



ESSENTIAL ECONOMICS

# **Murra Warra Wind Farm**

## **Economic Assessment**

FINAL

Prepared for

RES Australia

by

Essential Economics Pty Ltd

**February 2017**

## **Authorship**

<b>Report stage</b>	<b>Author</b>	<b>Date</b>	<b>Review</b>	<b>Date</b>
Draft report	John Noronha	30 July 2014	John Henshall	30 July 2014
Final draft	John Noronha	2 September 2014		
Final report	John Noronha	9 February 2017		

## **Disclaimer**

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

The information in this report has been prepared specifically for the stated client. This document should not be used or replicated in any way by any other party without first receiving written consent from Essential Economics Pty Ltd.

## **Contact details**

For further details please contact Essential Economics Pty Ltd at one of our offices:

96 Pelham Street

Carlton

Victoria 3053

Australia

PH +61 3 9347 5255

FAX +61 3 9347 5355

Level 26 / 44 Market Street

Sydney

New South Wales 2000

Australia

PH +61 2 9089 8654

EMAIL [mail@essentialeconomics.com](mailto:mail@essentialeconomics.com)

WEB [www.essentialeconomics.com](http://www.essentialeconomics.com)

ABN 92 079 850 427

**Our Reference: 16112**

# Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>Introduction .....</b>	<b>4</b>
<b>1 Project Context .....</b>	<b>6</b>
1.1 Site Location .....	6
1.2 Project Description.....	6
1.3 Study Area.....	9
1.4 Summary .....	9
<b>2 Regional Economic Profile .....</b>	<b>11</b>
2.1 Population and Demography .....	11
2.2 Labour Force .....	12
2.3 Occupational Structure .....	13
2.4 Industry Structure .....	13
2.5 Business Structure.....	14
2.6 Township Services Capacity .....	15
2.7 Conclusions .....	21
<b>3 Economic Impact Assessment .....</b>	<b>23</b>
3.1 Project Investment.....	23
3.2 Project Employment.....	23
3.3 Competing Projects.....	25
3.4 Industry and Business Participation Opportunities.....	27
3.5 Housing and Commercial Accommodation Sector Impacts .....	27
3.6 Local Wage Spending Stimulus.....	28
3.7 Impact on Agricultural Land .....	29
3.8 Ongoing Economic Stimulus.....	29
3.9 Returns to Council and the Community .....	29
3.10 National Grid Supply Benefits .....	31
3.11 Reduced Greenhouse Gas Emissions Benefits .....	31
3.12 Tourism Opportunities .....	32
3.13 Conclusions .....	32
<b>4 Case Study – The Ararat Experience .....</b>	<b>34</b>
4.1 Challicum Hills Wind Farm .....	34
4.2 Ararat Wind Farm.....	36
4.3 Conclusions .....	38

## EXECUTIVE SUMMARY

---

RES Australia Pty Ltd (RES) have commissioned Essential Economics Pty Ltd to prepare a preliminary Economic Impact Assessment for the proposed 430 Mega Watt (MW) Murra Warra Wind Farm development to be located between Horsham and Warracknabeal in Victoria's Wimmera Region. The wind farm will be located across 22 properties and, subject to planning approval and financing, it is expected the facility will be operational by 2020.

The main findings of this study are summarised as follows.

### **Regional Economic Context**

- 1 The Study Area has a resident population of approximately 26,500 persons, 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 in new workers can be attracted to the region.
- 2 The relatively low unemployment rate (5.3% compared to 6.0% 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.
- 3 The Study Area's occupational, industry and business structures indicates a good base exists to service the needs of the 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 (520 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.

### **Economic Impact Assessment**

- 5 The Murra Warra Wind Farm project will involve \$650 million in investment during the construction phase and will support 235 direct and 375 indirect FTE positions over the construction period. Once operational, 15 direct and 45 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 5% of workers occupied in construction-related activities in the Study Region.

