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PTY LTD

Planning Report

5MW Solar Energy Facility &
associated Utility Installations

1377 Plunkett Road, Barnawartha



**Southern
Sustainable
Electric**

Applicant: Southern Sustainable Electric

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**Southern
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Electric**

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5MW Solar Energy Facility
1377 Plunkett Road, Barnawartha

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1 Introduction

This report has been prepared by Chris Smith and Associates for Southern Sustainable Electric (Australia) Pty Ltd – referred to herein as “SSE”. The proposal is for a “small format” solar energy facility on land at 1377 Plunkett Road, approximately 650m north-west of the township of Barnawartha.

The facility is described as “small format” as it is to be considerably smaller than the majority of the other solar facilities that have been approved or contemplated across northern Victoria in recent years. The small format solar facility is rated to export 4.95 Megawatts of electricity to the distribution network and will occupy approximately 10.4 hectares of land, which is considerably less land than many facilities, that can spread across several hundred hectares of land.

The subject site has been selected based on its highly suitable attributes, in accordance with the *Solar Energy Facilities Design and Development Guidelines, August 2019*, as set out in this report, including direct access to 22kV powerlines.

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

- Hume Region Renewable Energy Roadmap
- Solar Energy Facilities Design & Development Guidelines, August 2019
- CFA Guidelines for Renewable Energy Installations, March 2021
- Indigo Planning Scheme

Supporting Documents

Plans and documents supporting this application are:

- Solar Farm Development Plans (JM2010018-B01-01[B], 2/07/21) by Mpower
- Barnawartha Solar Farm Site Selection Analysis by RenewableAge
- Barnawartha Solar Farm Visual Impact Assessment by RenewableAge
- Glint and Glare Assessment by Environmental Ethos
- Acoustic Assessment by ADP Consulting
- Ecological Assessment by Red-Gum Environmental
- Bushfire Risk Assessment by KV Planning Services
- Property Report (Agricultural Assessment) by Ruralco
- Barnawartha Solar Farm Preliminary Construction Environmental Management Plan by MPower

2 The SSE Small-Format Concept

Southern Sustainable Electric (SSE) is an established Australian-based renewable energy provider. Since its beginning in 2010, SSE has carried out a number of projects across Australia, including utility-scale solar facilities and solar energy solutions for commercial clients, as set out in its Capability Statement that is attached herewith in this application.

SSE has designed and built a number of 'small-format' solar facilities across Australia and is now focussing on northern Victoria to provide strategically-placed facilities that are to be positioned to feed straight into the distribution network, for use by the local community. SSE has engaged RenewableAge to assist with site selection and community engagement for the proposed facilities. For this project, SSE is partnering with Mpower, who will design, procure and install the solar facility's componentry.

The proposed small format solar facility using a tracking array provides the following community, environmental and economic benefits for the residents of northern Victoria:

- Affordable clean energy for the local community. The 5MW output will supply local businesses, industry and houses and will produce enough electricity to supply 1,000 average households.
- The panels are centre mounted on a single axis and are no more than 2.85 metres high at maximum tilt. This equates to less impact on the site, less materials and less construction which means less impact on the local community and roads during construction and less visual impact ongoing.
- Local employment opportunities: electrical and construction jobs to build and install the facility; operations, maintenance and security jobs will be required ongoing.



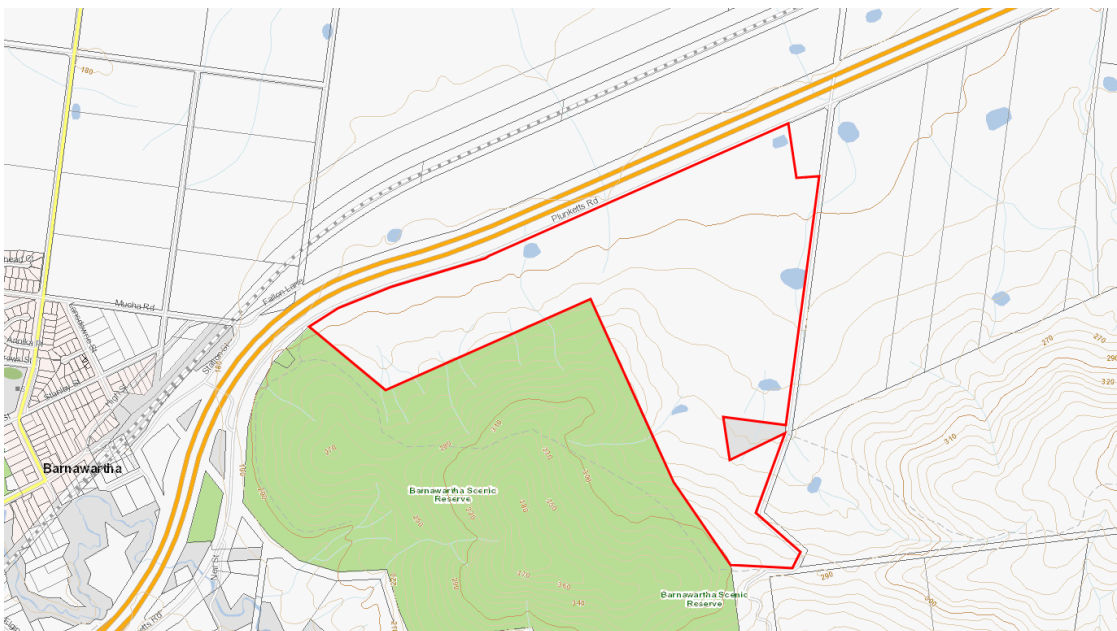
3 Site and Context Analysis

The proposed solar energy facility is to be built on land at 1377 Plunkett Road, Barnawartha – referred to herein as “the subject land”.

The subject land is an irregular-shaped, 90-hectare parcel, with frontage of approximately 1600m to Plunkett Road, a sealed rural access road that runs parallel to the Hume Freeway. The proposed facility will have an area of approximately 10.4ha and would be located towards the western corner of the of the subject land, so as to minimise the impact on the visual amenity of the surrounding area. The proposed location will be abutted by public land to the southern and western boundary, with the Hume Freeway to the north.

The subject land is largely open, cleared land, with the exception of several clearly planted rows of vegetation, with some scattered remnant trees across the property. The property rises gently from the northern boundary of the property, towards the Mount Lady Franklin Ranges, which rise sharply just beyond the property boundary to the south.

The property contains a single dwelling and several sheds related to the current agricultural use of the land. The dwelling is occupied by the landholder, who will retain ownership of the property under the proposal, with a lease agreement for the site of the proposed solar energy facility.



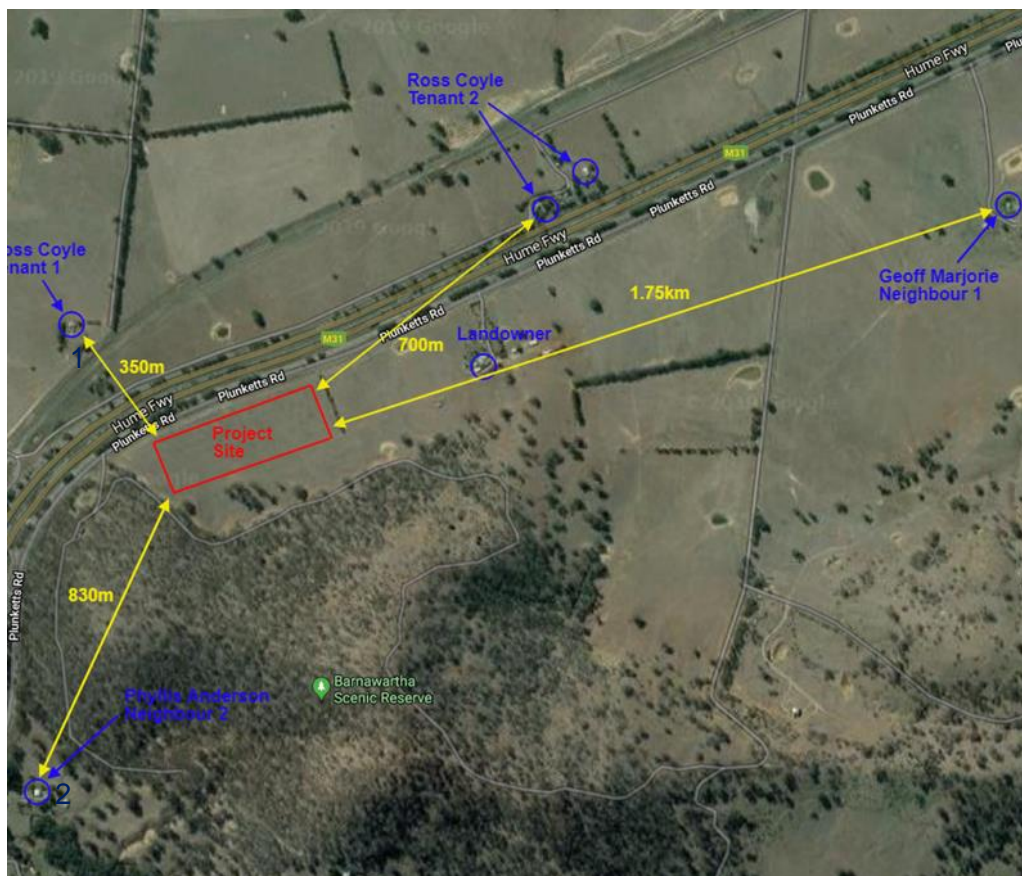
Topography of the subject land and surrounding area (Image: VicPlan)

3.1 Surrounding Context

The subject land is located approximately 340m east of Barnawartha – by direct measurement to the nearest urban zoned land, being an area of undeveloped land within the Low Density Residential Zone. This is, however, separated by the Hume Freeway.

