

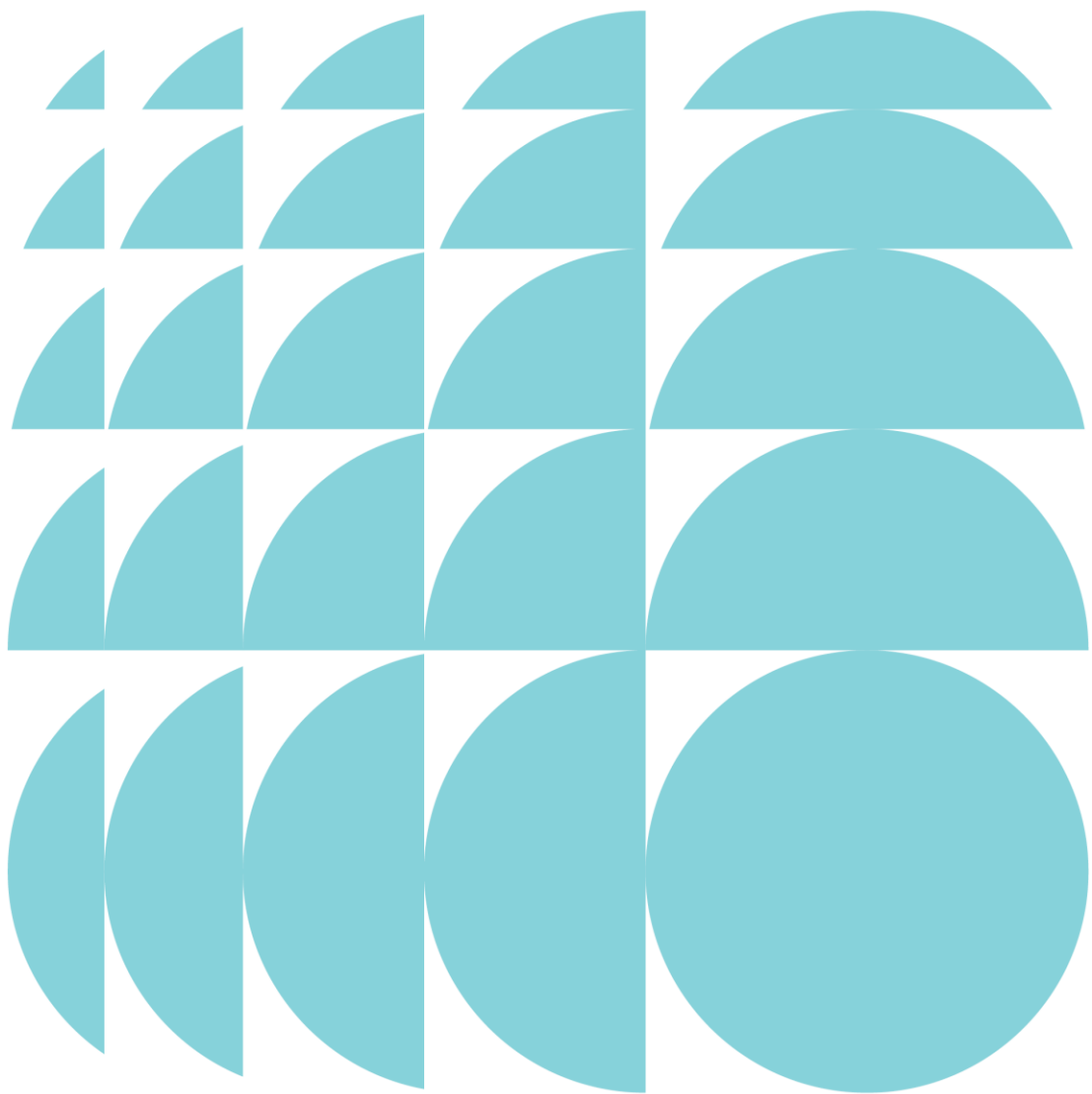
ETHOS URBAN

Bookaar Solar Farm Economic Impact Assessment

FINAL

Prepared for Bookaar Renewables

Nov 2020 | 3200202



Authorship

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Disclaimer

Every effort has been made to ensure the accuracy of the material and the integrity of the analysis presented in this report. However, Ethos Urban Pty Ltd accepts no liability for any actions taken on the basis of report contents.

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1 Introduction

1.1 Background

Bookaar Renewables (the 'Proponent') have commissioned Ethos Urban to prepare an Economic Impact Assessment (EIA) for the proposed Bookaar Solar Farm development (the 'Proposal') encompassing part of 520 Meningoort Road, Lots 51 and 52 and Res 1 on LP4677 and adjacent parts of Meningoort Road, Bookaar (the 'Site') approximately 8km northwest of Camperdown in the Shire of Corangamite.

The Site is approximately 588ha site and is part of two private landholdings. The solar farm will have a capacity of 200 MW (at the point of connection) powered by photovoltaics panels. Subject to planning approval and financing, construction of the Bookaar Solar Farm is anticipated to start in mid-2021, with the facility expected to be fully operational by the end of 2022.

1.2 Site History and Previous Assessment

Ethos Urban prepared an Expert Witness Statement for the Proponent in 2019 for a VCAT hearing (Bookaar Renewables Pty Ltd v Corangamite SC [2019] VCAT 1244) in relation to a proposed solar energy facility located at the same location (the 'Previous Application'). The Expert Witness Statement considered the socioeconomic implications of the proposed solar facility at the Site.

Ultimately, the VCAT decision was unsuccessful for the Previous Application although the decision was not made based on matters regarding socioeconomic impacts. In response, Bookaar Renewables Pty Ltd have decided to submit a fresh application addressing the deficiencies identified in the VCAT decision but importantly maintaining the same footprint for the Proposal.

This EIA considers the Proposal in light of the VCAT decision and the new *Solar Energy Facilities – Design and Development Guideline* issued by DELWP in 2019. The DELWP guidelines specify the need to avoid the loss of high-value agricultural land. Output and employment impacts associated with the loss of agricultural land are addressed in this assessment.

It is noted that there is no change to the footprint of the Proposal compared to the Previous Application. However, in relation to the socioeconomic assessment, figures relating to the production of energy have been revised in accordance with the specific design of the Proposal.

1.3 Objectives

The objectives of this EIA are:

- To highlight likely local and regional economic benefits arising from the Proposal.
- To identify potential economic impacts associated with the Proposal.

