



ESSENTIAL ECONOMICS

Murra Warra Solar Farm Project

Economic Impact Assessment

FINAL

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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 the proposed 235 Mega Watt (MW) Murra Warra Solar Farm development to be located between Horsham and Warracknabeal in Victoria's Wimmera Region. The solar farm will be located across two properties and, subject to financing, it is expected the facility will be operational by 2020. The solar farm will be located adjacent to the proposed 420MW Murra Warra Wind Farm, which will also be developed by RES and is expected to commence construction in late 2017.

The main findings of this study are summarised as follows.

Regional Economic Context

- 1 The Study Area (comprising the Rural City of Horsham and the Shire of Yarriambiack) has a resident population of approximately 26,530 persons (2016), with a relatively low proportion of working-age residents compared to the State average. The ongoing ageing of the population will present challenges in terms of future labour supply, and therefore large investment projects which stimulate business and employment growth will become increasingly important especially if new workers can be attracted to the region.
- 2 The Study Area's relatively low unemployment rate (4.6% compared to 5.9% for Victoria) may have implications in terms of a shortage in labour supply during the construction phase of the project, especially if significant overlaps occur with the construction of the wind farm. However, careful management of these projects should ensure availability unskilled and semi-skilled labour during harvest periods in this strongly-focused agricultural area.
- 3 The Study Area's occupational, industry and business structures indicates a strong base exists to service the needs of the project. This includes approximately 3,700 construction-related workers and 480 construction and transport businesses located in the Study Area.
- 4 The major regional city of Horsham will underpin most project needs in view of its significant supply of accommodation (590 rooms, cabins and power sites), trade supplies and transport services, retail services, entertainment and so on. The nearby towns of Warracknabeal, Dimboola and Minyip would also be expected to provide project support services, including lower-cost commercial accommodation options for workers attracted from outside the region.

Economic Impact Assessment

- 5 The Murra Warra Solar Farm project will involve approximately \$310 million in investment during the construction phase and will support 125 direct and 200 indirect FTE positions over the construction period (12 to 15 months). Once operational, 3 direct and 9 indirect FTE 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, accessing adequate labour supply should not present a major issue for the project, noting the peak local employment requirement represents less than 3% of workers occupied in construction-related activities in the Study Area.
- 7 Competing projects – including the Stawell Open Cut Gold Mine, Donald Mineral Sands Project, Bulgana Wind Farm, Ararat Wind Farm, Kiata Wind Farm and the Ararat-Stawell Western Highway Duplication – are unlikely to impact on labour and resources required for solar farm project, due to uncertainty regarding some projects and different construction timeframes for approved projects.
- 8 The solar project will provide significant participation opportunities for businesses and labour force located in the Study Area, having regard for the good match of skills and resources available. In this regard, organisations such as the Wimmera Development Association may play an important role in ensuring local inputs are maximised.
- 9 The 'external' project labour requirement would be expected to generate an accommodation need for 25 project workers at the peak of the project. This represents only 3% of total commercial accommodation rooms/cabins and powered sites and would provide a boost to local accommodation operators (especially during off-peak times), noting that annual occupancy rates are only 49% for the Western Grampians Tourism Region.
- 10 Construction workers from outside the region would be expected to inject approximately \$1.5 million (2016 dollars) in additional spending to the regional economy over the construction phase, supporting around 7.5 jobs in the service sector in Horsham and the smaller towns.
- 11 Up to 354 ha of productive agricultural land may be lost to accommodate the solar farm. However, this represents only 0.05% of all productive agricultural land in the Study Area. Importantly, the host landowners are likely to improve their annual income as operator payments will be greater than average farm income from the land.
- 12 Ongoing economic stimulus associated with new local wage spending and returns to landowners is estimated at \$20.0 million over 25 years (adjusted for CPI).
- 13 Council rates revenue returns are estimated to total \$14.3 million over 25 years (adjusted for CPI), while the Fire Services Property Levy will generate further \$18.0 million (adjusted for CPI) over 25 years for the State Government.
- 14 The proposed Community Fund would contribute \$1.6 million (adjusted for CPI) over the 25-year period to support new community infrastructure and programs.
- 15 The project has the capacity to supply sufficient clean energy to power approximately 83,000 homes and, in the process, to reduce CO² emissions by 0.4 million tonnes per year (which is the equivalent of removing 155,000 cars from the road).
- 16 The 235MW Murra Warra Solar Farm will contribute approximately 4.4% of additional renewable State capacity, supporting Victoria's renewable energy target of 5,400MW of additional installed capacity by 2025 (when the Murra Warra Wind Farm is also factored

in the site has the potential to deliver 12.1% of required new State capacity across the two projects).

- 17 The Murra Warra solar and wind farm projects present a unique environmental experience for Victoria which could potentially stimulate small-scale tourism initiatives, such as viewing and educational opportunities for visitors to the region. Visitor groups would likely include environmentalists, researchers, school groups and eco-tourists, with their expenditures providing ongoing benefits to the regional economy.

INTRODUCTION

Background

RES Australia Pty Ltd (RES) have commissioned Essential Economics Pty Ltd to prepare an Economic Impact Assessment for the proposed Murra Warra Solar Farm development to be located between Horsham and Warracknabeal in Victoria's Wimmera region.

The proposed development will be situated on a 354ha site which involves two landholdings. The solar farm will have a capacity of 235 MW powered by up to 900,000 photovoltaics panels. The Murray Warra Solar Farm will complement RES's proposed 420 MW Murra Warra Wind Farm development and, subject to planning approval, both developments could commence construction in late 2017.

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 and staging, and definition of Study Area.
- Chapter 2: **Regional Economic Profile**
Presents an overview of population and demography, labour force, occupational structure, industry structure, business structure and township services, including an audit of available commercial accommodation.
- 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, financial returns to landowners, Council and community, and environmental benefits.

1 PROJECT CONTEXT

1.1 Site Location

The proposed Murra Warra Solar Farm will be developed on a site located approximately 32km north of Horsham in Victoria's Wimmera region. The site is within a 30-40 minute drive of Warracknabeal (to the north), Minyip (to the east), the major regional centre of Horsham (to the south), and Dimboola (to the west).

The site is approximately 354ha in area and is currently used for farming purposes under the Farming Zone (FZ). It is estimated the majority of the site will be utilised for solar infrastructure. The solar farm will be developed adjacent to the proposed 420 MW Murra Warra Wind Farm which is expected to commence construction in late 2017.

A 220kV Transmission line runs through the site and this allows for efficient connection to the National Grid. This power line is identified in Figure 1.1.

The solar farm site straddles Horsham and Yarriambiack municipal boundaries and will therefore require planning approval by both Councils.

1.2 Project Description

The project will consist of a Solar Photovoltaics (PV) facility of up to 235MW AC arranged as either a series of fixed or tracker arrays.

The arrays consist of approximately 900,000 1mx2mx0.05m PV panels mounted on steel or aluminum racking. The PV modules for a fixed array are arranged to face north; however, for a tracker array, the modules are arranged north to south, with the panels tilting around a centre rail to follow the sun's trajectory throughout the day.

A number of 7m wide graded tracks across the site will allow all-weather access for construction and operational maintenance. A small control building and warehouse / maintenance building will be constructed at the entrance to the site.

Power from the panels will be inverted from direct current (DC) to alternating current (AC), transformed to 33kV and flow back to a central collector point located in the northwest of the site, close to the location of the control building and maintenance facilities. Power will then flow along a double circuit 33kV line which will run due north then due west (2km in total) of the solar farm to the site of the proposed Terminal Station for the Murra Warra Wind Farm.

