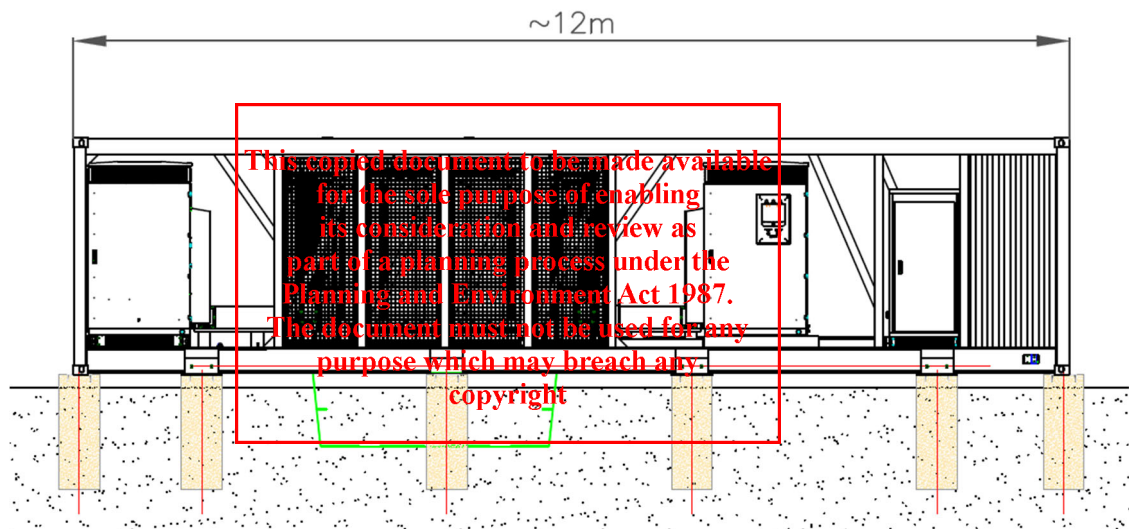
The BESS containers would be mounted via 10 footings, which would be elevated as necessary, but are anticipated to be no more than a few hundred millimetres above ground level.

Power Conversion Station

The PCS is comparable to a 40-foot shipping container and is about 12.1 m long, 2.8 m tall and 2.4 m wide.

The PCS consists of inverters, transformer, and switchgear, each of which is compartmentalised within the prefabricated container. The inverter converts DC power from the solar panels to AC power. The transformer then transforms the AC power voltage to 22 kV.

Once the electricity is converted to AC, the electricity is then sent through the switchgear, through underground cables, to the HV kiosk, and into the electricity grid. In accordance with AEMO approval with this facility, the maximum power output that would be exported to the grid is 4.95 MW.



PCS Elevations

Pad-mounted transformer kiosk

The transformer kiosk regulates the passage of electricity coming from the PCS. It connects to the 22 kV transmission line on Baddaginnie-Benalla Road. If necessary, it would be installed on raised concrete footings to be above the 1% AEP flood level.

Underground cables

DC and AC cabling, consisting of copper or aluminium cables, would be installed in a trench of a maximum 1.2 m depth and up to 1.5 m wide. Cables would typically be bedded in a sand backfill approximately 100 mm above and below each cable, with excavated material used to backfill the trench to ground level. Identification of the location of the cables is via tape or near the top of the trench backfill.

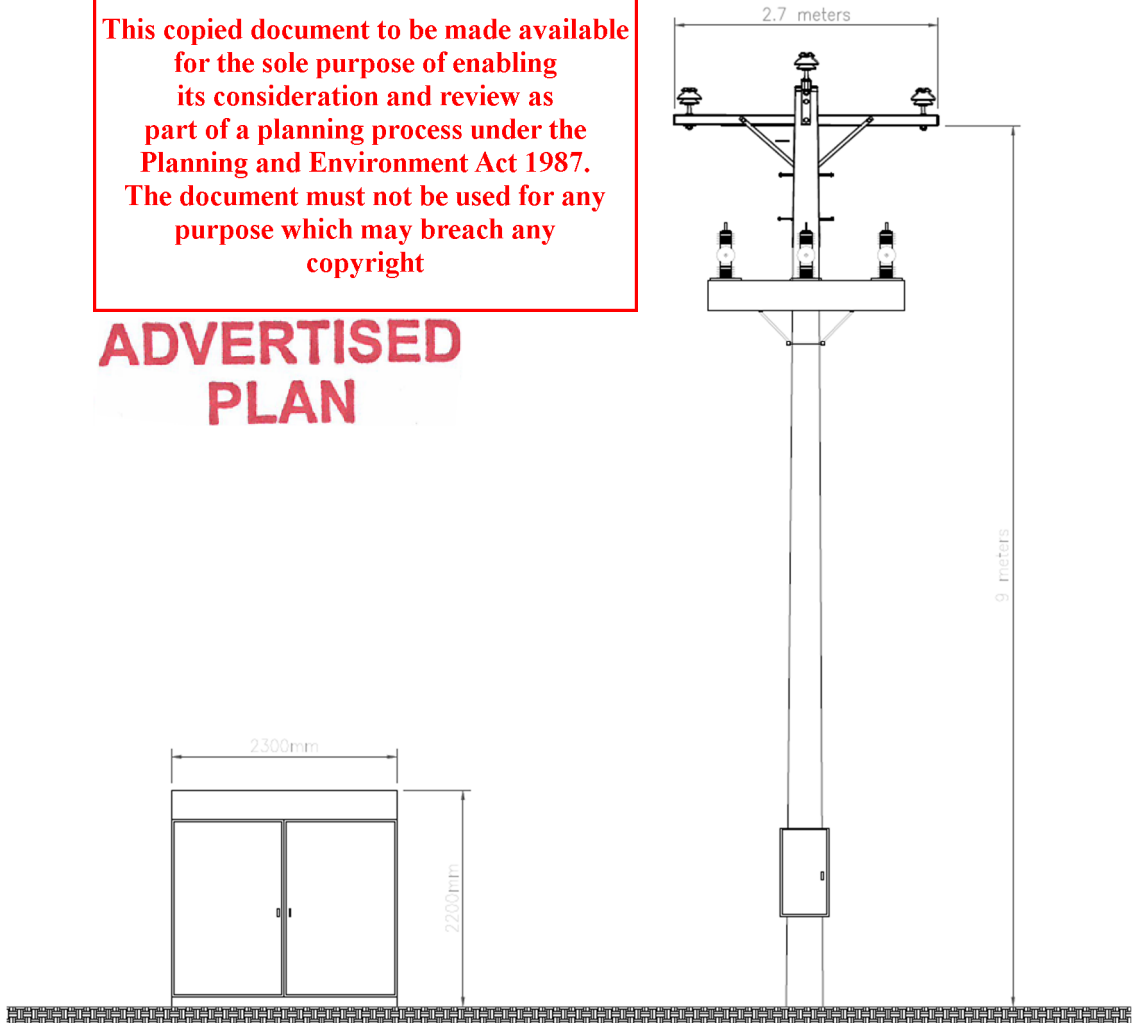
Overhead lines and Power Pole/s

To provide connection to the adjacent Ausnet transmission network, the proposal includes the erection of two (2) power poles and approximately 60m of overhead power lines.

The overhead lines will connect to the existing AusNet pole on the 22kv transmission line within the road reserve containing Baddaginnie-Benalla Road to the north of the site.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

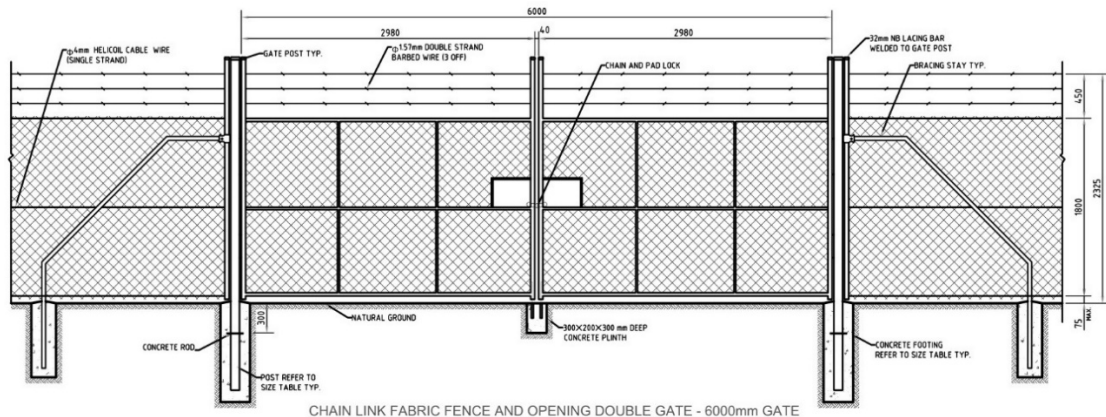
ADVERTISED PLAN



Power pole elevations

Fencing

The proposed facility will have a 1.8-metre-high perimeter fence, which will include three (3) rows of security wire up to a maximum height of 2.325 metres. The two (2) gates, to the north, and the emergency access to the east will have widths of approximately 6m.



Proposed Fence Elevations

5 Design Considerations

Clause 53.13 of the Benalla Planning Scheme provides the key planning framework for all new renewable energy facilities, ensuring that the facilities are located in appropriate locations, so they have minimal impact on the amenity of the area.

The **Solar Energy Facilities Design & Development Guidelines, October 2022**, are incorporated into the Scheme. The guidelines outline the key considerations for the use and development of solar facilities across Victoria.

The **CFA Guidelines for Renewable Energy Installations (Version 4, August 2023)** provide standard requirements with regard to fire safety, risk and emergency management for consideration in the design, construction and operation of renewable energy facilities, including solar facilities.

As such, these documents have informed the process – from the initial site selection through to design, proposed construction methods, operation and maintenance – right through to the ultimate decommissioning of the facility. To this end, consideration of the matters required by these documents is demonstrated throughout this report and the supporting documents. Notwithstanding this:

- the application requirements of Clause 53.13 are addressed in **Section 11.7** of this report;
- an overview/response to the relevant provisions of the (former) DELWP Solar Energy Facility Design Guidelines is below in **Section 6**; and
- a response to the relevant provisions of the CFA Guidelines is below in **Section 7**.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

6 Solar Energy Facilities Design & Development Guidelines

6.1 Identifying Suitable Locations

The development site was chosen by Birdwood Energy for the following reasons:

- The topography of the land is relatively flat ensuring a straightforward and efficient layout, construction, and ongoing maintenance process.
- A 22 kV transmission line runs along Baddaginnee-Benalla Road – immediately beyond the northern property boundary – providing immediate electrical connection to the proposal without the need for substantial installation of connection infrastructure.
- The proposal would require clearing of native vegetation that is assessed to be of low conservation value, having been historically and currently part of an ongoing agricultural property.
- There are a limited number of residential dwellings near the development site, with existing natural screening within the landscape.
- The landowner is willing to lease the development site to Birdwood Energy – they welcomed the opportunity to receive an alternative income form, in addition to the current agricultural use of the site.

Generally, solar farms are compatible with farming regions and can co-exist with agricultural operations that may be located near the subject site. Furthermore, as part of an ongoing maintenance program, livestock (sheep) may continue to be utilised for grazing purposes on the site following construction.

Once it was determined that the site had the required physical attributes and proximity to the electricity network, Chris Smith & Associates were engaged to carry out a pre-application investigation of the site.

Northern Victoria has been identified as having excellent solar irradiance and the Hume region has already seen significant investment in major renewable electricity generation for the use and benefit of users on the national grid; however, this project is based on an identified capacity for additional electricity for use by local agriculture, industry and residents.

Factors such as land availability, proximity to the electricity network, accessibility, topography and site constraints are all key considerations when first looking for potential sites.

Existing electricity transmission network

The financial viability of a sub-5MW facility is dependent on the facility being within immediate proximity of the distribution network, as beyond this, network augmentation costs become prohibitive. The subject site was initially selected for its direct abuttal to existing 22kV lines and substation.