2 Subject Site and Surrounding Area

2.1 Site Context

The Site for the Proposal is located in Bookaar and comprises of approximately 588ha of privately owned land. Approximately 490ha is part of the 2,024ha 'Meningoort' beef and sheep operation with the remaining 98ha forming part of a separate operation which is leased to a neighbouring farmer who is mainly using the area for dryland cropping (see the Agricultural Land Impact Assessment accompanying the Planning Application for the Proposal).

Specifically, the Site includes Lots 1, 2, 3, 4, 5, 6, 7, 8, 9 [part], 10 [part], 11 [part], 12 [part] and 33 [part] on Title Plan 844741K, Lots 51, 52 and Res 1 on LP4677 and Meningoort Road [part].

The Proposal will be located approximately 8km north-west of the township of Camperdown.

The Site, which falls within the Corangamite Local Government Area (LGA) area, is located in the Farming Zone.

2.2 The Proposal

The Proposal involves the installation of a solar energy facility with a capacity of 200 MWac (282 MWdc). The Proposal includes the following elements (see the 'Site Plan'):

- 'Array Areas', containing Photovoltaic (PV) panels mounted on a single axis tracking system with a maximum height of 4 m above natural ground at maximum tilt. The tracking system would be supported by piles driven into the ground. Row spacing is either 12.75 m or 13 m (pile to pile).
- 82 inverters located centrally throughout the Site in pairs at 41 locations across the Site (inverter stations). Inverter stations are located at least 171 m from the Site boundary;
- Below ground cabling connecting the PV panels between trackers and inverters;
- Below ground cabling connecting the inverters to the substation;
- An internal track network of all-weather gravel tracks (4 m), including a perimeter track which forms part of a 10 m wide defendable Asset Protection Zone (APZ) that surrounds the Site;
- Four (4) gated main site access points via Meningoort Road;
- Four (4) gated emergency access points along the western boundary of the Site;
- Eight dedicated water tanks for firefighting (maximum of 3.6m high), located adjacent to each access point;
- A perimeter security fence 2.5 m high (chain mesh);
- Perimeter vegetation screens (20 m wide with 4 rows of trees and maintained to a height of at least 4 m), planted on the outside of the security fencing;
- Agricultural style fencing 1.2 m high, around the perimeter of the vegetation screens and the perimeter of the existing vegetation on the Site's western boundary;
- A SCADA system that will gather, monitor and analyse data generated through operating the Proposal;
- On-demand, downward facing lighting (restricted to 4m in height); and

- Sensor triggered CCTV security cameras located around the perimeter of the Site and adjacent to key infrastructure.

Substation Area (1.76 ha):

- Substation connecting the Proposal to the onsite 220KV transmission line, via two (2) new high voltage (HV) 220 kV transmission lines;
- A Control building (3 m high);
- Substation Operations and Maintenance building (up to 5 m high);
- A security fence (chain mesh) up to 2.5 m high, enclosing the Substation;
- A 10 m wide defensible APZ around the perimeter of the Substation; and
- Parking for 5 vehicles.

Battery Area (0.91 ha):

- A series of separate containerised battery units, connected by underground cables to the Substation (approximately 2.5 m high);
- A separate transformer adjacent to each battery; and
- A 10m defensible APZ around the perimeter of the Battery Area.

Operations Buildings Area (0.96 ha):

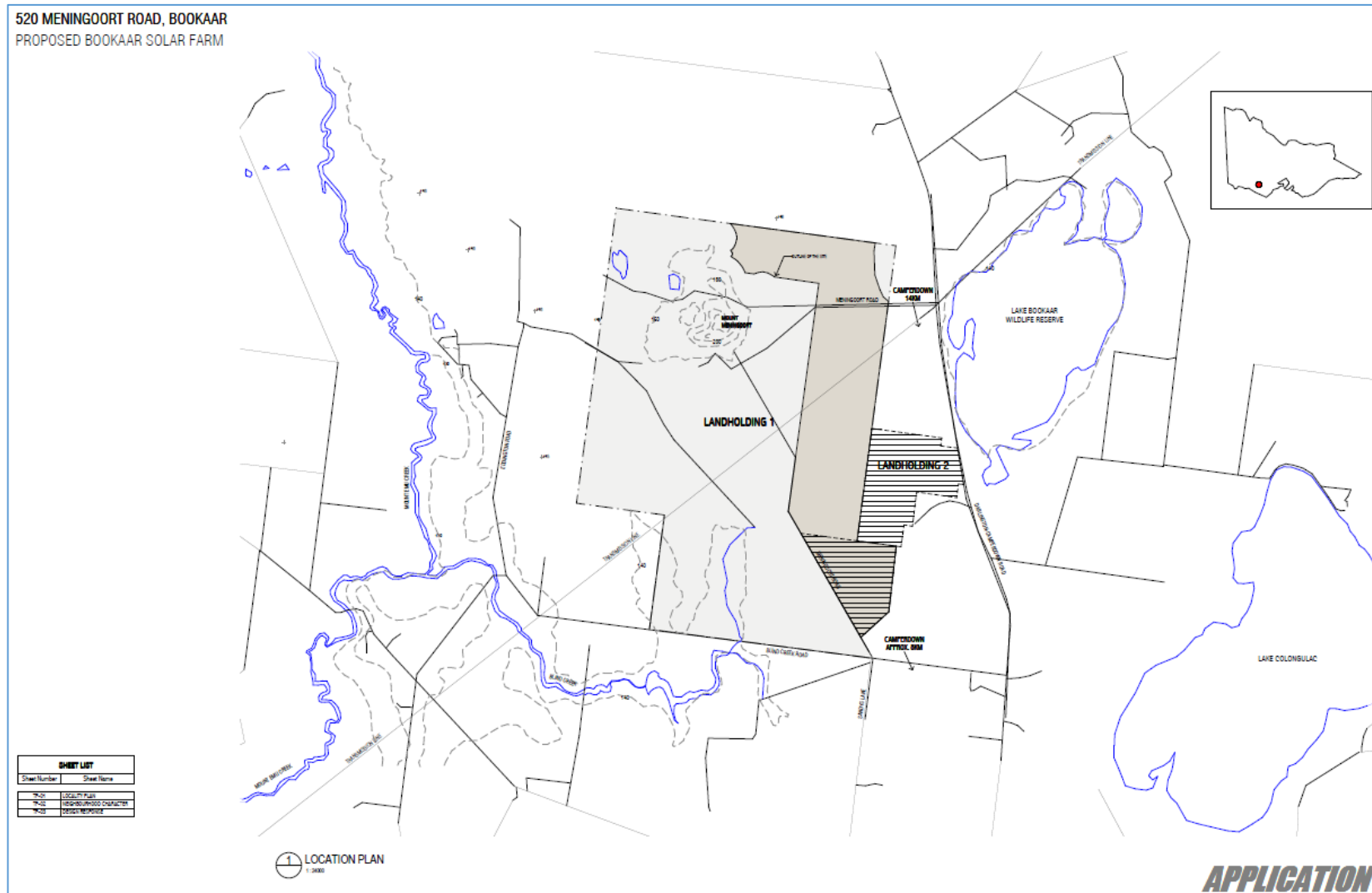
- A Site office building including amenities with a height of 3.6 m;
- A maintenance building and workshop with a height of 5 m;
- 3 Storage sheds with a height of 4.1 m;
- Car parking for twelve (12) vehicles;
- A septic tank and potable water tank; and
- A defensible APZ of 20 m, which allows the area to function as the nominated 'Shelter in Place' location (see Bushfire Risk Assessment Report and Mitigation Plan).