- 7 Competing projects – including the Stawell Open Cut Gold Mine, Donald Mineral Sands Project, Bungana 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 wind farm project, principally due to uncertainty regarding some projects and different construction timeframes for approved projects.
- 8 The project will provide significant business 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 should be involved in ensuring maximum local inputs are secured.
- 9 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 10-15% of total commercial accommodation rooms/cabins and powered sites and would provide a boost to local accommodation operators, noting that occupancy rates are around the 50% for the Western Grampians Tourism Region (with Horsham an integral part of the Region's accommodation sector).
- 10 Construction workers would be expected to inject approximately \$5.8 million in additional spending to the regional economy over the construction phase, supporting around 30 jobs in the service sector in Horsham and the smaller towns.
- 11 Agricultural land use will only be marginally affected by the project, with existing farm activities continuing as normal.
- 12 Ongoing economic stimulus associated with new local wage spending from permanent operational staff and financial returns to host landowners is estimated at \$51.0 million over 25 years (adjusted for CPI).
- 13 Council rates revenue returns are estimated to total \$24.3 million over 25 years (adjusted for CPI); while the proposed Community Fund would contribute a further \$4.2 million (adjusted for CPI) over the 25-year period and this can be directed to new community infrastructure and programs.
- 14 The project has the capacity to supply sufficient clean energy to power approximately 420,000 homes and, in the process, to reduce CO<sup>2</sup> emissions by 1.7 million tonnes per year.

### **Case Study Findings**

- 15 Findings from case studies relating to wind farm projects in locations close to the Study Area highlight the significant economic benefits these projects can deliver. For example, benefits from the Challicum Hills Wind Farm, which has been operational for over a decade, include:
  - Regional economic stimulus of approximately \$40 million during construction and operations to date
  - An estimated \$2 million in financial returns to host landowners to date

- An estimated \$1 million in rates revenue to Council to date
  - Five permanent management and technician positions located in Ararat, associated with maintenance of the facility
  - Almost \$0.5 million in direct contributions to community organisations through the Ararat Sustainable Communities Fund
- 16 The approved Ararat Wind Farm, where construction is well underway, is expected to provide similar economic benefits through its two-year development phase and 25-year lifecycle.

# INTRODUCTION

---

## Background

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

At the time of preparing this report, the facility has the potential to include 116 turbines (each with an installed capacity of 3.7 MW); with the total installed capacity estimated at 430 MW. The Murra Warra Wind Farm will be developed in an area of 42.5 km<sup>2</sup> (or 4,250 hectares) and across 22 individual landholdings owned by 18 families. Subject to planning approval, it is anticipated the wind farm could start construction by 2017 and be operational by 2020.

## Objectives

The objectives of this study are:

- To highlight likely local and regional economic benefits arising from the project
- To identify potential impacts associated with the project
- To assess experiences from wind farm projects in Ararat Shire and highlight implications for the Murra Warra Wind Farm 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, environmental benefits and potential tourism-related opportunities. The analysis is underpinned through consultation with Horsham and Yarriambiack Shires and with the Wimmera Development Association.

Chapter 4: **Case Study – The Ararat Experience**

Presents a summary of benefits and lessons learnt for the construction and operation of the Chalicum Hills Wind Farm (commissioned in 2003) and the ongoing development of the Ararat Wind Farm. The case study includes consultation findings from discussions with Ararat Council.



# 1 PROJECT CONTEXT

---

## 1.1 Site Location

The proposed Murra Warra Wind Farm will be developed on a site located approximately 25km 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 4,250ha in size and is currently used for farming purposes under the Farming Zone (FZ). It is estimated that around 1% site will be utilised for wind farm infrastructure.

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 1.2.

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

## 1.2 Project Description

Preliminary plans for the project include the following:

- Total estimated output of approximately 430 MW
- 116 turbines @ 3.7 MW per turbine
- Turbines to be spread across land held by 18 host families
- Construction start date estimated 2017
- Construction period is estimated at 18-24 months
- Wind Farm might be fully operational by 2020
- Operational lifespan estimated at 25 years

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 for 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.