The siting of the facility close to the existing transmission infrastructure allows efficient transmission of the energy generated into the grid; and for a financially viable connection to be achieved whilst also ensuring the proposal is consistent with recent changes to planning policy which seeks to regulate extensive overhead power line connections.

The facility design – in particular, positioning of the HV Switchboard - has considered existing trees on the land and the adjacent road reserve. A clear line of sight has been achieved for the overhead connection between the switchboard and the nearest Ausnet pole on the along Baddaginnie-Benalla Road. Accordingly, the proposal will avoid the need for removal of any trees.

This copy document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Managing cumulative effects in area

The Solar Facility Guidelines outline the considerations of planning with regard to managing the potential cumulative impacts of solar energy facilities. The proposal is for a sub-5MW facility that will occupy approximately 6.5 ha of land, a relatively small portion of agricultural land that retains the significant portion of the site for continued agriculture.

There are no public records of any proposed or existing solar energy facilities with close proximity to the proposal site. **The nearest approved solar energy facility is located approximately 14km east of the subject site, to the east of the Benalla township on Sydney Road.** Accordingly, the proposed facility would not lead to any undue cumulative visual impact on the surrounding area as a result of solar panels.

The visual impact of the facility is to be further softened through the use of landscape screening. VCAT precedent has established that solar energy facilities are a typically benign land use that causes fewer impacts than many conventional rural land uses, such as those present within the site's immediate locality.

Accordingly, it is submitted that when viewed in the context of their surrounds the cumulative impact of the approved and proposed solar facilities, in terms of both land use and visual impact, is minimal.

**ADVERTISED
PLAN**

Protecting environmental, site and amenity values

The site has been deemed suitable because of its lack of significant biodiversity value. The site is dominated by degraded pasture and opportunistic or invasive weed species with limited grazing value.

The land does not contain any mapped wetlands, either current or historic. The site contains areas of scattered remnant trees; however, the proposal has been located on a largely cleared part of the site and designed to limit the impacts on the existing paddock trees – with solar panels sited around the existing trees. Thus, there will be no impact from the proposal or any associated works.

The proposed development site is not in an area of cultural heritage sensitivity.

The site is identified as not mapped as being susceptible to flooding under the Land Subject to Inundation Overlay. However, from professional experience, we are aware that the Benalla Planning Scheme flood mapping can contain some erroneous information. Nevertheless, it is considered that suitable conditions will be imposed by the CMA as a Condition of the sought permit.

Minimising impact on landscape values

In considering the size and magnitude of the facility, as well as the flat topography of the site and the built form of the development, landscape impacts are considered to be unlikely – an illustration of the surrounding area is provided with this application.

With a total area of approximately 6.5 ha, the proposed facility is considered to be of substantially lesser scale than typical conventional facilities, which can occupy hundreds of hectares of land.

The proposal also includes a centrally located inverter station, and a switchboard within the compound at the electricity network connection point. None of these components are particularly large or visually intrusive and are considered comparable to an agricultural shed. The facility does not include any batteries.

The subject land is within the Farming Zone and many surrounding properties are used for seasonal grazing. There are two dwellings within 500m of the proposed facility, both of which are located on property to the east of the site. However, these dwellings are located within the Farming Zone and therefore not considered a sensitive use for the purpose of planning, and visibility if obscured due to existing tree belts.

It is submitted that the proposal will have very little (negligible) visual impact on the locality, mostly due to the topography of the land, the height and scale of the proposed facility and use of perimeter screening landscaping. Cumulative impact of all proposed solar facilities in the area has been managed through the careful site selection process which obscures views from most public interfaces.

6.2 Consultation

An enquiry was submitted to the Goulburn Broken CMA on 10 May 2022 for advice on flood levels at the development site. In a letter dated 30 May 2022, the CMA provided a map of the 1% AEP from the Granite Creeks Regional Flood Mapping Study. The CMA advised that they would not object to a proposed solar energy facility, subject to appropriate conditions being imposed on the sought planning permit.

Additionally, the notice provisions of Section 52 of the P&E Act will ensure all relevant stakeholders will be notified.

6.3 Design

The proposed solar panels are set back approximately 25m from the nearest boundary – to the north-west of the site – to the northern property frontage.

The entire perimeter (inside the compound fence) includes at least ten (10) metres clear open space for emergency access and fire separation – as per the CFA Guidelines.

The inverter/PCS has been positioned close to the panel arrays and BESS, and away from neighbouring properties to minimise potential for amenity impacts.

It is submitted that the proposed facility should be considered as having “no impact” in terms of glint and glare, given the siting, height and orientation of the panels in conjunction with the topography of the area, existing landscaping and vegetation. It is submitted that solar reflection at ground level on surrounding properties and roads would be impossible. To demonstrate this, a Glint and Glare assessment has been prepared by Environmental Ethos Pty Ltd and is provided herewith.

The facility will not have any external lighting, sirens or other security devices. It will be locked within a secure perimeter fence and monitored remotely and any issues will be managed by a local security company, which provides a local employment opportunity.

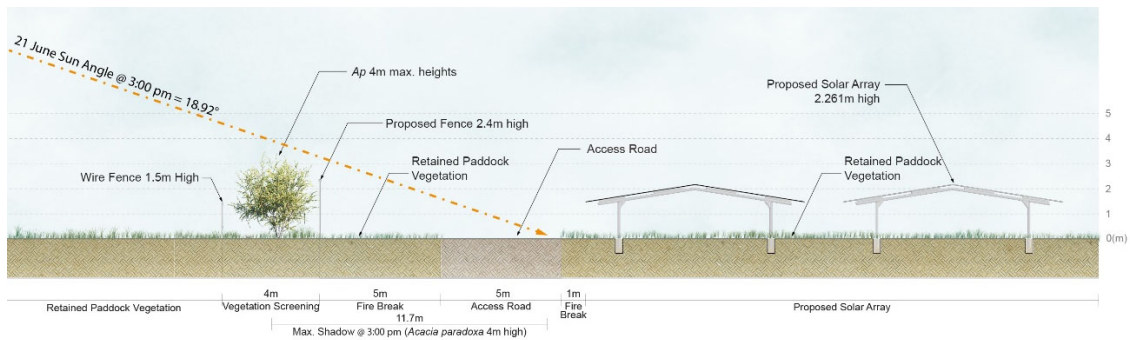
6.4 Landscaping

Landscaping is to be provided along all sides of the facility – with varying widths – as shown on the Site Plan and Visual Impact Assessment (prepared by Geoscience International) submitted with this application.

Landscaping will be a four-metre wide linear row planting of fast-growing tree species (hedge wattles).

The landscaping will be positioned directly outside the compound fence – with an additional, second post-and-wire “farm fence” outside the landscaping so that it can be protected from grazing stock – within the property boundary.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

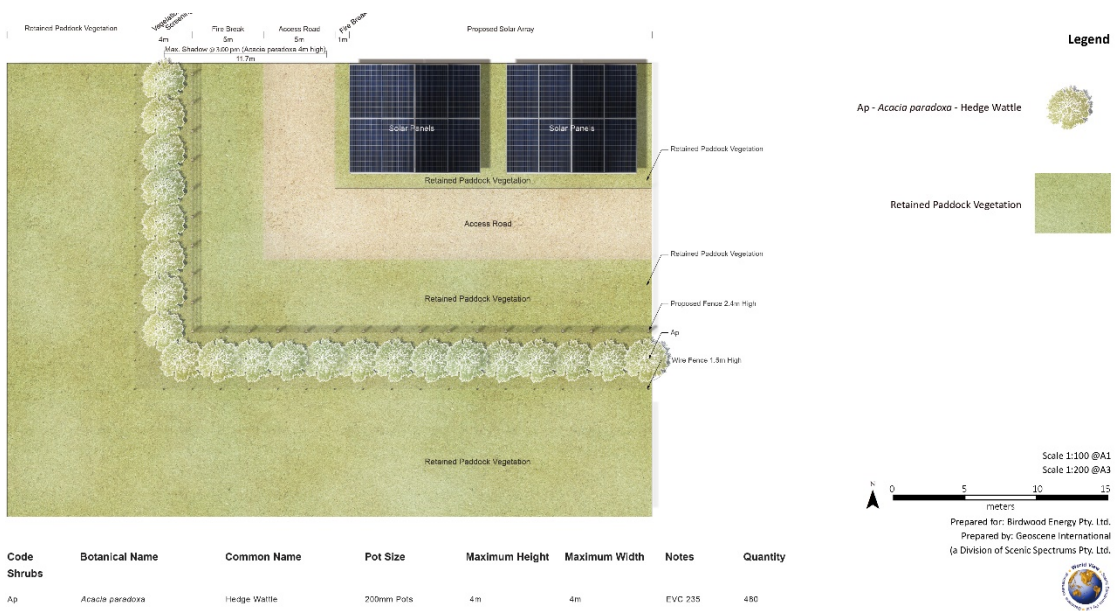


Cross-section of proposed landscaping
Shown relative to perimeter fencing and proposed solar panels

The proposed landscaping species are indigenous to the local Plains Grassy Woodland EVC, which will serve to provide both screening of the facility, as well as providing limited habitat for the surrounding biodiversity.

By locating the landscaping orientated to the property frontage, the proposal provides a long-term likelihood that this landscaping will be retain beyond the lifespan of the proposed solar energy facility.

The site is not considered to be subject to a heightened risk of salinity of bushfire that would warrant additional considerations, beyond the typical considerations for development of this scale with regional Victoria.



Schedule and Planting configuration of proposed Landscaping
Including proposed species, quantities and size at maturity

6.5 Construction Stage

Once built, the facility will be a static installation and would be largely unmanned. Accordingly, the construction period will be the most impactful period of the facility's lifespan. However, it is for a short finite period and – if managed appropriately – impacts can be controlled to an acceptable level.

The **Construction-Environment Management Plan (CEMP)** by Birdwood Energy – attached herewith – includes a construction delivery timeframe. This is anticipated to be undertaken across an approximate six (6) month construction period, as per the below excerpt from the CEMP:

“Construction activities would be undertaken during standard daytime construction hours (7:00am to 7:00pm Monday to Friday, and 9:00am to 4:00pm on Saturdays). Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities. Approximately 8 trucks will access the site per day during peak construction periods. The delivery trucks will predominantly be Medium and Heavy Rigid Trucks.

Articulated Vehicles will occasionally be used to transport larger plant such as the PV panels and mounting system. Over the course of construction, approximately 38 articulated vehicles will access the site, with a peak of 5 per day.

A maximum of 20 staff will be on-site during peak construction periods. Assuming a vehicle occupancy rate of 2.0 for workers, the site is expected to generate 10 passenger vehicle movements during each of the peak periods.

Therefore, it is anticipated that during peak construction the site could generate a maximum of 13 heavy and 20 light vehicle movements per day.

Heavy vehicles will approach the site via Baddaginnie-Benalla Rd from the east, then turn left into Forshaw Rd to access the site. Heavy vehicles leaving the site will turn out of Forshaw Rd, then head west along Baddaginnie-Benalla Rd, then turn left onto Palmerston St to get back onto the Hume Fwy.”

It is anticipated that all components will be delivered in containers by semi-trailer trucks and deliveries will be scheduled across the six-month project construction period.

The Construction Environmental Management Plan sets out how construction activities will be carried out, including site logistics, operations and equipment to be used, construction hours and site management.

The proposed solar array system requires minimal earthworks. Thus, there is less propensity for environmental impacts.

Construction traffic management

The immediate local road network will connect to the state-managed arterial road network for traffic to and from the site. The peak of construction activities will occur during the mechanical and electrical installation phases of construction. During these times, up to 20 workers could be on site during working hours.



Proposed transport route from the Hume Highway to the subject site

Image sourced from Google

Workers will access the site in the morning and leave at the end of the working day in either their private car or work vehicle (ute or small truck). It is anticipated that there will be some carpooling, therefore it is expectant that **up to 20 cars/utes** would be accessing the site during the height of the construction period.

Materials deliveries will also occur throughout the construction period, with most components coming in during the mechanical works phase.