In addition to the key components outlined above, there will be a temporary construction compound (1.44 ha) to facilitate the construction phase of the Proposal. The construction compound would include:

- Temporary construction offices (up to 5 m high);
- Car and bus parking areas for construction vehicles (51 workers cars, 5 mini vans; and additional parking space provided for delivery vehicles and construction machinery);
- Staff amenity block including portable toilets, showers and a kitchen, designed for peak staff numbers during the construction period; and
- Laydown areas.

Once the Proposal is operational, the construction compound will be decommissioned and revegetated. Figure 2.1 shows the Site and surrounding area. Note, a scale version of this this plan accompanies the Planning Application

Figure 2.1: Bookaar Solar Farm – Subject Site and Surrounding Area



2.3 Surrounding Area

The surrounding area is characterised by farming properties and agricultural activities, principally involving grazing, dairy, sheep and cropping.

A number of lakes are located in the area, including Lake Bookaar which lies approximately 1.1km to the east of the Site.

From a locational perspective, the Site presents as a typical solar farm development site. Solar farm sites generally require good access to solar resources, a large area of flat, cleared land, good road access and efficient connection to the electricity grid, preferably through an onsite substation and direct access to the transmission line.

3 Economic Benefits Assessment

3.1 Economic Overview of the Study Area

Study Area

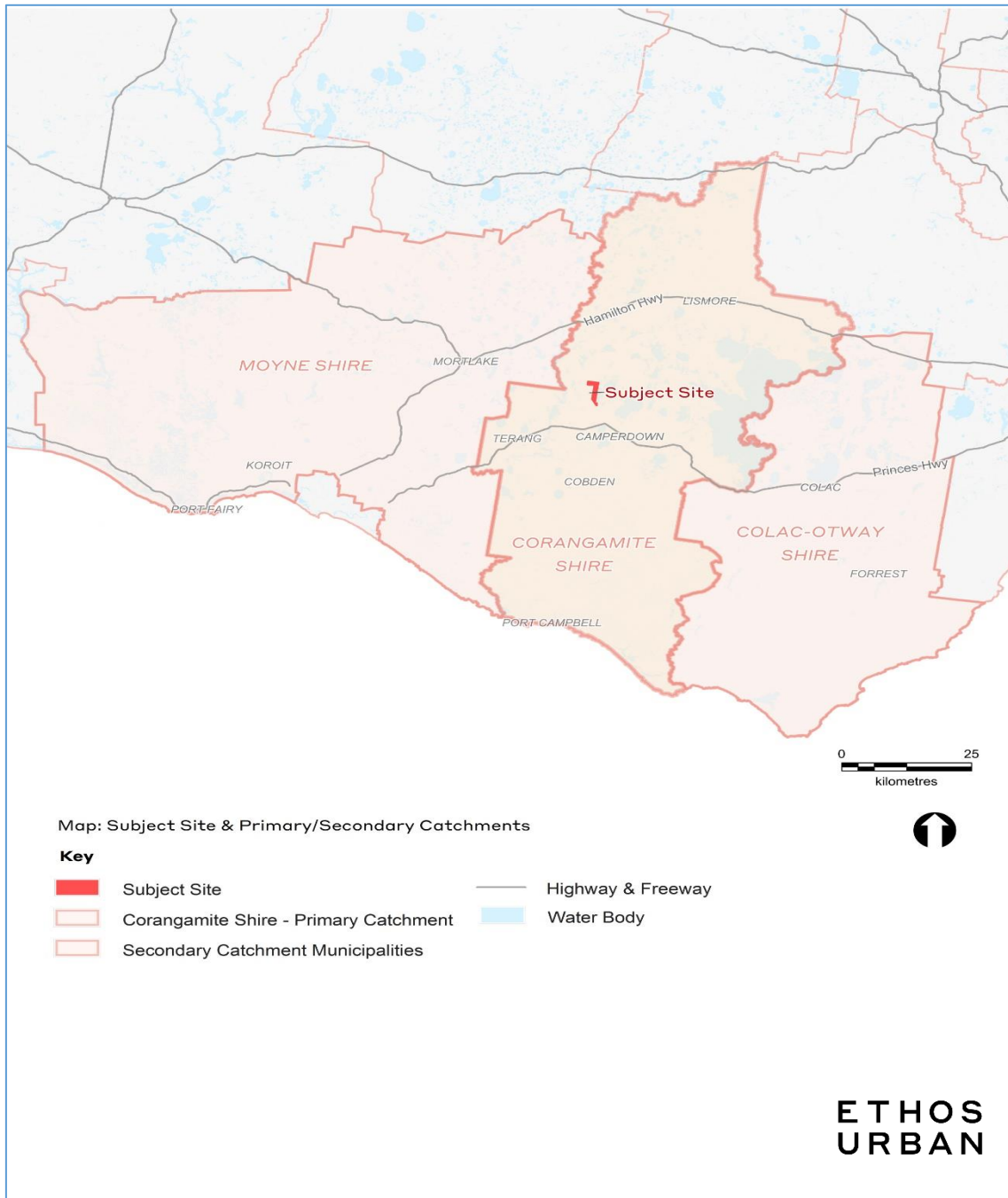
The defined Study Area (Primary Catchment) for this economic assessment comprises the Local Government Area (LGA) of Corangamite.

