ESSENTIAL ECONOMICS

Baringhup Solar Farm Project

Economic Impact Assessment

FINAL

Prepared for

RES Australia

by

Essential Economics Pty Ltd

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EXECUTIVE SUMMARY

RES Australia Pty Ltd (RES) have commissioned Essential Economics Pty Ltd to prepare an Economic Impact Assessment for a proposed 75 Mega Watt (MW) Baringhup Solar Farm development to be located approximately 20 kms north-east of Maryborough in central Victoria.

The solar farm will be located across a 300ha property and, subject to planning approval and financing, the facility is expected to be operational by late 2019.

The main findings of this study are summarised as follows.

Regional Economic Context

1 The Study Area (comprising the City of Ballarat, City of Greater Bendigo, Mount Alexander Shire, Central Goldfields Shire and Hepburn Shire) has a resident population of approximately 267,000 persons (2017), which is expected to reach approximately 315,000 persons by 2031 representing a modest annual growth rate of 1.2% over the period. However, outside the major regional cities of Ballarat and Bendigo, population growth is forecast to be modest; therefore, major projects which stimulate new investment and jobs should be encouraged in terms of supporting the regional economy in these primarily rural areas.

2 The Study Area currently has an unemployment rate of 5.5 %, which is below the Victorian unemployment rate of 6.0%, but slightly above the regional Victorian unemployment rate of 5.4% (December 2017). However, the unemployment rates in Greater Bendigo (7.1%) and Central Goldfields Shire (7.2%) are well above State and regional averages and the Study Area currently includes 7,060 persons who are unemployed. In this regard construction of the Baringhup Solar Farm project provides new short-term employment opportunities for the region's labour force participants, with a small amount of ongoing employment also supported once the facility is operational.

3 The Study Area's occupational and business structures indicate a good base exists to service the needs of the solar farm project, including approximately 35,400 construction-related workers (based on occupation) and approximately 4,900 construction and transport businesses.

4 The major regional cities of Ballarat and Bendigo have the capacity and labour force to service many aspects of the Project. The regional towns of Maryborough and Castlemaine are also likely to play important project roles, with smaller settlements such as Baringhup, Carisbrook, Clunes, Daylesford and Maldon likely to provide labour and accommodation services to the Project.

Economic Impact Assessment

5 The Baringhup Solar Farm project will involve approximately $195 million in investment during the construction phase and will support 130 direct and 210 indirect positions

over the construction period. Once operational, 3 direct and 9 indirect jobs will be supported by the facility.

6 Allowing for the Project to be carefully managed around the region's peak times for harvesting activity and the scheduling of other infrastructure projects in the region, accessing adequate labour supply should not present an issue for the Project, noting the peak local employment requirement for the Project (130 jobs) represents less than 1% of workers occupied in construction-related activities in the Study Area (35,410 workers).

7 The only approved infrastructure project in the immediate area that may be constructed at the same time as the solar farm is the Strathlea chicken broiler project; however, this project is unlikely to impact on labour and resources required to support the Baringhup Solar Farm project given the Projects relatively small scale (up to 50 construction jobs).

8 The Project will provide significant participation opportunities for businesses and workers located in the Study Area, having regard for the good match of skills and resources available. In this regard, the proponent and organisations such as the Industry Capability Network might be involved in ensuring maximum local inputs are secured.

9 The 'external' project labour requirement would be expected to generate an accommodation need for 30 project workers at the peak of the Project. This represents less than 2% of total commercial accommodation rooms in the Study Area and would provide a boost to local accommodation operators, noting that room occupancy rates of only 56% were recorded across the Study Area in the June Quarter 2016 (latest available).

10 Construction workers would be expected to inject approximately $1.4 million in additional spending into the regional economy over the construction phase, supporting around 7 jobs in the service sector in Castlemaine. Maryborough and the broader Study Area.

11 Approximately 300ha of productive agricultural land (cropping and grazing) might be lost to accommodate the solar farm. However, this represents only 0.03% of all productive cropping land supply in the North Central NRM Region with the proponent looking to continue grazing on the site, under the solar structure potentially reducing the amount of land lost to the Project. Importantly, the host landowner will improve their annual income, as operator payments will be greater than average farm income from the land and the land can be returned to cropping at the end of the solar farms lifecycle.

12 Ongoing economic stimulus associated with new local wage spending and returns to host landowners is estimated at $16.9 million over 25 years (adjusted for CPI @ 2.5% pa).

13 Additionally, rates returns to Mount Alexander Shire Council through the operation of the solar farm are estimated at $5.7 million over 25 years (adjusted for CPI @2.5%).

14 The proposed Community Fund would consist of a $125,000 one-off payment by the proponent, which can be directed to new community infrastructures and programs.

15 The Project has the capacity to supply sufficient clean energy to power approximately 44,000 homes and, in the process, to reduce C02 emissions by 170,000 tonnes per year.

16 Once operational, the Baringhup Solar Farm could potentially support small-scale tourism and educational opportunities in the future.

INTRODUCTION

Background

RES Australia Pty Ltd (RES) have commissioned Essential Economics Pty Ltd to prepare an Economic Impact Assessment for the proposed Baringhup Solar Farm development to be located at 137 Baringhup Road, Baringhup West approximately 20km north-east of Maryborough and 30km north-west of Castlemaine in central Victoria.

The proposed development will be situated on a 300ha site which involves a single landholding. The solar farm will have a capacity of 75 MW powered by up to approximately 265,000 photovoltaics panels. Subject to planning approval and financing, construction of the Baringhup Solar Farm is anticipated to start in mid-2019 with the facility fully operational by mid-2020.

Objectives

The objectives of this project are:

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

This Report

This report contains the following chapters:

Chapter 1: **Project Context**
Presents a description of site location, project components, policy context and definition of Study Area.

Chapter 2: **Regional Economic Profile**
Presents an overview of population, labour force, occupational structure, business structure and township services, including an audit of available commercial accommodation in the Study Area.

Chapter 3: **Economic Impact Assessment of Proposed Project**
Presents an assessment of the economic impacts of the proposed development including investment, employment, business participation, local wage stimulus, impact on accommodation, impact on agricultural activities, cumulative impacts, local economic stimulus, financial returns to Council and the community and environmental benefits.

1 PROJECT CONTEXT

1.1 Site Location

The proposed Baringhup Solar Farm will be developed on a site in located in central Victoria which is very well connected to a number of major regional centres and towns which are listed below (in order of population):

- Ballarat – major regional city located approximately a 70-minute drive to the north of the subject site
- Bendigo – major regional city located approximately 55 minutes' drive to the north-east of the subject site
- Castlemaine – large township located approximately 30 minutes' drive to the south-east of the subject site
- Daylesford – large township located approximately 50 minutes' drive to the south of the subject site
- Maryborough – small township located approximately 20 minutes' drive to the south-west of the subject site
- Clunes – small township located approximately 40 minutes' drive to the south of the subject site
- Maldon – small township located approximately 15 minutes' drive to the east of the subject site
- Carisbrook – small township located approximately 10 minutes' drive to the south-east subject site
- Baringhup – small township located approximately 5 minutes' drive to the north-east of the subject site

These regional centres and townships, to differing extents, are likely to play important roles in supporting the requirements of the Project.

The subject site, which comprises a single landholding, is approximately 300ha in size and is currently used for farming purposes (cropping and grazing) under the Farming Zone (FZ). It is estimated most of the site (230ha) will be utilised for solar farm infrastructure.

The Baringhup Solar Farm will require planning approval by Mount Alexander Shire Council.