Deliveries will be via rigid truck or semi-trailer and will be scheduled throughout the working day, to ensure efficient unloading and handing. It is anticipated that there will **up to 5 truck deliveries** during the height of the construction period.

It is anticipated that most equipment and componentry will be delivered to site from Melbourne via the Hume Highway via the off ramp onto Mansfield Road and turn left into Baddaginnie-Benalla Road – as illustrated in the above. Vehicles would then turn left into the site.

It is considered that the local road network is more-than capable of safely accommodating the abovementioned construction traffic, especially considering that the road network is designed and maintained to accommodate agricultural traffic including agricultural trucking, harvest equipment and trucks as well as agricultural workers.



Mansfield Road and Baddaginnie-Benalla Road intersection
Photo facing north on Mansfield Road. (Source: Google Streetview)

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

6.6 Operation Stage copyright

Other than during construction, the facility will be un-manned, other than intermittent periodical maintenance. The facility does not include batteries and there is no intention to store any dangerous goods on site.

The site will be remotely monitored in real time and local contractors would be rapidly deployed to deal with any fault or other matter, which provides the added benefit of local jobs for the local community.

Considering that the proposed facility will be un-manned, with limited moving componentry, it is considered that it will have a very minimal impact on the landscape.

From past project experience, we are aware of community interest in the following matters in relation to solar facilities.

Electromagnetic radiation (EMR)

Small amounts of electromagnetic radiation (EMR) can be produced (emitted) by electrical componentry associated with a solar facility such as inverters, transformers and high voltage powerlines. However, the level of radiation dissipates quickly to becoming indistinguishable from background levels, over distance from the component.

The electromagnetic field (EMF) produced around an electric installation is non-ionising, within a range that exists in our daily lives from natural sources (which are most noticeably manifested in lightning discharges) and from appliances and electrical devices that surround our daily lives.

EMR from these types of components dissipates to indistinguishable levels over about 5-to-10 metres. The inverter is centrally located within the facility, well in excess of 100 metres from any boundary.

Heat island effect

Previous community interest in solar farms have been directed toward the potential of a “heat island effect” being created by the solar facility. This is where ambient temperatures are artificially raised by reflective heat from the facility, which could have impact on adjacent sensitive vegetation or horticultural operations.

Various studies have been undertaken and assessments presented as evidence for other contested solar facility proposals. In these instances, it was concluded that any discernible impacts would be unlikely and would be quickly dissipated over a relatively short separation distance. To this end, the guidelines have recommended a 30-metre separation distance between facilities and the property boundary.

The proposed layout achieves a significant setback from any nearby properties – even greater when considering properties in private ownership. Any “heat island effect” created by the proposal would have no discernible effects over the setback distances.

Environmental, risk and emergency management

There are detailed elements of environmental management provided within the CEMP prepared by Birdwood Energy. However, it is anticipated that a detailed EMP could be required as a condition of the sought permit.

The CEMP could be required to address detailed matters, to be approved before construction begins, such as site management, dust, and sediment control and traffic during construction.

The proposed facility will be remotely monitored in real-time. Thus, it will be under constant surveillance and a “silent alarm” will be sent automatically to ‘on-call’ staff in the event of a fault or potentially dangerous situation. An operational management plan will be an integral part of the operation of the facility.

It is considered that the risk of flooding can be readily managed by suitable permit controls.

Site access and traffic management

An access point will be provided to the satisfaction of the responsible road authority.

As set out above, during operation the facility will be monitored remotely, and there will be no permanent workers on site. The facility will remain largely unattended, other than periodical visits by maintenance contractors or the instance of a fault that requires site attendance.

These contractors will carry out seasonal site maintenance (slashing and ground fuel control, etc), cleaning panels and periodical visual checks of componentry and equipment. Thus, it could be weeks between site visits and most visits would be no more than one or two contractors in a single vehicle (ute) carrying out visual checks for approximately one hour or so.

6.7 Decommissioning

The majority of components of the proposed facility (including panels) have a thirty-year design life expectancy. At this stage, the intention is to maintain/upgrade the facility over

its life, as components wear out and new technology becomes available. Accordingly, the facility is likely to remain functional and operating into the foreseeable future.

However, should the facility’s useful life end – for any number of commercial or practical reasons – the site can easily be remediated and reverted back to agriculture or converted to another use, as allowable under the planning scheme of the time.

The non-invasive mounting system makes decommissioning and removal of all panels and componentry a relatively simple process and would allow for the full remediation of the subject site to pre-development condition.

7 CFA Design Guidelines and Model Requirements

The facility has been designed in accordance with the Country Fire Authority’s ‘Design Guidelines and Model Requirements: Renewable Energy Facilities V4’ (August 2023) (the Guidelines).

Under the CFA’s guidelines, the proposal meets the definition of a **micro solar farm** (i.e. less than 15ha), which applies some dispensations that would otherwise be required for conventional, larger solar energy facilities.

The preliminary facility design has been prepared in response to the requirements of the CFA Guidelines. The design particulars are therefore assessed against Section 4.2 (Facility Design) of the CFA’s design guidelines and model requirements (as appropriate) in the below table.

4.2.1 Emergency Vehicle (Fire Truck) Access	
All Facilities	
<p>a) Construction of a four (4) metre perimeter road within the perimeter fire break.</p>	<p>A 6 m wide internal access track will be provided around and within the development site. BESS container locations are designed to meet a minimum of manufacturer guidelines, access requirements and have been conducted by an engineering company experienced in the construction of similar facilities.</p>
<p>b) Roads must be of all-weather construction and capable of accommodating a vehicle of fifteen (15) tonnes.</p>	<p>Roads will be constructed to satisfy FRV Guidelines, i.e., the emergency vehicle access road around the facility is considered as being a hardstand and therefore shall also be designed to withstand a point load of 15 tonnes (or 150 kN) so that it can withstand an aerial appliance at any location within the boundaries of the hardstand.</p> <p>Battery skids under consideration weigh up to 36 tonnes, and the road design will accommodate the gross weight of trucks and cargo.</p>

ADVERTISED
PLAN

<p>c) Constructed roads should be a minimum of four (4) metres in trafficable width with a four (4) metre vertical clearance for the width of the formed road surface. Ensure any fencing along access routes allows for width of fire vehicles.</p>	<p>Internal roads would be 6 m wide with greater than 4 m vertical clearance.</p>
<p>d) The average grade should be no more than 1 in 7 (14.4% or 8.1°) with a maximum of no more than 1 in 5 (20% or 11.3°) for no more than fifty (50) metres.</p>	<p>The site is relatively flat and complies with the above.</p>
<p>e) Dips in the road should have no more than a 1 in (12.5% or 7.1°) entry and exit angle.</p>	<p>The site will be engineered to be flat, to accommodate the infrastructure and delivery of equipment. Any dips in the road will comply with this requirement.</p>
<p>f) Roads must incorporate passing bays at least every 600 metres, which must be at least twenty (20) metres long and have a minimum trafficable width of six (6) metres. Where roads are less than 600 metres long, at least one passing bay must be incorporated.</p>	<p>✓ Complies – All internal roads would be 6 m wide and capable of allowing vehicles to clearly pass. Minor drainage infrastructure may be present, that will not inhibit truck movements</p>
<p>g) Road networks must enable responding emergency services to access all areas of the facility, including infrastructure, buildings, battery energy storage systems and related infrastructure.</p>	<p>✓ Complies – internal roads are proposed around and within the facility such that all areas can be accessed.</p>
<p>h) The provision of at least two (2) but preferably more access points to the facility, to ensure safe and efficient access to and egress from areas that may be impacted or involved in fire. The number of access points must be informed through a risk management process.</p>	<p>✓ Complies</p>
<p>Solar Energy Facilities (Micro)</p>	
<p>Construction of a four (4)-metre perimeter road (4.2.1(a)) and the incorporation of passing bays to perimeter roads (4.2.1(f)) may be disregarded for micro solar facilities without battery energy storage systems.</p> <p>Where micro solar facilities include battery energy storage systems, perimeter roads may be disregarded where roads suitable for emergency vehicles are provided to fire service infrastructure, and to and around the BESS (4.2.1(g)), with turning circles for dead-end roads.</p>	<p>✓ Complies</p> <p style="text-align: center; color: red; font-weight: bold; font-size: 24px;">ADVERTISED PLAN</p>
<p>Battery Energy Storage Systems</p>	

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. It is to be used for any purpose which may breach any copyright

At least two access points are to be provided into each section where battery energy storage systems are located. The number and location of vehicle access points must be determined in consultation with CFA	✓ Complies
4.2.2 Firefighting Water Supply	
All Facilities	
a) Water access points must be clearly identifiable and unobstructed to ensure efficient access	Hydrants would be clearly marked, and a block plan provided at the booster point.
b) Static water storage tank installations must comply with AS 2419.1-2005: Fire hydrant installations – System design, installation and commissioning.	✓ Complies.
c) The static water storage tank(s) must be an above-ground water tank constructed of concrete or steel	✓ Complies
d) The static water storage tank(s) must be capable of being completely refilled automatically or manually within 24 hours.	✓ Complies
e) The static water storage tanks must be located at vehicle access points to the facility and must be positioned at least ten (10) metres from any infrastructure (solar panels, wind turbines, battery energy storage systems, etc.).	✓ Complies
f) The hard-suction point must be provided, with a 150mm full bore isolation valve equipped with a Storz connection, sized to comply with the required suction hydraulic performance.	Readily achievable. Subject to suitable planning permit conditions.
g) The hard-suction point must be positioned within four (4) metres to a hardstand area and provide a clear access for emergency services personnel.	Readily achievable. Subject to suitable planning permit conditions.
h) An all-weather road access and hardstand must be provided to the hard-suction point. The hardstand must be maintained to a minimum of 15 tonne GVM, eight (8) metres long and six (6) metres wide or to the satisfaction of the CFA.	✓ Complies
i) The road access and hardstand must be kept clear at all times.	Readily achievable. Subject to suitable planning permit conditions.
j) The hard-suction point must be protected from mechanical damage (eg., bollards) where necessary.	Readily achievable. Subject to suitable planning permit conditions.

This completely defiled for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The position that must not be used for any copyright breach any copyright

k) Where the access road has one entrance, an eight (8) metre radius turning circle must be provided at the tank.	Readily achievable. Subject to suitable planning permit conditions.
l) An external water level indicator must be provided to the tank and be visible from the hardstand area.	Readily achievable. Subject to suitable planning permit conditions.
m) Signage indicating 'FIRE WATER' and the tank capacity must be fixed to each tank	Readily achievable. Subject to suitable planning permit conditions.
n) Signage must be provided at each vehicle entrance to the facility, indicating the direction to the nearest static water tank(s).	Readily achievable. Subject to suitable planning permit conditions.
Solar Energy Facilities (Micro)	
<p>For micro solar facilities, up to and including 5MW without battery storage, fire water of not less than 22,500 litres effective capacity may be provided. Fire water tank(s) must be located at the primary vehicle access point to the facility.</p> <p>Where micro solar facilities include battery energy storage systems, additional fire water supply must be provided in accordance with the below</p>	<p>✓ Complies</p> <p>Addressed in below section responses.</p>
Battery Energy Storage Systems	
<p>A fire protection system suitable for the risks and hazards at the facility must be provided. For battery energy storage systems, the water supply quantity must:</p> <ul style="list-style-type: none"> • Enable effective cooling of surrounding infrastructure. • Account for reasonable duration of fire events based on the proposed battery chemistry. • Account for local weather conditions and potential fire weather conditions. • Provide for the safety of firefighters. 	<p>To be addressed as condition of planning permit.</p> <p>All battery containers under consideration incorporate fire protection arrangements.</p>
<p>The fire protection system must be designed in line with the requirements of AS 2419.1-2021: Fire hydrant installations, Clause 3.9: Open Yard Protection, in consultation with CFA.</p> <p>For the purposes of determining system requirements, the 'yard area' referenced within AS 2419.1, Table 2.2.5 (D) may be considered that of the battery installation, including the minimum 10m fire break around the battery infrastructure, rather than the entire area of the yard or site.</p> <p>Emergency response experience from battery energy storage system incidents</p>	<p>✓ Complies</p> <p style="text-align: center; color: red; font-weight: bold; font-size: 24px;">ADVERTISED PLAN</p>