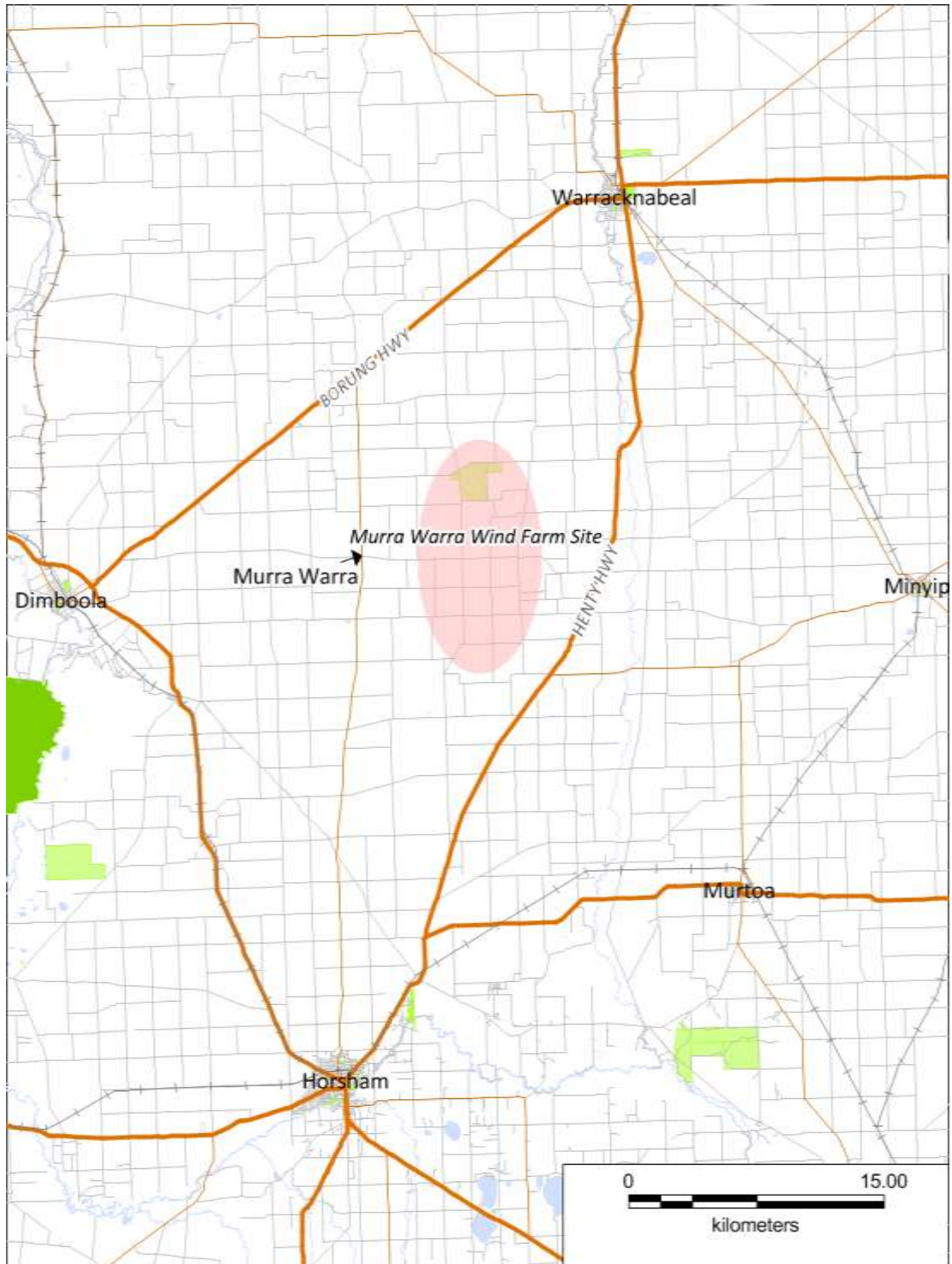
The Renewable Energy Target works by allowing both large-scale power stations and the owners of small-scale systems to create certificates for every megawatt hour of power they generate. Certificates are then purchased by electricity retailers who sell the electricity to householders and businesses. 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.