A metering point and some reactive power plant will be provided at the terminal station. Power will then be transformed to 220kV and exported to the grid network via the proposed Murra Warra Terminal Station.

The project will also include a battery storage facility which will comprise of banks of lithium ion batteries and associated transformers, invertors and control equipment. This facility will be

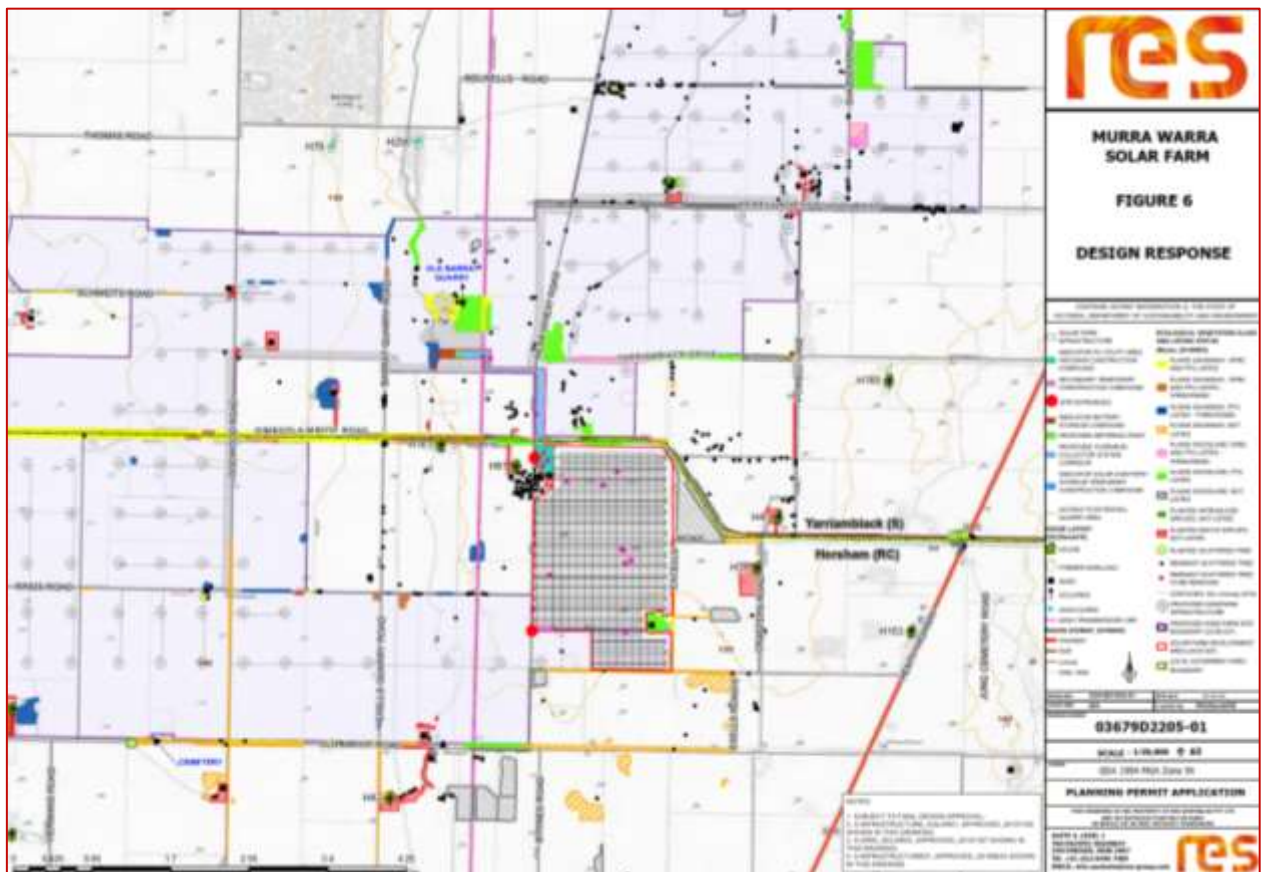
located in a separate secure area adjacent to the terminal station. Batteries and associated equipment will be housed in a purpose built building.

The project may include some stock proof fencing of up to 2m height and CCTV camera, depending on the Solar Farms Insurance requirements.

Up to three temporary construction compounds will be provided across the site which will house laydown areas, batch plant, offices etc. These facilities will be removed once work has been completed and the land rehabilitated.

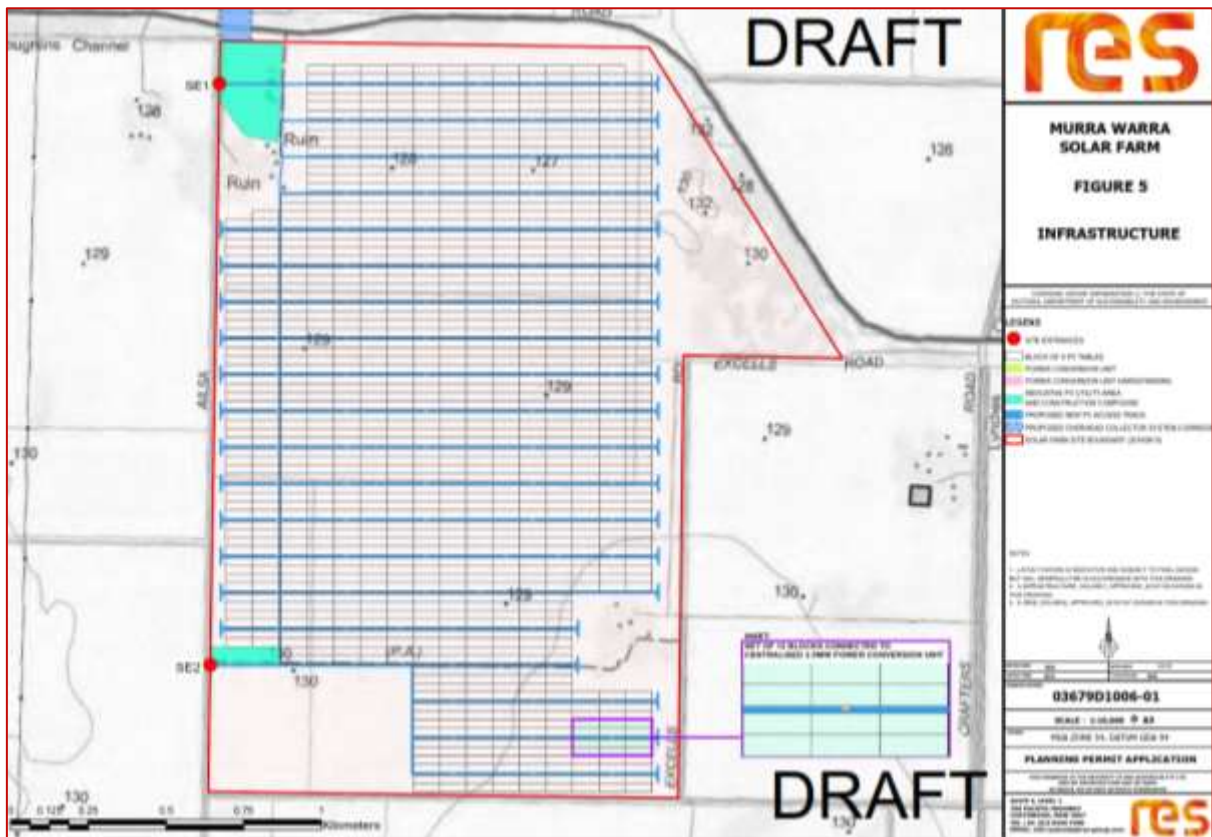
The Murra Warra Solar Facility location is outlined in Figure 1.1 and the preliminary site layout is shown in Figure 1.2.