indicates that larger quantities of water may be required.	
Battery Energy Storage Systems (Centralised or Stand-Alone Facilities)	
Where battery energy storage systems are ancillary to solar or wind energy facilities and proposed within a single centralised location, fire protection in accordance with the model requirements in this section must be provided.	✓ Complies
For facilities with centralised battery energy storage systems, the fire protection system must include at a minimum:	✓ Complies
<p>a) Where reticulated water is available, a fire hydrant system that meets the requirements of AS2419.1-2021: Fire hydrant installations, Section 3.9: Open Yard Protection, and Table 2.2.5(D): Number of Fire Hydrant Outlets Required to Flow Simultaneously - Open Yards.</p> <p>OR</p> <p>b) Where no reticulated water is available, a fire hydrant system that complies with AS 2419 1-2021 must be provided:</p> <p>i. The fire water supply must be of a quantity no less than 288,000L or as per the provisions of AS2419.1-2021: Fire hydrant installations, Table 2.2.5(D) for open yards flowing for a period of no less than four hours at 20L/s, whichever is the greater.</p>	<p>N/A</p> <p style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;">ADVERTISED PLAN</p> <div style="border: 2px solid red; padding: 5px; color: red; font-weight: bold; font-size: 0.8em;"> <p>This copied document to be made available for the sole purpose of enabling its consideration and review as part of the planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.</p> </div>
ii. The quantity of static fire water storage is to be calculated from the number of hydrants required to flow from AS 2419.1-2021: Fire hydrant installations, Table 2.2.5(D). (E.g., For battery installations with an aggregate area of over 27,000m ² , 4 (four) hydrant outlets are required to operate at 10L/s for four hours, which equates to a minimum static fire water supply of 576kL.)	✓ Complies
iii. Fire hydrants must be provided and located so that every part of the battery energy storage system is within reach of a 10m hose stream issuing from a nozzle at the end of a 60m length of hose connected to a fire hydrant outlet	✓ Complies
iv. The fire water supply must be located at vehicle entrances to the facility, at least 10m from any infrastructure (electrical	✓ Complies

substations, inverters, battery energy storage systems, buildings).	
v. The fire water supply must be reasonably adjacent to the battery energy storage system and shall be accessible without undue danger in an emergency. (Eg., Fire water tanks are to be located closer to the site entrance than the battery energy storage system)	✓ Complies
vi. The fire water supply must comply with AS 2419.1-2021: Fire hydrant installations, Section 5: Water storage tanks	✓ Complies
4.2.3 Fire Detection and Suppression Equipment	
All Facilities	
a) For on-site buildings and structures, according to the requirements of the National Construction Code.	✓ Complies
b) For storages of dangerous goods, according to the requirements of any Australian Standards for storing and handling of dangerous goods.	✓ Complies
c) For electrical installations, a minimum of two (2) suitable fire extinguishers must be provided within 3m-20m of each PCU.	✓ Complies
d) In all vehicles and heavy equipment, each vehicle must carry at least a nine (9)-litre water stored-pressure fire extinguisher with a minimum rating of 3A, or other firefighting equipment as a minimum when on-site during the Fire Danger Period.	Readily achievable.
4.2.4 Landscape Screening and On-Site Vegetation	
All Facilities	
Any proposed or existing vegetation must be considered in the Risk Management Plan for its potential to intensify and propagate fire within and away from the site.	The proposal incorporates landscaping to offset the development's visibility from adjoining public land. A detailed response to the fire risk associated with the landscaping is provided against the below standards.
Where landscape screening is required, for example, to screen visual impacts or to prevent visual glare from a solar energy facility, the design must consider any potential increase in fire risk due to the type (species), density, height, location and overall width of the screening.	Two (2) rows of indigenous species will be provide to mitigate any potential visual impacts of the site. There remains significant separation in a fire break between these landscaping rows and the electrical equipment.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Facilities must be designed so that the radiant heat flux (output) from vegetation does not create the potential for ignition of on-site infrastructure or other vegetation.	The low density of vegetation screening and the large clearances involved do not present significant radiant heat from the screening.
<p>Radiant heat impact leading to ignition may be mitigated through:</p> <ul style="list-style-type: none"> • Vegetation removal (where permitted). • Separation from nearby infrastructure (e.g., firebreaks; refer below). • The provision of thermal barriers at nearby infrastructure. • Other means in consultation with CFA 	The facility has been designed to incorporate separation distances and centralised critical infrastructure that can mitigate the risk of fire transmission.
Solar Energy Facilities	
Where practicable, low-flammability vegetation (such as root vegetables) may be planted under solar panels, provided foliage does not extend beyond the panel footprint.	✓ Complies. The proposed facility will be cleared of substantial vegetation and managed during the operational lifespan of the facility.
Substations and Electric Lines	
Substations should be surfaced to eliminate all vegetation including grasses.	<p>✓ Complies – the substation will be a hardstand area with spread crushed rock on a top layer, and will be regularly managed by contractors to keep weeds and vegetation under control.</p>
4.2.5 Fire Breaks	
All Facilities	
<p>A fire break must be established and maintained around:</p> <ol style="list-style-type: none"> The perimeter of the facility, commencing from the boundary of the facility or from the vegetation screening inside the property boundary. The perimeter of control rooms, electricity compounds, substations and all other buildings on-site. <p><i>Modifications to Model Requirements must be in consultation with CFA.</i></p>	<p>✓ Complies. The facility includes fire with a minimum width of 10m around the entirety of the facility's perimeter.</p> <p>✓ Complies</p>
Where screening or other vegetation is a width of 20m or less, or 15m or less, a fire break of 10m may be appropriate to prevent radiant heat from vegetation fully involved in fire becoming an ignition source for on-site infrastructure.	✓ Complies – no more than 6m of screen vegetation is proposed.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

<p>Outside these parameters, separation must be at least the distance where radiant heat flux (output) from the vegetation does not create the potential for ignition of on-site infrastructure.</p>	<p>Achieved via vegetation management and fire breaks in accordance with CFA requirements.</p>
<p>The width of the vegetation includes any existing vegetation from neighbouring properties or road reserves abutting the proposed or existing vegetation for the renewable energy facility.</p>	<p>✓ Complies</p>
<p>Battery Energy Storage Systems</p>	
<p>A fire break must be established and maintained around battery energy storage systems and related infrastructure.</p>	<p>✓ Complies</p>
<p>4.2.6 Design Specific to Facility Type</p>	
<p>Solar Energy Facilities (Micro)</p>	
<p>Separating solar panel banks by six (6) metres is not required for micro solar facilities.</p>	<p>Exemption noted.</p>
<p>Battery Energy Storage Systems</p>	
<p>1) The design of the facility must incorporate:</p> <p>a) A separation distance that prevents fire spread between battery containers/enclosures and:</p> <ul style="list-style-type: none"> • Other battery containers/enclosures. • On-site buildings. • Substations. • The site boundary. • Any other site buildings. • Vegetation. <p>b) A fire break around the battery energy storage system and related infrastructure, of a width of no less than 10m, or greater where determined in the Risk Management Plan.</p> <p>c) A layout of site infrastructure that:</p> <p>i. Considers the safety of emergency responders</p> <p>ii. Minimises the potential for grassfire and/or bushfire to impact the battery energy storage system.</p>	<p>Exemption noted.</p> <p>✓ Complies.</p> <p>✓ Complies. Road access and equipment spacing is extensive.</p> <p>✓ Complies. Setbacks have been implemented and the facility interior will be a hardstand with active management of vegetation.</p>

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

ADVERTISED PLAN

<p>iii. Minimises the potential for fires in battery containers/ enclosures to impact on-site and off-site infrastructure.</p>	<p>✓ Complies. The battery section is well segregated from other areas.</p>
<p>2) Battery energy storage systems must be:</p> <p>a) Located to be reasonably adjacent to a site vehicle entrance (suitable for emergency vehicles).</p> <p>b) Located so that the site entrance and any firewater tanks are not aligned to the prevailing wind direction (therefore least likely to be impacted by smoke in the event of fire at the battery energy storage system.)</p> <p>c) Provided with in-built fire and gas detection systems. Where these systems are not provided, measures to effectively detect fires within containers must be detailed within the Risk Management Plan.</p> <p>d) Provided with explosion prevention via sensing and venting or explosion mitigation through deflagration panels</p> <p>e) Provided with suitable ember protection to prevent embers from penetrating battery containers/ enclosures</p> <p>f) Provided with suitable access roads for emergency services vehicles, to and within the site, including to battery energy storage system(s) and fire service infrastructure.</p> <p>g) Installed on a non-combustible surface such as concrete.</p> <p>h) Provided with suitable ventilation.</p> <p>i) Provided with impact protection to at least the equivalent of a W guardrail-type barrier, to prevent mechanical damage to battery containers/enclosures.</p> <p>j) Provided with enclosed wiring and buried cabling, except where</p>	<p>✓ Complies. There is direct access from the site entrance and immediate access to the secondary, emergency access.</p> <p>✓ Complies. There is reasonable spacing from the battery section to the main firewater tank</p> <p>✓ Complies. All battery container makes and models under consideration possess fire detection systems</p> <p>✓ Complies. The battery container makes and models all include ventilation equipment and louvres for venting gas caused by internal fire</p> <p>✓ Complies</p> <p>✓ Complies – the battery containers will be on concrete footings installed in an engineered hardstand, with vegetation actively managed.</p> <p>✓ Complies – the battery containers will be installed outside with inter-container separation in accordance with the manufacturer requirements to allow operation of the cooling systems</p> <p>This can be imposed as a suitable planning permit condition if the CFA deems it appropriate.</p> <p>✓ Complies</p>

This topic prevention to be made suitable for the explosion of suitable equipment and is a consideration and equipment as part of a planning process caused by the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

<p>required to be above-ground for grid connection.</p> <p>k) Provided with spill containment that includes provision for management of fire water runoff</p>	<p>✓ Complies</p>
---	-------------------

8 Planning Permit Triggers

8.1 Land Use Definition

The proposed solar farm is defined under Clause 73.03 of the Benalla Planning Scheme under the following land use definitions. The solar farm and all ancillary infrastructure within the landholder's property is defined as a **solar energy facility**, as “Land used to generate electricity from solar energy using ground-mounted photovoltaic and thermal technology, where the primary role is to export power to the electricity network.”

The connection infrastructure, encompassing the overhead lines within the adjacent road reserve is defined as a **utility installation** for “land used to transmit, distribute or store power” noting that the minor utility installation exemption does not to apply “any power lines directly associated with an Energy generation facility or Geothermal energy extraction”.

The ancillary battery energy storage system (BESS) meets the land use definition for a **minor utility installation**, as it is a battery connected to a section of the electricity distribution network operating with a nominal voltage not exceeding 66,000 volts”. The BESS itself is therefore exempt from any use and development triggers under the Planning Scheme. However, for the purposes of this application, is considered part of the solar energy facility, rather than an independent land use.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

8.2 Permit Triggers

Consequent to the land uses outlined in the above section, this application seeks a planning permit to **use and develop land for a Solar Energy Facility and Utility Installation, and remove native vegetation** at (Lot 1 TP106246) Baddaginnie-Benalla Road, Baddaginnie and the adjacent road reserve. A planning permit is triggered for the proposal pursuant to the following provisions of the Benalla Planning Scheme:

Land Use

- 35.07-1 – To use land for a *Solar Energy Facility and Utility Installation* in the Farming Zone.

To undertake **Building and Works...**

- 35.07-4 – ... associated with a Section 2 uses in the Farming Zone.
- 35.07-4 – ... building within 40m of a Transport Zone 3 in the Farming Zone.
- 35.07-4 – ... within 100m of a watercourse in the Farming Zone.