This Study Area has been chosen to reflect the location of the Proposal with reference to the main townships in the LGA, such as Camperdown, Cobden and Terang (which are within a 10-20 minute drive of the Site).

A secondary catchment has also been identified which includes Colac-Otway Shire and Moyne Shire, recognising the potential of townships in these LGAs to service the Proposal, especially Mortlake and Colac which are both located approximately 45 mins driving time from the Site. This secondary catchment is referenced as appropriate throughout this report.

Figure 3.1 identifies these catchments in relation to the Site.

Figure 3.1: Bookaar Solar Farm – Study Area



Source: Ethos Urban using MapInfo.

Industry Structure

The Study Area's industry structure, as measured by sectors in which residents work (which may include locations outside Corangamite Shire), highlights the importance of the agricultural sector (agriculture, forestry and fishing), which accounts for approximately 31% of the resident workforce, compared to 2% for Victoria. Other important sectors in which Study Area residents work include health care and social assistance (11%), retail trade (9%) and manufacturing (7%). This data, which is sourced from the ABS Census 2016 and outlined in Table 3.1.

Table 3.1: Resident Workers Industry of Employment, 2016

Industry sector	Secondary Catchment		Study Area		Victoria
	No.	Share	No.	Share	Share
Agriculture, Forestry and Fishing	3,198	19.0%	2,210	30.8%	2.2%
Mining	58	0.3%	44	0.6%	0.3%
Manufacturing	1,842	10.9%	512	7.1%	7.8%
Electricity, Gas, Water and Waste Services	151	0.9%	51	0.7%	1.1%
Construction	1,081	6.4%	412	5.8%	8.3%
Retail Trade	1,487	8.8%	607	8.5%	10.2%
Wholesale trade	340	2.0%	146	2.0%	3.2%
Accommodation and Food Services	1,289	7.6%	396	5.5%	6.6%
Transport, Postal and Warehousing	568	3.4%	307	4.3%	4.8%
Information Media and Telecommunications	101	0.6%	33	0.5%	1.9%
Financial and Insurance Services	204	1.2%	41	0.6%	3.9%
Rental, Hiring and Real Estate Services	124	0.7%	32	0.4%	1.6%
Professional, Scientific and Technical Services	518	3.1%	193	2.7%	7.9%
Administrative and Support Services	454	2.7%	146	2.0%	3.4%
Public Administration and Safety	921	5.5%	245	3.4%	5.3%
Education and Training	1,169	6.9%	467	6.5%	8.6%
Health Care and Social Assistance	2,170	12.9%	756	10.6%	12.5%
Arts and Recreation Services	176	1.0%	61	0.9%	1.9%
Other Services	496	2.9%	195	2.7%	3.6%
Inadequately described or not stated	513	3.0%	311	4.3%	4.7%
Total employed persons aged 15+	16,860	100.0%	7,165	100.0%	100.0%

Source: Australian Bureau of Statistics, Census of Population and Housing 2016.

Note: Figures rounded.

Business Structure

The Study Area's business structure highlights the importance of the agricultural businesses (agriculture, forestry and fishing) to the economy, with this sector accounting for approximately 57% of registered businesses (e.g. farms). The next largest sector in terms of businesses is construction (8%), followed by rental, hiring and real estate (7%). Approximately 300 construction-related businesses are located in the Study Area (comprising construction and transport, postal and warehousing sectors), which represents approximately 12% of all businesses. When the broader region is considered (Study Area plus Secondary Catchment), approximately, 1,130 businesses are associated with construction-related activities.

This data is sourced from ABS Business Counts for June 2019 (latest available at an LGA level) and presented in Table 3.2.

Table 3.2: Registered Businesses by Industry, 2019

	Secondary Catchment		Study Area	
	No.	Share	No.	Share
Agriculture, Forestry and Fishing	1,946	41.9%	1,282	57.2%
Mining	9	0.2%	4	0.1%
Manufacturing	145	3.1%	54	2.2%
Electricity, Gas, Water and Waste Services	13	0.3%	0	0.0%
<i>Construction</i>	<i>599</i>	<i>12.9%</i>	<i>197</i>	<i>7.9%</i>
Wholesale Trade	80	1.7%	38	1.4%
Retail Trade	228	4.9%	87	4.2%
Accommodation and Food Services	235	5.1%	72	3.2%
<i>Transport, Postal and Warehousing</i>	<i>227</i>	<i>4.9%</i>	<i>105</i>	<i>4.2%</i>
Information Media and Telecommunications	13	0.3%	3	0.1%
Financial and Insurance Services	187	4.0%	78	3.1%
Rental, Hiring and Real Estate Services	386	8.3%	164	6.7%
Professional, Scientific and Technical Services	157	3.4%	66	2.9%
Administrative and Support Services	90	1.9%	23	1.0%
Public Administration and Safety	5	0.1%	0	0.1%
Education and Training	23	0.5%	13	0.6%
Health Care and Social Assistance	111	2.4%	37	1.4%
Arts and Recreation Services	42	0.9%	12	0.4%
Other Services	137	3.0%	60	2.6%
Currently Unknown	7	0.2%	3	0.7%
Total	4,640	100.0%	2,312	100.0%

Source: ABS Business Counts Cat.8165.0, June 2019

Occupational Structure

The Study Area's occupational structure, which is detailed in Table 3.3, highlights the diversity of skills which exist within the local economy, noting a good spread of 'white' and 'blue' collar occupations. The Study Area also has a higher share of construction-related occupations compared to the State average. For example, approximately 35% of the Study Area's occupations are related to technicians and trade workers, machinery operators and drivers, and labourers, and this compares to 28% for Victoria. In 2016, the Study Area had approximately 2,510 resident workers occupied in construction-related activities, and this highlights the strong workforce base available to support major infrastructure projects.