Figure 1.1: Murra Warra Solar Farm – Site Location



Source: RES Australia

Figure 1.2: Murra Warra Solar Farm – Preliminary Site Layout



Source: RES Australia

1.3 Policy Context

These preliminary parameters may change as environmental, planning and other investigations are completed, and availability project financing will also influence the final project plan.

Changes to Federal and State policy are also important factors in influencing demand and investment in the renewable energy sector, as noted below.

The Renewable Energy Target 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 Renewable Energy Target 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 Renewable Energy Target 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 Renewable Energy Target was reduced from 41,000 GWh to 33,000 GWh in 2020, with interim and post-2020 targets adjusted accordingly.

In June 2016, the Victorian Government announced new renewable energy targets 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.

1.4 Study Area

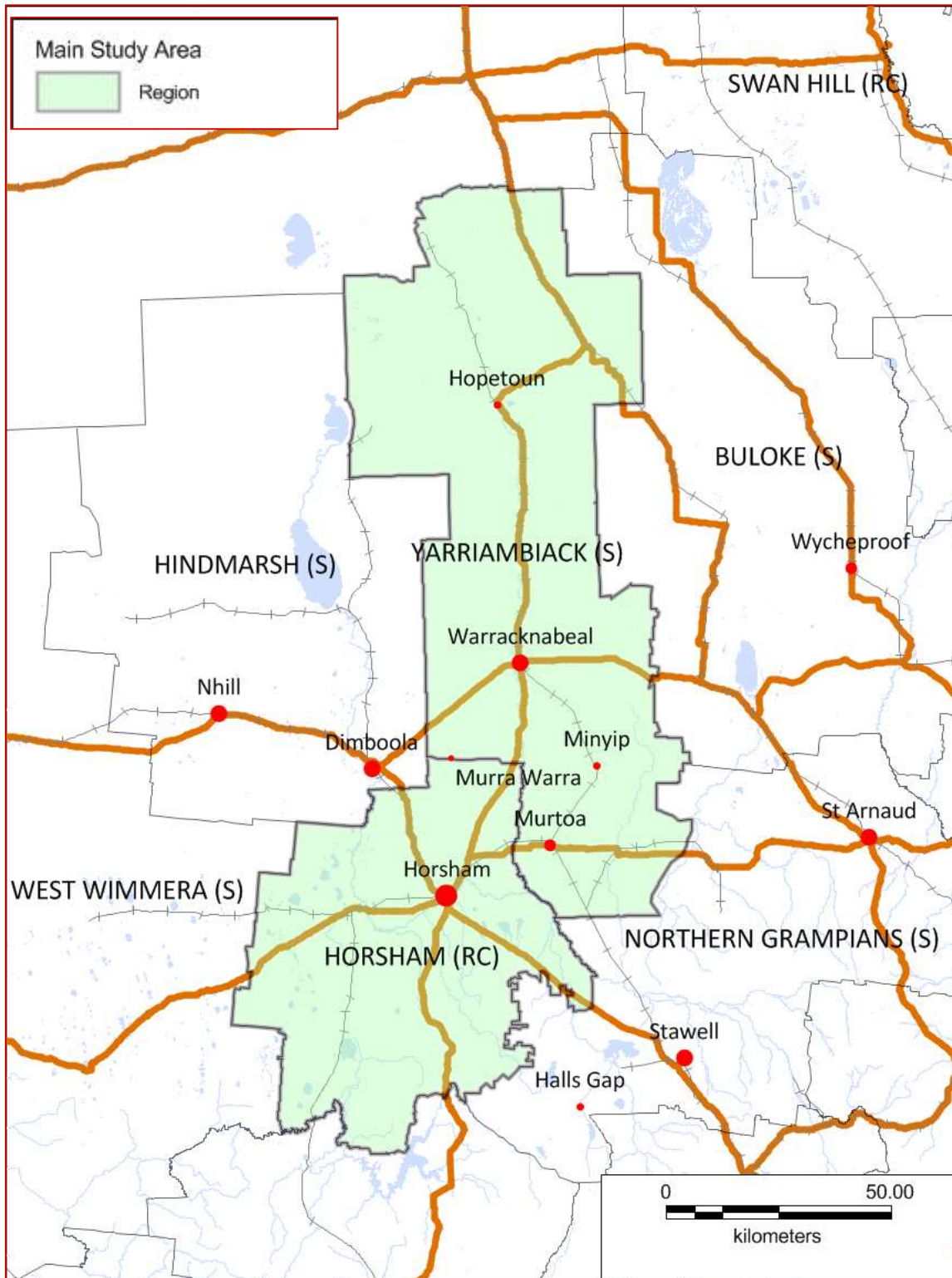
The Study Area for the project is defined as the Local Government Areas (LGAs) of Horsham and Yarriambiack, where most economic benefits are likely to accrue. This Study Area is illustrated in Figure 1.3.

Benefits are also likely to be generated for the broader region, including the neighbouring LGAs of Buloke, Hindmarsh, Northern Grampians and West Wimmera.

1.5 Summary

- 1 RES Australia are proposing to construct a 235 MW Solar Farm in Murra Warra, in Victoria's Wimmera region. The facility will be located across two properties in the municipalities of Horsham and Yarriambiack.
- 2 Subject to planning approval by both Councils, it is anticipated construction of the solar farm could start in 2018, and the facility may be operational by 2020. This timing aligns with the 420 MW Murra Warra Wind Farm development which will be co-located in this general area.
- 3 In the past 12 months, federal and state governments have updated long-term renewable energy targets and this should provide greater investment certainty within the sector, including for investments in solar power developments of the type proposed for Murra Warra.
- 4 This economic impact study will provide the Horsham and Yarriambiack municipalities with an understanding of potential economic benefits arising for their communities through the construction and operational stages of the project.

Figure 1.3: Murra Warra Solar Farm – Study Area



Source: Department of Regional Australia, Regional Development and Local Government

2 REGIONAL ECONOMIC PROFILE

2.1 Population and Demography

The population of the Study Area totalled approximately 26,530 persons as of June 2016, with Horsham Rural City accounting for 75% (19,890 persons) and Yarriambiack Shire 25% (6,640 persons).

Over the period 2016-2031 population growth in the Study Area is expected to be very modest at just +0.2% pa or +880 persons over 15 years, as shown in Table 2.1. Population expansion will be driven by Horsham with growth of 0.6% pa, while Yarriambiack's population is projected to decline by -1.1% pa over the period.

These population numbers highlight economic trends experienced in many Victorian rural areas over recent years, especially those with a high reliance on the agricultural sector and which have been negatively impacted by drought, an uncompetitive exchange rate, and an ageing labour force.

In this context the proposed Murra Warra Solar Farm will provide an alternative drought-proofed, guaranteed income stream to host family farms. This benefit is significant for these landowners, as this new income stream is locked-in for 25 years and will enable many of these farmers to plan succession, with the potential impact of allowing future generations to remain on the land rather than seeking non-agricultural career paths which often leads to an exodus of young people from rural communities.