The surrounding area is a mix of dryland agriculture, public land, larger industry and urban land.

- **East:** The east of the site is predominantly dryland agricultural land. The Mount Lady Franklin Ranges are a significant feature of the landscape to the east – reflected by the Significant Landscape Overlay.
- **West:** The Barnawartha township is located to the west of the subject land. It is a relatively small commuter settlement approximately 20km west of Wodonga. Beyond the township is the Chiltern Box-Ironbark National Park.
- **North:** North of the subject land is industrial zoned land for the Logic Centre – a national freight distribution hub.
- **South:** Immediately south of the subject land is the Barnawartha Scenic Reserve – a well vegetated hill with walking tracks accessible by the public. Further south is dryland agricultural land and a biodiesel processing facility.

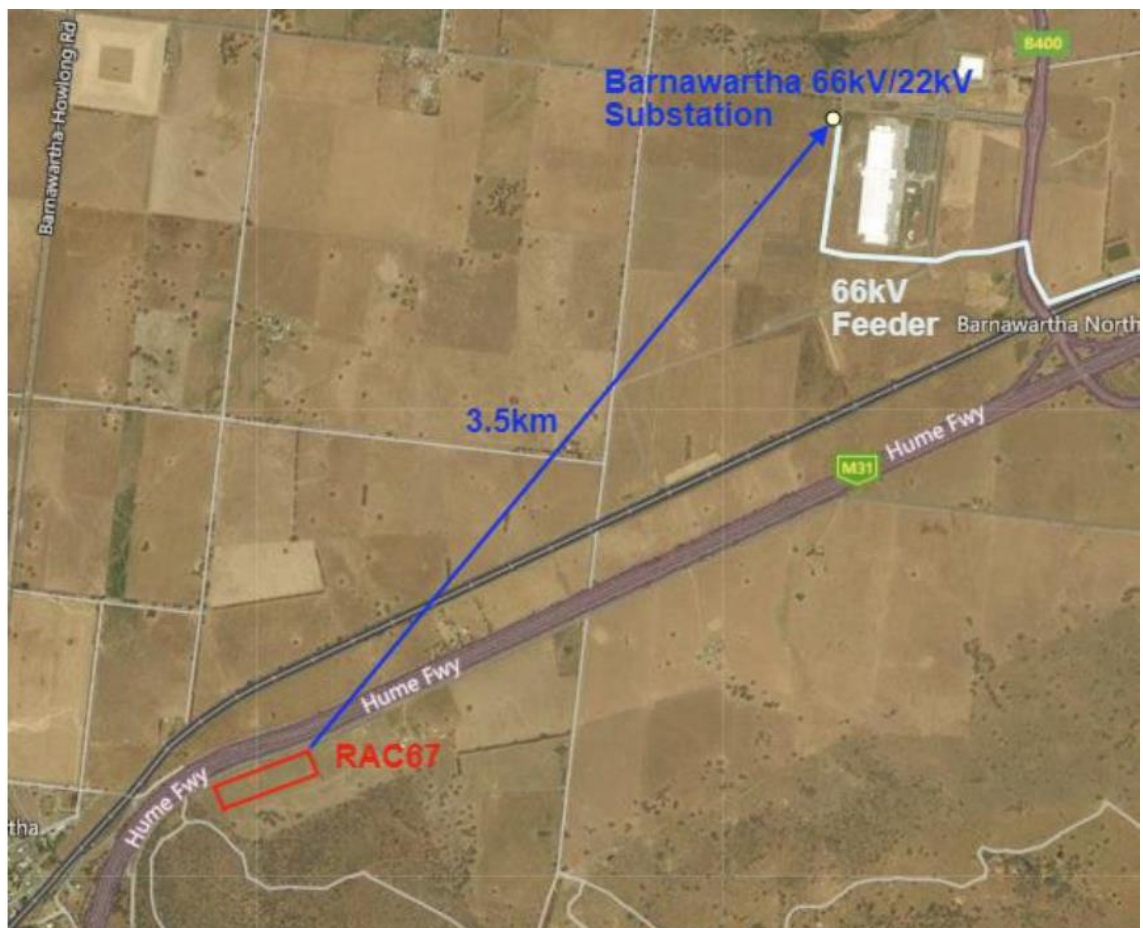


Locality Plan (extract of Figure 3 by RenewableAge)

The siting of the solar energy facility achieves the maximum setbacks from nearby dwellings. It is noted that the nearest dwellings by straight line distance (properties 1 and 3) are separated from the proposed facility by the Hume Freeway and the Melbourne-Sydney rail corridor; and the view of the facility from property 2 will be obscured by the Barnawartha Scenic Reserve.

The site is fronted by 22kV overhead distribution lines which pass under the Hume Freeway and then feeds into the Barnawartha substation, approximately 3.5km north-east of the subject land (as shown on the locality plan by RenewableAge).

The site is fronted by Plunkett Road, which runs adjacent to the Hume Freeway. Views to the facility from passing vehicles will be largely obscured by the freeway levee bank and patches of established vegetation – which when combined with the high speeds of passing freeway traffic will only allow fleeting views of the facility. It is not expected the facility will have a significant visual impact on the Hume Freeway Environs.



3.2 Existing Planning Controls

The subject land is within the **Farming Zone** and is partially affected by the Bushfire Management Overlay. The land is also in close proximity to the Significant Landscape Overlay, which operates under the Wodonga Planning Scheme. While the subject land is not affected directly, as purpose of the overlay is to protect the visual prominence

of the nearby hills, the provisions of the overlay have been considered in this application.

Adjoining land to the east is also in the Farming Zone. North of the subject land is the Hume Freeway in a Road Zone – Category 1, with land in the Farming Zone and Industrial 1 & 2 Zones at the site of the Logic freight distribution hub. Adjoining the land to the south and south-west is land in the Farming Zone and Public Conservation and Resource Zone. To the west is the township of Barnawartha which contains various residential and rural living zones, Commercial Zone, Public Park and Recreation Zone and Public Use Zones.

3.3 Other Statutory Controls

Bushfire Prone Area

The subject land, in addition to the surrounding area, is wholly within a designated **bushfire prone area**, as is much of rural and regional Victoria. This provision applies bushfire protection standards for new building works through the Building Code of Australia (BCA) under the Building Regulation 2018.

We are advised that the proposed facility does not include any buildings to which the BCA would apply; however, the proposal has been designed in accordance with the CFA's Guidelines for Renewable Energy Facilities to ensure that bushfire risk to the facility and surrounding land is mitigated to an acceptable level.

4 Proposal & Planning Permit Triggers

It is proposed to **use and develop** an approximately 10.4ha portion to the western corner of the property at 1377 Plunkett Road, Barnawartha, for a **solar energy facility**, as shown on the plans submitted herewith. The remainder of the approximately 90 ha property will be retained for continued agricultural use. The proposed solar facility has been designed in full consideration of the provisions of Clause 53.13 of the Indigo Planning Scheme.

It is also proposed to connect the proposed facility to existing AustNet electricity distribution network via a new overhead 22kV connection within the adjoining road reserve (Plunkett Road), immediately outside the property boundary. This connection is considered as a **utility installation** under the land use terms at Clause 73.03 of the Indigo Planning Scheme.

Lastly, as the site of the proposed facility location will impact remnant native grasses, this application seeks approval to **remove native vegetation**, there are no trees proposed to be removed as part of this application.

The proposal does not include any advertising signs (Clause 52.05 or any other matter requiring a planning permit).

4.1 Planning Permit Triggers

Under the Indigo Planning Scheme, a planning permit is triggered for the proposal under the provisions:

- 35.07-1 – To Use land for a renewable energy facility (other than Wind energy facility), which includes a solar energy facility, in the **Farming Zone**. The use must meet the requirements of Clause 53.13.
- 35.07-1 – To Use land for a utility installation (other than minor utility installation and telecommunications facility) in the **Farming Zone**.
- 35.07-4 – Building and works associated with the two abovementioned Section 2 Uses in the **Farming Zone**.
- 52.17-1 – To remove, destroy or lop native vegetation (native grass)

4.2 Proposal Summary

The proposed planning application seeks approval for a solar energy facility on a dryland paddock.

As a consequence of the proposed solar energy facility, this application also requires approval for the ancillary connection to the existing overhead power lines along the site frontage.

Lastly, as the current pasture grasses contain over 25% native grasses, this application seeks planning approval for the removal of native vegetation. A third-party credit will be purchased to offset of the loss of grasses.