Table 3.3: Resident Worker Occupations, 2016

Occupation	Secondary Catchment		Study Area		Victoria
	No.	Share	No.	Share	Share
Managers	3,777	21.9%	2,020	28.2%	13.5%
Professionals	2,229	12.9%	818	11.4%	23.3%
<i>Technicians and Trades Workers</i>	<i>2,227</i>	<i>12.9%</i>	<i>843</i>	<i>11.8%</i>	<i>13.1%</i>
Community and Personal Service Workers	1,818	10.5%	626	8.7%	10.6%
Clerical and Administrative Workers	1,515	8.8%	525	7.3%	13.3%
Sales Workers	1,345	7.8%	528	7.4%	9.7%
<i>Machinery Operators and Drivers</i>	<i>1,204</i>	<i>7.0%</i>	<i>520</i>	<i>7.3%</i>	<i>5.8%</i>
<i>Labourers</i>	<i>2,810</i>	<i>16.3%</i>	<i>1,145</i>	<i>16.0%</i>	<i>9.0%</i>
Not stated or inadequately described	320	1.9%	134	1.9%	1.7%
Total employed persons aged 15+	17,245	100.0%	7,159	100.0%	100.0%

Source: Australian Bureau of Statistics, Census of Population and Housing 2016.

Note: Figures rounded.

Unemployment

The Study Area has a significantly lower unemployment rate (2.4%) compared to Victoria (4.7%) and Regional Victoria (3.9%). This data, which relates to December 2019 (latest available), is sourced from the Department of Jobs and Business, Small Area Labour Markets and is detailed in Table 3.4.

As of December 2019, approximately 210 job seekers in the Study Area were unemployed, with a further 500 unemployed in the Secondary Catchment. Major infrastructure projects, such as the Proposal, may provide a pathway for some of these job seekers to enter/re-enter the workforce (subject to suitable skills match).

Table 3.4: Labour Force data, Selected Locations, December Quarter 2019

	Employed	Unemployed	Labour Force	Unemployment
	No.	No.	No.	Rate
<i>Study Area</i>	<i>8,700</i>	<i>210</i>	<i>8,910</i>	<i>2.4%</i>
Secondary Catchment	21,100	500	21,590	2.3%
Regional Victoria	723,000	29,600	752,600	3.9%
Victoria	3,404,000	169,100	3,573,100	4.7%

Source: Australian Government Department of Jobs and Small Business Small Area Labour Markets Australia, December Quarter 2019.

Note: Figures rounded

3.2 Construction Phase Economic Benefits

Capital Investment: The Proponent will invest approximately \$280 million in the development of the Proposal. Capital investment includes the following items:

- Solar panels
- Inverters
- Substation
- Batteries

- Site office, associated maintenance buildings and carparking
- Temporary construction compound and laydown area
- Access tracks
- Electrical cabling including trenching
- Vegetation screening
- Firebreaks
- Fencing

Based on completed utility-scale solar farm projects the consultant has been involved in, approximately 10% of total investment is retained locally (i.e. within the Study Area), which includes local wages, contracts, supplies, accommodation etc. This equates to approximately \$28.0 million in retained investment for the Proposal.

Employment generation: in terms of direct employment, the Proponent estimates 150 Full Time Equivalent (FTE) jobs will be supported over the 12-month solar farm construction period. Significant local employment will be supported through the civil construction phase of the Proposal. As highlighted above, the Study Area has an industry, business and occupational structure well-suited to a project of this scale and nature. There are also a reasonable number of unemployed job seekers in the Study Area to source project labour from (subject to suitable skills match).

Based on similar completed utility-scale renewable energy projects the consultant has been involved with, a 70/30 split between local/non-local workers is assumed with direct local labour estimated at 105 FTE workers. The Study Area has a labour force of 2,510 resident workers who are occupied in construction-related activities and therefore the local labour requirement for the construction phase of the project should not present a constraint to labour supply in the economy as the Proposal's local labour requirement represents just 4.2% of the local construction workforce (subject to cumulative impacts discussed later). As noted above, the Proposal offers the potential for some of the Study Area's unemployed job seekers (250 persons) to find work, which will contribute to maintaining or improving the relatively low unemployment rate in the Study Area.

In addition to direct employment, significant employment will be generated indirectly through the employment multiplier effect. By applying the ABS Type 2B employment multiplier for 'other construction' of 1.6 (ABS Input-Output tables), the Proposal is estimated to generate a further 170 FTE jobs (rounded) over the construction period.

Indirect or flow-on jobs (which capture the project's industrial and consumption effects) include employment supported locally and in the wider economy (including in metropolitan areas and other states), as the economic effects of the capital investment flow through the economy. Indirect employment creation within the Study Area may include, for example, jobs supported through catering, accommodation, trade supplies, fuel supplies, transportation, food and drink services and the like.

In summary, approximately 320 FTE jobs (150 FTE direct jobs and 170 FTE indirect jobs) are expected to be generated by the Proposal during the 12-month construction phase.

Business participation opportunities: In terms of cost efficiencies (lower transport, equipment hire, labour costs etc.), many large construction projects located in regional areas are, where possible, serviced from within the same region.

As identified above, the Study Area has approximately 300 construction firms and many other businesses associated with activities likely to be required for the Proposal, such as trade suppliers, auto mechanics etc.

Within the Study Area there may be firms of sufficient scale and expertise to compete for contracts or provide direct services and equipment to the project.

In order to maximise local business participation, the Proponent may partner with the Industry Capability Network to identify and source local contractors and suppliers.

The Industry Capability Network is an independent, non-profit organisation funded by the Federal Government to support business opportunities, including linking suppliers to project contracts at a local level through its ICN Gateway website where details of work packages are advertised.

Boost to the accommodation sector: Assuming 30% of the construction workforce will be non-local workers relocating to the Study Area, approximately 45 rooms (on average) will be required to accommodate these workers across the 12-month construction period.

The Study Area has a good supply and mix of accommodation including motels, hotels, guest houses, farm stays, caravan/holiday parks (including cabins and powered sites) and private houses. The majority of accommodation options are located in Camperdown (the closest location to the Site), although there are also options in Cobden, Terang and smaller rural areas. As of August 2020, the following accommodation was available in the Study Area:

- 65 motel rooms
- 55 hotel rooms
- 25 rooms in guest houses, b&b's
- 20 rooms in cabins (caravan/holiday parks)
- 140 powered sites (caravan/holiday parks)
- 40 houses listed on Airbnb

In total, the Study Area has a capacity of 345 rooms, cabins/ powered sites/ houses. Assuming each non-local worker required individual accommodation (i.e. not sharing), then approximately 13% of accommodation in the Study Area would be consumed by the 45 project workers. In reality, some workers will share accommodation to reduce costs (e.g. private houses, multi-roomed cabins); therefore, the local accommodation consumption level will likely be lower. Some workers may also stay with family and friends where this local possibility exists. This information indicates the Study Area has the ability to absorb project workers throughout the construction period and in doing so benefit from increased revenues through higher occupancy rates.