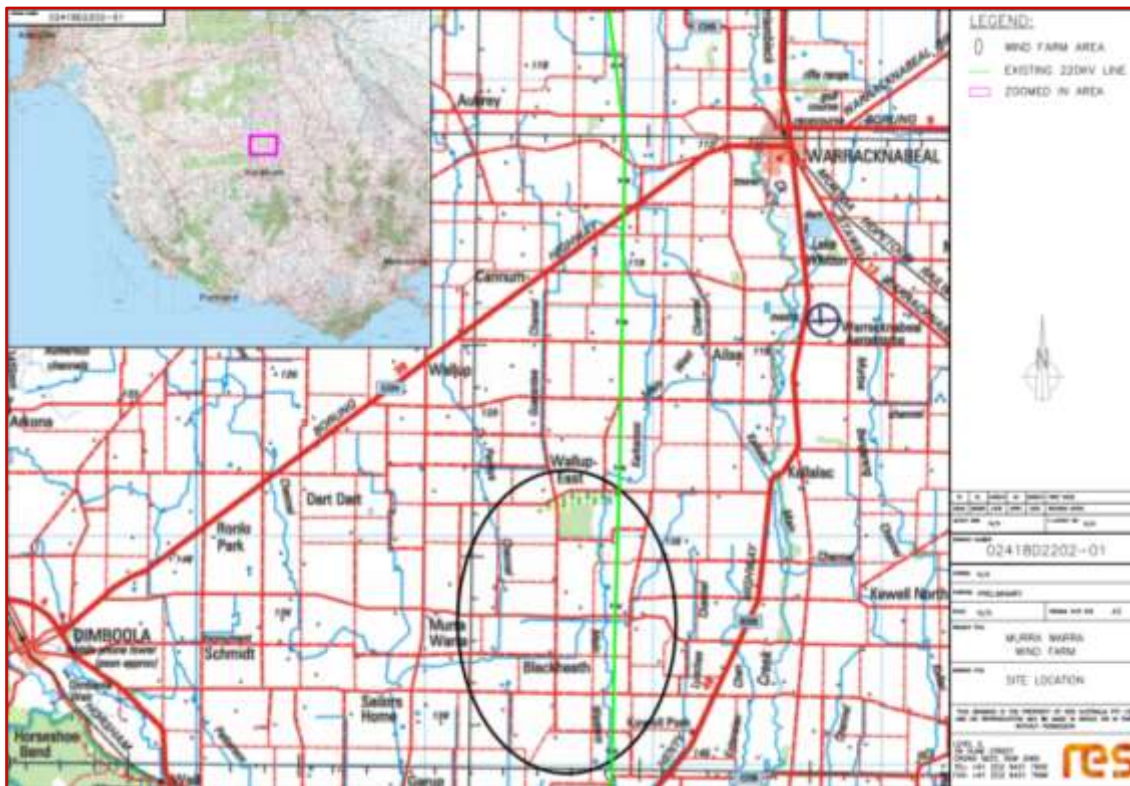
In June 2016, the Victorian Government announced new renewable energy targets for the state of 25 per cent by 2020, and 40 per cent by 2025, to help combat greenhouse emissions. These targets are more ambitious than the government's previous target of 20 per cent renewable energy by 2020, with the government 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.

Figure 1.1: Murra Warra Wind Farm Site Location



Source: RES Australia

**Figure 1.2: Murra Warra Wind Farm Site Location**

Source: RES Australia

### 1.3 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.

### 1.4 Summary

- 1 RES Australia are proposing to construct a 430 MW Wind Farm in Murra Warra, in Victoria's Wimmera region. The facility will be located across 18 properties in the municipalities of Horsham and Yarriambiack.
- 2 Subject to planning approval by both Councils, it is anticipated construction of the wind farm could start in 2017, and the facility may be operational by 2020.
- 3 In the past 12 months, federal and state governments have updated long-term renewable energy targets and this should provide greater investment certainly within the sector.
- 4 To obtain planning approval a range of studies and investigations will be required to identify the impacts of the project (social, environmental and economic), including this

preliminary economic impact study which will provide Horsham and Yarriambiack shires with an understanding of potential economic benefits arising for their communities and identify issues that may need to be addressed through the planning process.

**Figure 1.3: Murra Warra Wind 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 26,545 persons as of June 2015, with Horsham Rural City accounting for 75% (19,770 persons) and Yarriambiack Shire 25% (6,775 persons). As Table 2.1 shows, over the period 2015-2031 population growth in the Study Area is expected to be modest (+0.4%pa), driven by population expansion in Horsham of 0.7%pa, while Yarriambiack's population is projected to decline by -0.5%pa over this 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 Wind Farm will provide an alternative drought proofed, guaranteed income stream to 18 host family farms, while allowing existing agricultural practices to continue. This benefit is significant, as confirmed through discussions with Councils and the Wimmera Development Association, 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 lead to an exodus of young people from rural communities.

**Table 2.1: Population – Study Area, 2015-2031**

Municipality	2015	2021	2031	Change 2013-31	AAGR 2013-31
Horsham (RC)	19,770	20,510	22,225	+2,455	+0.7%
Yarriambiack (RC)	6,775	64,345	6,210	-565	-0.5%
<b>Study Area</b>	<b>26,545</b>	<b>84,855</b>	<b>28,435</b>	<b>+1,890</b>	<b>+0.4%</b>

Source: Victoria in Future 2015, Department of Environment, Land, Water and Planning

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 2011, 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 (20% cf 14% for Victoria).