4.3 Facility Components

The proposed solar energy facility, utility installation and associated works are to be as shown on the attached plans and supporting documents. Specifically, it will consist of:

- **11,664 solar panels**, on 208 arrays with 2 strings each (being a total of 432 strings with 27 panels each)
- **1 power station (SG4950HV-MV)** housing the 2 inverter units servicing the strings
- **Storage shed and 25,000 litre water tank**, positioned inside front gate. The shed will be used to store spare componentry (panels, cables, etc).
- **2.25m high chain mesh perimeter fence** around entire perimeter of facility, including two (2) gates – positioned to the front of compound, generally aligned with the inverters.
- **Overhead powerline cable** from central power station to proposed power pole
- **Pole and 22kV overhead powerline** augmentation to AusNet electricity distribution network on Plunkett Road.
- **Vehicle crossing (access point)** to the requirements of the Roads authority.
- **Internal access track** and associated facilities (car park, assembly area/unloading bays) for use during construction and for service operations and maintenance.

5 Victoria's Climate Change Strategy

Victoria's *Climate Change Act 2017*, outlines a comprehensive framework to achieve both emissions reduction and renewable energy targets by 2050

The strategy aims at reducing state's emission *up to 28-35% by 2025 and 45-50% by 2030 (Victoria Climate Change Strategy, 2021)* respectively.

The strategy delineates opportunities to cut out greenhouse gas emissions whilst acknowledging largest source of emission is energy sector. The cutting-edge policies and investments seek to drive emissions reductions not only in Victoria but across the National Electricity Market by reducing the amount of electricity we need to import from interstate and therefore reducing the amount of fossil fuel-based electricity generated by other states (*Victoria Climate Change Strategy., 2021 p.10*).

This strategy outlines a **five (5) point plan** to ensure Victoria's Net Zero Emission Future:

- **A clean Energy Economy**

"Globally, installed wind and solar capacity will exceed gas by 2023 and coal by 2024"

"By 2030, 50% of electricity generated in Victoria will be sourced from renewables"

- **Innovation for the future**
- **Resilient Farms and Forests**
- **Climate smart businesses and communities**
- **A climate resilient Victoria**

The proposed development represents a step for Victoria toward a renewable energy future, on land that is currently used for marginal agricultural use and contains limited identifiable biodiversity value.

6 Hume Region Renewable Energy Roadmap

The Hume Region has articulated its strong desire to support renewable energy by being the first Victorian region to finalise and adopt its Regional Renewable Energy Roadmap. The transformation to renewable energy provides the economic benefits of local job creation and access to cheap, clean energy; environmental benefits in response to climate change as well as social benefits such as education, energy justice and by infrastructure investment remaining in the local community.

The Hume Region Renewable Energy Roadmap sets out a high-level framework for what the region is trying to achieve and how it can achieve it in a coordinated and effective manner. It identifies the opportunities for the region and the reasons why it is suitable for renewable energy investment, especially due to its outstanding solar radiation levels.

The Hume region is truncated by major State-significant transmission lines that supply vast parts of the State and interconnect to New South Wales. However, large-scale

renewable energy generation is likely to become limited due to thermal limitations on the transmission grid. This is where the “small-scale” model – to provide a network of strategically distributed smaller solar facilities in locations where they can readily supply the local community – becomes integral to achieving the regions aspirations and expectations for renewable energy by providing regional opportunities for the benefit of the regional community.

7 Site Selection & Design Considerations

Clause 53.13 of all Victorian planning schemes is the key planning policy for the establishment of renewable energy facilities in appropriate locations and so they have minimal impact on the amenity of the area.

The ***Solar Energy Facilities Design & Development Guidelines, Aug 2019***, outline the key considerations for the use and development of solar facilities across Victoria.

The ***CFA Guidelines for Renewable Energy Installations, March 2021*** 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 been a primary source of reference throughout the entire project lifecycle from site selection through to design, proposed construction methods, operation and maintenance as well as decommissioning. 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 set out and responded to with Section 8.5.3 of this report.
- an overview/response to the relevant provisions of the DELWP Guidelines is below as Section 7.1; and
- a response to the relevant provisions of the CFA Guidelines is below in Section 7.2.

7.1 Solar Energy Facilities Design & Development Guidelines

These Guidelines provide an overview of best practice advice for developers of solar energy facilities in Victoria, which includes recommendations for community consultation, design, consideration of off-site impacts, construction, operation and decommissioning. In addition to the detail throughout this report, the considerations and applications set out in the Guidelines have been grouped and responded to under the following sub-heading themes.

Identifying suitable locations

SSE Australia’s business decision to facilitate a network of small-scale solar generation facilities across northern Victoria is based on a thorough research of many factors that contribute to a feasible and successful outcome. Northern Victoria has excellent solar resources and the Hume region is ready and willing to accept locally generated electricity into the State power grid.

The process of selection for appropriate sites is set out in the ***Site Selection Analysis*** report by RenewableAge, attached herewith; in particular – Section 3. Minimising

potential impacts to existing communities, environmental values and amenity are prime considerations. This can occur through impacts to views and amenity; loss of native vegetation, increased environmental risk (bushfire, flood, etc) or loss of productive agricultural land. These – and other relevant factors such as land availability, access and proximity to the electricity network – have been considered throughout the site selection process.

Existing electricity transmission network

The financial viability of a sub-5MW facility is dependent on the facility being within 100m 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, as shown in the image below.



View of existing overhead powerlines, view looking south across the subject land

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.

RenewableAge and SSE have been in discussions with AusNet Services to understand the new generation capacity of the Barnawartha substation and future electricity needs for the region. They have also investigated the thermal rating for the 22kV lines adjacent to the site and determined that there is capacity for the proposed facility.

SSE has begun negotiations with AusNet Services for a connection to the AusNet distribution network.

Managing cumulative effects in area

It is our understanding there is an approved solar facility approximately 400m north of the proposed facility by nearest straight-line measurement, at 229 Lady Franklin Road.

The facility has a generation capacity of 50MW and will cover an area of approximately 120ha.

The two facilities differ vastly in scope and size – with the proposal being for a ‘micro’ 5MW facility over approximately 10.4ha of land. The proposed facility will only occupy a small portion of the subject land – with the remainder to continue to be used for agricultural purposes.

Both facilities have been sited to minimise the visual impact on the surrounding area, particularly from the Hume Freeway. The proposed facility is located close to the property boundary, where the ground is lower, to minimise visibility from outside the property. The visual impact can be further softened through the use of landscape screening.

The solar facilities are one of a mix of uses in the immediate area, including agricultural, industrial and residential uses. Consideration has been given to the future requirements of different uses through land zoning and other measures. The cumulative impact of the solar facilities does not impinge on upon the current, or planned future expansion of, surrounding uses.

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.

Protecting environmental, site and amenity values

The site has been deemed suitable because of its reduced biodiversity value – i.e a total absence of any middle storey or overstorey species. The land does not contain any current mapped wetland. The property contains areas of scattered native trees; however, these are beyond the extent of the compound and will not be impacted by the proposal or any associated works.

The subject land is not in an area of cultural heritage sensitivity.

The site is not susceptible to flooding (not within a Land Subject to Inundation or Floodway Overlay).

Although the southern part of the site is affected by the Bushfire Management Overlay, the facility has been designed to comply with the CFA Guidelines for Renewable Energy Installations, 2019.

The site is not within an irrigation district or a designated water supply catchment.

We understand that the site is not identified as strategically important agricultural land, and this is evidenced by the abovementioned attributes review, its visual appearance and its low-value use (opportunistic/seasonal grazing) over past decades. The addition of a solar facility to the subject land will diversify farm income without impacting upon the agricultural productivity of the land.

The Draft Barnawartha Structure Plan (p. 36) rates the agricultural value of the subject land as mostly ‘Average Quality’ with a small section rated as ‘Good Quality’. However, the irregular shape of the allotment and the topography of the surrounding land restricts the potential productivity of the land that is proposed to contain the facility.

Minimising impact on landscape values

Solar facilities have the potential to create visual amenity impacts, dependent topography and landscape conditions in a site’s area and depending on citing, height,

size and magnitude of the facility. Detail as to how the proposal addresses specific impacts is provided below at Section 6.1.3.

The proposal is for a single block of solar tracking solar panels with a maximum height of approximately 2.85m. The land area of the facility is very small in comparison to most “standard-sized” facilities, that can occupy hundreds of hectares of land.

The proposal also includes one inverter station, a small storage shed and water tank (for firefighting reserves) within the compound as well as a kiosk at the electricity network connection point. None of these components are particularly large or visually intrusive. The facility does not include any batteries or other above-ground componentry.

The subject land is within the Farming Zone and many surrounding properties are used for seasonal grazing; however, north of the subject land is a large area zoned for industrial use.

The site is slightly undulating, to the south and east of the subject land are sharply rising hills. As such views to the facility are limited to the north-west side of the site. Views are further obscured by the Hume Freeway levee bank and patches of established vegetation within the road reserve.