Table 2.1: Population – Study Area, 2016-2031

Municipality	2016	2021	2031	Change 2016-31	AAGR 2016-31
Horsham (RC)	19,890	20,490	21,790	+1,910	+0.6%
Yarriambiack (RC)	6,640	6,250	5,620	-1,030	-1.1%
Study Area	26,530	26,750	27,410	+880	+0.2%

Source: Department of Environment, Land, Water and Planning, *Victoria in Future 2016*

Notes: AAGR = Annual Average Growth Rate
Figures rounded

As noted above, the Study Area's ageing population will lead to a reduction of working-age persons over the coming decades and this is highlighted in data provided in Table 2.2. This demographic data shows that in 2016, just 61% of the Study Area's population were of working age (15 years to 64 years) and this is significantly below the 67% average for the State. Consequently, the Study Area's economy has a much higher proportion of persons of retirement age (65 years +) to support (21% cf 15% for Victoria).

State Government population projections (*Victoria in Future 2016*) show that by 2031 this situation will deteriorate further, with 27% of Study Area residents being aged 65 years-plus, compared to 19% for this age cohort across Victoria.

In view of this situation, attracting major investment – such as associated with the Murra Warra Solar Farm – provides an opportunity to generate new short and long-term employment opportunities which support these communities, and can potentially attract new workers and their families to the area. As already highlighted, host income streams may contribute to future labour force retention in the agricultural sector.

Table 2.2: Age Structure – Study Area, 2016

Age Group	Horsham (Rural City)		Yarriambiack (Shire)		Study Area		Victoria	
	No.	Share	No.	Share	No.	Share	No.	Share
0-4 years	1,300	6.5%	300	4.5%	1,600	6.0%	385,310	6.4%
5-14 years	2,540	12.8%	760	11.5%	3,300	12.4%	720,730	11.9%
15-19 years	1,260	6.3%	400	6.1%	1,670	6.3%	361,190	6.0%
20-24 years	1,290	6.5%	250	3.8%	1,550	5.8%	425,720	7.0%
25-34 years	2,330	11.7%	510	7.6%	2,840	10.7%	930,580	15.4%
35-44 years	2,300	11.6%	580	8.7%	2,880	10.8%	826,180	13.7%
45-54 years	2,620	13.2%	910	13.7%	3,530	13.3%	791,480	13.1%
55-64 years	2,510	12.6%	1,110	16.7%	3,620	13.7%	685,940	11.3%
65-74 years	1,850	9.3%	900	13.5%	2,750	10.4%	510,630	8.4%
75-84 years	1,290	6.5%	610	9.1%	1,890	7.1%	284,790	4.7%
85 years and over	600	3.0%	310	4.6%	910	3.4%	126,220	2.1%
Total	19,890	100.0%	6,640	100.0%	26,530	100.0%	6,048,770	100.0%

Source: Department of Environment, Land, Water and Planning, *Victoria in Future 2016*

2.2 Labour Force

As of June 2016 (latest available) the Study Area had an unemployment rate of 4.6%, which is well below the rate for Victoria (5.9%). However, unemployment in Yarriambiack Shire (6.0%) is slightly above the state average. As Table 2.3 shows, in June 2016 the Study Area's labour force totalled 12,480 persons, including 580 persons who were unemployed.

In view of the relatively low unemployment rate in the Study Area, labour supply may become a potential issue for the solar project if the construction phase is not suitably scheduled, and this especially includes the need for the project proponents to be cognisant of labour requirements during harvesting (and which generally utilises unskilled and semiskilled workers). Labour supply issues might be further pressured if the solar farm and wind farm projects are constructed at the same time and this scenario would need to be carefully managed, although recognising some specialist labour will be sourced from outside the Study Area.

Table 2.3: Labour Force – Study Area, June 2016

Municipality	Employed	Unemployed	Total Labour Force	Unemployment Rate
Horsham (RC)	9,210	410	9,620	4.3%
Yarriambiack (RC)	2,690	170	2,860	6.0%
Total Study Area	11,900	580	12,480	4.6%
Victoria	2,987,000	188,000	3,175,000	5.9%

Source: Australian Government Department of Employment, *Small Area Labour Markets – June Quarter 2016*,

2.3 Occupational Structure

The skills base of the Study Area is reflected in its occupational structure, as shown in Table 2.4. ABS Census data for 2011 shows 31% of Study Area workers were occupied in activities generally associated with the types of skills required for the construction of a solar farm (ie technicians and trades workers, machinery operators, drivers and labourers). The Study Area's representation in these occupations is slightly higher than the State average of 29%, indicating a generally suitable occupational base for the proposed project.

Table 2.4 also shows a high level of managerial skills in the Study Area (20% cf 13% for Victoria); however, a high proportion of these Managers are associated with farm management rather than specialist construction or project management skills required for the solar farm project.

Table 2.4: Occupational Structure – Study Area, 2011

Occupation	Horsham (RC)		Yarriambiack (S)		Study Area		Victoria	
	No.	Share	No.	Share	No.	Share	No.	Share
Managers	1,552	16.9%	879	30.9%	2,431	20.2%	332,927	13.2%
Professionals	1,558	17.0%	369	13.0%	1,927	16.0%	564,778	22.3%
Technicians and trades workers	1,358	14.8%	298	10.5%	1,656	13.8%	350,760	13.9%
Clerical and administrative workers	884	9.6%	280	9.8%	1,164	9.7%	234,383	9.3%
Community and personal service workers	1,120	12.2%	249	8.8%	1,369	11.4%	364,498	14.4%
Sales workers	1,003	10.9%	173	6.1%	1,176	9.8%	245,334	9.7%
Machinery operators and drivers	620	6.8%	194	6.8%	814	6.8%	154,544	6.1%
Labourers	903	9.8%	349	12.3%	1,252	10.4%	227,185	9.0%
Not stated	178	1.9%	53	1.9%	231	1.9%	56,224	2.2%
Total	9,176	100.0%	2,844	100.0%	12,020	100.0%	2,530,633	100.0%

Source: ABS, *Census of Population and Housing 2011*

2.4 Industry Structure

Industry structure data for 2011 shows the Study Area has 915 workers directly employed in the construction sector and a further 610 workers employed in transport, postal and warehousing sector. In total, these two sectors employ 1,525 workers or approximately 13% of the labour force (the same proportion as for Victoria). As with occupational structure, this

industry structure indicates the Study Area provides a good labour force base to service the Murra Warra Solar Farm project.

Industry Structure data is shown in Table 2.5.

Table 2.5: Industry Structure – Study Area, 2011

Industry Structure	Horsham (RC)		Yarriambiack (RC)		Study Area		Victoria	
	No.	Share	No.	Share	No.	Share	No.	Share
Agriculture, forestry and fishing	872	9.5%	803	28.2%	1,675	13.9%	57,054	2.3%
Mining	80	0.9%	9	0.3%	89	0.7%	9,122	0.4%
Manufacturing	481	5.2%	118	4.1%	599	5.0%	271,053	10.7%
Electricity, gas, water and waste services	177	1.9%	27	0.9%	204	1.7%	27,626	1.1%
Construction	774	8.4%	141	5.0%	915	7.6%	210,973	8.3%
Wholesale trade	401	4.4%	100	3.5%	501	4.2%	114,089	4.5%
Retail trade	1,162	12.7%	250	8.8%	1,412	11.7%	273,716	10.8%
Accommodation and food services	589	6.4%	92	3.2%	681	5.7%	153,901	6.1%
Transport, postal and warehousing	434	4.7%	177	6.2%	611	5.1%	118,216	4.7%
Information media and telecommunications	108	1.2%	11	0.4%	119	1.0%	50,094	2.0%
Financial and insurance services	192	2.1%	38	1.3%	230	1.9%	104,702	4.1%
Rental, hiring and real estate services	80	0.9%	7	0.2%	87	0.7%	35,046	1.4%
Professional, scientific and technical services	290	3.2%	63	2.2%	353	2.9%	196,236	7.8%
Administrative and support services	246	2.7%	33	1.2%	279	2.3%	83,188	3.3%
Public administration and safety	546	6.0%	114	4.0%	660	5.5%	134,949	5.3%
Education and training	587	6.4%	205	7.2%	792	6.6%	202,319	8.0%
Health care and social assistance	1,423	15.5%	483	17.0%	1,906	15.9%	292,419	11.6%
Arts and recreation services	109	1.2%	13	0.5%	122	1.0%	43,609	1.7%
Other services	460	5.0%	92	3.2%	552	4.6%	91,148	3.6%
Inadequately described/Not stated	164	1.8%	69	2.4%	233	1.9%	61,172	2.4%
Total	9,175	100.0%	2,845	100.0%	12,020	100.0%	2,530,632	100.0%