Removal of Native Vegetation

- 52.17-1 – To remove, destroy or lop native vegetation, including dead native vegetation.

ADVERTISED
PLAN

9 Other Statutory Considerations

9.1 Aboriginal Heritage Act 2006

The main purpose of the *Aboriginal Heritage Act 2006* (Vic) (AH Act) is to provide for the protection of Aboriginal cultural heritage in Victoria. The AH Act seeks to empower traditional owners as protectors of their cultural heritage, strengthen the ongoing right to maintain the distinctive spiritual, cultural, material and economic relationship of traditional owners of the land and waters and promote respect for Aboriginal cultural heritage.

9.2 Building Act 1993

The development site is in a Designated Bushfire Prone Area under section 192A of the *Building Act 1993*. Bushfire risk is discussed in the section on Clause 13.02.

9.3 Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* (Vic) (FFG Act) is the primary legislation dealing with biodiversity and conservation and sustainable use of native ecology in Victoria. Under the FFG Act, a permit is required for the impacts (to kill, injure, disturb or collect) protected or threatened listed flora and fauna.

The proposal does not trigger any approval under the FFG Act.

10 Strategic Justification

This section describes the various State and regional strategies relating to the proposal.

10.1 Victoria's Climate Change Act 2017

The *Climate Change Act 2017* provides Victoria with the legislative foundation to manage climate change risks, maximise the opportunities that arise from decisive action, and drive the transition to a climate-resilient community and economy. It establishes a long-term target of net-zero greenhouse gas emissions by 2050, with five-yearly interim emissions reduction targets. The Victorian Government's foundational target was for emissions in 2020 to be 15–20% below 2005 levels.

It gives effect to most of the commitments set out in the Victorian Government Response to the 2015 Independent Review of the Climate Change Act 2010. It sits alongside other key Victorian Government energy and climate change initiatives including Victoria's Climate Change Strategy and Building Victoria's Climate Resilience, which are discussed below.

10.2 Victoria's Renewable Energy (Jobs and Investment) Act 2017

Victoria's current renewable energy targets legislated in the *Renewable Energy (Jobs and Investment) Act 2017* are:

- 25% by 2020 (achieved)
- 40% by 2025
- 50% by 2030

**ADVERTISED
PLAN**

In September 2022 the Victorian Government announced updated renewable energy targets of:

- 65% by 2030
- 95% by 2035

The Victorian Government also announced energy storage targets of:

- At least 2.6 GW of energy storage capacity by 2030
- At least 6.3 GW by 2035

These targets will be legislated under the *Renewable Energy (Jobs and Investment) Act 2017*. The proposal would support these targets by generating and storing renewable energy for peak-time use.

10.3 Victoria's Climate Change Strategy (2021)

Victoria's Climate Change Strategy (2021) is a roadmap to net-zero emissions and a climate-resilient Victoria by 2050. It was made to give effect to the requirements in Division 1 of Part 5 of the *Climate Change Act 2017*. The strategy includes the following pledges relating to renewable energy:

- Energy pledge: 50% of Victoria's electricity to come from renewable sources by 2030.
- Whole of Victorian Government pledge: All Victorian Government operations – including schools, hospitals and metropolitan trains and trams will be powered by 100 per cent renewable electricity by 2025. In addition, 400 zero emissions vehicles will be added to the Government fleet by 2023.

The proposal would assist in achieving these pledges by generating and storing renewable energy for peak-time use.

10.4 Building Victoria's Climate Resilience (2022)

Building Victoria's Climate Resilience (2022) outlines the Victorian Government's current adaptation action and next steps, guided by the adaptation priorities of Victoria's Climate Change Strategy and a five-yearly planning framework established under the *Climate Change Act 2017*. It was made to give effect to the requirements in Division 1 of Part 5 of the *Climate Change Act 2017*.

Victoria's comprehensive and evidence-based approach is centred around adaptation planning for state-wide systems and complementary community-led action.

One of the key priorities for the five-year period from 2022 to 2026 is to examine options to improve energy infrastructure resilience.

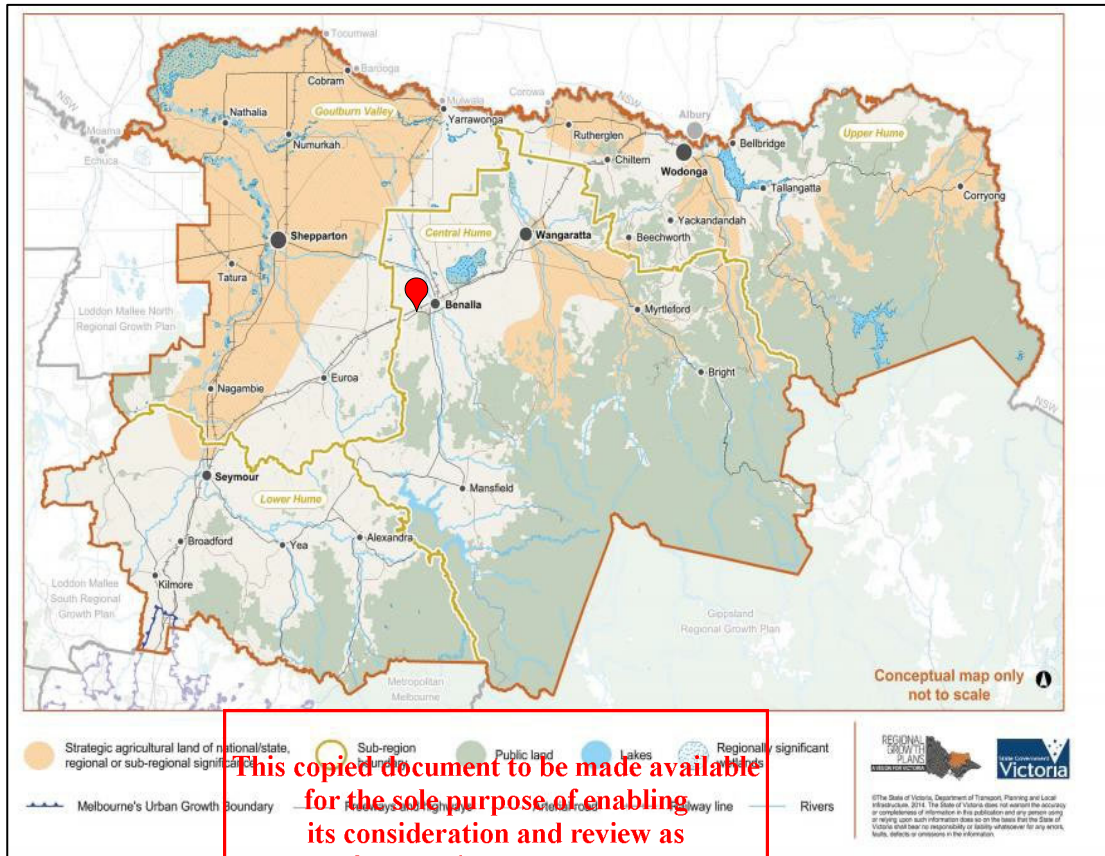
The proposal would improve the resilience of the electricity network by generating and storing renewable energy for peak-time use.

10.5 Hume Regional Growth Plan (2014)

The Hume Regional Growth Plan (HRGP) provides a regional approach and understanding of land use planning in the Hume Region, which includes Benalla.

The HRGP also maps strategic agricultural land within the region which is of state or sub-regional significance. The development site and surrounding area is not considered as strategic agricultural land, as shown in the below figure.

**ADVERTISED
PLAN**



Strategic Agricultural Land, Hume Regional Growth Plan
Approx. location of subject property (as per Hume Regional Growth Plan)

10.6 Goulburn Broken Regional Catchment Strategy 2021

The Goulburn Broken Regional Catchment Strategy (RCS) is a vision for the integrated management of natural resources in the catchment. It is a blueprint for improving catchment health and builds on achievements and lessons from the past. The strategy describes the current condition of the natural resources, principles to guide change, priority actions and what success looks like in 2040.

Under the RCS, the subject property is within the ‘Productive Plains’ area. One of the priority actions for this area is to “*explore alternative and/or additional incomes for farm business, such as honey, flowers, carbon or off-farm income.*” The proposal would provide an additional source of income for the landowner.

10.7 Benalla Rural City Council Plan 2021-2025

The Benalla Rural City Council Plan 2021-2025 is Council’s medium-term strategic planning document that guides decision making and sets key directions to work towards the community’s vision for the future. Five themes provide the framework for the key objectives and strategies within the Council Plan:

- Community
- Liveability
- Economy
- Environment
- Leadership

**ADVERTISED
PLAN**

Under the theme of “Environment”, one strategy is to “*Advocate, promote, support and encourage the use of renewable and clean energy and technology.*”

11 Benalla Planning Scheme

This section addresses the relevant clauses of the Benalla Planning Scheme.

11.1 Municipal Planning Strategy

02.03-2 Environmental and landscape values

The Clause seeks to preserve native flora, native fauna, and scenic landscapes in the LGA.

Native vegetation

The proposal seeks the removal of some native vegetation on the subject site.

Scenic landscapes

The proposal would be screened from view by a landscaping buffer. After the landscape buffer has established, the proposal is not expected to adversely impact on the landscape.

02.03-3 Environmental risks and amenity

The Clause identifies flooding, bushfire, climate change and land use conflict as environmental risks in the LGA.

Flood risk

The Granite Creeks Regional Flood Mapping Study 2013 mapped the development site as being 0.0 to 0.3 m below the 1% AEP flood level.

The proposal is compatible with the flood function of the land as it is an unmanned facility that is extremely permeable in the event of a flood:

- The proposed solar panels would be affixed to 1.6 m high mounting poles. In the event of a flood, water would easily flow around the poles.
- The proposed fence is permeable in the event of a flood.
- If necessary, the BESS containers, PCS, transformer kiosk, and external switchboard would be raised on concrete footings to be elevated above the 1% AEP flood level.

Bushfire risk

The development site is in a Designated Bushfire Prone Area under section 192A of the *Building Act 1993*. Bushfire risk is further discussed in the section on Clause 13.02.

Climate change

The proposal would reduce greenhouse gas emissions by producing and storing renewable energy.

Land use conflicts

The development site is in a farming area and is not close to any sensitive land uses. The proposal is not expected to cause land use conflict.

02.03-4 Natural resource management

The Clause states that in agricultural areas, Council seeks to:

- Maintain the sustainable use and productive potential of rural land.

- Discourage non-agricultural uses where they will impact agriculture.
- Support proposals for non-agricultural uses in rural areas only when they are compatible with surrounding agricultural use and can be justified in terms of broader community benefit.

The 150-ha property owned by the landholder is currently used for grazing. The proposal involves the use of less than 10% of the subject property for a solar farm and BESS. After construction, the applicant would offer the landowner the option to undertake grazing within the perimeter fence.

It is the landholder's opinion that the regular, ongoing, long-term income provided through the proposal will increase security of income as it is seen as an advantage to realise this type of income without increased costs (outgoings). In addition, the proposal provides the opportunity to diversify revenue streams without investing more money into the property which assists in long-term financial stability of the property.

11.2 Planning Policy Framework

11.01-1S Settlement

Clause objective: *"To facilitate the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements."*

One of the listed strategies is *"Contributing to net zero greenhouse gas emissions through renewable energy infrastructure and energy efficient urban layout and urban design."*

The proposal supports this strategy by generating and storing renewable energy for peak and off-peak time use.

12.01-S Protection of biodiversity

Clause objective: *"To protect and enhance Victoria's biodiversity."*

A native vegetation impact assessment was prepared by an accredited ecological consultant for the proposal. The assessment identified that there would be a loss of two (2) trees and patches of native grasses that would require planning approval.

The assessment acknowledges that the site is almost wholly covered by native grasses, thus total avoidance of vegetation impacts would be impossible to achieve. Nevertheless, the proposed vegetation removal is considered acceptable, as the grass are currently within grazing land and serve limited, if any, biodiversity or habitat value.

12.01-S Native vegetation management

Clause objective: *"To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation."*

The applicant seeks to offset the proposed removal of vegetation, which will lead to a net gain in biodiversity in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*.