Of particular note, the site’s interfaces include:

- South: The Barnawartha Scenic Reserve is a heavily vegetated public reserve centred around a steep hill, blocking views to the site from southern and western aspects.
- East: The remainder of the subject land is to the east of the site, including the landholder’s dwelling. The large lot size provides a significant separation between the proposed facility and the dwelling on the neighbouring property.
- West: The western boundaries of the property are also bounded by the Barnawartha Scenic Reserve, which obscures any potential views from the fringe of the township of Barnawartha.
- North: The frontage to Plunkett Road is to the northern boundary, which runs parallel to the Hume Freeway Reserve. Views to site will largely be restricted to the southbound lanes due to the topography of the land, which will be obscured by freeway levee bank and patches of established trees (see attached photos). The view from the northbound lanes – which face toward the protected views of the hills – will be mostly obscured by the topography of the land and the alignment of the road.

It is submitted that the proposal will have a limited impact on the locality, mostly due to the topography of the land, height and scale of the proposed facility, alignment of the road together with the freeway landscaping and vegetation which will make it very difficult to see the components of the proposed facility from active interfaces. 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; further, the proposed facility and the approved facility to the north are unlikely to be visible concurrently within the same view.

In the wider landscape, the Chiltern Box-Ironbark National Park is approximately 4km south and the Murray River Reserve approximately 7km northeast of the subject land. However, it is not considered that the proposal will have any impact on any of these facilities, considering the separation distance to each and the magnitude of the proposal.

Community Consultation

As a result of the current climate with regard to the COVID-19 pandemic apparent and restrictions were imposed by the State's Chief Health Officer, SSE has been unable to make any to approach neighbours in-person and have therefore not been able to undertake face-to-face consultation with all nearby neighbours as would have been typical practice.

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

RenewableAge has been in continued talks with closest neighbours, including two site visits and various telephone conversations prior to preparation of the planning application.

Design

The proposed facility has been designed in consultation with the nearest neighbour, as set out in the attached Site Selection Analysis report by RenewableAge. After initial consultation, the design was modified in terms of componentry, siting, location, and orientation.

The proposed solar panel block has been orientated to achieve the required solar exposure, which means it is oblique to the property boundaries and the offset to each boundary, as shown on the Site Layout Plan, is the minimum to the point/corner of the panel block, as follows:

- North: 14m to property boundary; the perimeter fence would be approximately 4m from the property boundary.
- South : 130m between nearest panel and the public reserve (Barnawartha Scenic Reserve);
- West: 41m to property boundary and perimeter fence to the public reserve (Barnawartha Scenic Reserve)

It is submitted that these setbacks are appropriate, as illustrated in the site and visual impact assessment prepared by RenewableAge. Additionally, these setbacks are to include at least ten (10) metres clear open space inside the compound for emergency access and fire separation – as per the CFA Guidelines.

Substantial setbacks are provided to neighbouring properties. The nearest property in private ownership with a common boundary is approximately 1km east of the nearest solar facility componentry. Other properties are separated by the Hume Freeway, which would have a considerably larger amenity impact when compared to that of the proposed solar facility.

Inverters have been positioned close to the panel arrays, and away from neighbouring properties.

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.

The facility will not have any external lighting, sirens or other security devices. It will be locked within a secure perimeter fence and monitored from remote and any issues

will be managed by a local security company, which provides a local employment opportunity.

The compound perimeter fence is located entirely inside the property boundary. This provides opportunity for movement of stock around the property and wildlife across the wider area.

Construction Stage

Once built, the facility will remain 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 submitted ***Preliminary Construction Environmental Management Plan*** by MPower includes a construction timeframe of approximately 6 to 9 months.

The Project Construction Brief sets out how construction activities will be carried out, including site logistics and traffic management; details of operations and equipment to be used; construction hours and site management.

The development of the site for a solar energy facility will require minimal earthworks; thus, there is less propensity for site and environmental impacts. It also equates to less materials, which means less site deliveries and less heavy traffic than more conventional systems. SSE intend to manage deliveries across the working week, which means that impact on the main road network due to construction traffic will be negligible –

- *“The primary construction phase of the project (defined as the period where heavy vehicle access will be required) will take approximately 4 months with an estimated daily average of 25 light vehicle and 5 heavy vehicle movements.*
- *During the short peak construction periods it is projected that up to an additional 30 vehicle movements per day may eventuate.*
- *Overall, the volume of traffic is not expected to have any material impact on the operation of the road network.”*

It is submitted that Plunkett Road will easily accommodate the abovementioned construction traffic without discernible disruption or safety impacts on existing road operations. The freeway interchange that feeds into Plunkett Road is designed to be capable of handling high volumes of B-double trucks, as such it is submitted the traffic impact on the Hume Freeway will be negligible. It is anticipated that a Traffic Management Plan – that will set out actions and measures to manage traffic during construction – will be a condition of the sought permit.

Operation Stage

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 and would have a form lesser than a single-storey building – with the highest point being approximately 2.85m, it is considered that it will have minimal impact on the landscape. Nevertheless, the following subheadings address the specified operational impacts that community has questioned 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.

The inverter station (MVPS) and MVSS - to be installed as part of the facility - are proprietary built components within insulated cabinetry that are designed to be installed and safely operate in open conditions. We are advised that EMR from these types of components dissipates to indistinguishable levels over about 5 to 10 metres.

The MVSS is located opposite the point of connection. Both the MVSS and inverter station are located approximately 40 metres inside the front property boundary and inside the compound fence. Therefore, the components are located well away from the nearest house and sufficiently clear of any land that would be able to be accessed.

Heat island effect

In recent high-profile proposals, the community has raised concern for 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

The overview of an environmental management plan (EMP) is provided within the Project Construction Brief by MPower. However, it is anticipated that a detailed EMP will be required as a condition of the sought permit.

The EMP 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 alarm reporting to 'on-call' staff will occur automatically 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.

The site is partially affected by the Bushfire Management Overlay, with the entire property being within a designated bushfire prone area. The proposal has been considered against the CFA "*Guidelines for Renewable Energy Installations*" March 2021, as set out below in the relevant Section of this report.

Site access and traffic management

The subject land does not currently have an appropriate vehicle access point from Plunkett Road, which is a local road managed by Council. Accordingly, a new access will be required to the satisfaction of the responsible authority. It is anticipated this will be included as a condition of the sought permit.

The site's direct main road abuttal is an advantage for construction, operation, maintenance and security of the proposed facility. During the construction period, the site will be accessed by an average of 30 vehicles on each working day.

Componentry delivery will occur across the first three weeks of the construction period in a total of 30 shipping containers. The delivery trucks will be sequenced across the period at an average of up to four or six trucks in any given day.

Decommissioning

The majority of components of proposed facility (including panels) has 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 beyond 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 industrial or 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, as set out in the accompanying Project Construction Brief by SSE.

7.2 CFA Guidelines for Renewable Energy Installations

The Country Fire Authority (CFA) published its *Guidelines for Renewable Energy Installations*, in February 2019, in response to the Victoria's transition to renewable energy sources.

Subsequently, amendments to these Guidelines were incorporated in March 2021. Of relevance to the proposed facility, these amendments include specific provisions for Micro Solar Farms (being solar farms that typically have site areas of approximately 10ha to 15ha).

Further to the assessment of the development of the facility layout against the CFA's Guidelines in this report, the applicant has engaged KH Bushfire Planning to undertake a bushfire risk assessment – which is provided as **Appendix B** to this report.

The below subsections respond to the guidelines, as appropriate to the proposal.

1. Development of Installations

The proposal does not include batteries, and we are advised that there will be no storage of dangerous goods or buildings that require compliance with the National Construction Code.

The information details set out in the guidelines are provided herein throughout this report and the supporting documents, including a Project Construction Brief by SSE. A detailed construction management plan, including emergency and risk management during construction will be developed prior to construction commencing.

2. Emergency Management

The CFA requires that facility operators develop an emergency management plan consistent with the requirements of Australian Standard 3745, including a fire management plan that specifically addresses risk management measures specific to fire risk and a fuel (vegetation) management plan. This will include site induction and risk overview for any staff or contractors accessing the facility.

It is considered that this requirement will be included in the conditions on the sought permit, to be provided and approved prior commencement of construction. The facility is to be provided with a clear perimeter for access and to provide a fire break between electrical installations and adjoining land.

Any understorey will be managed by appropriately qualified contractors to manage grass, as necessary.

3. Site Infrastructure

The provisions to be considered for **access** have been considered and incorporated into the facility design, as appropriate, including:

- Provision of a four (4) metre wide access road for the entire perimeter of the facility. The road will be of all-weather construction and capable of accommodating a vehicle of fifteen (15) tonnes, with 4m height clearance and flat grade.
- There will be six (5) metre wide passing bays provided at suitable distances to allow all-weather two-way access for emergency vehicles.
- Provision of a ten (10) metre perimeter fire break, that will allow fire and emergency vehicle access around the entire facility.