Source: ABS, *Census of Population and Housing 2011*

2.5 Business Structure

One of the more tangible benefits of a major investment project, such as the proposed Murra Warra 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 2015 (latest available at the LGA level) shows the Study Area includes 332 construction businesses and a further 145 businesses associated with transport, postal and warehousing service, with these two sectors contributing 477 businesses or 15% of all businesses located in the Study Area. This data, which is included in Table 2.6, indicates a strong presence 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 2.6: Business Structure – Study Area, 2015

Business Types	Horsham (RC)		Yarriambiack (S)		Study Area	
	No.	Share	No.	Share	No.	Share
Agriculture, Forestry and Fishing	684	31.5%	599	59.5%	1,283	40.4%
Mining	0	0.0%	3	0.3%	3	0.1%
Manufacturing	70	3.2%	17	1.7%	87	2.7%
Electricity, Gas, Water and Waste Services	6	0.3%	0	0.0%	6	0.2%
Construction	274	12.6%	58	5.8%	332	10.5%
Wholesale Trade	69	3.2%	19	1.9%	88	2.8%
Retail Trade	150	6.9%	40	4.0%	190	6.0%
Accommodation and Food Services	91	4.2%	22	2.2%	113	3.6%
Transport, Postal and Warehousing	107	4.9%	38	3.8%	145	4.6%
Information Media and Telecommunications	7	0.3%	3	0.3%	10	0.3%
Financial and Insurance Services	140	6.4%	33	3.3%	173	5.4%
Rental, Hiring and Real Estate Services	192	8.8%	77	7.7%	269	8.5%
Professional, Scientific and Technical Services	109	5.0%	18	1.8%	127	4.0%
Administrative and Support Services	46	2.1%	16	1.6%	62	2.0%
Public Administration and Safety	3	0.1%	0	0.0%	3	0.1%
Education and Training	15	0.7%	6	0.6%	21	0.7%
Health Care and Social Assistance	66	3.0%	15	1.5%	81	2.5%
Arts and Recreation Services	19	0.9%	0	0.0%	19	0.6%
Other Services	104	4.8%	35	3.5%	139	4.4%
Not Classified	19	0.9%	7	0.7%	26	0.8%
Total	2,171	100.0%	1,006	100.0%	3,177	100.0%

Source: ABS Counts of Australian Businesses, including Entries and Exits, June 2013 to June 2015

2.6 Township Services Capacity

Commercial Accommodation

The ability to accommodate non-local workers (ie 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) .

An audit of existing commercial accommodation has been prepared for the main townships in and around the Study Area located within a 40-minute drive of the subject site, namely Horsham, Warracknabeal, Dimboola and Minyip. The audit includes motels, hotels, apartments and caravan parks, but excludes bed and breakfast, housing rentals and unpowered camping sites. As Table 2.7 shows, the main settlements in the Study Area comprise approximately 560 commercial rooms, 45 cabins and 215 powered sites, providing a total capacity of 800 accommodation places. These rooms/units/sites can cater for more than 1 person. Allowing for an average occupancy of 1.5 persons per room/cabin/powered site, the total capacity could accommodate in the order of 1,200 persons.

Horsham provides the vast majority of options – approximately 450 commercial rooms, 40 cabins and 70 powered sites – and accounts for 70% of all accommodation stock in the several towns. Warracknabeal, Dimboola and Minyip provide a small amount of accommodation stock, totalling approximately 110 commercial rooms, 2 cabins and 120 powered sites, and representing 30% of total capacity. This pattern of supply indicates Horsham would be the main centre for non-local accommodation, supported by Warracknabeal (which offers a wide range of other convenience services), with Dimboola and Minyip providing lower-cost options (hotel rooms, caravan parks etc). The adequacy of this accommodation stock to service the project is discussed in Chapter 3.

Table 2.7: Hotel, Motel and Apartments Accommodation – Study Area, 2016

	No. Rooms
<u>Horsham</u>	
Comfort Inn Capital Horsham	36
Ploughmans Motor Inn	14
Comfort Inn May Park	23
May Park Executive Apartments	18
Country City Motor Inn	49
Darlot Motor Inn	15
Olde Horsham Motor Inn	18
Horsham International Hotel	52
Horsham Motel	20
Sundowner Horsham Westlander Motor Inn	41
Best Western Golden Grain Motor Inn	38
Majestic Motel	21
Mid City Court Motel	17
Glynlea Motel	17
Town House Motor Inn	19
Smerdon Lodge Motel	20
Elm Tree Apartments on Searle	4
White Hart Hotel	15
Royal Hotel	15
Horsham Total	452
<u>Non-Horsham</u>	
Warracknabeal Country Roads Motel	14
Warracknabeal Motel	11
Warracknabeal Royal Mail Hotel	7
Dimboola Motel	18
Dimboola Victoria Hotel	45
Minyip Commercial Hotel	15
Non-Horsham Total	110
Total	562

Sources: RACV Accommodation Guide; RACV Tourist Park Guide www.wimmewramalleetourism.com.au; www.tripadvisor.com.au

Table 2.8: Caravan Park Accommodation (Cabins and Powered Sites) – Study Area, 2016

	Cabins	Powered Sites
<u>Horsham</u>		
Wimmera Lakes Caravan Resort	33	40
Horsham Caravan Park	10	30
Horsham Total	43	70
<u>Non-Horsham</u>		
Dimboola Riverside Caravan Park	2	50
Warracknabeal Caravan Park	0	50
Minyip Caravan Park	0	20
Non-Horsham Total	2	120
Total	45	190

Sources: RACV Accommodation Guide; RACV Tourist Park Guide www.wimmewramalleetourism.com.au; www.tripadvisor.com.au

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 and other services from businesses located in the immediate region. The following paragraphs provide an overview of the services located in the main townships in and around the Study Area.

Horsham

Figure 2.1: Images of Horsham Regional Centre



Source: www.tripadvisor.com.au

Horsham, with a population of approximately 14,000 persons, is the major service centre for the Wimmera region and provides all of the key services likely to be required to support a major infrastructure project such as the proposed solar farm. Horsham is located approximately 30km south of the subject site, or a 35-minute drive.