12.03-1S River and riparian corridors, waterways, lakes, wetlands and billabongs

Clause objective: *"To protect and enhance waterway systems including river and riparian corridors, waterways, lakes, wetlands and billabongs."*

A tributary of Baddaginnie Creek is within the development site. The western border of the subject property adjoins the riparian corridor of an unnamed ephemeral watercourse, which is a tributary of Baddaginnie Creek.

The development site is flat, and stormwater is generally retained within the site, construction of the proposal has the potential to pollute water resources through:

- Erosion and sedimentation
- Contamination from hazardous chemicals used during construction

With the implementation of the safeguards detailed in the attached CEMP, construction of the proposal is not expected to cause significant adverse impacts on watercourses.

The solar panels have a small footprint on the land. Due to this, the proposal is not expected to change the existing overland flow path or watercourses.

12.05-2S Landscapes

Clause objective: *“To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.”*

The development site is not located on a significant landscape. Nevertheless, any visual impacts will be mitigated by landscaping, providing natural screening that protects the landscape values of the surrounding region, while also contributing to Victoria’s biodiversity.

13.01-1S Natural hazards and climate change

Clause objective: *“To minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.”*

One of the strategies is to: *“Site and design development to minimise risk to life, health, property, the natural environment and community infrastructure from natural hazards.”*

The only natural hazard relevant to the development site is bushfire, which is discussed in the response to Clause 13.02.

13.02-1S Bushfire planning

Clause objective: *“To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.”*

The Clause lists the land uses where bushfire risk should be considered when assessing planning applications. “Solar energy facility” is not in the list, therefore, the clause does not apply to the proposal.

Nevertheless, in considering the surrounding vegetation and landscape, the inherent landscape fire risk is generally of a low fuel nature (primarily grassland).

Existing environment (landscape)

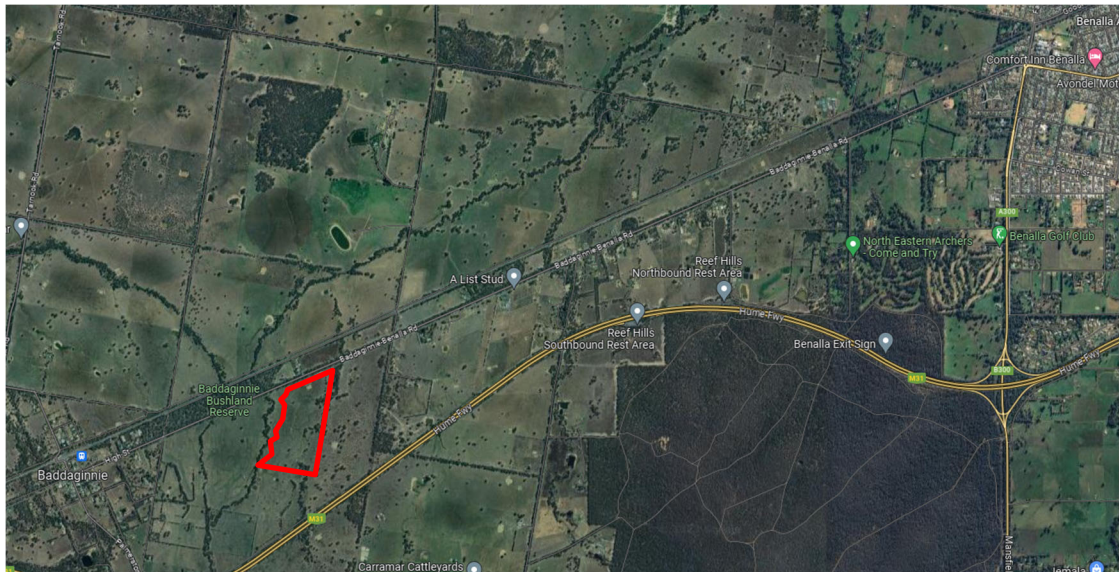
The prevailing land use in the locality is grazing and some limited cropping, which provides for semi-maintained grassland. The closest area significant forest vegetation is 2.2 km east of the development site.

There are small, isolated patches of established vegetation scattered throughout the surrounding agricultural land in all directions. The topography in the wider landscape is relatively flat.

The most likely directions of fire approach in Victoria on severe fire weather days are from the north-west and south-west, with a fire approaching from these directions (or from any other direction), travelling through pasture grass, with the occasional treed windrow, roadside vegetation or small patch of established treed areas.

Baddaginnie-Benalla Road provides good access arrangements for emergency services to access the proposal. The agricultural land, scattered settlements and

infrastructure provide a low fuel environment, when compared to forested areas which would provide higher fuel loads.



The locality – aerial photograph

Source: Google Maps

Bushfire site assessment

The development site is cleared and is considered a low fuel load environment, typically comprising Grassland.

There is a patch of Woodland vegetation to the east of the development site, however a limited fire run is available due to a continuation of agricultural land uses in the broader locality.

The proposal poses a low risk to human life. The proposal would not significantly increase the risk of bushfire within the landscape, in terms of ignition, fuels or changes in population. The application of mitigation measures and buffers provided around infrastructure would reduce risk to an acceptable level, considering the low-risk landscape present.

Some risks would be generated from the construction of the proposal, which would involve a maximum of 15-20 people on site during the peak of construction. The risks presented would be mitigated through application of the CFA Guidelines, which would reduce the vulnerabilities of communities to bushfire, due to a considered design and well-equipped proposal site.

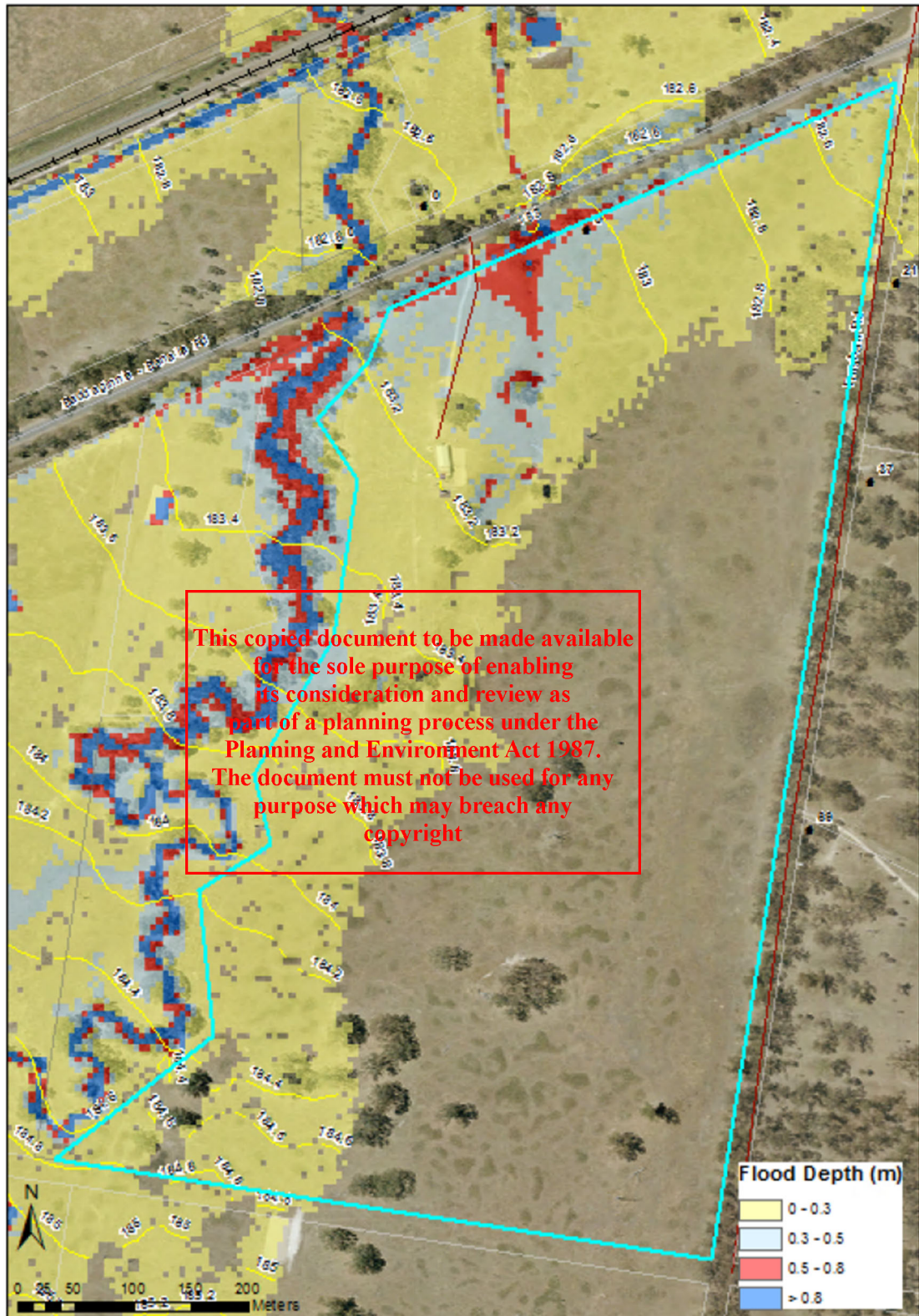
13.03-1S Floodplain management

Clause objectives:

“To assist the protection of:

- *Life, property and community infrastructure from flood hazard, including coastal inundation, riverine and overland flows.*
- *The natural flood carrying capacity of rivers, streams and floodways.*
- *The flood storage function of floodplains and waterways.*
- *Floodplain areas of environmental significance or of importance to river, wetland or coastal health.”*

**ADVERTISED
PLAN**



1% AEP flood depths and heights
 Source: Goulburn Broken CMA, 2019

The Goulburn Broken Regional Floodplain Management Strategy 2018-2028 does not contain any strategies specific to the proposal. The proposal is compatible with the flood function of the land as it is an unmanned facility that is extremely permeable in the event of a flood:

- The proposed solar panels would be affixed to 1.6 m high mounting poles. In the event of a flood, water would easily flow around the poles.
- The proposed fence is permeable in the event of a flood.
- If necessary, the BESS containers, PCS, transformer kiosk, and external switchboard would be raised on concrete footings to be elevated above the 1% AEP flood level.

13.05-1S Noise management

The Clause objective is: *“To assist the management of noise effects on sensitive land uses.”*

The development site is within an agricultural environment where 24-hour farming activities are routinely carried out throughout the year. The closest sensitive receptor to the development site is over 250 to the east at 21 Forshaw Road.

A Noise Impact Assessment was prepared for the proposal (**Appendix B**). Construction noise was not assessed, and it was determined that *“there are no site conditions or statutory requirements that would preclude this development from complying with the noise criteria.”*



Nearby sensitive receptors
Source: Google Maps

13.06-1S Air quality management

Clause objective: *“To assist the protection and improvement of air quality.”*

Construction

During construction, potential impacts to air quality include:

- An increase in particulate matter, carbon monoxide and nitrogen oxide emissions to the environment due to the combustion of fuel and resulting exhaust emissions.
- An increase in airborne dust to the environment due to:
 - construction operations

- building material handling activities
- onsite vehicle movements on unsealed road sand
- clearing of flora and vegetation exposing dust
- Dust emissions may be generated as a result of earthwork activities, particularly during dry and windy conditions. Excessive dust generation may be detrimental to human health, reduce visual amenity as well as smother vegetation and impact fauna.

Impacts due to the generation of dust and exhaust emissions would be short term and temporary. During construction, air quality impacts would be minimised by the implementation of air quality controls in accordance with best practice and suitable permit conditions.

Operation

Operation of the proposal is not expected to cause any significant adverse air quality impacts.

13.07-1S Land use compatibility

Clause objective: *“To protect community amenity, human health and safety while facilitating appropriate commercial, industrial, infrastructure or other uses with potential adverse off-site impacts.”*

Operation of the proposal may pose several hazards which may cause land use conflict, which are discussed below.