1.2 Project Description

The Project will consist of a Solar Photovoltaics (PV) facility of up to 75MW AC, including 263,000 PV panels mounted on 3,025 single axis tracker racks. The PV modules for a tracker

array are generally arranged north to south, with the panels tilting around a centre rail to follow the sun's trajectory throughout the day.

A number of graded tracks across the site will allow all-weather access for construction and operational maintenance. An operations and maintenance building with associated carparking will be constructed to service the solar farm.

The solar farm will be connected to the electricity grid through an existing 66kV overhead line running along the south eastern site boundary. An onsite substation and switchyard will be constructed as part of the Project.

The proponent is looking to provide for continued grazing on the site beneath the solar structure.

The Project will also include an Energy Storage Solution of approximately 150MWh rated capacity which will be provided by banks of Lithium-Ion batteries. These batteries will either be housed in a centralised purpose-built building or be located in decentralised 40-foot shipping containers which would sit adjacent to each PCU (Power Control Unit). If located in a centralised purpose-built building, the Energy Storage Solution would encompass 1.26 hectares of the utility area and would have a length of 75 metres, a width of 16.5 metres and would be 5.5 – 6.4 metres in height.

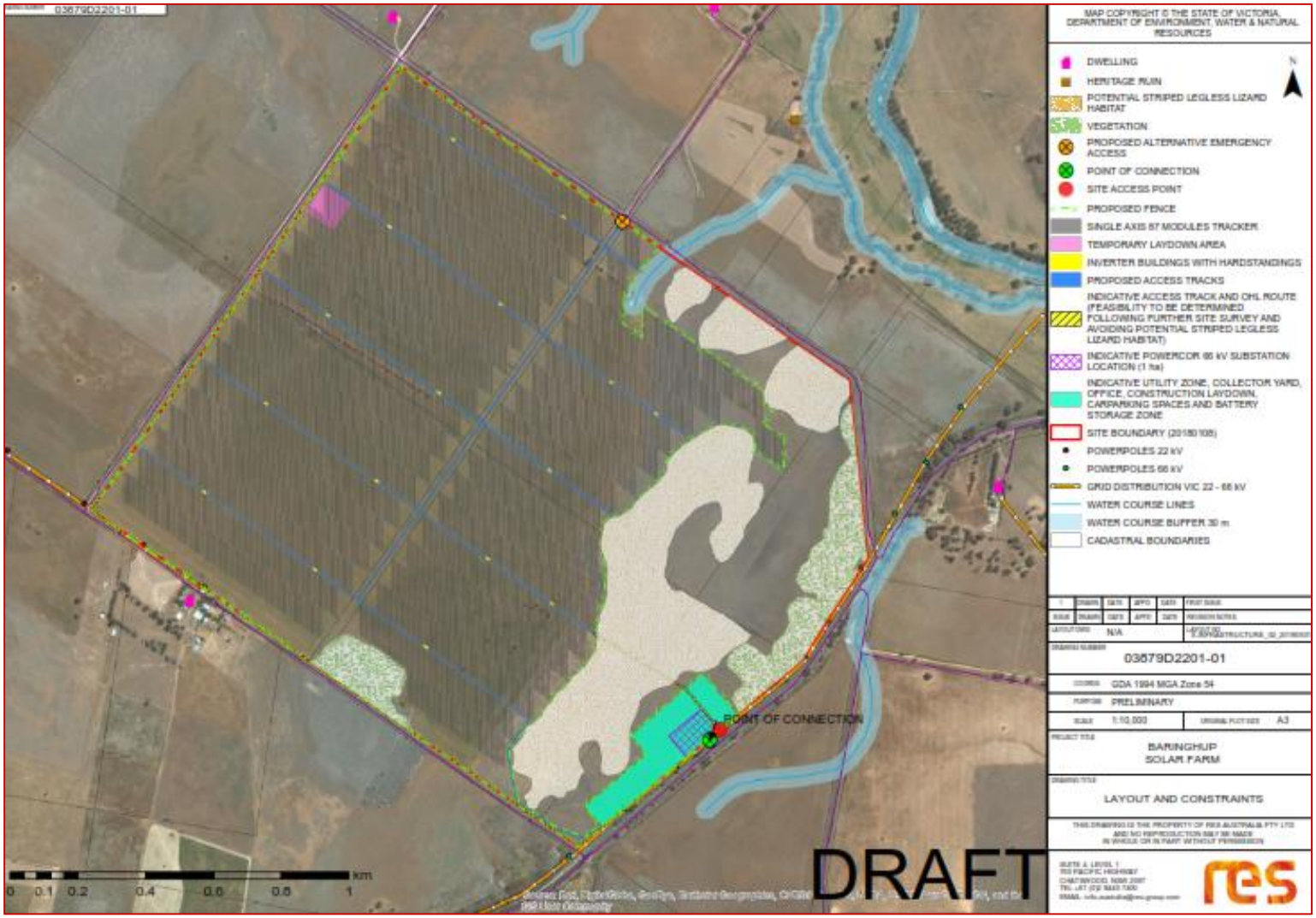
The purpose of the Energy Storage Solution is to store surplus electrical energy during periods of excess generation and dispatch this energy at times of generation deficiency. The Energy Storage Solution will also provide grid services including energy smoothing and frequency control integration and improved reliability. Use of storage for "energy arbitrage" applies when the price difference is such that energy can be stored during periods of low demand and then discharged during periods of high demand. The storage facility will be used to provide energy storage for the solar farm development.

The Baringhup Solar Farm location is outlined in Figure 1.1 and the preliminary site layout is shown in Figure 1.2.

Figure 1.1: Baringhup Solar Farm – Site Location

Source: RES Australia

Figure 1.2: Baringhup Solar Farm – Preliminary Site Layout



Source: RES Australia

1.3 Policy Context

International agreements and Federal and State policy settings are important factors in influencing demand and investment in the renewable energy sector, as noted below.

Paris Climate Accord

The Paris Accord is a comprehensive international climate agreement to which Australia is a party. The Accord provides a framework for participating nations to set themselves nationally-determined contributions (NDCs), beginning in 2020 with review at five-year intervals. The agreement sets out a global consensus to limit temperature increases to below two degrees Celsius when compared to pre-industrial levels; an additional goal is to maintain this increase at less than one and a half degrees Celsius. NDCs do not have any set lower limit but are required to progress over time (beginning with the intended NDC pledged during the Paris conference), and to be 'ambitious'. Australia's current targets are a reduction of emissions by five percent from 2000 levels by 2020, and by 26-28 percent below 2005 levels by 2030.

Federal Renewable Energy Target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

The RET works by allowing both large-scale power stations and the owners of small-scale systems to create certificates for every megawatt hour of power they generate. Certificates are then purchased by electricity retailers who sell the electricity to householders and businesses. These electricity retailers also have legal obligations under the RET to surrender certificates to the Clean Energy Regulator, in percentages set by regulation each year. This creates a market which provides financial incentives to both large-scale renewable energy power stations and the owners of small-scale renewable energy systems.

In June 2015, the Australian Parliament passed the Renewable Energy (Electricity) Amendment Bill 2015. As part of the amendment bill, the large-scale RET was reduced from 41,000 GWh to 33,000 GWh in 2020, with interim and post-2020 targets adjusted accordingly.