The provisions to be considered for **firefighting water supply** have been considered and incorporated into the facility design, as appropriate, including:

- Provision of an above-ground 25,000 litre static water storage tank, located directly inside the facility main gate, where it is accessible and suitable for use by fire personnel – as per Clause 6.5.2 of the Guidelines for Micro Solar Farms.
- The tank can be installed and maintained as per the CFA conditions, including all weather access, a hard-suction point that is positioned and of correct fitting type so that it is usable by fire personnel; protected from mechanical damage (i.e., bollards) and with an external water level indicator and signage.

4. Site Operation

A 10-metre firebreak is to be provided between the compound perimeter fence and all componentry such as the solar panels, inverters and switching station. It is submitted that suitable conditions will be included in the sought permit to mandate the **Fuel/Vegetation Management** requirements within the guidelines are achieved as part of “standard operational management’ of the site and the facility.

5. Wind Facilities

The provisions of Section 5 – Wind Facilities **are not applicable to the current application** as the proposal is for a solar energy facility, only.

6. Solar Facilities

Section 6.5 of the guidelines includes conditions that are particular to Micro Solar Farms – being solar energy facilities up to and including 5MW, including:

- *Solar facilities are to have a 6-metre separation between solar panel banks/rows.*
- *Solar farm operators must provide specifications for safe operating conditions for temperature and the safety issues related to electricity generation, including isolation and shut-down procedures, if solar panels are involved in fire. This information must be provided within the content of the Emergency Information Book.*
- *Solar arrays are to have grass vegetation maintained to 100mm under the array installation or mineral earth or non-combustible mulch such as stone.*

Pursuant to 6.5.3, the solar bank considerations may be disregarded for Micro Solar Farms.

It is submitted that the facility operator will provide the required information and uphold the other solar facility specific requirements, prior to commencement of use. This would be implemented though conditions on the sought permit.

7. Battery Installations

As the proposed facility does not include batteries, the design considerations of Section 7 of the Guidelines have not been incorporated into this application.

8 Indigo Planning Scheme

The proposed development has been assessed against the relevant Clauses of the Indigo Planning Scheme, specifically:

11	Settlement
13	Environmental Risks
14	Natural Resource Management
15	Built Environment and Heritage
17	Economic Development
19	Infrastructure
21.03-2	Landscape Character
21.04-2	Bushfire
21.04-3	Climate Change
21.05-1	Agriculture
21.06-1	Industry
22.01	Settlement and Infrastructure
22.03	Environment
35.07	Farming Zone (FZ1)
44.06	Bushfire Management Overlay
52.06	Car Parking
53.13	Renewable Energy Facility
53.29	Land Adjacent to Road Zone Category 1...
65	Decision Guidelines

Further, owing to the site's abuttal to the Wodonga Council municipal area, this application has also been assessed against the following provisions of the **Wodonga Planning Scheme – refer to Section 8 of this report:**

21.04	Environmental and Landscape Values
42.03	Significant Landscape Overlay

As there is no development proposed within the Wodonga municipality, there is statutory obligation to undertake a formal assessment against the Wodonga Planning Scheme. However, this application includes an assessment of necessary provisions of the Wodonga Planning Scheme as a matter of due diligence in light of the wider impacts of planning controls – in this instance, to manage any potential landscape impacts.

8.1 Planning Policy Framework

11.01 Settlement

Planning is to anticipate and respond to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.

Planning is to recognise the need for, and as far as practicable contribute towards [relevant matters included below]:

- *Health and safety.*
- *Diversity of choice.*
- *Adaptation in response to changing technology.*
- *Economic viability.*
- *A high standard of urban design and amenity.*
- *Energy efficiency.*
- *Accessibility.*
- *Land use and transport integration.*

Planning is to:

- *prevent environmental problems created by siting incompatible land uses close together; and*
- *facilitate sustainable development that takes full advantage of existing settlement patterns, and investment in transport and communication, water and sewerage and social facilities*

Clause 11.01 sets out the need for planning to provide land for a range uses in response to the needs of existing and future communities. As detailed throughout this report, careful consideration has been given in the site selection and use of the small format solar technology to minimally impact upon adjoining agricultural uses, visual amenity of the surrounding landscape and the future residential growth areas of Barnawartha.

11.03-5S Distinctive areas and landscapes

- *To protect and enhance the valued attributes of identified distinctive areas and landscapes*

The siting of the solar facility on the subject land has taken into consideration the impact on the surrounding landscape, which identifies the nearby hills and ranges as significant. The solar panels will maintain a low visual profile for the solar facility, with the panels when mounted having a height of less than 3m from ground level. The view to the solar facility will be partially obstructed from view from the Hume Freeway by an embankment and existing roadside vegetation. Further landscape screening will be provided to further reduce visual impact.

13.02-1S Bushfire planning

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

The subject land and the proposed footprint of the solar facility are partially affected by the Bushfire Management Overlay. A bushfire risk assessment has been prepared by KH Planning Services to analyse both the potential risk to the solar facility and the potential bushfire risk to the town and wider area by the facility.

The facility's design has been informed by the *CFA Guidelines for Renewable Energy Installations*. An assessment against the guidelines can be found at Section 6.2 of this report.

13.05-1S Noise Abatement

- *To assist the control of noise effects on sensitive land uses.*

When operational, the facility will be unmanned. Noise generated from the operation of the facility will largely be limited to periodical service and maintenance vehicles

attending the site. The site is located within the Farming Zone; therefore, any noise generated from activity on the site would be required to meet the requirements of the EPA Victoria's *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues*.

An Acoustic Assessment has been undertaken by ADP Consulting, which identified that any noise emissions would be comply with these standards at all sensitive receptors – namely the nearest dwellings and nature reserve.

14.01-1S Protection of Agricultural Land

- *To protect the state's agricultural base by preserving productive farmland.*

The site has been selected based on its apparent marginal agricultural value, including a lack of irrigation and on-farm improvements. The subject land is not considered of state or local significance.

The construction footprint of the facility will be limited to a 10.4ha area toward the western corner of the irregular shaped lot. The balance of the subject land will remain available for its agricultural use.

If at any time in the future the solar farm is decommissioned, the solar facility components are easily removed and the land returned to agricultural use without significant disturbance of the land.

14.01-2S Sustainable Agricultural Land Use

- *To encourage sustainable agricultural land use.*

The clause supports “*innovative and sustainable approaches to agricultural and associated rural land use practices*”, as well as diversification and flexibility to adjust to market changes. It is submitted the proposed solar facility is an ‘associated rural land use’, as the land required for solar energy facilities is most likely to be found in rural areas. The proposed solar facility allows for diversification of the use of the land without compromising agricultural productivity on the subject land or surrounds.

14.01-2R Agricultural productivity – Hume

- *Take advantage of locational opportunities, including separation from sensitive land uses and access to transport, power, water and communications infrastructure.*

Clause 14.01-2R provides regional level policy in support of the objectives of Clause 14. Through the thorough site selection process, the location was chosen for its good access to the infrastructure and land required for the solar facility – while maintaining visual and physical separation from sensitive land uses.

15.02-1S Energy and Resource Efficiency

- *To encourage land use and development that is energy and resource efficient, supports a cooler environment and minimises greenhouse gas emissions.*

The proposed solar facility will increase energy efficiency and minimise greenhouse gas emissions through the localised generation of energy from a low-carbon source.

17.01-1S Diversified Economy

- *To strengthen and diversify the economy.*

The use and development of land is supported by planning policy that promotes the diversification of the economy, specifically to:

- *Protect and strengthen existing and planned employment areas and plan for new employment areas.*
- *Facilitate regional, cross-border and inter-regional relationships to harness emerging economic opportunities.*
- *Facilitate growth in a range of employment sectors, including health, education, retail, tourism, knowledge industries and professional and technical services based on the emerging and existing strengths of each region.*
- *Improve access to jobs closer to where people live.*
- *Support rural economies to grow and diversify.*

The proposed solar facility will strengthen access to employment in the region in the construction phase and through the ongoing operation and maintenance of the facility. The site's location on the Hume Freeway provides good access to employment for numerous nearby communities, including Barnawartha, Wodonga and Chiltern.

17.01-1R Diversified Economy – Hume

- *Encourage appropriate new and developing forms of industry, agriculture, tourism and alternative energy production.*

The proposed solar facility will contribute to the emerging renewable energy industry in the region. Jobs created through the project will contribute to the creation of a skilled workforce in the renewable energy industry and will support the diversification of the local economy and potentially stimulate further investment in industry within the region.

17.01-2S Innovation and Research

- *To create opportunities for innovation and the knowledge economy within existing and emerging industries, research and education.*

The proposal supports the emerging renewable energy industry in the region, with several other solar projects at various stages of completion taking place in both the shire and the wider Hume region.

19.01-1S Energy Supply

- *To facilitate appropriate development of energy supply infrastructure.*

Clause 19.01-2S supports development of energy supply infrastructure in 'appropriate locations'. Extensive analysis was undertaken by the applicant in selecting the site taking into account access to existing infrastructure. The project is proposed to use existing transmission lines on the subject land which will provide connection to the nearest substation, being 3.5km northeast of the site.

The site is also located close to existing settlements to provide local power generation which will support local grid security and the transition to a low carbon economy.