Horsham's key services include:

- Full range of commercial accommodation options (see above Tables)
- Full range of retail services (major supermarket chains, Horsham Plaza Shopping Centre, discount department stores etc)

- Trade Suppliers (Bunnings, Dahlsens, Mitre 10 etc)
- Freight and transport services
- Vehicle and machinery mechanics
- Fuel services
- Cafes and restaurants
- Entertainment (cinema, hotels, clubs, sports and recreational facilities)
- All major banks and financial institutions
- Postal services
- Employment agencies (Western District Employment Access, AXIS Employment, CRS Australia etc)
- Medical and emergency services (Horsham Base Hospital , Horsham State Emergency Services, Horsham Country Fire Authority etc)

Warracknabeal

Figure 2.2: Images of Warracknabeal Town Centre



Source: www.tripadvisor.com.au

Warracknabeal, with a population of approximately 2,750 persons, is the largest township in Yarriambiack Shire and provides many services to the large agricultural community and many smaller rural settlements. In terms of the Murra Warra Solar Farm project, Warracknabeal could viably fulfil an accommodation role for project workers who do not wish to be located in a major centre such as Horsham. In this regard, the Warracknabeal township is located approximately 30km north of the subject site (or a 30-minute travel time) and provides a good range of convenience services, including:

- Limited range of accommodation options (see above)
- IGA and Foodworks supermarkets
- Cafes, restaurants and takeaway facilities
- Branches of all major banks
- Post offices

- Shops, newsagents, pharmacies etc
- Vehicle mechanics and fuel services
- Hotels and sports clubs
- Medical services (Rural North West Health, including emergency services)

Dimboola

Figure 2.3: Images of Dimboola Town Centre



Source: www.tripadvisor.com.au

Dimboola, with a population of approximately 1,660 persons, is a small township located just outside the Study Area in Hindmarsh Shire, to the east of Yarriambiack Shire. The town mainly provides services to the agricultural sector, but other services are relatively limited. However, the township's relatively close location to the subject site (19km to the east or a 25-minute travel time) could be attractive for construction workers seeking convenience and lower cost living. Dimboola's services include the following:

- Limited range of accommodation options (see above)
- IGA supermarket
- Branches of the Commonwealth and Bendigo banks
- Pharmacy
- Newsagency
- Post office
- Hotels and sports clubs
- Medical centre (but no emergency services)

Minyip

Figure 2.4: Images of Minyip Town Centre



Source: www.tripadvisor.com.au

Minyip, with a population approximately 660 persons, is a small township located in the west of Yarriambiack Shire, and provides a very limited range of services. The township is located approximately 35km or 40 minutes' drive and could provide an option for low cost accommodation and low living costs for some construction workers. Minyip's services include the following:

- Limited range of accommodation options (see above)
- IGA supermarket
- Two hotels
- Branch of the Bendigo Bank
- Post office/newsagent
- Medical supplies
- Medical centre (but no emergency services)

2.7 Conclusions

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

- 1 The Study Area has a resident population of around 26,530 persons (2016), with a relatively low proportion of working-age residents compared to the State average. The on-going ageing of the population will present challenges in terms of future labour supply. As a result, large investment projects which stimulate business and employment growth, such as the proposed Murra Warra Solar Farm, will become increasingly important, especially if new workers can be attracted to the region.
- 2 The relatively low unemployment rate (4.6% compared to 5.9% for Victoria) in the Study Area (ie, a relatively small pool of unemployed persons from which to draw) may have implications in terms of labour supply for the construction phase of the project, particularly with regard to unskilled and semi-skilled labour required during harvest

periods in this strongly-focused agricultural area. This situation will require some management, especially if the solar and wind farm projects are constructed concurrently.

- 3 The Study Area's occupational, industry and business structures indicates that a good base exists to service the needs of the solar project, including the needs of approximately 3,700 construction-related workers and 480 construction and transport businesses.
- 4 The major regional city of Horsham will underpin most project needs in view of its significant supply of accommodation (590 rooms, cabins and power sites), trade supplies and transport services, retail services, entertainment and so on. However, the nearby towns of Warracknabeal, Dimboola and Minyip would also be expected to provide project support services, including lower-cost commercial accommodation options for the workforce attracted into the region from more distant places.

3 ECONOMIC IMPACT ASSESSMENT

3.1 Project Investment

The total construction cost for the Murra Warra Solar Farm project is estimated to be \$312 million, according to information provided by RES. The major investment cost is associated with the purchase of PV panels and associated equipment, although some investment is also required for civil, electrical and grid connection works. Additional investment will be required with regard to project management, financing, insurance and other project costs.

3.2 Project Employment

Construction Phase

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

Direct Construction Employment

RES have indicated that 125 Full Time Equivalent (FTE) jobs will be generated as part of the Murra Warra Solar Farm, over the lifetime of the construction phase which is expected to be approximately 18 months.

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

- Manufacture 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 Horsham. 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 200 FTE jobs over the construction period.

Indirect or flow-on jobs include those supported locally and in the wider economy (in metropolitan Melbourne, other parts of Victoria and interstate), 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 325 FTE jobs (125 direct FTE jobs and 200 indirect FTE jobs) are expected to be generated by the Murra Warra Solar Farm project during the construction phase. The actual number of employed persons would be higher when consideration is given to full-time, part-time and casual labour employed on the project.

As identified earlier, the Study Area has a relatively low unemployment rate and the labour market is subject to seasonality. The level of local employment required at the peak of the project is estimated by the proponent to be 100 jobs. This represents less than 3% of the Study Area's labour force who are occupied in construction-related activities (3,700 persons) and this should not present a constraint to labour supply for the project. It would be prudent, however, to carefully manage construction activities with regard to the main agricultural harvesting season (October, November and December) when local labour supply is likely to be particularly 'tight'. This will be especially important if the solar and wind farm projects are being constructed concurrently over the harvesting period.

Operational Phase

Direct Operational Employment

RES Australia indicate that around 3 FTE jobs will be supported on an ongoing basis through the operation of the Murra Warra Solar Farm, with including employment supported in the Study Area and supported centrally at Head Office.

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 (ie, 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 FTE jobs and 25% of indirect FTE jobs are created in the Study Area. This equates to approximately 4.5 ongoing FTE positions.

Total Operational Employment

In summary, approximately 12 FTE jobs (3 direct and 9 indirect) are expected to be generated by the Murra Warra Solar Farm project through its ongoing operations, of which 4.5 FTE positions are expected to be created locally.

3.3 Competing Projects

The Murra Warra Solar Farm project may need to compete for labour and resources with proposed infrastructure projects in the broader region over the coming years. These projects include:

- Stawell Gold Mine Project (Big Hill Open Cut Mine)
- Donald Mineral Sands Project (near Minyip)
- Ararat – Stawell Western Highway Duplication (Ararat to Stawell section)
- Murra Warra Wind Farm
- Ararat Wind Farm (15km north-east of Ararat)
- Bulgana Wind Farm (Greater Western, 15km south of Stawell)
- Kiata Wind Farm (50km north of Horsham)

It appears that these projects do not represent a major challenge for the Murra Warra Solar Farm project, either in terms of resource requirements or timing conflicts with other major regional project.

Stawell Gold Mining Project: Planning approval for the Stawell Gold Mining project was rejected by the Planning Minister in 2014, following a comprehensive Environmental Effects Statement (EES) process. The current State Government has indicated it may be prepared to reconsider this decision if suitable environmental safeguards can be provided. However, this may require another EES process, and therefore considerable uncertainty regarding the project remains.

Donald Mineral Sands (DMS) Project: Astron (the proponent) started the basic design works for mining, metallurgy and tailings in January 2015. These basic design works have now been completed as DMS transition into the final stages of feasibility designs prior to detailed phases of execution.

Astron recently confirmed achieved and planned milestones for 2016 including:

- Submission of the Donald Site Work Plan Q4 2016
- Donald Mineral Sands – Definitive Feasibility Study Q4 2016
- Pre-Feasibility Engineering design of the Mineral Separation Plant commenced Q3 2016
- Procurement and Engineering Technical reviews in both China and Australia commenced Q3 2016
- Feasibility Design of the Donald Site Wet Concentrator Plant (WCP) completed Q3 2016
- Logistics, Infrastructure and Civil designs completed Q3 2016
- Project Execution and Packaging Plans completed Q3 2016.