Finkel Report

The Independent Review into the Future Security of the National Electricity Market, released in June 2017, is a report commissioned by the Federal Government in order to establish a framework for the development the Australian energy sector. Also known as the Finkel Report, it recommends the use of a Clean Energy Target (CET) scheme to stimulate renewable energy production throughout the National Electricity Market (NEM). This would likely replace the present Federal RET scheme due to expire in 2020 and would result in a more technology-neutral allocation of renewable energy generation certificates; any generator producing energy at a level of pollution below a benchmark rate would be eligible as opposed to only specific technologies as with the RET scheme. The report modelled outcomes utilising this type of scheme to achieve the trajectory committed to by the federal government by 2030 and determined that renewable energy would constitute approximately 42 percent of the NEM at

this time. Other policies including an Emissions Intensity Scheme and lifetime limits on coal-powered generation were considered, with the report deeming CET the most effective based on their model.

The Federal Government recently signalled its response to the Finkel Report, which does not include a CET. The Federal Government's proposal is based on a National Energy Guarantee scheme, involving the following main components:

- No subsidies for renewable or any other kind of energy generators
- Power companies will be forced to guarantee on-demand electricity from coal, gas, hydro or batteries that store renewable energy
- Power companies will also be forced to keep carbon dioxide emissions below a certain level, through the purchase of low emissions generated energy.

Implementation of the proposed National Energy Guarantee scheme will likely require Federal parliamentary legislation and will need the agreement of States and Territories.

Victoria

In June 2016, the Victorian Government announced new renewable energy targets (VRET) for the state of 25 per cent by 2020, and 40 per cent by 2025, to help combat greenhouse emissions. These targets are more ambitious than the government's previous target of 20 per cent renewable energy by 2020, with the government estimating the need for 5,400 MW of new renewable energy capacity across the state to achieve the new targets.

A competitive auction process will be used to help Victoria reach these targets. Through this process, renewable energy developers will bid for the long-term contracts needed to make their projects viable.

The 2017 Victorian Renewable Energy Auction Scheme (VREAS) is currently open for bids, with the aim of awarding commercial contracts of 650MW through a Request for Proposal process. The format of the auction will be a reverse auction, with bids for up to 550MW for large scale technology neutral renewable energy (including wind farms) and for up to 100 MW of large scale solar-specific renewable energy.

1.4 Study Area

The principal Study Area for the Project has been defined as the Local Government Areas (LGAs) of:

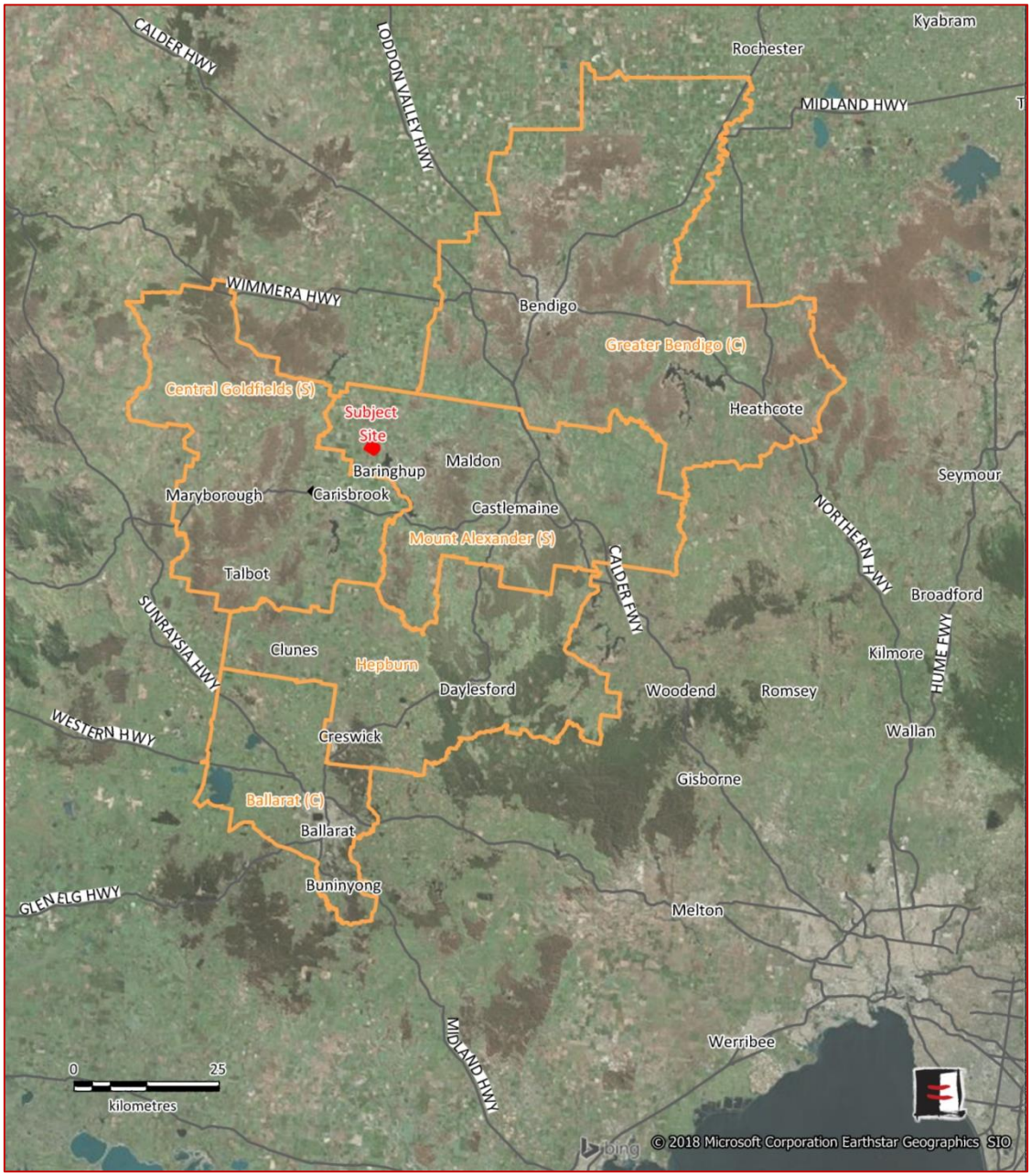
- City of Greater Bendigo
- Mount Alexander Shire (in which the subject site is located)
- City of Ballarat
- Central Goldfields Shire
- Hepburn Shire

The main regional cities/townships/settlements in these LGAs are all located within an hour's drive of the subject site.

These LGAs, to differing extents, all have the potential to contribute to the Project and derive economic benefits from both the construction and ongoing phases of the Project.

This Study Area is illustrated in Figure 1.3.

Figure 1.3: Baringhup Solar Farm – Study Area



Source: Essential Economics

1.5 Summary

1 RES Australia is proposing the construction of the 75 MW Baringhup Solar Farm approximately 20km north-east of Maryborough and 30km north-west of Castlemaine in central Victoria.

2 The solar farm facility will be located across a single 300ha property, with a development area of 230ha.

3 Subject to planning approval and financing, it is anticipated construction of the solar farm could start in mid-2019, and the facility may be operational by mid-2020.

4 In recent years, federal and state governments have updated long-term renewable energy targets, and this should provide greater investment certainly within the sector in the short-term (i.e. 2020). However, the National Energy Plan is currently being formulated by the Federal Government and at this stage it is unclear as to the eventual impact on the renewable energy sector, noting the proposed Clean Energy Target (Finkel Report) is unlikely to feature in the Plan. In Victoria the current State Government has introduced the VRET (40% renewable energy target by 2025) supported by the 2017 VREAS which aim to underpin 650 MW of new renewable energy through commercial contracts between the sector (supplier) and the State Government (customer).

5 This economic impact study will provide an understanding of potential economic benefits arising for the local and regional economies and communities through the construction and operational stages of the Baringhup Solar Farm project.

2 REGIONAL ECONOMIC PROFILE

2.1 Population

The population of the Study Area totalled approximately 266,860 persons as of June 2017 (ABS Estimated Resident Population).