It is possible that some workers may choose to stay outside the Study Area in the secondary catchment (see section 3.2) in locations such as Mortlake and Colac, although noting this will generally result in longer commuting distances to and from the Site.

Wage spending stimulus: 45 FTE jobs or (30% workforce) are expected to be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to \$3.6 million in wages (2019 dollars) based on the average annual construction wage of approximately \$80,000 pa including on-costs (source: ABS, Average Weekly Earnings 6302.0, November 2019).

A considerable portion of these wages would be spent locally, where the workers will be based. An estimated \$2.0 million in wages (2019 dollars) would likely be directed to local businesses and service providers during the construction period. This estimate is based on reference to the ABS Household Expenditure Survey which indicates that approximately 75% of post-tax wages are likely to be spent by workers in the regional economy in view of the goods and services available in the Study Area, particularly in Camperdown. This spending would include the following:

- Housing expenditure, including spending on accommodation at hotels, motels, caravan/holiday parks B&Bs, and private rental dwellings
- Retail expenditure, including spending on supermarket items, restaurants, cafes, clothing, books, homewares etc
- Recreation spending associated with day trips and excursions, gaming (lottery, sports betting, etc), purchases in pubs and clubs
- Personal, medical and other services, such as GP fees and local prescriptions, fuel, vehicle maintenance and so on.

This level of worker spending would support jobs in the services sector associated with retail, accommodation, trade supplies, cafes and restaurants etc. These jobs are included in the 'indirect employment' estimates outlined in 3.11 above.

3.3 Operational Phase Economic Benefits

Employment generation: It is estimated that between 8-12 FTE jobs will be created nationally on an ongoing basis through the operation and maintenance of the Proposal (an average of 10 FTE jobs has been used for the purposes of this analysis). Of these jobs, it is considered that 6 FTE positions (which include part-time and casual employment) will be supported locally associated with:

- Monitoring of solar production
- Export of solar energy to the National Electricity Market
- Inspection and maintenance of all plant and equipment
- Routine security inspections
- Vegetation monitoring and management
- Erosion monitoring
- Any other requirements stipulated through planning conditions.

Additional jobs will also be supported indirectly through the employment multiplier effect. Applying an industry-standard Type B multiplier for the electricity industry of 2.9 (based on ABS Input-Output tables) to direct operational and maintenance jobs, a further 29 permanent FTE jobs (rounded) would be generated in the wider State and national economies, with some of these jobs being supported locally through existing and new supply chains. For the purposes of this analysis, it is assumed that 10% of indirect jobs (or 3 FTE jobs) are supported in the Study Area.

Operational-related employment is for the lifetime of the project (i.e., 30 years, which is the standard lifecycle used for financial modelling of solar farms). Therefore, these jobs represent new long-term employment opportunities at a local, regional and state-wide level.

In summary, approximately 39 FTE jobs (10 FTE direct jobs and 29 FTE indirect jobs) are expected to be supported on an ongoing basis by the Bookaar Solar Farm, with 9 FTE jobs (direct and indirect) supported within the Study Area.

Economic Stimulus Effect: The economic stimulus associated with the project is estimated at approximately \$29.5 million over 30 years, allowing for an increase in CPI of 2.5%. This calculation is based on the following factors:

- Net increase in financial returns to Council from the Site. Established under section 96(6A) of the *Electricity Industry Act 2000*, the Payment in Lieu of Rates (PiLoR) framework allows councils and electricity generators to negotiate annual payments. The PiLoR framework was amended by the Victorian Government in October 2018 to account for solar generators coming online now and in the future. In general, financial returns to Council from renewable energy projects are considerably higher than revenue associated with rateable agricultural activities. For example, the 2018/19 PiLoR guidelines include a fixed charge of \$54,400 and a variable charge of \$1,225 per MW (of installed capacity) Using this revised PiLoR framework, it is estimated Corangamite Council WILL receive a net increase in annual revenue from the site in Year 1 of solar farm operations of approximately \$290,000. Under the guidelines, this value will then increase in line with CPI over the operational lifetime of the solar farm. Over 30 years, the net financial return to Council is estimated at \$12.8 million.

Based on budgeted 2020/21 general rates revenue of \$22.2 million pa (Corangamite Shire Draft Budget 2020/2021), the increase in rates revenue associated with the Proposal in the first year of operation represents a 1.3% increase in general rates revenue for the Shire (or approximately a 2.8% uplift in rates revenue from farming land). This will be an important source of income for council, noting general rates are now subject to rate capping under the Victorian Government's Fair Go Rates System.

This uplift in revenue from the site can be used by Council in a number of ways, including investing in community infrastructure and services and/or offsetting rates payable for residential and commercial property owners located in the municipality

- Wage stimulus effects associated with the 9 FTE ongoing new local jobs created through the maintenance and operation of the solar farm (plus from employment multipliers) are estimated at \$15.8 million over 30 years, allowing for a 2.5% p.a. adjustment in CPI. Refer to 3.14 for methodology.
- Community Fund payments, which have been offered by the proponent for the purposes of supporting local project and programs during the operational phase of the project, amount to \$880,000 (2019 dollars) over 30 years based on an annual payment of \$20,000 in Year 1.

An additional stimulus effect not quantified in this analysis is the annual lease payments made to the host landowner over the operational life of the solar farm (confidential) – which may include some payment flows back into the local economy.