In view of the progress of the Donald Mineral Sands project, it is likely the construction phase for the open-cut mine will be completed prior to construction commencing on the Murra Warra Solar Farm.

The Ararat-Stawell Western Highway Duplication is still at the planning stage, with funds recently committed in the 2016/17 State budget for pre-construction works which are about to commence. Funding commitment for the full duplication has yet to be made and therefore construction of the road is likely to be many years away.

Murra Warra Wind Farm (RES Australia) is a proposed 420 Mega Watt (MW) Murra Warra Wind Farm development located in the same general area as the proposed Murra Warra Solar Farm. The wind farm has received planning approval and, subject to financing, the project is likely to start construction in late 2017. The project is likely to take 24 months to complete, and this is likely to lead to some overlap with the solar project. However, the peak construction phase for the wind farm will be completed prior to the commencement of the solar project, and this will take pressure off labour supply. Additionally, construction synergies between the two projects will enable an efficient use of resources and labour. In effect, the

solar and wind farm projects will generate a steady demand for resources and labour in this region over a three-year period.

Ararat Wind Farm (RES Australia, Downer and General Electric) is currently under development and is likely to be fully operational prior to the commencement of the Murra Warra Solar Farm project.

Bulgana Wind Farm (Enerfin), which is located in the Northern Grampians Shire, has been approved and construction is likely to commence in late 2016. If this timetable is adopted, then the construction phase of the project (which is a relatively small project – 76 turbines and 180MW) would be completed prior to works on the Murra Warra Solar Farm project commencing.

Kiata Wind Farm (Windlab) is a small wind energy project located 50km north-west of Horsham. The project consists of 13 turbines and has recently received planning permission (July 2016), with construction expected to commence by the end of 2016. Given the small-scale of the facility, it is likely the construction phase of the project will be completed prior to the Murra Warra Solar Farm project's construction phase commencing.

Importantly, the WDA note that during the construction of the \$500 million Wimmera-Mallee Pipeline (2006-2010), no major issues were encountered in the region regarding accessing labour supply, accommodation and other key resources, although the project was 'fast-tracked' from a ten-year estimated period to just over three years from commencement to completion.

Horsham played a key role in supporting this major project in terms of accommodation, business participation and labour supply. Horsham-based Millers Civil Engineers were one of the main contractors, with the major contractor Mitchell Water relocating from Melbourne to Horsham for the period of the project. In this regard, Horsham is considered well-placed to fulfil a similar role in the proposed Murra Warra Solar Farm project.

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 over 330 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, and repair companies.

As the major regional centre, Horsham has many firms of sufficient scale to compete for project contracts. Examples include Millers Civil Contractors (who have recently been contracted by RES to undertake earthworks for the Ararat Wind Farm site), Alexander Symonds, Davis Civil Engineering Services, etc, and many smaller firms which could supply fencing, machinery hire, waste disposal, electrical services etc.

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

The presence of the Wimmera Development Association provides another important avenue for business contact and coordination for the project. The WDA is the peak economic development organisation for the Wimmera Southern-Mallee region and it supports local businesses and promotes economic development opportunities to investors.

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 project. The ICN is an independent, non-profit organisation funded by the Victorian 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 25 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 around 800 rooms/cabins/ powered sites and equivalent to approximately 1,200 bed spaces (at an average of 1.5 persons per unit). Assuming each non-local worker requires individual accommodation, therefore only approximately 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 be accommodated in B&Bs, private rentals 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 2015/16, shows the Western Grampians Tourism Region (of which Horsham is an integral part) had a room occupancy rate of approximately 49% and a bed occupancy rate of 28% for its hotels, motels and serviced apartments. These occupancy rates are significantly lower than for Victoria (71% and 46%, respectively) over the 2015/16 period.

This data indicates that adequate capacity exists in the region to accommodate the relatively small numbers of non-local workers expected at the peak of the solar farm project. Importantly, the influx of these workers will support higher occupancy rates and revenues for local accommodation operators over the construction period, especially in off-peak periods.

3.6 Local Wage Spending Stimulus

RES estimate that typically 20% of the 125 FTE jobs in construction (25 FTE jobs) would possibly be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to \$2.0 million in wages (2016 dollars) on the basis that each is employed for 12 months on the project and at an average construction wage of \$78,150 including on-costs (source: ABS, *Average Weekly Earnings 6302.0*, May 2016).

A considerable portion of these wages would be spent in Horsham and the surrounding region. An estimated \$1.5 million in wages (2016 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 Horsham. This spending would be likely to include the following:

- Housing expenditure, including spending on accommodation at hotels, motels, caravan parks 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 7.5 FTE jobs in the services sector (1 job allocated for every \$200,000 of spending), including 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 Murra Warra Solar Farm on agricultural activity is noted as follows:

- Up to 354ha of productive farming land may be unable to be used during the lifetime of the solar farm.
- This will affect land used principally for growing wheat, barley and other crops, but some of the land is also used for sheep grazing.
- The ABS Agricultural Census 2011 identified approximately 700,000 ha of cropping land and approximately 175,000 ha of grazing land are located in the Study Area. In a regional context, therefore, only a minuscule amount of productive land will be lost due to the development of the proposed solar farm (ie, less than 0.05% of productive agricultural land supply in the Study Area).

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 higher farm incomes compared with continuation of existing agricultural activities on the site, based on the average long-term returns from agricultural

production on this land. In this regard, latest ABARE data for 2015/16 relating to Wimmera broad acre farms shows average farm cash income of just \$20,000 for the past financial year, which compares to \$210,000 in 2013/14. The Murra Warra Solar Farm development offers these landowners a drought-proof guaranteed income over a 25-year period in return for the lease of a portion of their land holdings to host the facility.

3.8 Ongoing Economic Stimulus

RES advise that the solar farm will be located across two properties, providing income returns to these landowners.

These new income streams can be particularly important in supporting the financial sustainability of some 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 3 FTE permanent jobs will be created through the project, 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 \$20.0 million over 25 years (adjusted for CPI) 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.

Assuming the solar farm is operational in 2020 (and applying a 3% 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 Murra Warra

Solar Farm operation, and this would amount to approximately \$390,000 in rates revenue pa to Horsham and Yarriambiack Shires.

This level of potential income presents an important increase in the rates base for the municipalities – especially in an environment of rate capping, noting that rates and charges income in 2015/16 totalled \$23.6 million for Horsham Rural City and \$11.3 million for Yarriambiack Shire (*2013/14 Victorian Local Government Rates Survey*, Municipal Association of Victoria 2016). In effect, the rates payment arising from the solar farm would add an additional 1% pa (approximately) to the total rates levied across both municipalities based on current rates revenues (noting that it is unclear at this stage as to the distribution of rates between the shires).

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 into the solar farm site is likely to be relatively small and would be limited to road maintenance, garbage removal etc. Therefore, rates revenues generated from the operation of the solar farm, will generate a substantial net return to Council, and would deliver additional cumulative revenue of \$14.3 million to the municipalities over the 25-year lifetime of the project (and this includes a 3% pa adjustment for CPI).

Importantly, this revenue can be re-invested in infrastructure and services, which will benefit the communities in the two municipalities.

No information is available relating to existing Council rates paid by the potential host properties; however, it can be assumed these rates would only be a fraction of the proposed rates payable associated with the solar farm facility.