Over the period 2017-2031, annual population growth in the Study Area is expected to be below average at +1.2% pa (or +68,180 persons over 14 years) compared to the Victorian growth rate of 1.4% pa over the period. These estimates, which are shown in Table 2.1, are based on official population forecasts prepared by the Victorian Government.

Population growth in the Study Area is underpinned by the Bendigo and Ballarat municipalities whose populations are forecast to increase by +31,010 persons and +31,540 persons respectively over 14-year period.

In contrast, the mainly rural municipalities of Mount Alexander Shire, Central Goldfields Shire and Hepburn Shire are forecast to experience very low annual population growth rates (0.3%, 0.0% and 0.4% respectively) between 2017 and 2031. These population projections highlight economic trends experienced in many rural areas over recent years, especially those with a high reliance on the agricultural sector and which have been negatively impacted variously by drought, an uncompetitive exchange rate, and an ageing labour force.

In this context the proposed Baringhup Solar Farm will provide an alternative drought-proofed, guaranteed income to the host farm for 25 years; while the construction and operational phases of the Project will provide an economic stimulus (jobs, project contracts, new spending etc) to the regional economy, including small towns and rural settlements in these shires.

Table 2.1: Population – Study Area, 2017-2031

Municipality	2017[1]	2031[2]	Change 2017-31	AAGR 2017-31
City of Bendigo	113,620	144,630	31,010	1.7%
City of Ballarat	105,330	136,870	31,540	1.9%
Mount Alexander Shire	19,170	19,970	800	0.3%
Hepburn Shire	15,670	16,480	810	0.4%
Central Goldfields Shire	13,070	13,090	10	0.0%
Study Area	**266,860**	**314,560**	**64,180**	**1.2%**
Victoria	**6,323,610**	**7,733,280**	**1,409,670**	**1.4%**

Source: [1] ABS, 3218.0 Regional Population Growth, Australia; [2] Victoria in Future 2016, Department of Environment, Water, Land and Planning.
Notes: AAGR = Annual Average Growth Rate
Figures rounded

2.2 Labour Force

As of December 2017 (latest available) the Study Area had an unemployment rate of 5.5% which is slightly above the regional Victorian unemployment rate of 5.4% but below the Victorian unemployment rate of 6.0%.

However, unemployment rates are very high in the City of Bendigo (7.1%), Central Goldfields Shire (7.2%); with Mount Alexander Shire (where the subject site is located) having an unemployment rate (5.8%) above regional Victorian average.

As Table 2.2 shows, in September 2017 the Study Area's labour force totalled 120,750 persons, including 7,060 persons who were unemployed.

The Baringhup Solar Farm project is likely to require 130 workers (at peak), with some of these workers being sourced from outside the Study Area (eg management, specialists). In the context of the Study Area's large labour market and the number of job seekers currently unemployed, the Baringhup Solar Farm project is unlikely to cause labour supply issues, rather provide new short-term opportunities for labour force participants (including existing unemployed persons – subject to appropriate skills match).

It is recognised; however, that parts of the Study Area are reliant on the agricultural sector and that significant labour resources are required on a seasonal basis for harvesting and related activities. Additionally, other infrastructure projects may be developed at the same time as the construction of the Baringhup Solar Farm and implications will also need to be considered in terms of regional labour supply.

These labour supply factors are further explored in Chapter 3.

Table 2.2: Labour Force – Study Area, December 2017

Municipality / Area	Employed	Unemployed	Total Labour Force	Unemployment Rate
City of Ballarat	52,060	2,290	54,340	4.2%
City of Bendigo	48,180	3,660	51,840	7.1%
Mount Alexander Shire	7,770	480	8,250	5.8%
Hepburn Shire	7,700	250	7,950	3.1%
Central Goldfields Shire	5,040	390	5,430	7.2%
Study Area	**120,750**	**7,060**	**127,810**	**5.5%**
Regional Victoria	**708,200**	**40,100**	**748,300**	**5.4%**
Victoria	**3,204,400**	**203,000**	**3,407,400**	**6.0%**

Source: Australian Government Department of Employment, *Small Area Labour Markets – December Quarter 2017*
Figures rounded

2.3 Occupational Structure

The skills base of the Study Area is reflected in its occupational structure, as shown in Table 2.3. ABS Census data for 2016 shows 32% of Study Area workers were occupied in activities

generally associated with the types of skills required for the construction of a solar farm (i.e. technicians and trades workers, machinery operators & drivers, and labourers).

The Study Area's representation in these occupations is well above the State averages of 28%, indicating a generally suitable occupational base for the proposed project.

In total numbers, approximately 35,410 workers in the Study Area are occupied in construction-related activities highlighting the strong worker base available to support the Project.

Table 2.3: Occupational Structure – Study Area, 2016

	City of Bendigo		Mount Alexander Shire		City of Ballarat		Central Goldfields Shire		Hepburn Shire		Study Area		Victoria
Occupational Type	No.	Share	No.	Share	No.	Share	No.	Share	No.	Share	**No.**	**Share**	**Share**
Managers	5,349	11.0%	1,081	14.3%	4,848	10.8%	538	12.40%	1,077	17.0%	**12,893**	**11.5%**	**13.5%**
Labourers	5,758	11.8%	993	13.1%	4,621	10.3%	774	17.80%	749	11.8%	**12,895**	**11.6%**	**9.0%**
Technicians and Trades Workers	7,064	14.5%	1,042	13.8%	6,440	14.4%	725	16.60%	1,005	15.8%	**16,276**	**14.6%**	**13.1%**
Professionals	9,794	20.1%	1,798	23.8%	9,735	21.8%	491	11.30%	1,213	19.1%	**23,031**	**20.6%**	**23.3%**
Clerical and Administrative Workers	6,033	12.4%	728	9.6%	5,618	12.6%	403	9.30%	681	10.7%	**13,463**	**12.1%**	**13.3%**
Community and Personal Service Workers	5,904	12.1%	869	11.5%	5,615	12.6%	557	12.80%	772	12.2%	**13,717**	**12.3%**	**10.6%**
Machinery Operators and Drivers	2,947	6.1%	344	4.6%	2,345	5.2%	300	6.90%	303	4.8%	**6,239**	**5.6%**	**5.8%**
Sales Workers	5,100	10.5%	583	7.7%	4,795	10.7%	491	11.30%	452	7.1%	**11,421**	**10.2%**	**9.7%**
Not stated /inadequately described	720	1.5%	120	1.6%	705	1.6%	70	1.60%	95	1.5%	**1,710**	**1.5%**	**1.7%**
Total	**48,669**	**100.00%**	**7,558**	**100.00%**	**44,722**	**100.00%**	**4,349**	**100.00%**	**6,347**	**100.00%**	**111,645**	**100.00%**	**100.00%**

Source: ABS Census of Population and Housing 2016

2.4 Business Structure

One of the more tangible benefits of a major investment project, such as the proposed Baringhup Solar Farm, is the extent to which local businesses can participate in the Project through project contracts and other service provision.

ABS Business Count data for 2017 (latest available) shows the Study Area includes 3,840 construction businesses and a further 1,060 businesses associated with transport, postal and warehousing service, with these two sectors contributing 4,900 businesses or 25% of all businesses located in the Study Area.

This data, which is included in Table 2.4, indicates a strong presence in the Study Area of the types of firms that are likely to be well-placed to service aspects of the Project. This opportunity is explored in more detail in the following Chapter.