3.4 Environmental Benefits

Electricity generation: Based on the fully-operational facility, the Bookaar Solar Farm will generate approximately 460 GWh/year of renewable energy annually which is sufficient to power approximately 92,000 homes. This represents over twelve times the household electricity requirements of Study Area (7,245 private dwellings) and over three times the household electricity requirements of the broader region (Study Area plus Secondary Catchment) which has 25,840 private dwellings (ABS Census of Population and Housing 2016). This estimate is based on typical annual Victorian household consumption of approximately 5,000 kWh (Source: esc.vic.gov.au/sites/default/files/documents/victorian-energy-usage-profiles-report.pdf)

Clean power benefits: According to the production data provided by the Proponent in support of the permit application, the Bookaar Solar Farm will result in the reduction of an estimated 519,000 tonnes in carbon dioxide (CO₂) emissions on an annual basis, compared to the same level of electricity generation using fossil fuels (based on carbon costs of \$1.13 kg CO₂-e / KWh for the Victorian electricity generation mix, (source: https://www.esc.vic.gov.au/sites/default/files/documents/greenhouse%20-%2020200905_1.pdf))

3.5 Community Benefits

Community Fund: The proponent has offered to provide a Community Fund associated with the operational phase of the facility. At this stage the precise composition and management of the Community Fund has not been finalised; however, this is likely to involve annual payments of \$20,000 (adjusted for to CPI) to the Fund over the life of the solar farm. Community Fund payments can be used to support local projects and programs, which may include community, educational and environmental initiatives.

Training benefits: The Proposal will provide training opportunities for local workers in the construction and operational aspects of solar farms. These workers will be able to transfer this knowledge to other renewable energy projects in the future, which is important noting the growth of the renewable sector and civil construction projects more generally in the south-west region of Victoria.

3.6 Conclusions

The Proposal will deliver the following economic, environmental and community benefits:

Construction Phase

- Capital investment of \$280 million, of which \$28.0 million is anticipated to be spent on local purchases and labour.
- Direct employment generation of 150 FTE, of which 105 FTE positions (or 70% of the workforce) are likely to be locally sourced. A further 240 FTE jobs will be supported in the wider economy through the employment multiplier effect, with some of these jobs supported locally.
- Project participation opportunities for local businesses and contractors (e.g. transport and logistics, fencing, land clearing, equipment hire).
- New revenues of \$1.0 million directly into the local economy through spending generated by 45 FTE project workers relocating to the area for short periods. This will assist in improving occupancy rates for accommodation providers, especially in off-peak periods; as well as supporting retailers, cafes and restaurants, pubs and clubs etc.

Operational Phase

- Direct employment generation of 10 FTE jobs associated with the operation and maintenance of the solar facility, of which 6 FTE jobs are expected to be locally based. An additional 29 FTE positions will be supported in the wider economy through the employment multiplier effect. These indirect jobs include positions supported in the local economy (estimated at 3 FTE jobs) and regional economies, as well as in metropolitan Melbourne and interstate.

- Economic stimulus to the Study Area of \$29.5 million over 30 years (includes adjustment of 2.5% p.a. for CPI) associated with new wage spending within the economy, a net uplift in revenues to Council from the Site (i.e. payments in lieu of rates) and Community Fund payments.
- Clean energy generation sufficient to power 92,000 homes and support local industry, and which reduces CO2 emissions by 519,000 tonnes pa.
- Community benefits, including potential community fund payments which will support local projects and programs, as well as upskilling outcomes through project training and experience in the expanding renewable energy sector.

4 Land and Property Value Impacts

Land and property values are subject to a range of complex factors and relationships which makes it difficult to isolate one particular factor as causal to price movements. Influential factors on land and property prices include:

- Supply and demand dynamics
- Economic confidence
- Interest rate movements
- Investment and capital growth potential
- Land transition potential
- Availability of finance/loans
- Specific characteristics of a site/property
- Environmental factors (drought, flood, bushfires)

While some research has been undertaken to isolate the impacts of wind farms on property prices (e.g. Review of the Impact of Wind Farms on Property Prices, Urbis, 2016 for the NSW Government), very limited national or international research is available on the impact of solar farms on land and property prices, with available international data providing inconclusive results (source: https://emp.lbl.gov/sites/default/files/property-value_impacts_near_utility-scale_solar_installations.pdf). No research has been identified which specifically addresses the link between property values and solar farms in Australia.

Importantly, the Urbis report notes that over a relatively long assessment period of 2000 to 2015:

There is insufficient sales data to provide a definitive answer to the question of whether wind farm development in NSW impacts on surrounding land values utilising statistically robust quantitative analysis techniques (Executive Summary).

While the impacts of wind farms and solar farms on property and land prices should not be compared given the intrinsically different nature of the developments and operations, the difficulty in assessing impacts on values in the well-established Australian Wind Farm sector underpins the fact that no reliable assessment can be made with regard to the utility scale solar sector which is in its relative infancy.

Based on the above observations, it is not possible to reliably assess the impact on property and land values on surrounding properties due to the Proposal. However it is worth noting the Proposal will include screening around its perimeter, the noise assessment concludes that there will be no significant noise impacts on neighbouring dwellings (refer to Noise Assessment), the agricultural land assessment concludes that the Proposal will not affect farming operations on the surrounding land (refer to Agricultural Assessment), and none of the other technical assessments supporting the application determine that there would be significant offsite impacts (refer to Planning Assessment).

5 Agricultural Economic Output

RMCG Consulting estimate agricultural output from the Site has an economic value of \$416,000 (2015/16 dollars).

The landowner will maintain the existing level of employment (1.5 FTE jobs) across the Meningoort property once the Proposal is established. Therefore, there will be no direct loss of employment due to the Proposal.

However, there is likely to be indirect (or multiplier) employment impacts associated with the temporary loss of the Site for agricultural purposes. These impacts are associated with the industrial and consumption effects, including revenue losses across the supply chain, such as:

- Animal health products and fencing products
- Fencing contractor
- Grass growers
- Fertiliser suppliers
- Contract spreaders
- Cricket control
- Aerial spraying
- Livestock agents
- Carting livestock for sale

For the purposes of this analysis we have applied the ABS output multiplier of 1.6 for beef cattle to the \$416,000 pa in lost production, which has been inflated to \$460,000 pa for 2020 dollars. The multiplier output decrease is therefore estimated at approximately \$735,000 pa, which would result in a loss of 1.96 FTE jobs across the economy (this is based on an allocation of 1FTE job per \$375,000 of agricultural output – estimated by RMCG Consulting).

Indirect impacts are spread across local, regional, metropolitan and interstate economies. Assuming 50% of the multiplier impact applies to the Study Area, then approximately 1.0 FTE jobs would be lost indirectly (i.e. offsite) due to the Proposal.