Fire Services Property Levy

From 1 July 2013, the Fire Services Property Levy (FSPL) was removed from insurance premiums and is now collected through council rates; this means that all property owners contribute to funding Victoria's fire services, not just those with adequate insurance.

The FSPL funds vital services provided by the Country Fire Authority and Metropolitan Fire Brigade twenty-four hours a day, seven days a week. This includes personnel, training, infrastructure and equipment, and covers emergency response (wildfires, property fires, flood assistance etc) and non-emergency response activities (bushfire prevention and mitigation, community awareness, safety and education programs etc).

The Murra Warra Solar Farm is likely to be classified as industrial for the purposes of FSPL assessment. This is the same classification used for wind farm facilities in Victoria.

Based on an industrial classification and an estimated asset value of \$300 million (post construction), the annual FSPL payable to the State Government for the solar farm will be approximately \$495,000 pa (2016 dollars) or approximately \$18.0 million over 25 years (adjusted for CPI).

As per above, no information is available relating to existing FSPL paid by the potential host properties; however, it can be assumed these contributions would only be a fraction of the proposed contributions payable associated with the solar farm facility.

Community Fund

RES is committed to providing \$45,000 pa (linked to CPI) to a Community Fund associated with the Murra Warra Solar Farm facility. This equates to \$1,640,000 over 25 years (adjusted for CPI). The community fund could be used to support a range of activities, including sporting groups and local community projects.

A fund of this type will assist with the delivery of community infrastructure, which is especially important in rural areas with relatively small rates revenue bases (eg Yarriambiack Shire Council). This guaranteed annual income can be allocated for specific community purposes and, as such, provides a positive legacy for the project.

3.10 National Grid Supply Benefits

The Murra Warra Solar Farm has the capacity to provide sufficient renewable energy to support the annual electricity needs of approximately 83,000 households. This calculation is based on $235 \text{ MW capacity} \times 8,760 \text{ (household hours per annum)} \times 0.21 \text{ (capacity factor)} / 5,200 \text{ Kwh average Victorian household consumption in 2011/12 (Electricity Gas Australia 2013, Energy Supply Association of Australia)} = 83,140 \text{ Victorian homes (rounded)}$.

When considered in a State-wide context, this level of renewable power generation has the capacity to support the annual electricity needs of approximately 3% of all Victorian dwellings in 2021, with the State Government's *Victoria in Future 2016* (VIF 2016) estimating total dwellings to number approximately 2.86 million at that time. This highlights the State significance of the proposed project in terms of renewable energy generation.

In a local context, by 2021 VIF 2016 estimates the total number of dwellings in the Study Area will be 13,600 dwellings, while in a broader regional context the North West SA4 Region (which includes large population centres such as Mildura, Swan Hill, Horsham and Ararat) is forecast to contain 75,000 dwellings by 2021. Again, this highlights the scale of renewable energy that the Murra Warra Solar Farm is capable of generating, and this is more than meets the requirements of surrounding local and regional communities.

3.11 Environmental Benefits

Once fully-operational, the Murra Warra Solar Farm will result in the reduction of an estimated 430,000 tonnes in carbon dioxide emissions on an annual basis compared to the same level of electricity generation using fossil fuels. This calculation is based on $235 \text{ MW (Solar Farm Capacity)} \times 8,760 \text{ (hours per annum)} \times 0.21 \text{ (Solar Farm Capacity Factor)} \times 1.00 \text{ (Carbon Offset Figure)} = 432,300 \text{ tonnes of CO}_2 \text{ emissions pa (rounded)}$.

This reduction on CO² emissions is the equivalent of taking approximately 155,000 cars off the road, based on an average of 14,000km travelled with CO₂ emissions of 200g/km (or 2.8 tonnes of CO² emissions per car pa).

The Murra Warra Solar Farm will contribute 4.4% of the 5,400 MW of new large-scale renewable energy capacity required in Victoria to ensure the State Government's 40% renewable target is met by 2025.

3.12 Tourism Opportunities

While the Murra Warra site is remotely located, the uniqueness of a facility which provides major operating solar and wind farms provides an opportunity to attract new visitors to the area.

Potential visitor types include:

- Environmentalist
- Researchers
- Eco-tourists
- School and educational groups
- Bus tours groups (eg combining visits to multiple renewable energy facilities in the broader region, including Murra Warra, Challicum Hills, and Ararat).

In order to attract visitors to the site, some small-scale infrastructure would need to be provided which might include:

- Viewing platforms
- Short walking trails
- Information boards
- Signage
- Car and bus parking areas.

The 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 major centres such as Horsham.

3.13 Conclusions

- 1 The Murra Warra Solar Farm project will involve \$312 million in investment during the construction phase and will support 125 direct and 200 indirect FTE positions over the construction period. Once operational, 3 direct and 6 indirect FTE 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, accessing adequate labour supply should not present a major issue for the project, noting the peak local employment requirement represents less than 3% of workers occupied in construction-related activities in the Study Region.
- 3 Competing projects – including the Stawell Open Cut Gold Mine, Donald Mineral Sands Project, Bulgana Wind Farm, Ararat Wind Farm, Kiata Wind Farm and the Ararat-Stawell Western Highway Duplication – are unlikely to impact on labour and resources required for the solar farm project, principally due to uncertainty regarding some projects and different construction time frames for approved projects.
- 4 The project will provide significant participation opportunities for businesses and labour force located in the Study Area, having regard for the good match of skills and resources available. In this regard, organisations such as the Wimmera Development Association and the Industry Capability Network should be involved in ensuring maximum local inputs are secured.
- 5 The 'external' project labour requirement would be expected to generate an accommodation need for 100 project workers at the peak of the project. This represents only 3% of total commercial accommodation rooms/cabins and powered sites and would provide a boost to local accommodation operators, noting that 2015/16 occupancy rates were only 49% for the Western Grampians Tourism Region (with Horsham an integral part of the region’s accommodation sector).
- 6 Construction workers would be expected to inject approximately \$1.5 million in additional spending to the regional economy over the construction phase, supporting around 7.5 FTE jobs in the service sector in Horsham and the smaller towns.
- 7 Approximately 354ha of productive agricultural land will be lost to accommodate the solar farm. However, this represents just 0.05% of all productive agricultural land in the Study Area. Importantly, the host landowners are likely to improve their annual income, as operator payments will be greater than average farm income from the land.
- 8 Ongoing economic stimulus associated with new local wage spending and returns to landowners is estimated at \$20.0 million over 25 years (adjusted for CPI).
- 9 Council rates revenue returns are estimated to total \$14.3 million over 25 years (adjusted for CPI), while the Fire Services Property Levy will generate \$18.0 million over 25 years (adjusted for CPI) for the State Government.
- 10 The proposed Community Fund would contribute a further \$1.6 million (adjusted for CPI) over the 25-year period and this can be directed to new community infrastructure and programs.
- 11 The project has the capacity to supply sufficient clean energy to power approximately 83,000 homes and, in the process, to reduce CO² emissions by 0.42 million tonnes per year.
- 12 The 235MW Murra Warra Solar Farm will contribute approximately 4.4% of additional renewable State capacity, supporting Victoria’s renewable energy target of 5,400MW of additional installed capacity by 2025. The site could deliver approximately 12% of all

required new renewable capacity when the proposed Murra Warra Wind Farm (420 MW) is factored in.

- 13 The Murra Warra solar and wind farm projects present a unique environmental experience for Victoria which could potentially support small-scale tourism initiatives, such as viewing and educational opportunities for visitors to the region. Visitor groups would likely include environmentalists, researchers, school groups and eco-tourism, and their expenditures will provide ongoing benefits to the regional economy.