Recently-updated State Government population projections (*Victoria in Future 2015*) shows that by 2031 this situation will deteriorate further, with one-in-four (25%) Study Area residents 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 Wind 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, 2011**

Age Group	Horsham (Rural City)		Yarriambiack (Shire)		Study Area		Victoria	
	No.	%	No.	%	No.	%	No.	%
0-4 years	1,264	6.6%	396	5.6%	1,660	6.3%	344,733	6.4%
5-14 years	2,497	13.0%	848	12.0%	3,345	12.7%	654,060	12.2%
15-19 years	1,350	7.0%	455	6.4%	1,805	6.8%	345,342	6.5%
20-24 years	1,095	5.7%	253	3.6%	1,348	5.1%	375,107	7.0%
25-34 years	2,091	10.8%	477	6.7%	2,568	9.7%	760,882	14.2%
35-44 years	2,409	12.5%	765	10.8%	3,174	12.0%	774,615	14.5%
45-54 years	2,721	14.1%	1,124	15.9%	3,845	14.6%	726,474	13.6%
55-64 years	2,404	12.5%	1,023	14.4%	3,427	13.0%	611,248	11.4%
65-74 years	1,691	8.8%	811	11.4%	2,502	9.5%	402,225	7.5%
75-84 years	1,258	6.5%	651	9.2%	1,909	7.2%	254,359	4.8%
85 years and over	499	2.6%	285	4.0%	784	3.0%	104,996	2.0%
<b>Total</b>	<b>19,279</b>	<b>100.0%</b>	<b>7,088</b>	<b>100.0%</b>	<b>26,367</b>	<b>100.0%</b>	<b>5,354,041</b>	<b>100.0%</b>

Source: ABS Census of Population and Housing 2011

## 2.2 Labour Force

As of March 2016 (latest available), the Study Area had an unemployment rate of 5.3%, which is slightly below the rate for Victoria of 6.0%; however, unemployment in Yarriambiack Shire (6.7%) is well above state averages. Consultation with Councils and the WDA highlight labour supply as a potential issue for the 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). This issue is considered further in Chapter 3. As Table 2.3 shows, in March 2016 the Study Area's labour force totalled approximately 12,710 persons, including approximately 680 persons who were unemployed.

**Table 2.3: Labour Force – Study Area, March 2016**

Municipality	Employed	Unemployed	Total Labour Force	Unemployment Rate
Horsham (RC)	9,273	480	9,753	4.9%
Yarriambiack (RC)	2,759	198	2,957	6.7%
<b>Total Study Area</b>	<b>12,032</b>	<b>678</b>	<b>12,710</b>	<b>5.3%</b>
<b>Victoria</b>	<b>2,965,300</b>	<b>189,700</b>	<b>3,155,000</b>	<b>6.0%</b>

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

## 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 wind 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 wind farm project.

**Table 2.4: Occupational Structure – Study Area, 2011**

Occupation	Horsham (RC)		Yarriambiack (S)		Study Area		Victoria	
	No.	%	No.	%	No.	%	No.	%
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%
<b>Technicians and trades workers</b>	<b>1,358</b>	<b>14.8%</b>	<b>298</b>	<b>10.5%</b>	<b>1,656</b>	<b>13.8%</b>	<b>350,760</b>	<b>13.9%</b>
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%
<b>Machinery operators and drivers</b>	<b>620</b>	<b>6.8%</b>	<b>194</b>	<b>6.8%</b>	<b>814</b>	<b>6.8%</b>	<b>154,544</b>	<b>6.1%</b>
<b>Labourers</b>	<b>903</b>	<b>9.8%</b>	<b>349</b>	<b>12.3%</b>	<b>1,252</b>	<b>10.4%</b>	<b>227,185</b>	<b>9.0%</b>
Not stated	178	1.9%	53	1.9%	231	1.9%	56,224	2.2%
<b>Total</b>	<b>9,176</b>	<b>100.0%</b>	<b>2,844</b>	<b>100.0%</b>	<b>12,020</b>	<b>100.0%</b>	<b>2,530,633</b>	<b>100.0%</b>

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 Wind 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.	%	No.	%	No.	%	No.	%
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%
<b>Construction</b>	<b>774</b>	<b>8.4%</b>	<b>141</b>	<b>5.0%</b>	<b>915</b>	<b>7.6%</b>	<b>210,973</b>	<b>8.3%</b>
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%
<b>Transport, postal and warehousing</b>	<b>434</b>	<b>4.7%</b>	<b>177</b>	<b>6.2%</b>	<b>611</b>	<b>5.1%</b>	<b>118,216</b>	<b>4.7%</b>
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%
<b>Total</b>	<b>9,175</b>	<b>100.0%</b>	<b>2,845</b>	<b>100.0%</b>	<b>12,020</b>	<b>100.0%</b>	<b>2,530,632</b>	<b>100.0%</b>