Table 2.4: Business Structure – Study Area, 2017

	City of Bendigo		Mount Alexander Shire		City of Ballarat		Central Goldfields Shire		Hepburn Shire		Study Area	
Industry Sector	No.	Share	No.	Share	No.	Share	No.	Share	No.	Share	No.	Share
Agriculture, Forestry and Fishing	608	7.8%	231	15.4%	450	5.4%	192	23.7%	307	20.7%	1,788	9.0%
Mining	35	0.4%	6	0.4%	22	0.3%	3	0.4%	7	0.5%	73	0.4%
Manufacturing	333	4.3%	82	5.5%	352	4.2%	51	6.3%	56	3.8%	874	4.4%
Electricity, Gas, Water and Waste Services	26	0.3%	7	0.5%	13	0.2%	6	0.7%	3	0.2%	55	0.3%
Construction	**1,648**	**21.2%**	**245**	**16.3%**	**1,599**	**19.2%**	**115**	**14.2%**	**237**	**16.0%**	**3,844**	**19.3%**
Wholesale Trade	220	2.8%	43	2.9%	225	2.7%	23	2.8%	45	3.0%	556	2.8%
Retail Trade	579	7.4%	131	8.7%	509	6.1%	56	6.9%	96	6.5%	1,371	6.9%
Accommodation and Food Services	383	4.9%	73	4.9%	405	4.9%	52	6.4%	110	7.4%	1,023	5.1%
Transport, Postal and Warehousing	**453**	**5.8%**	**64**	**4.3%**	**421**	**5.0%**	**53**	**6.5%**	**68**	**4.6%**	**1,059**	**5.3%**
Information Media and Telecommunications	52	0.7%	18	1.2%	60	0.7%	4	0.5%	17	1.1%	151	0.8%
Financial and Insurance Services	619	8.0%	73	4.9%	998	12.0%	41	5.1%	67	4.5%	1,798	9.0%
Rental, Hiring and Real Estate Services	709	9.1%	106	7.1%	914	11.0%	50	6.2%	101	6.8%	1,880	9.4%
Professional, Scientific and Technical Services	720	9.3%	195	13.0%	790	9.5%	44	5.4%	164	11.1%	1,913	9.6%
Administrative and Support Services	199	2.6%	33	2.2%	245	2.9%	18	2.2%	39	2.6%	534	2.7%
Public Administration and Safety	29	0.4%	3	0.2%	16	0.2%	3	0.4%	3	0.2%	54	0.3%
Education and Training	106	1.4%	19	1.3%	93	1.1%	14	1.7%	16	1.1%	248	1.2%
Health Care and Social Assistance	493	6.3%	60	4.0%	616	7.4%	32	4.0%	56	3.8%	1,257	6.3%
Arts and Recreation Services	81	1.0%	43	2.9%	118	1.4%	13	1.6%	27	1.8%	282	1.4%
Other Services	413	5.3%	62	4.1%	395	4.7%	36	4.4%	50	3.4%	956	4.8%
Industry not classified	72	0.9%	9	0.6%	99	1.2%	4	0.5%	12	0.8%	196	1.0%
Total	**7,778**	**100.0%**	**1,503**	**100.0%**	**8,340**	**100.0%**	**810**	**100.0%**	**1,481**	**100.0%**	**19,912**	**100.0%**

Source: ABS Counts of Australian Businesses, including Entries and Exits, June 2013 to June 2017

2.5 Township Services Capacity

Commercial Accommodation

The ability to accommodate non-local workers (i.e. those who are not resident in the Study Area or not living within a daily commutable distance) is a key consideration for major construction projects, especially in regional and rural areas underpinned by agricultural activity that are subject to seasonal demand for labour (eg harvesting). Concurrent infrastructure projects also need to be considered when assessing the adequacy of accommodation for a particular construction project (refer to section 3.3).

As Table 2.5 highlights, the Study Area has a good supply of commercial accommodation as measured by the ABS Tourism Accommodation series for June Quarter 2016 (latest available). This data, which identifies supply for hotels, motels and apartments with 15 rooms or more for the Bendigo-Loddon, Spa Country and Ballarat Tourism Regions (which broadly reflects the Study Area), shows the Study Area contained 71 establishments and 2,290 rooms as of June 2016.

Room occupancy rates in the Study Area (56%) can be considered below average compared to the Victorian average room occupancy rate of 68%, indicating the solar farm project will boost the commercial accommodation sector, especially during off-peak periods.

At a more local level a detailed review of the ABS Tourism Accommodation data shows establishments in Maryborough and Castlemaine had room occupancy rates of 54% and 51% respectively in the June Quarter 2016 highlighting hosting opportunities for these specific townships which are located less than 30 minutes' drive from the subject site.

Accommodation requirements and impacts associated with the Project are further discussed in section 3.5.

Table 2.5: Hotel, Motel and Apartments Accommodation (with 15 Rooms or more) – Study Area, June Quarter 2016

	No. of Establishments	No. of Rooms	Room Nights Available	Room Nights Occupied	Room Occupancy Rate
Bendigo-Loddon TR	35	1,050	95,460	60,620	64%
Spa Country TR	6	280	25,390	12,460	49%
Ballarat TR	30	960	87,180	43,250	50%
Study Area	**71**	**2,290**	**208,030**	**116,330**	**56%**
Victoria	**849**	**48,040**	**4,334,890**	**2,969,150**	**68%**

Source: ABS Tourism Accommodation, Australia 2015-16

In addition to commercial accommodation outlined above, the Study Area also provides a range of additional options which might be used for worker accommodation, including the following options close to the subject site (i.e. within a 30-minute drive):

- Caravan/ Holiday parks providing cabins, such as:

  - Loddon House Holiday Park, Baringhup
  - Maryborough Caravan Park, Maryborough
  - Golden Country Motel, Cabins & Caravan Park, Maryborough
  - Maldon Caravan and Camping Park, Maldon
  - Castlemaine Central Cabin and Van Park, Castlemaine
  - Castlemaine Gardens Caravan Park, Castlemaine
- Bed and Breakfast facilities
- Guest houses
- Pubs/hotels

Private Accommodation

Private accommodation is often used to support construction worker needs, this could be through leasing of holiday homes and investment properties, either privately or through real estate. ABS Census data for 2016 indicates the Study Area has an above average level of vacant dwellings. As Table 2.6 shows, 13.2% of Study Area dwellings were unoccupied at the Census, which above the average for Victoria (11.7%). Of particular importance are the relatively high dwelling occupancy rates in Mount Alexander Shire (15.5%) in which the solar farm project is located, and Hepburn Shire (25.2%) which includes the major tourist town of Daylesford. This data indicates potential private accommodation opportunities will be generated for homeowners in the region.

Shared private housing accommodation is one potential option for the solar farm project, and this is further explored in section 3.5.

Table 2.6: Unoccupied Dwellings – Study Area, June 2016

	Occupied Dwellings	Unoccupied Dwellings	Total Dwellings	Unoccupied Dwelling Share
City of Bendigo	41,360	5,015	46,375	10.8%
Mount Alexander Shire	7,375	1,350	8,725	15.5%
City of Ballarat	38,445	4,505	42,950	10.5%
Central Goldfields Shire	5,455	845	6,300	13.4%
Hepburn Shire	6,024	2,032	8,056	25.2%
Study Area	**98,659**	**13,747**	**104,350**	**13.2%**
Victoria	**2,112,700**	**278,630**	**2,391,300**	**11.7%**

Source: ABS Census of Population and Housing, 2016

Township Services

In addition to accommodation, workers locating temporarily to the Study Area will require a wide range of other convenience services, and the Project will also need to source trade, equipment hire and other services from businesses located in the immediate region.

The following sections provide an overview of the services located in the regional centres and main townships in the Study Area – Ballarat, Bendigo, Castlemaine, and Maryborough.