19.01-2S Renewable Energy

- *To promote the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met.*

Planning policy supports the development of renewable energy infrastructure in 'appropriate locations'. It is considered that given the scale of solar facilities that suitable land is most likely to be found in the Farming Zone.

The proposed facility will generate approximately 5MW of generation capacity which will feed into the local grid to the direct benefit of nearby residents and businesses.

Effects of the facility on the environment, particularly the visual impact of the facility on the significant hills and ranges. Adverse impacts on vistas are mitigated by the existing landscape features – the freeway cutting and roadside trees obstruct view lines so that at most, only fleeting views of the facility will be visible from the Hume Freeway. The topography of the land will screen the site from the view of most surrounding residents and will not be visible from the township of Barnawartha. **19.01-2R Renewable Energy - Hume**

- *Create renewable energy hubs that support co-location of industries to maximise resource use efficiency and minimise waste generation.*

The planning scheme encourages the establishment of the renewable energy industry in the Hume Region. The proposed solar facility would be one of several solar energy facilities to establish in the area, contributing to the creation of a 'renewable energy hub'.

8.2 Local Planning Policy Framework

21.04-3 Economic Development

Clause 21.04-2 sets out the key issues and challenges in relation to economic development. Issues identified include:

- *Protection of agricultural land for current and future agricultural production.*
- *Expansion and diversification of the rural economy*

The proposed solar facility responds to both of the above issues by diversifying the rural economy while retaining a significant portion of the subject land for agricultural use. Further the clause supports:

- *more intensive and diversified use of rural land for higher value products in appropriate localities, which are compatible with surrounding land uses.*

It is submitted the proposed solar energy facility both intensifies and diversifies the use of rural land from its current use of dryland agriculture. The solar facility will be a low-impact use that will allow agricultural pursuits to continue largely unabated both the subject property and surrounds. The subject land is not identified as high-quality agricultural land on the Indigo Shire Municipal Strategic Framework Map.

22.01-4 Hume Freeway environs

- *To ensure that the use and development of land does not prejudice the levels of service, safety and amenity of the Hume Freeway.*

Clause 22.01-4 sets out the framework for the use and development of land within 100m of the Hume Freeway. It is considered the proposed solar facility will not impact upon the safety or amenity of the Hume Freeway as it will largely be obstructed from view by existing landscaping and roadside trees.

A visual impact assessment has been prepared by RenewableAge to illustrate this.

22.01-6 Rural Land Use Policy

- *To ensure the use of land is in conjunction with agricultural production.*

- *To promote the long-term sustainable use of agricultural land regardless of quality*
- *To support local employment and value adding opportunities in rural areas*

The proposed solar facility will operate in conjunction with existing agricultural uses, rather than supplanting them. The operation of the facility is not expected to have a large impact on the use of the surrounding land, which is expected to continue unabated.

The long-term sustainability of the agricultural land will not be compromised by the construction or operation of the solar facility. The proposed solar arrays are easily removed without significant ground disturbance in the event the facility was to be decommissioned for any reason in the future.

22.03-2 Fire hazard

- *To ensure that new land uses and development do not increase the level of fire risk.*
- *To ensure that new land use and development includes adequate fire protection measures.*

The proposed solar facility has been designed in accordance with the CFA Guidelines for Renewable Energy Installations. An assessment against the Guidelines can be found within the relevant Section of this report.

A bushfire risk assessment has been prepared by a suitably qualified consultant (KH Planning Services) to illustrate how fire risk will be mitigated; both to the facility and the potential off-site risk the facility may pose to the surrounding landscapes and town.

22.03-5 Classified National Trust landscapes

The subject land adjoins the Lady Franklin Range, which is a National Trust of Australia (Victoria) classified landscape deemed to have a local level of significance for the steeply rising range of hills in contrast with the surrounding landscape – as identified in the incorporated document, *Classified National Trust Landscapes applying to the Shire of Indigo, 1998*.

A Significant Landscape Overlay (SLO) applies to the ranges to the east of the site – within the Wodonga Council LGA. The subject land is not directly affected by the Overlay, but consideration has been given to the visual impact of the facility on the landscape, as well as the applicable provisions of the Wodonga Planning Scheme – refer to Section 9 of this report.

The clause seeks to protect the visual quality of the ranges by ensuring inappropriate development does not adversely affect the views of the ranges. The proposed solar facility has a relatively small footprint for a solar farm, with the development site only spanning a 10.4ha area. The facility will be located on the relatively flat land at the base of the ranges, limiting visibility of the site to only fleeting glimpses from fast moving traffic on the Hume Freeway. The site will not be visible from the nearby town of Barnawartha.

8.3 Farming Zone



Site and Locality Zone Map (Source: VicPlan)

The subject land is located entirely within the Farming Zone. Clause 35.07-6 sets out the decision guidelines for applications within the Farming Zone – which are set out and responded to below:

General issues

- Any *Regional Catchment Strategy* and associated plan applying to the land.
- The capability of the land to accommodate the proposed use or development, including the disposal of effluent.
- How the use or development relates to sustainable land management.
- Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.
- How the use and development makes use of existing infrastructure and services.

There are no mapped wetlands near the proposed solar facility – nor is the land identified as being subject to risk from flooding. The North East Catchment Management Strategy applies to the land. While not mentioning renewable energy specifically, the plan supports “*profitable, diversified farm businesses*” as a means of supporting a productive agricultural industry. The built form of the solar energy facility is such that it would not impede any overland flow paths.

The subject land is well capable of accommodating the proposed solar facility without unduly impacting upon agricultural production or sensitive landscapes. No effluent will be generated from this proposal – no permanent staff will be on site.

The site is located adjacent to existing power infrastructure, allowing for efficient transmission of electricity into the grid without the need or extensive private infrastructure that would further impact upon agricultural land.

Agricultural issues and the impacts from non-agricultural uses

- *Whether the use or development will support and enhance agricultural production.*
- *Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production.*
- *The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.*
- *The capacity of the site to sustain the agricultural use.*
- *The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure.*
- *Any integrated land management plan prepared for the site.*

The proposed facility will allow the surrounding agricultural uses to continue unaffected by the operation of the facility. The facility will diversify farming activities on the subject land, contributing to a resilient and profitable agricultural industry in the region.

The proposed facility will require limited ground disturbance for installation and decommissioning. It is therefore considered that the land could easily be returned to agricultural production, should the facility be decommissioned in the future.

The site will only occupy an area of approximately 10.4ha, which in itself will not significantly impact upon the agricultural productivity of the surrounding land. The solar facility is sited to the western corner of the subject land where it is abutted by public land to three sides. It is therefore unlikely to limit operation or expansion of agricultural uses in the future.

The subject land is not identified as strategically important agricultural land by State or local policy. The land is not irrigated – nor does it have significant on farm improvements.

No integrated land management plan applies to the site.

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 impact of the use or development on the flora and fauna on the site and its surrounds.*
- *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.*
- *The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.*

The proposed solar facility is not expected to have a significant impact on natural physical features. Minimal soil disturbance will be caused by the installation and operation of the facility.

The proposed solar facility will not require the removal of any established trees, the only native vegetation to be removed will be some remnant grass patches which have been assessed for their biodiversity value. Impacts on flora and fauna are expected to be minimal and the offsetting of these grasses is considered to be an appropriate outcome.

No effluent will be generated by the operation of the facility.

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 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.*
- *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 location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities.*
- *Whether the use and development will require traffic management measures.*

The facility will have a relatively small footprint on the subject land overall. The site will occupy approximately 10.4ha of the approximately 90ha property and be contained within a security fence.