6 Cumulative Impact Assessment

6.1 Major Infrastructure Projects Underway/Approved in the Study Area

The following major infrastructure projects are currently under construction or approved in the region (includes Study Area and Secondary Catchment), with this data sourced from (<https://www.energy.vic.gov.au>):

Under construction

- Dundonnell Wind Farm (Tilt Renewables) 336MW – 23km north-east of Mortlake (expected to be operational in late 2020)
- Mortlake South Wind Farm (Acciona Energy) 158 MW – 5km south of Mortlake (expected to be operational in late 2020).

Approved

- Hawkesdale (Global Power Generation) 104 MW – 35km north of Port Fairy
- Ryans Corner (Global Power Generation) 224 MW – 10km north of Port Fairy
- Woolsthorpe (Wind Farm Developments) 46 MW – 16km north of Warrnambool.

6.2 Cumulative Analysis

From an economic perspective, cumulative impacts are focused on the following factors:

- Labour supply
- Project construction services
- Accommodation supply.

Labour Supply: As noted in section 3, unemployment is relatively low in the Study Area (2.4%), although there are 710 job seekers who are unemployed who may contribute to the region's infrastructure projects (subject to appropriate skills mix). When the composition of the workforce is considered, the region has 36% of workers occupied in construction-related activities representing 8,750 workers. Workers occupied in the construction sector are reliant on ongoing work for their livelihoods; therefore, the pipeline of major infrastructure projects (including the Proposal) planned over the coming few years represents a boost for the sector – noting, these workers will have readily transferable skills to bring to new renewable projects.

Project Construction Services: As noted in section 3, the region has 1,130 construction-related businesses which indicates a strong capacity to service multiple infrastructure projects.

Accommodation Supply: As noted in section 3, the region has a wide range of accommodation including in Camperdown, Mortlake, Terang and Colac. Given the location of several approved projects, the accommodation rich townships of Port Fairy and Warrnambool will also provide significant supply to these projects. This broad supply of accommodation in the South-West area is likely to be adequate to support a number of concurrent major projects, noting the majority of project workers are likely to be local residents.

6.3 Timing of Projects

The Dundonnell and Mortlake South wind farms, which are underpinned by the Victorian Renewable Energy Auction Scheme, are under construction and anticipated to be completed and operational by late 2020.

The timing of other approved wind farm / renewable energy projects in the region is unclear with these projects as they are generally subject to the following hurdles:

- Once planning approval is secured, project construction is subject to factors such as securing network connection, attracting end-customers and project finance. Without these key elements in place, projects of this scale and nature generally cannot move forward to development.
- Potential network capacity constraints e.g. local infrastructure may not have the capacity to carry the entire output from all proposed renewable energy projects.
- Proponents may have a portfolio of approved renewable energy projects and need to prioritise which ones to develop (which may not include the projects in the region).
- Government policy changes (especially at a Federal and State level) can impact of the feasibility and timing of renewable energy projects, as well as investment confidence in the sector.
- Economic conditions may change, which make a project financially unviable.

6.4 Conclusions

- A number of major renewable energy project are under construction or approved in the region which may present cumulative impacts if constructed concurrently with the Proposal. However, in view of the large number of construction-related workers, businesses and accommodation supply in the region, this should not present a problem with regard to servicing several projects at the same time.
- Importantly the two major wind farm projects currently under construction in the region (Dundonnell and Mortlake South) are likely to be fully operational by the time the Proposal's construction phase commences; with uncertainty associated with the construction or timing of other approved projects.

7 Net Community Benefit Assessment

Net Community Benefit assesses economic, social and environmental factors. This report assesses net community benefit of the construction and operation of the Proposal from an economic perspective.

The economic and employment benefits associated with the construction and operation of the Proposal outweigh any negative economic impacts associated with the temporary loss of 588ha of agricultural land.

While this temporary loss of 588ha is estimated to reduce the regions agricultural output by \$460,000 pa (2020 dollars); this needs to be considered against the value of electricity production from the site (460,000 mwh) which is estimated at \$32.2 million pa, based on \$70 per MWh for Victoria (2020) (source: <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/annual-volume-weighted-average-spot-prices>).

Additionally, the local construction phase stimulus of \$28.0 million and the local operational phase stimulus of \$27.7 million over 30 years will generate significant benefit for the community.

Local employment (and training) will be supported during the construction phase of the project (105 FTE jobs). Ongoing local employment of 9 FTE jobs (direct and indirect) in the Study Area should also be welcomed, as these positions will be supported for 30 years and represent a net increase in employment, noting no direct jobs and only 1 indirect FTE job will be lost due to the solar farm project.

Other positive project outcomes include:

- Contribution to the diversification of the economy in Corangamite Shire.
- Offer of a Community Fund to support local projects and programs.

Table 7.1 summarises the negative and positive economic impacts from the development and operation of the Proposal.

Table 7.2 provides an estimate of the value of alternative production at the Site over a 30-year period.

- In summary, the analysis demonstrates the project delivers a strong net community benefit for the Study Area, with the construction and operational benefits (employment and economic stimulus) outweighing any agricultural impacts associated with the temporary use of the land for the solar farm site.
- Cumulative impacts arising from the construction of the Proposal, along with other major projects in the region, are likely to be manageable.

Table 7.1: Bookaar Solar Farm – Net Community Benefit Assessment

Factor	Value
<i>Negative Community Outcomes</i>	
Temporary loss of agricultural land (non-irrigated and non-strategic)	588 ha
Indirect (multiplier) loss of employment	1.0 FTE job
<i>Positive Community Outcomes</i>	
Construction Phase	
Capital investment	\$280 million
Local investment	\$28.0 million (assumes 10% of total investment)
Local construction employment	105 FTE local jobs (over 12 months)
Operational Phase	
<i>Employment</i>	
Local operational employment (includes direct and indirect jobs)	9.0 FTE local jobs (for 30 years)
<i>Economic Stimulus</i>	
Net Council income	\$12.8 million (over 30 years)
Net wage stimulus	\$14.0 million (over 30 years)
Community Fund income	\$0.9 million (over 30 years)
Total net local economic stimulus (associated with operations)	\$27.7 million (over 30 years)

Source: Bookaar Renewables Pty Ltd; Ethos Urban

Table 7.2: Site – Estimated Value of Production over 30 years (adjusted for CPI), for Various Land Uses

Land Use	Value
Vale of Agricultural Production	\$18,900,000
Value of Electricity Production	\$1,414,000,000

Source: Australian Energy Regulator; Bookaar Renewables Pty Ltd; RMCG Consulting and Ethos Urban