Heat island effect

No studies have been conducted on the potential for sub-5 MW solar farms to increase air temperatures in the surrounding area.

A study was undertaken on a large solar farm in Canada, with temperatures being measured at a height of 2.5 m within the photovoltaic (PV) field, and at several points up to 800 m from the outside of the PV array. The study found that:

“...air temperatures in the center of PV field can reach up to 1.9°C above the ambient temperature, and that this thermal energy completely dissipates to the environment at heights of 5 to 18 m. The data also show a prompt dissipation of thermal energy with distance from the solar farm, with the air temperatures approaching (within 0.3 °C) the ambient at about 300 m away of the perimeter of the solar farm.”

The study found that the temperature drops quickly within the first 100 m from the perimeter of the solar farm.

An Expert Witness Report was prepared by Ken Guthrie on behalf of the Planning Minister for several major solar farms in the Shepparton Local Government Area, which concluded that any increase in air temperature from the solar farms would be substantially reduced by landscaping.

The proposal may slightly increase air temperatures near the solar panels; however, this is not considered to cause any adverse impacts on the surrounding area. In addition, the proposed landscaping would reduce air temperatures.

Electromagnetic radiation (EMR)

Many components of the proposal produce varying levels of electromagnetic emissions.

Electromagnetic radiation (EMR) is the transfer of energy in the form of a stream of particle or electromagnetic waves. Electric and magnetic fields are present wherever electricity is generated, transmitted, or distributed in cables or powerlines, or consumed

in electrical devices such as TVs, computers or fridges. Since our modern lifestyle depends on the use of electricity, these fields are universally present in our environment.

Depending on its frequency or wavelength, electromagnetic radiation can be arranged into the following general classifications:

- Extremely Low Frequency (ELF)
- Very Low Frequency (VLF)
- Radio Frequency (RF)
- Microwave (MW)

ADVERTISED PLAN

Extremely low frequency radiation is radiation which occupies the lower end of the electromagnetic spectrum, specifically, in the frequency range of 0-3000 Hz. In Australia, electrical infrastructure operates at 50 Hz.

The proposal would produce electric and magnetic fields at a frequency of 50 Hz.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has produced guidelines that set a safe upper limit for exposure to electric and magnetic fields.

A study was undertaken of the electromagnetic fields produced by solar farms. The highest Extremely Low Frequency-Magnetic Field (ELF MF) levels measured were directly adjacent to the transformers and inverters, which were close to but still below the general public limit set by the ICNIRP.

The proposal is not expected to cause any adverse impacts through the emission of electromagnetic radiation.

Emergency management

The proposal would be monitored by on-site staff during work hours and monitored remotely during other times.

In the event of a fault or potentially dangerous situation an alarm would automatically report to staff, either those working at the facility or remote staff. There would be no audible alarm at the facility. The procedures and protocols for emergency situations would be set out in the operational management plan for the proposal.

The proposal is not expected to cause any land use conflict or adverse off-site impacts.

14.01-1S Protection of agricultural land

Clause objective: *“To protect the state’s agricultural base by preserving productive farmland.”*

The proposal involves the use of approximately 6.5 ha of the subject property for a solar farm and BESS. After construction, the applicant would offer the landowner the option to undertake grazing within the perimeter fence.

The facility would operate for about 30 years, after which it would either be upgraded or decommissioned. After decommissioning, the land would be able to be used for grazing or another agricultural purpose.

14.02-1S Catchment planning and management

Clause objective: *“To assist the protection and restoration of catchments, waterways, estuaries, bays, water bodies, groundwater, and the marine environment.”*

Existing environment

The western border of the subject property adjoins the riparian corridor of an unnamed ephemeral watercourse, which is a tributary of Baddaginnie Creek. There is another, minor tributary of Baddaginnie Creek in the northern portion of the subject property – west of the proposed development site.

Construction

Construction of the proposal has the potential to pollute water resources through:

- Erosion and sedimentation
- Contamination from hazardous chemicals used during construction

With the implementation of the safeguards detailed below/in the CEMP, construction of the proposal is not expected to cause adverse impacts on the water catchment.

Construction of the proposal is not expected to adversely impact on water resources.

Operation

The solar panels have a small footprint on the land. Due to this, the proposal is not expected to change the existing overland flow paths. Operation of the proposal is not expected to cause adverse impacts on the water catchment.

15.01-6S Design for rural areas

Clause objective: *"To ensure development respects valued areas of rural character."*

The proposal will result in a change in the visual appearance of the site. Visual change does not equate to a negative or detrimental impact, particularly when the views are only occasional or occur while driving along roads that are not primary tourist routes.

The development site is in a rural setting, where land modified by agricultural uses dominate. There are no Significant Landscape Overlays or local policies which identify important views or vistas which include the development site. In this regard, it is considered that visual change can be accommodated in the immediate area.

The development site is visible from Baddaginnie-Benalla Road and Forshaw Road, however trees in the road reserve obscure it from view.

The development site may be partly visible from the Hume Freeway and from nearby dwellings, though this visibility is to be obstructed from existing landscape features and the proposed landscaping.

Construction

During construction, temporary visual impacts may occur because of ground disturbance, the presence of equipment and materials within the work area and the presence of construction vehicles and personnel. Overall, the potential visual impacts of construction activities would be minimal as the works would be temporary and short term.

Operation

During operation, views of the proposal would be obscured by the proposed landscaping. Operation of the proposal is not expected to cause any significant adverse visual impacts.

**ADVERTISED
PLAN**

15.03-2S Aboriginal cultural heritage

Clause objective: *“To ensure the conservation of places of Aboriginal cultural heritage significance.”*

The development site is not within an area of Cultural Heritage sensitivity. An Aboriginal Cultural Heritage Management Plan is not required for the proposal. This assessment is given further credence, pursuant to the VCAT precedent in **Croke v Moira SC [2018] VCAT 1476 (21 September 2018)**.

This case touches upon the implications of ground disturbance in an ACHS – specifically in the context of an application for a renewable energy facility and auxiliary power connections. This determination also clearly states that the fenced compound forms a clearly defined limit as to what can be considered the area of high impact activity.

Consequently, as no part of the proposed facility or ancillary works are within the mapped ACHS, the preparation of a Cultural Heritage Management Plan is not a statutory requirement and is not considered necessary for this application.

An informal pre-application enquiry was submitted to the Yorta Yorta Nation Aboriginal Corporation, who conceded that a mandatory CHMP was not triggered under the Aboriginal Heritage Regulations.

Further, it is noted that Birdwood Energy has prepared a CEMP which outlines their legal obligations under the Aboriginal Heritage Act to protect cultural heritage during the construction and operation of the facility.

17.01-1S Diversified economy

Clause objective: *“To strengthen and diversify the economy.”*

Employment and labour impacts

During construction, which is expected to extend over six (6) months, the proposal will directly generate employment. During the peak of construction there would be 15-20 workers on the site each day. The main skills that will be required onsite for construction are civil, mechanical, and electrical trades, as well as commissioning. During construction, the proposal will also create employment and labour opportunities across its supply chains.

During operation, maintenance and repairs would be undertaken by local contractors where possible, which would generate local employment.

Increase in economic activity

An increase in economic activity within the local and regional areas is expected. The proposal would directly and indirectly - through its supply chains – create demand for goods and services, such as accommodation, food, construction materials, freight, and local labour. The increased income and spending of the construction workers and others across the supply chains, would also add to the stimulation of the local economies more broadly. It is likely that local businesses would be able to supply some of these services.

Farm diversification

It is the landholder’s opinion that the regular, ongoing, long-term income provided through the proposal will increase security of income as it is seen as an advantage to realise this type of income without increased costs (outgoings). In addition, the proposal provides the opportunity to diversify revenue streams without investing more money into the property which assists in long-term financial stability of the property.

17.01-1R Diversified economy – Hume

The Clause strategy is to: *“Encourage appropriate new and developing forms of industry, agriculture, tourism and alternative energy production.”*

The proposal supports the growth of Benalla through the provision of renewable energy infrastructure that brings economic growth and environmental benefits for the community and surrounding areas.

19.01-2S Renewable energy

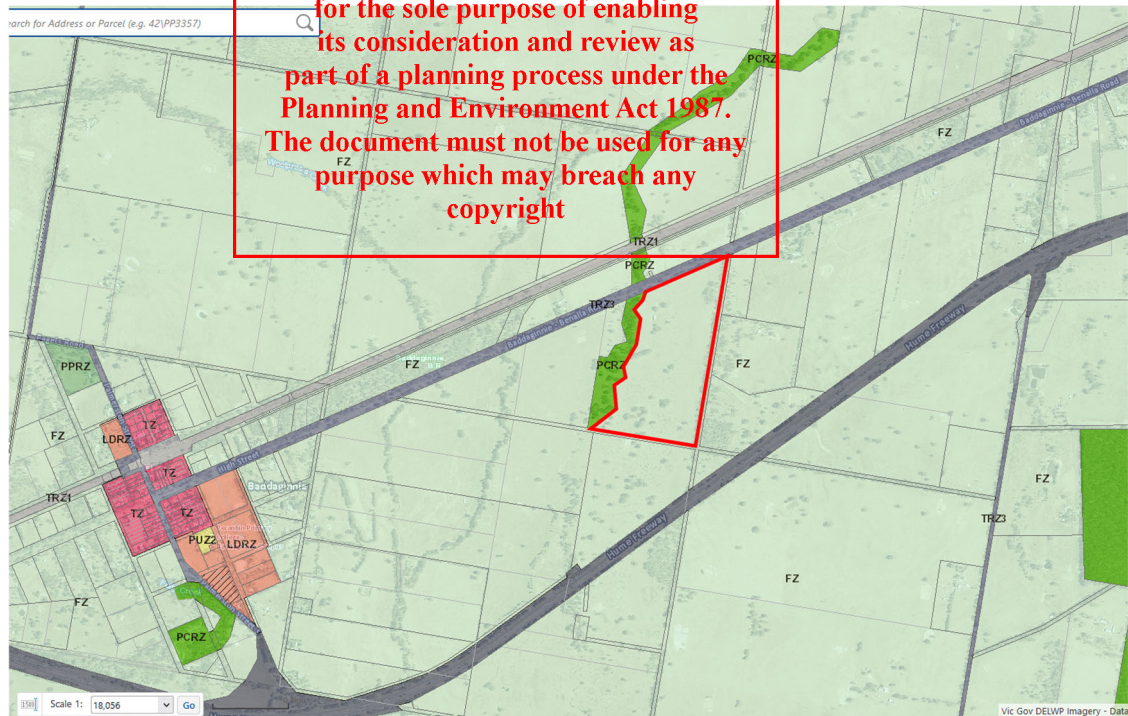
Clause objective: *“To support the provision and use of renewable energy in a manner that ensures appropriate siting and design considerations are met.”*

The closest power plants to Benalla are the 85 MW Winton Solar Farm and 149 MW Glenrowan West Solar Farm. Both facilities connect to the Glenrowan Terminal Station, which connects to Benalla Zone Substation via 66 kV transmission lines. Baddaginnie is supplied with electricity via 22 kV transmission lines from Benalla Zone Substation.

The proposal would produce and store electricity close to Benalla and Baddaginnie, which would reduce the need to import electricity from further sources.

11.3 Farming Zone (Clause 35.07)

The subject property is within the Farming Zone.



Baddaginnie Zone Map
Subject Site marked by red outlined, wholly within Farming Zone

The purposes of the Farming Zone relevant to this application are:

- *To provide for the use of land for agriculture.*
- *To encourage the retention of productive agricultural land.*
- *To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.*
- *To encourage the retention of employment and population to support rural communities.*

- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

The proposal involves the use of 6.5 ha of the subject property for a solar farm. After construction, the applicant would offer the landowner the option to undertake grazing within the perimeter fence.

The facility would operate for about 30 years, after which it would either be upgraded or decommissioned. After decommissioning, the land would be able to be used for grazing or another agricultural purpose.

The remainder of the subject property would continue to be used for grazing.

The proposal would not cause any land use conflicts with the surrounding agricultural land uses.