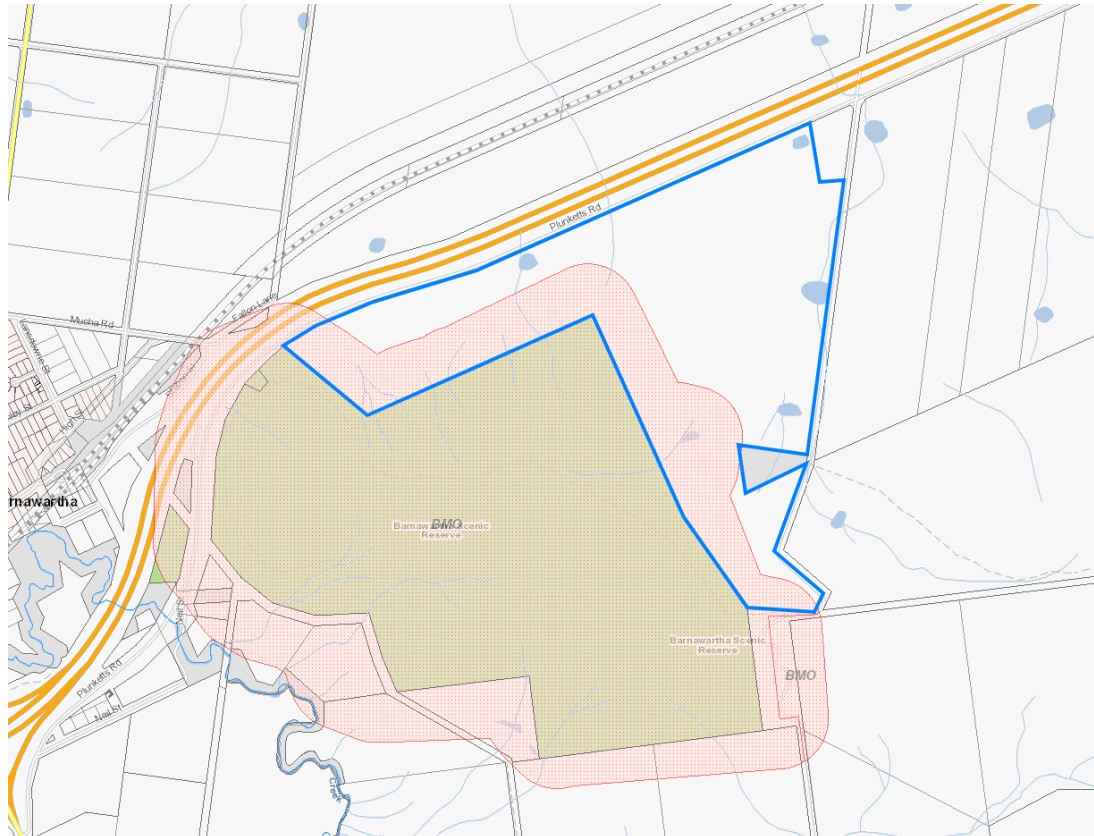
The siting of the facility has been designed to minimise the visual impact of the facility, particularly in relation to the surrounding ranges. The solar panels will have a maximum height of approximately 2.85m from ground level. The view to the facility will be largely obscured from the freeway by a large earth bank, roadside vegetation and the natural topography of the land.

The proposal does not require the creation of new roads or sewerage facilities. Appropriate power infrastructure is available nearby for the efficient transmission of power generated into the grid.

The site will be accessed from Plunketts Road, minimal, if any, traffic management measures will be required during the construction phase. When operational the site will be unmanned and will not generate a significant amount of traffic outside of intermittent access by service and maintenance vehicles.

8.4 Bushfire Management Overlay

The subject land is partially affected by the Bushfire management Overlay (BMO). The purpose of the BMO is to ensure risk posed to life and property by development is appropriately managed.



Bushfire Management Overlay

A planning permit is not triggered for a solar energy facility under the BMO; however, as the proposal is considered to be a matter of community interest, the applicant has engaged KH Planning Services to prepare bushfire emergency management plan – provided with this report.

The site has incorporated design recommendations of the CFA guidelines for renewable energy facilities, of particular relevance is the provision of a static water supply and full perimeter track with passing lanes – all of which are provided beyond the requirements of the CFA's requirements for Micro Solar Farms.

8.5 Particular Provisions

Clause 52.06 Car Parking

The purpose of Clause 52.06-1 includes: *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.*

There is no prescribed car parking rate for renewable energy facilities at Table 1 in Clause 52.06. Notwithstanding this, an empirical car parking analysis has been undertaken to ensure car parking for the facility is appropriate, safe and convenient for users.

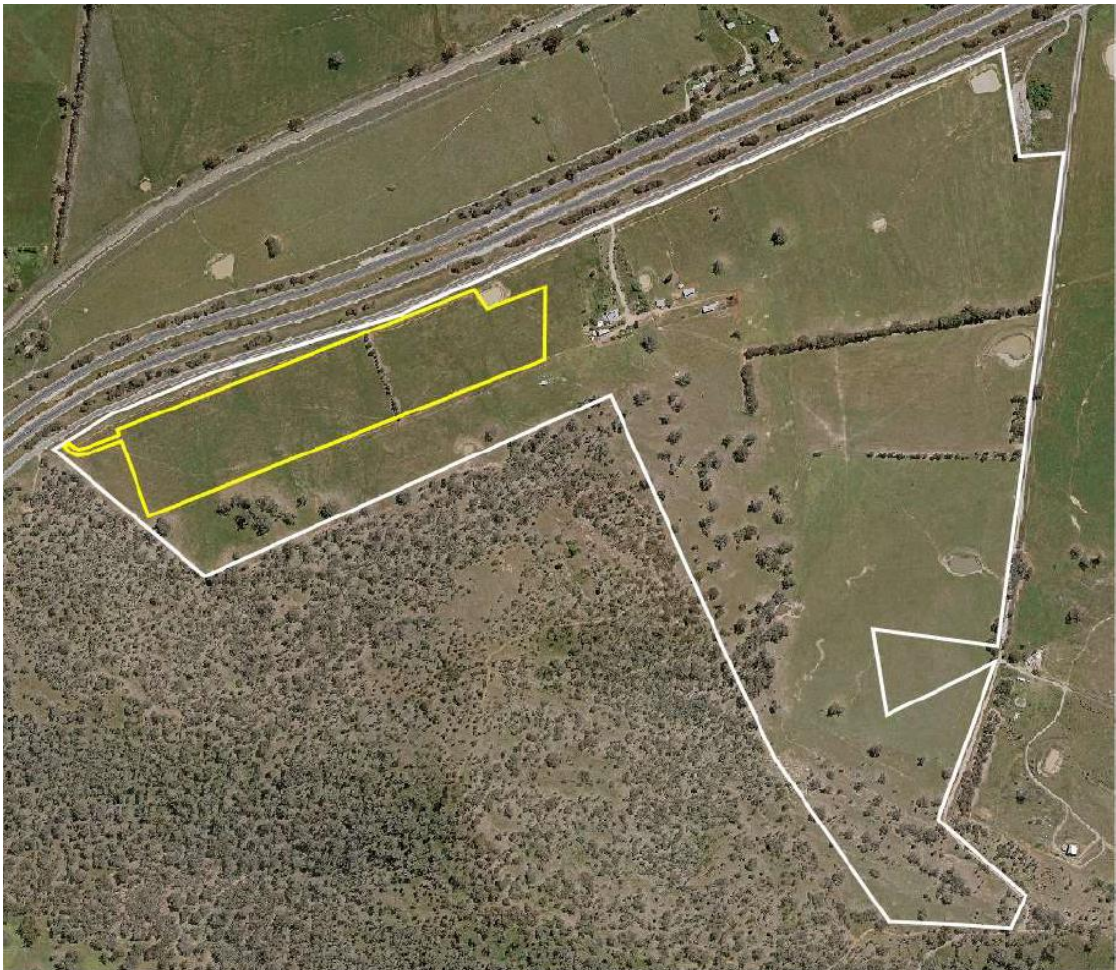
The proposed solar facility will be un-manned; with maintenance and site inspections occurring periodically – most likely by one or two workers at a time, who will be in specialised vehicles and will most likely drive to their desired location within the facility so that they have access to tools and equipment. In consideration of this, it is submitted that the two car spaces inside the front gate would be suitable.

During the construction phase the site will be accessed by up to 30 vehicles (during the peak construction week) and trucks with component deliveries. Accordingly, two large unloading/assembly areas (as shown on attached site plan) are to be provided to accommodate construction activities; however, these will remain and will be available for use throughout the operational life of the facility.

Clause 52.17 Native Vegetation

As a result of the proposed development, it is proposed to remove 10.553 hectares of native grasses. There are no remnant trees proposed to be removed, as the tree belt within the solar farm footprint is planted vegetation that is exempt from planning approval.

As the proposed vegetation removal triggers the detailed assessment pathway under Native Vegetation Guidelines, an accredited biodiversity assessor was engaged to undertake an assessment of the vegetation removal – provided as **Appendix I** to this report.



Proposed area of native grass to be removed

Clause 53.13 Renewable Energy Facility (other than wind energy facility)

The purpose of Clause 53.13 is *“To facilitate the establishment and expansion of renewable energy facilities, in appropriate locations, with minimal impact on the amenity of the area.”*

The clause applies to an application to use or develop land for a renewable energy facility. Accordingly, it is the key planning policy for this proposal. The application requirements of this clause were key considerations in the site selection and design processes for this project and are integral to all documents within this submission. Notwithstanding this, an outline of each application requirement of Clause 53.13 is provided below.

- **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 thorough site analysis, including description, photographs and diagrams has been provided in the **Site Selection Analysis** report by RenewableAge, provided herewith.

The site and context description within this report explains the site in relation to the surrounding features, as well as the adjacent electricity distribution network. The site fronts 22kV overhead lines, which pass under the Hume Freeway, that feed to the Barnawartha Substation.

The nearest urban land to the west of the subject land is the township of Barnawartha. The town is predominantly a residential settlement characterised by single storey detached dwellings with little in the way of commercial development.

- **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 Site Layout Plan by SSE shows the proposed facility, including all buildings, works, electrical componentry and distances to site boundaries, elevations and details of height and built form.

The point of connection is to an existing Ausnet power pole post at the northern boundary of the proposed development site.

Views to the site of the proposed facility will primarily be from the Hume Freeway. However, this part of the freeway is in a cutting, with a large bank and roadside trees, therefore any views to the facility will be brief and interrupted. Further, the high speed of the freeway traffic will further limit the visual impact of the facility.