Other townships in the Study Area such as Baringhup, Carisbrook, Clunes, Daylesford and Maldon also have potential to provide services to the Project, principally by way of accommodation provision and labour supply.

Ballarat

Figure 2.1: Images of Ballarat Town Centre

Source: www.bing.com

Ballarat, with a population of approximately 100,000 persons, is one of Victoria's largest cities and as such provides an extensive range of services likely to be required to support a major infrastructure project such as the proposed solar farm. Ballarat is located approximately 80km south of the subject site, or a 70-minute drive mainly along the Ballart-Maryborough Road. Ballarat's key services include:

- Construction firms (Eureka Concrete, Boral Concrete, Coates Hire)
- Trade Suppliers (Bunnings Warehouse, Mitre 10, Dahlsens, Home Timber & Hardware)
- Freight and transport services (numerous)
- Wide range of auto mechanics
- Engineering services (numerous)
- All major fuel suppliers
- Commercial and private accommodation (see above Tables)
- Significant retail services - including major shopping centres and department stores

- Wide range of cafes and restaurants
- Entertainment (hotels, clubs, sports and recreational facilities)
- All major banks and financial institutions (Bendigo Bank and Commonwealth Bank)
- Real estate agents (numerous)
- Employment agencies (Western District Employment Access, Simpsons, Workforce International)
- Medical and emergency services including two major hospitals (Ballarat Base Hospital and St John of God Hospital), both with 24-hour emergency departments.

Bendigo

Figure 2.2: Images of Bendigo Town Centre

Source: www.bing.com

Bendigo has a population of approximately 95,000 persons, and like Ballarat, provides considerable support services for major infrastructure projects. Bendigo is located approximately 50km north-west of the subject site, or a 55-minute drive via Maldon. Bendigo's key services include:

- Construction firms (Boral Concrete, Mawsons Concrete, Bendigo Hire, Coates Hire)
- Trade Suppliers (Bunnings Warehouse, Mitre 10)
- Freight and transport services (numerous)
- Wide range of auto mechanics
- Engineering services (numerous)
- All major fuel suppliers
- Commercial and private accommodation (see above Tables)
- Significant retail services - including major shopping centres and department stores
- Wide range of cafes and restaurants

- Entertainment (hotels, clubs, sports and recreational facilities)
- All major banks and financial institutions (Bendigo Bank and Commonwealth Bank)
- Real estate agents (numerous)
- Employment agencies (Matchworks, Fox Personnel)
- Medical and emergency services including the St John of God Hospital which has a 24-hour emergency department.

Maryborough

Figure 2.3: Images of Maryborough own Centre

Source: www.bing.com

Maryborough (population of approximately 8,000 persons) is the closest large settlement to the Subject Site, comprising a 20-minute drive (20km) along Baringhup Road via Carlisbrook. Maryborough offers a mix of small-scale industry support services and a range of township services for relocating workers; therefore, is likely to perform a key project role. Maryborough's township services include:

- Construction-related services located in and around Hamer Industrial Estate, including Eureka Concrete, Maryborough Machinery Hire, Leech Earthmoving Contractors, auto mechanics, steel fabricators, Maryborough Transport Services, Central Victorian Transporters etc.
- Trade supplies (Mitre 10)
- Fuel supplies (Caltex diesel outlet, United, Shell)
- Good range of commercial and private accommodations options
- Cafes, bakeries and restaurants
- Entertainment (hotels, clubs, Lake Victoria, sports and recreational facilities)
- Retail services including Aldi, Coles, IGA, Woolworths, pharmacies
- Real estate (Maryborough Real Estate, Professionals Maryborough)

- Employment agencies (Goldfields Employment and Learning Centre)
- Most major banks and financial institutions (ANZ, Commonwealth, Westpac)
- Some medical facilities, including Castlemaine Hospital and medical centres
- Medical and emergency facilities (Maryborough Public Hospital)

Castlemaine

Figure 2.4: Images of Castlemaine Town Centre

Source: www.bing.com

Castlemaine is a regional township of approximately 7,000 persons, which is located approximately 30km or a 30-minute drive east of the subject site via Maldon.

While Castlemaine does not provide many construction support services, the township offers an attractive location for project workers relocating to the area. This is highlighted by Castlemaine's growing reputation as a tourist destination (eg food & wine, arts & culture, heritage) and as a commuter town for those working in Melbourne. Castlemaine's township services include:

- Good range of commercial and private accommodations options, including boutique accommodation
- Cafes, bakeries and restaurants, including fine dining facilities
- Theatre Royal (Cinema, theatre, live music)
- Castlemaine Art Museum, galleries and antique stores
- Entertainment (hotels, clubs, sports and recreational facilities)
- Retail services including IGA, Target, pharmacies
- Some major banks and financial institutions (ANZ, Bendigo Bank)
- Some medical facilities, including Castlemaine Hospital and medical centres.

2.6 Conclusions

The key findings of this Regional Economic Profile are as follows:

1 The Study Area has a resident population of approximately 267,000 persons (2017), which is expected to reach approximately 315,000 persons by 2031 representing a modest annual growth rate of 1.2% over the period. However, outside the major regional cities of Ballarat and Bendigo, population growth is forecast to be modest; therefore, major projects which stimulate new investment and jobs should be encouraged in terms of supporting the regional economy in these primarily rural areas.

2 The Study Area currently has an unemployment rate of 5.5 %, which is below the Victorian unemployment rate of 6.0%, but slightly above the regional Victorian unemployment rate of 5.4% (December 2017). However, the unemployment rate in Greater Bendigo (7.1%) and Central Goldfields Shire (7.2%) are well above State and regional averages and the Study Area currently includes 7,060 persons who are unemployed. In this regard construction of the Baringhup Solar Farm project provides new short-term employment opportunities for the region's labour force participants, with a small amount of ongoing employment also supported once the facility is operational.

3 The Study Area's occupational and business structures indicate a good base exists to service the needs of the solar farm project, including approximately 35,400 construction-related workers (based on occupation) and approximately 4,900 construction and transport businesses.

4 The major regional cities of Ballarat and Bendigo have the capacity and labour force to service many aspects of the Project. The regional towns of Maryborough and Castlemaine are also likely to play important project roles, with smaller settlements such as Baringhup, Carisbrook, Clunes, Daylesford and Maldon likely to provide labour and accommodation services to the Project.

3 ECONOMIC IMPACT ASSESSMENT

3.1 Project Investment

The total construction cost for the Baringhup Solar Farm project is estimated to be approximately $195 million, according to information provided by RES. The major investment cost is associated with the purchase of PV panels and associated equipment, although significant investment is also required for civil, electrical and grid connection works. Additional investment will be required regarding project management, financing, insurance and other project costs.

3.2 Project Employment

Construction Phase

Project employment is assessed in terms of **Direct** jobs (i.e., site-related) and **Indirect** (or flow-on) jobs in the local and wider economies (i.e., jobs that are generated by the employment multiplier as funds circulate around the economy between various industry sectors).

Direct Construction Employment

RES has indicated that 130 jobs will be generated as part of the Baringhup Solar Farm, over the lifetime of the construction phase which is expected to be approximately 12 months. These jobs include full time, part-time and casual labour employed on the Project.

Construction-related jobs are expected to be associated with a wide-range of on and off-site activities, including:

- Installation of PV support structures
- Fabrication
- Vehicle and equipment hire
- Earthworks
- Foundations
- Engineering services
- Roads and access tracks
- Transport and logistics
- Assembly and installation of PV panels
- Electrical works (cabling and connections)
- Installation of monitoring equipment

- Fencing
- Landscaping
- Trade services
- Fuel supplies
- Security
- Waste disposal
- Business, finance and administrative services.