During operation, the proposal would use local contractors for maintenance and repairs, which would provide local employment. The proposal would not cause any significant adverse noise, air quality, traffic, biodiversity, or visual impacts.

The proposal is classified as a 'Solar Energy Facility' and requires a permit, in accordance with section 2 of Clause 35.07-1. A permit is required for buildings and works associated with a land use listed in section 2 of Clause 35.07-1.

The decision guidelines for the zone are addressed in the below table:

Guideline	Response
General issues	
The Municipal Planning Strategy and the Planning Policy Framework	Refer to the relevant sections and of this report.
Any Regional Catchment Strategy and associated plan applying to the land	N/A
The capability of the land to accommodate the proposed use or development, including the disposal of effluent.	The land has been assessed to be entirely capable of accommodating the proposed development as outlined throughout this report. No septic system is proposed.
How the use or development relates to sustainable land management.	The nature of construction is low impact, avoiding heavy duty foundations and disturbance to the land. During operation, the land within the perimeter fence would either be used for sheep grazing or maintained by contractors. Details of maintenance will be included in the Operational Environmental Management Plan (OEMP) for the facility.
Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.	The use and development of the land as a solar farm to produce renewable energy is an appropriate use of the land. The proposal would not conflict with the adjoining agricultural properties.
How the use and development makes use of existing infrastructure and services.	A 22 kV transmission line runs along Baddaginnie-Benalla Road, which the proposal would connect to.
Agricultural issues and the impacts from non-agricultural uses	
Whether the use or development will support and enhance agricultural production.	The proposal would complement the ongoing agricultural production on the subject property through diversification of income.

	After construction of the proposal, the applicant would offer the landowner the option to undertake grazing within the perimeter fence.
Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production.	The proposal would not adversely impact soil quality. The proposal would not permanently remove land from agricultural production. Most components of the proposal have a 30-year design life expectancy. If retrofit or upgrade is not proposed at the end of the proposal's useful life, the plant components would be decommissioned and removed from the development site. After decommissioning, the site would be able to be used for agriculture. The nature of the construction and installation methods are designed to be light-touch and avoid long-term or adverse impacts upon the soil quality or impact land for long term agricultural use as grazing land.
ADVERTISED PLAN	
The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.	The proposal would will be contained wholly within the development site and will produce no emissions of any kind; therefore, it will not impact the operation or expansion of adjacent nearby agricultural uses.
The capacity of the site to sustain the agricultural use.	The development site may maintain some agricultural use as light grazing land in conjunction with the renewable energy facility.
The agricultural qualities of the land such as soil quality, access to water and access to rural infrastructure.	The proposal would not affect the agricultural qualities of the land. Once the lifespan of the solar farm is complete, it would revert to its natural state maintaining the soil quality, access to water and improved vehicle access infrastructure.
Any integrated land management plan prepared for the site.	There is no integrated land management plan that applies to the site.
Whether Rural worker accommodation is necessary having regard to: <ul style="list-style-type: none"> The nature and scale of the agricultural use. The accessibility to residential areas and existing accommodation, and the remoteness of the location. 	No rural worker accommodation is proposed.
The duration of the use of the land for Rural worker accommodation.	N/A
Environmental issues	
The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality.	The proposal has been sited and designed to protect soil and water quality and other natural features of the site. The design and development of the facility has avoided and minimised changes to the local hydrology, with a separation to nearby overland flow paths.
The impact of the use or development on the flora and fauna on the site and its surrounds.	The proposal has been sited to minimise any impact on existing flora and fauna by taking into careful consideration the natural environmental features of the site including avoiding significant areas of established remnant trees.

This copied document to be made available for the sole purpose of fulfilling its consideration and objections part of a planning application to planning and access. The document must not be used for any purpose which may breach any copyright.

The need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area.	Vegetation removal is sought, which is addressed in the response to the relevant clauses and specialist ecological assessment..
The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.	N/A
Design and siting issues	
The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.	The proposal would be in the northeast corner of the subject property.
The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.	Although the proposal results in a different landscape character from the existing setting, its low profile will ensure that from ground-based viewing locations, only localised changes to the landscape character will result. The BESS, PCS and transformer kiosk would be clad with non-reflective materials and be finished in a natural or neutral colour. The proposal would be screened from view by a landscaping buffer.
The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.	The most visible changes to the landscape character of the existing setting will result to views from Baddaginnie-Benalla Road. However, following amelioration, comprised of the establishment of locally indigenous screening vegetation along the site perimeter, the landscape character will appear like the remainder of the regional agricultural landscape and other bands of vegetation that occur through the landscape of the region. The site's landscape setting has a generally high landscape absorptive capacity, as the topography does not allow for significant overlooking.
The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities.	Vehicle access is proposed to be provide from the east to Forshaw Road. A 22 kV transmission line runs along Baddaginnie-Benalla Road, which the proposal would connect to.
Whether the use and development will require traffic management measures.	During construction, traffic management will occur as per the Construction Management Plan. During operation, no traffic management is necessary due to the low traffic volumes accessing the facility.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1989. The document must not be used for any purpose which may breach any copyright.

11.4 Signs (Clause 52.05)

No signage is proposed.

11.5 Car Parking (Clause 52.06)

Pursuant to Clause 52.06-1, planning must consider the provision of car parking for all new land uses. The relevant purposes of this provision of the Scheme is:

ADVERTISED
PLAN

- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
- To support sustainable transport alternatives to the motor car.
- To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
- To ensure that car parking does not adversely affect the amenity of the locality.
- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

The provisions of Clause 52.06 do not prescribe a standardised car parking requirement for renewable energy facilities. Accordingly, Clause 52.06-6 defers car parking to be provided to the satisfaction of the responsible authority.

The proposed facility will be largely un-manned – capable of operating with irregular staffing that would be largely limited to maintenance and site inspections.

The most heavily staffed period of the site will be during the construction phase – where various contractors and machinery will be required for the construction duration.

Upon completion and establishment of the facility, persons accessing the site will typically be contractors with purpose-built vehicles and equipment, which would be driven directly to the point of work, rather than being parked in a designated space with the contractors walking to the work site.

Notwithstanding this, once construction is completed, the site amenities and storage area – just inside the front entrance gate – provides a logical and convenient location for periodical visitors to the site can park, if required.

This provision of car parking spaces would provide adequate car parking in scenarios where multiple contractors are required on the site concurrently. However, for the vast majority of the operation of the solar energy facility, the demand for car parking spaces would be zero.

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright.

In considering the relevant Decision Guidelines of Clause 52.06-10, and the information provided in this report, the provision of a designated car parking area is comfortably in excess of what would reasonable be required for an un-manned facility.

11.6 Native Vegetation (Clause 52.17)

The proposal involves the removal of three (3) large remnant trees and 6.153 ha of native grasses. Under Clause 52.17-1, a planning permit is required to remove native vegetation.

The extent of the proposed vegetation removal is illustrated in the below figure, within the red hatched area designated as “native vegetation impact”. The report also includes photographs of the trees that are proposed to be removed in accordance with the native vegetation assessment guidelines.

Despite the proposed remove of native vegetation, which is considered unavoidable due to the coverage of native grasses across the majority of the property, the development site has avoided the large patches of trees and understorey, which provide the major areas of biodiversity and habitat value on the subject site.

To substantiate these assertions, the applicant engaged Confluence Ecology and Community to undertake a due diligence ecological assessment. This assessment includes outlining the three-step approach of avoidance, minimisation and offsetting the loss of native vegetation.

It is considered that the loss of native vegetation for a renewable energy facility (and utility installation) is considered to provide net community benefit when weighing up the limited habitat value of the vegetation against the potential for renewable energy storage.

Lastly, as the vegetation would be offset, the proposal would lead to a net gain of native vegetation within the immediate EVC.



Proposed Vegetation to be removed

Native Grasses mapped by red hatched area, and trees #15, #19 & #60 to be removed marked accordingly



This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Tree #19

To east of proposed facility footprint, considered "lost" due to IPZ encroachment but will be retained



Trees #15 and #60

Located along western edge of the proposed solar farm and would be removed.

11.7 Renewable Energy Facility (Other than Wind Energy Facility)

The provisions of Clause 53.13 apply where it is proposed to use and develop land for a renewable energy facility. Consequently, the following application requirements are set out, as appropriate:

- **A site and context analysis, including:**
 - A site plan, photographs or other techniques to accurately describe the site and the surrounding area.
 - A location plan showing the full site area, local electricity grid, access roads to the site and direction and distance to nearby accommodation, hospital or education centre.
- **A design response, including:**
 - Detailed plans of the proposed development including, the layout and height of the facility and associated building and works, materials, reflectivity, colour, lighting, landscaping, the electricity distribution starting point (where the electricity will enter the distribution system), access roads and parking areas.
 - Accurate visual simulations illustrating the development in the context of the surrounding area and from key public view points.
 - The extent of vegetation removal and a rehabilitation plan for the site.
 - Written report and assessment, including:
 - An explanation of how the proposed design derives from and responds to the site analysis.
 - A description of the proposal, including the types of process to be utilised, materials to be stored and the treatment of waste.
 - the potential amenity impacts such as noise, glint, light spill, emissions to air, land or water, vibration, smell and electromagnetic interference.
 - the effect of traffic to be generated on roads.
 - the impact upon Aboriginal or non-Aboriginal cultural heritage.
 - the impact of the proposal on any species listed under the Flora and Fauna Guarantee Act 1988 or Environment Protection and Biodiversity Conservation Act 1999.
 - A statement of why the site is suitable for a renewable energy facility including, a calculation of the greenhouse benefits.
 - An environmental management plan including, a construction management plan, any rehabilitation and monitoring.

The above application requirements (where appropriate) are addressed at length within the relevant parts of this report. Clause 53.13 is a general provision that encompasses all renewable energy facilities, which includes solar energy facilities, but also extends to other renewable energy facilities. Consequently, not all provisions of this Clause are necessarily pertinent in all instances. For instance, a works approval is not required for a solar energy facility.

As a point of reference, various sources stipulate that the energy requirements to create a single MW of energy via conventional coal power can be as high as half a tonne per hour – representing a significant consumption of natural resources and carbon emissions where the proposed solar facility will continue to operate with zero emissions and only replacement of equipment being the major determinant of waste; however, these are dismantled, and all recoverable material separated and recycled.

The proposed site is flat, and the proposed landscaping (when mature) will be comfortably higher than the proposed solar panels and other installations, which will appropriately mitigate any siting and visual amenity concerns.

11.8 Decision Guidelines

The holistic considerations of the proposed renewable energy facility and the primary considerations of the proposal, including the merits of both preserving agricultural land against promoting renewable energy have been addressed at length in the various sub-sections of this report and the appended documentation.

Similarly, the orderly planning of the area, effect on the amenity of the area and other matters set out at **Clause 65.01** of the Benalla Planning Scheme for the **Approval of an application or plan** are addressed throughout various sections of this report. Accordingly, it is submitted that the proposal has been assessed against and deemed as being appropriate in terms of all relevant considerations.

12 Conclusion

This report was prepared to support the development of a sub-5 MW solar farm and BESS. The proposal should be supported for the following reasons:

- The proposal is generally in accordance with the relevant provisions of the Benalla Planning Scheme, particularly those relating to agriculture, catchment protection and renewable energy.
- The site is an ideal location for the proposal, being next to a 22 kV transmission line in a rural area.
- The proposal would not permanently remove land from agricultural production.
- The proposal maintains sustainable land management and may enable livestock grazing to operate whilst maximising the potential of the land to provide a source of renewable energy.
- The proposal is generally consistent with the purposes of the Farming Zone as it encourages the use and development of land for sustainable land management practices and infrastructure.
- The proposal would generate economic benefits through direct and indirect jobs during construction and operation.
- The proposal seeks to protect biodiversity and native vegetation where practicable, whilst further protecting the broader landscape through the design and layout of the solar farm.

It is therefore requested that the proposal be supported by the Minister for Planning and the planning permit application approved.

Chris Smith & Associates
Rev. 2, August 2024

**ADVERTISED
PLAN**