It is submitted that the site is highly suitable for the proposed use considering its location, accessibility, proximity to the electricity distribution network and electricity users as well as its marginal agricultural usability. Once operational, the facility will be un-manned. There will be no processes carried out on site (other than photovoltaic conversion of solar radiation into electricity) or waste produced. The only materials to be stored on site will be some basic spare componentry – electrical components and spare solar panels – that will be secured inside the storage shed. We are advised that no EPA Works Approval is required.

The proposed facility is not in an area of aboriginal cultural heritage sensitivity.

The subject land is largely cleared of vegetation with the exception of several scattered trees to the south and east of the site which will be retained under the proposal. The land does not contain any mapped current wetland.

A calculation of greenhouse benefits has been prepared by RenewableAge and included in their Site Selection Analysis Report, and as shown below.

8.6 Clause 65 Decision Guidelines

The matters set out at Section 65 of the Indigo Planning Scheme are addressed in various sections of this report. The proposal has been assessed to be in accordance with all relevant guidelines.

9 Wodonga Planning Scheme

9.1 Local Planning Policy

21.04-2 Significant landscapes – Hillsides

- *To safeguard the visual and natural values of hillside landscapes*

The development has been site mindful of the intention of the nearby SLO which applies to Mount Lady Franklin and the surrounding ranges, which are identified in policy as:

... one of Wodonga's most widely identified and supported environmental, lifestyle and community assets and have been long recognised as being visually important.

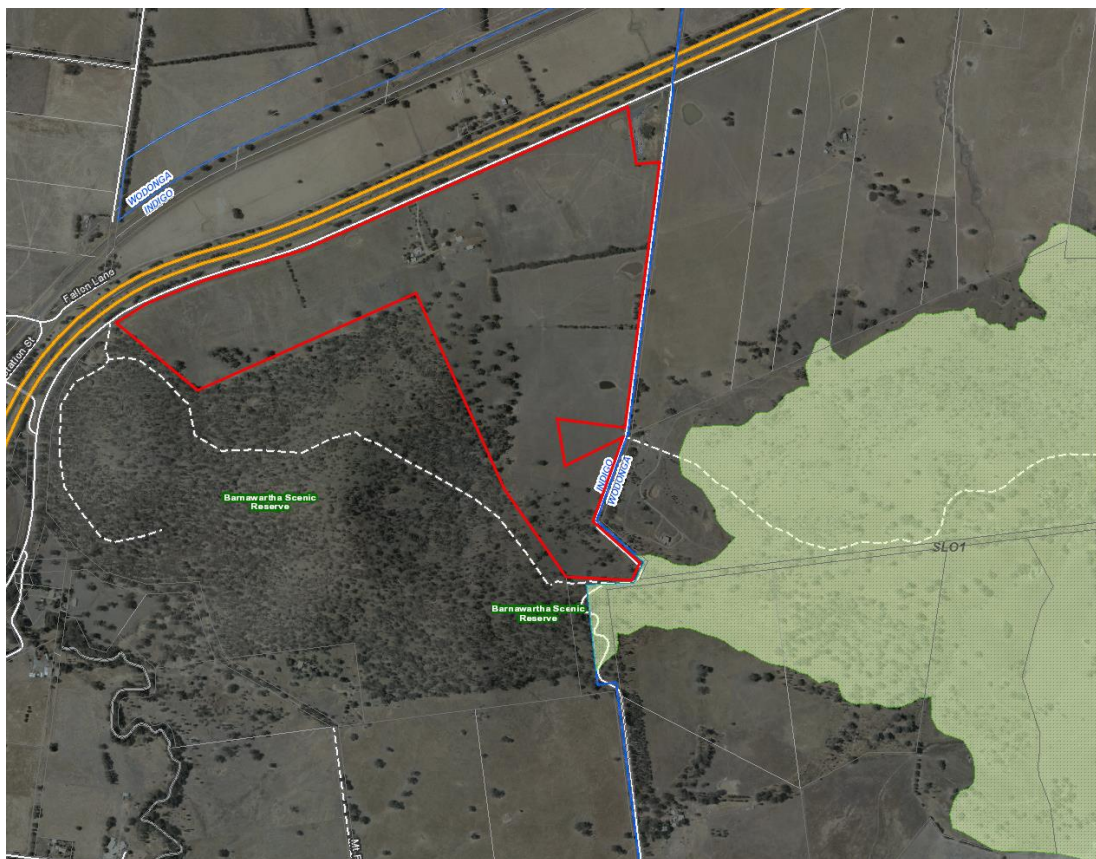
Many of the hills surrounding Wodonga have been listed by the National Trust as being landscapes of significance.

Accordingly, the proposal has considered the relevant objective of this clause and is considered to present an appropriate response to the key issues which are:

- *The protection of prominent hillsides that surround Wodonga from encroachment by urban development.*
- *Balancing the objectives of providing safe and adequate public access to the hills with protecting environmental and landscape values.*
- *Protect and maintain the system of ridgelines and hillsides that encircle Wodonga, Baranduda.*

9.2 Significant Landscape Overlay

A Significant Landscape Overlay (SLO) protects the views of the Lady Franklin Ranges to the east of the subject land – this SLO is within the **Wodonga Planning Scheme**. While the Overlay does not affect the subject land directly, the proposed solar facility could perceivably impact upon the visual amenity of the ranges and as such an assessment has been undertaken against the provisions of the SLO.



Site Context in relation to the Wodonga SLO1

Site outlined in red, municipal boundaries in blue and SLO1 shaded green

Schedule 1 applies to the overlay which states:

“The hillsides and ranges are the dominant environmental and landscape element in the Wodonga area. The Landscape Protection Overlay identifies areas that are

sensitive due to their physical characteristics, visual prominence or contribution to the scenic quality of the area.”

Clause 4.0 of Schedule 1 sets out the decision guidelines, those relevant to this application are addressed below:

- *The impact of any proposed land clearing or surface modification on the physical and visual environment and any measures proposed for environmental protection, site rehabilitation or reforestation.*

The proposed solar facility will have minimal impact on the physical environment. No tree removal is required for the installation of the facility and no major ground disturbance or land forming will be caused by the installation, operation or decommissioning of the facility.

- *The risk from bushfire or other natural hazard and the adequacy of any measures designed to reduce such risk.*

The management of bushfire risk is addressed in the attached Bushfire Management Plan.

- *The land capability and/or physical characteristics of the land, including slope, aspect, soil type and vegetation cover.*

The subject land is gently sloping land at the foot of the surrounding hills. The land is largely cleared of any tree with the exception of a few scattered trees that are outside the facility footprint.

- *The need for retention or reinstatement of vegetation to protect and enhance the natural environment and landscape character of the area.*

The siting of the facility avoids areas impacting existing trees. Native grass within the facility footprint cannot be avoided and will be considered lost, therefore must be offset. The grass is not considered to be contributory to the character of the area and would be indistinguishable from the surrounding pasture.

- *The need for careful siting and design of buildings or works so as to not affect any ridgeline or detract from the visual amenity of the area. The design, height, mass and scale of the proposed development and buildings.*

The facility has been sited on the lower side of the land, well away from where it will impact upon the ridgelines of the surrounding hills. Impact on visual amenity will be reduced by the existing freeway cutting and roadside trees, where only fleeting glimpses will be visible to the fast-moving traffic on the Hume Freeway. The height of the solar arrays themselves are 2.85m, thus will not significantly impact upon the visual amenity of the hills.

- *The location of all buildings and including the exterior colour/ finish of buildings and the use of non-reflective materials which complement the surrounding landscape*

No buildings are proposed as part of this application. A detailed description of the components used in this facility is provided with this report.

- *Proposed effluent disposal systems and measures to improve water quality. Forwarding applications for comment*

No effluent will be generated as part of this proposal – no permanent staff will be located on site.

10 Conclusion

The proposal is for a new solar energy facility within the Indigo Shire that will provide affordable clean energy for the local community, effectively contributing to the implementation of Victoria's transition to renewable energy. The proposal is supported by the Hume Region Renewable Energy Roadmap that sets out a high-level framework for achieving the region's aspirations and expectations for renewable energy by providing regional opportunities for the benefit of the regional community.

The 5MW output will supply local businesses, industry and houses and will produce enough electricity to supply 1,000 average households.

The panels will have a maximum height of approximately 2.85 metres, mounted on a steel rod and pier system that has minimal footings. This equates to less impact on the site, less materials and less construction which means less impact on the local community and roads during construction and less visual impact ongoing.

The proposal will generate local employment opportunities for electrical and construction workers to build and install the facility; operations, maintenance and security jobs will be required ongoing.

It has been demonstrated in this report that the proposal meets the application requirements for a solar energy facility, including relevant sections of the Indigo Planning Scheme - particularly **Clause 53.13**; the ***Solar Energy Facilities Design & Development Guidelines, August 2019*** and the ***CFA Guidelines for Renewable Energy Installations, March 2021***.

Based on the information provided within this report and various supporting documents, it is submitted that the proposal merits support and planning approval.