As indicated in Chapter 2, the business structure of the Study Area indicates that a good mix of these types of services is available, principally in Ballarat and Bendigo. It is reasonable to expect, therefore, that local and regional businesses will be well-positioned to secure contracts during the construction phase of the Project.

Indirect Construction Employment

In addition to direct employment, significant employment will be generated indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the construction industry of 2.6 (based on ABS Input-Output tables), the Project is estimated to generate an additional 210 jobs over the construction period.

Indirect or flow-on jobs (which capture industry and consumption effects) include those supported locally and in the wider economy (including in other states), as the economic effects of the capital investment flow through the economy. Indirect employment creation within the region would include jobs supported through catering, accommodation, trade supplies, fuel supplies, transportation, food and drink etc.

Total Construction Employment

In summary, approximately 340 jobs (130 direct jobs and 210 indirect jobs) are expected to be generated by the Baringhup Solar Farm project during the 12-month construction phase.

The amount of local employment required for the Project is estimated by the proponent to be approximately 100 jobs (75% of total peak construction employment). This represents less than 1% of the Study Area's labour force occupied in construction-related activities (35,410 workers) and this should not present a constraint to labour supply for the Project.

Operational Phase

Direct Operational Employment

RES Australia indicates that 3 jobs will be supported on an ongoing basis through the operation and maintenance of the Baringhup Solar Farm, with these jobs locally based.

Indirect Operational Employment

A number of additional jobs will also be supported indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the electricity industry of 3.9 (based on ABS Input-Output tables) to the direct operational and maintenance jobs, a further 9 permanent jobs (rounded) would be generated in the wider State and national economies, but some of these jobs would be generated locally through existing supply chains.

Operational-related employment is for the lifetime of the Project (i.e., at least 25 years); therefore, while job creation is relatively small, it represents new long-term employment opportunities at a local, regional and state-wide level.

For the purposes of this assessment we assume 75% of direct jobs and 25% of indirect jobs are created in the Study Area. This equates to approximately 2 ongoing new positions created in the Study Area through the Baringhup Solar Farm project.

Total Operational Employment

In summary, approximately 12 jobs (3 direct and 9 indirect) are expected to be generated by the Baringhup Solar Farm project through its ongoing operations, of which 5 positions are expected to be created locally.

3.3 Cumulative Effects Assessment

The Baringhup Solar Farm project may need to compete for labour and resources with proposed infrastructure projects in the Study Area. At this stage; however, apart from the Chicken Broiler project at Strathlea (50 construction jobs), there are no approved infrastructure projects in the immediate area which are likely to present any negative cumulative impacts on labour and resources, noting the construction phase of the Baringhup Solar Farm may be completed by the end of 2019.

3.4 Industry and Business Participation Opportunities

In terms of cost efficiencies (lower transport, 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 comprises approximately 4,900 construction firms and many other businesses associated with activities likely to be required for the Project, such as transport operators, trade suppliers, vehicle and machinery hire, auto mechanics etc.

Within the Study Area the major regional centres of Ballarat and Bendigo have many firms of sufficient scale to compete for project contracts. Examples include Ballarat-based Nicholson Construction awarded a major contract for the Eureka Stadium development, while Bendigo-based firms Ortech and Ausform secured major contracts as part of the Victorian Desalination Project.

In order to maximise local business participation, a number of strategies might be considered such as widespread advertising of contracts in local media and directly through the RES website etc.

The Industry Capability Network (ICN) is another organisation that often plays an important business facilitation role for major infrastructure projects, such as the proposed solar farm. The ICN 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.

3.5 Housing and Commercial Accommodation Sector Impacts

Information supplied by RES Australia indicates that up to 30 non-local staff may need to be accommodated in the region at the Project's peak. These staff will include occupations such as general management, project management and supervising engineers. Contract lengths will vary. This highlights the need for a number of types of accommodation which would be expected to range from higher-end options for professional staff on longer contracts, to convenient low-cost options for those on short-term contracts.

As highlighted in Chapter 2, the Study Area has a capacity of approximately 2,300 rooms in commercial accommodation establishment (hotels, motels and apartments with 15 rooms or more). Assuming each non-local worker requires individual accommodation, only approximately 1.3% of total accommodation stock would be required at peak times to service the Project. This requirement is likely to be even lower as some workers may choose to be accommodated in Caravan /Holiday Parks (cabins), B&Bs, private rentals (holiday homes) or with family or friends – none of these categories are included in the accommodation audit. Additionally, some workers may share motel rooms/ cabins etc to reduce personal costs.

ABS Tourism Accommodation data for the June Quarter 2016 shows room occupancy rates for Maryborough and Castlemaine (two likely host townships given the range of services offered and their close proximity to the subject site) had room occupancy rates between 50-55%, indicating significant capacity exists to host project workers locally. These townships and others such as Maldon and Baringhup also provide additional cabin accommodation across caravan/holiday parks, all of which are within easy access to the subject site.

This data indicates that adequate capacity exists in the Study Area to accommodate the relatively small numbers of non-local workers expected at the peak of the solar farm project, even allowing for increased demand from other regional infrastructure projects and seasonal demands (holiday periods, harvesting etc). Importantly, the influx of these workers will support higher occupancy rates and revenues for local accommodation operators, particularly during off-peak periods.

3.6 Local Wage Spending Stimulus

RES estimate that 25% of the 130 jobs in construction (30 jobs) are likely to be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to $2.4 million in wages (2018 dollars) on the basis that each non-local worker is employed for 12 months and earns the average construction wage of $80,000 pa including on-costs (source: ABS, *Average Weekly Earnings 6302.0*, November 2017).

A considerable portion of these wages would be spent in the Study Area, where the workers will be based. An estimated $1.4 million in wages (2018 dollars) would likely be directed to local and regional 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 wide range of goods and services available in the Study Area. 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, clothing, books, homewares etc
- Recreation spending associated with day trips and excursions, gaming (lottery, sports betting, etc), purchases in pubs and clubs (although noting that expenditures at restaurants is included in the retail category)
- Personal, medical and other services, such as local prescriptions and GP fees, fuel, vehicle maintenance and so on.

This level of personal spending would support approximately 7 jobs in the services sector (based on 1 job allocated for every $200,000 of induced spending), supporting jobs in the Study Area associated with retail, accommodation, trade supplies, cafes and restaurants etc. These jobs are included in the 'indirect employment' estimates outlined in Section 3.2 above.

3.7 Impact on Agricultural Land

The potential impact of the Baringhup Solar Farm on agricultural activity is noted as follows:

- Approximately 300ha of productive farming land might be unable to be used during the lifetime of the solar farm.
- This will affect unirrigated land used principally for cropping, with the site being extensively cropped and grazed over many years.
- The Northern Central Natural Resource Management (NRM) Region, the broad region in which the Study Area is located, contains approximately 1,970,000ha of productive agricultural land supply, of which 955,000ha are used for cropping (ABS Agricultural Commodities, Australia 2016-17). In this regional context, the loss of agricultural land associated with the Baringhup Solar Farm amount to just 0.02% of all productive agricultural land supply and 0.03% of total cropping supply.
- The property owners will be compensated for hosting the solar farm through annual payments from the solar farm operator. It is understood that these payments would

result in significantly higher farm incomes compared with continuation of cropping activities across the subject site.

- The proponent is looking at ways to facilitate some grazing on the site beneath the solar structure.
- The land can be rehabilitated to its original condition at the end of the Project when all above ground infrastructure is removed, allowing cropping (or other farming activities) to recommence.

3.8 Ongoing Economic Stimulus

RES advise that the solar farm will be located across a single property, providing annual income returns to this landowner over the 25 year leasing period.

These new income streams can be particularly important in supporting the financial sustainability of large rural farms.

As noted earlier, securing a guaranteed 25-year drought-proofed income stream (indexed to CPI) also allows farming families more flexibility in the long-term planning for their farming operations, including succession planning and providing ongoing income for future generations or new landowners.

Additionally, an estimated 5 permanent local jobs will be created through the Project in the Study Area (refer to section 3.2), and wage spending associated by these jobs will benefit local businesses and communities.

Based on data provided by RES relating to potential host landowner returns and the consultants calculations of new wage spending, the Study Area's economy will receive an estimated stimulus of $16.9 million over 25 years (adjusted for CPI @ 2.5% pa) through these effects.

3.9 Returns to Council and the Community

Council Rates Revenue

Victoria's Local Government Review Panel (*Rating Arrangements under the Electricity Act 2000*, April 2005) provides guidelines to assist in determining the amount of rates payable to Councils from electricity generation projects.

Panel Recommendation Two states:

> *"Payments in lieu of rates should be based on $40,000 flagfall plus $900 per MW of rated capacity – both in July 2005 values, and to be indexed annually in line with the Melbourne CPI"*

While Review Panel recommendations are not statutory, they provide the basis for arbitration should agreement not be forthcoming between the parties involved.

It is recognised that the amount of rates payable is dependent on the operating performance of the wind farm, with the Act providing for the following discounts on the payment figure, which should apply to generators operating at low capacity:

- A 50% discount should apply to generators operating at less than 10% capacity
- A 25% discount should apply for generators operating at between 10 and 20% of capacity.

Assuming the solar farm is operational in 2020 (and applying a 3.0% CPI factor from 2005 onwards), the Review Panel guidelines indicate that approximately $62,320 flagfall plus $1,400 per MW of rated capacity would be payable to Council in the first year of the Baringhup Solar Farm operation, and this would amount to approximately $167,500 in rates revenue pa to Mount Alexander Shire Council, based on an efficiently functioning 75 MW facility (where no discounts apply).

Over 25 years, rates returns to Mount Alexander Shire Council are estimated to be $5.7 million, which factors in an annual 2.5% CPI increase over the operating period.

Unlike a new residential development (where Council incurs costs such as garbage collection; maintenance of parks, open space, roads, footpaths; provision of community services; etc) the cost to Council of providing resources for the solar farm site is likely to be relatively small and would be limited to road maintenance, garbage removal and the like. Therefore, the uplift in rates revenues generated from the operation of the solar farm on the subject site will represent a net return to Council.

Importantly, this revenue can be re-invested in infrastructure and services, which will benefit the community more generally.

Community Fund

RES is committed to providing a one-off payment of $125,000 into a Community Fund at the start of the operational phase of the Project.

The Community Fund could be used to support a range of projects which might include environmental and local community projects.

The Community Fund would likely be managed by a local community group(s) and/or Mount Alexander Shire Council, which the proponent would help facilitate.

3.10 National Grid Supply Benefits

The Baringhup Solar Farm has the potential to provide sufficient renewable energy to support the annual electricity needs of approximately 44,200 Victorian households. This calculation is based on:

> Baringhup Solar Farm Capacity (75,000 kW) x Annual Hours (8,760) x Capacity Factor (0.26) / Average Victorian Household Electricity Consumption (3,865 kWh) - Source: AMEC 2017 – Residential Electricity Price Trends

(http://www.aemc.gov.au/markets-reviews-advice/2017-residential-electricity-price-trends).

In a regional context, the Study Area currently contains approximately 105,000 dwellings (ABS Census 2016); therefore, the Baringhup Solar Farm has the potential to provide the annual electricity needs approximately 40% of the Study Area's dwellings, highlighting the importance of the facility from a clean electrical generation perspective.

3.11 Environmental Benefits

Once fully-operational, the Baringhup Solar Farm will result in the reduction of an estimated 170,800 tonnes in carbon dioxide (CO2) emissions on an annual basis compared to the same level of electricity generation using fossil fuels. This calculation is based on:

> Baringhup Solar Farm Capacity (75 MW) x Annual Hours (8,760) x Capacity Factor (0.26)

This reduction on CO2 emissions is the equivalent of taking approximately 61,000 cars off the road annually, based on an average of 14,000km travelled with CO2 emissions of 200g/km (or 2.8 tonnes of CO2 emissions per car pa).

3.12 Tourism Opportunities

In the longer-term, the Baringhup Solar Farm could provide opportunities to attract new visitors to the area, if suitable arrangements can be put in place regarding access to the site.

Potential visitor types include:

- Environmentalist
- Researchers
- Eco-tourists
- School and educational groups

Benefits of attracting new visitors to the region include increased expenditures on accommodation, food and beverage, fuel, retail, entertainment etc, all of which will support businesses and employment, especially in nearby townships such as Maryborough, Maldon and Castlemaine.

3.13 Conclusions

1 The Baringhup Solar Farm project will involve approximately $195 million in investment during the construction phase and will support 130 direct and 210 indirect positions over the construction period. Once operational, 3 direct and 9 indirect jobs will be supported by the facility.

2 Allowing for the Project to be carefully managed around the region's peak times for harvesting activity and the scheduling of other major infrastructure projects in the region, accessing adequate labour supply should not present an issue for the Project, noting the peak local employment requirement for the Project (130 jobs) represents less than 1% of workers occupied in construction-related activities in the Study Area (35,410 workers).

3 The only approved infrastructure project in the immediate area that may be constructed at the same time as the solar farm is the Strathlea chicken broiler project; however, this project is unlikely to impact on labour and resources required to support the Baringhup Solar Farm project given the Projects relatively small scale.

4 The Project will provide significant participation opportunities for businesses and workers located in the Study Area, having regard for the good match of skills and resources available. In this regard, the proponent and organisations such as the Industry Capability Network might be involved in ensuring maximum local inputs are secured.

5 The 'external' project labour requirement would be expected to generate an accommodation need for 30 project workers at the peak of the Project. This represents less than 2% of total commercial accommodation rooms in the Study Area and would provide a boost to local accommodation operators, noting that room occupancy rates of only 56% were recorded across the Study Area in the June Quarter 2016.

6 Construction workers would be expected to inject approximately $1.4 million in additional spending into the regional economy over the construction phase, supporting around 7 jobs in the service sector in Castlemaine. Maryborough and the broader Study Area.

7 Approximately 300ha of productive agricultural land (cropping and grazing) might be lost to accommodate the solar farm. However, this represents only 0.03% of all productive cropping land supply in the North Central NRM Region with the proponent looking to continue grazing on the site, under the solar structure potentially reducing the amount of land lost to the Project. Importantly, the host landowner will improve their annual income, as operator payments will be greater than average farm income from the land and the land can be returned to cropping at the end of the solar farms lifecycle.

8 Ongoing economic stimulus associated with new local wage spending and returns to host landowners is estimated at $16.9 million over 25 years (adjusted for CPI @ 2.5% pa).

9 Additionally, rates returns to Mount Alexander Shire Council through the operation of the solar farm are estimated at $5.7 million over 25 years (adjusted for CPI @2.5%).

10 The proposed Community Fund would consist of a one-off payment of $125,000 by the proponent, which can be directed to new community infrastructures and programs.

11 The Project has the capacity to supply sufficient clean energy to power approximately 44,000 homes and, in the process, to reduce C02 emissions by 170,000 tonnes per year.

12 Once operational, the Baringhup Solar Farm could potentially support small-scale tourism and educational opportunities in the future.