Source: ABS Census of Population and Housing 2011

## 2.5 Business Structure

One of the more tangible benefits of an investment project 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 included 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 is included in Table 2.6 and indicates a good presence of the types of firms that may 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.	%	No.	%	No.	%
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%
<b>Construction</b>	<b>274</b>	<b>12.6%</b>	<b>58</b>	<b>5.8%</b>	<b>332</b>	<b>10.5%</b>
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%
<b>Transport, Postal and Warehousing</b>	<b>107</b>	<b>4.9%</b>	<b>38</b>	<b>3.8%</b>	<b>145</b>	<b>4.6%</b>
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%
<b>Total</b>	<b>2,171</b>	<b>100.0%</b>	<b>1,006</b>	<b>100.0%</b>	<b>3,177</b>	<b>100.0%</b>

Source: 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 (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 Study Area comprise approximately 490 commercial rooms, 45 cabins and 215 powered sites, providing a total capacity of 750 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 1,125 persons.

Horsham provides the vast majority of options – approximately 380 commercial rooms, 40 cabins and 100 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 115 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, 2014**

	No. Rooms
<u>Horsham</u>	
Comfort Inn Capital Horsham	36
Buloke on Ballie	51
Ploughmans Motor Inn	14
Comfort Inn May Park	23
May Park Executive Apartments	18
Darlot Motor Inn	15
Olde Horsham Motor Inn	18
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	19
Elm Tree Apartments on Searle	4
White Hart Hotel	15
Royal Hotel	15
<b>Horsham Total</b>	<b>381</b>
<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
<b>Non-Horsham Total</b>	<b>110</b>
<b>Total</b>	<b>491</b>

Sources: RACV Accommodation Guide; RACV Tourist Park Guide. [www.wimmewramalleetourism.com.au](http://www.wimmewramalleetourism.com.au); [www.tripadvisor.com.au](http://www.tripadvisor.com.au).

**Table 2.8: Caravan Park Accommodation (Cabins and Powered Sites) – Study Area, 2014**

	Cabins	Powered Sites
<b>Horsham</b>		
Wimmera Lakes Caravan Resort	33	35
Horsham Caravan Park	9	64
<b>Horsham Total</b>	<b>42</b>	<b>99</b>
<b>Non-Horsham</b>		
Dimboola Caravan Park	2	46
Warracknabeal Caravan Park	0	50
Minyip Caravan Park	0	20
<b>Non-Horsham Total</b>	<b>2</b>	<b>116</b>
<b>Total</b>	<b>44</b>	<b>215</b>

Sources: RACV Accommodation Guide; RACV Tourist Park Guide. [www.wimmewramalleetourism.com.au](http://www.wimmewramalleetourism.com.au); [www.tripadvisor.com.au](http://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](http://www.tripadvisor.com.au)

Horsham, with a population of approximately 14,000 persons – serves as 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 wind 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 accommodate options (see above)
- 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](http://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 Wind 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](http://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](http://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:

- 1 The Study Area has a resident population of around 26,545 persons, 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 in new workers can be attracted to the region.
- 2 The relatively low unemployment rate (5.3% compared to 6.0% 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.



- 3 The Study Area's occupational, industry and business structures indicates a good base exists to service the needs of the 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 (520 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 Wind Farm project is estimated to be \$650 million, according to information provided by RES. The major investment cost is associated with the purchase of wind turbines, although significant investment is also required for civil, electrical and grid connection works. Additional investment will be required with regard to project management, planning and approvals, 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

Sustainable Energy Victoria estimates that between 0.5 and 0.8 jobs are created per MW during the construction phase of a wind farm project. The mid-range ratio (0.65 jobs per MW) equates to 235 project jobs for the 360MW facility.

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

- Structural concrete foundations
- Earthworks
- Roads and access tracks
- Fencing
- Landscaping
- Vehicle and equipment hire
- Trade services
- Security
- Office cleaning
- Waste disposal
- Building maintenance

- Foundation laying
- Electrical transformer installation
- Crane works
- Cabling
- Temporary site facilities (power, water, telecommunications)
- Transport of components/workers

Local/ regional professional services are expected to include:

- Civil engineering
- Mechanical engineering
- Environmental engineering and specialist consultants
- Employment agencies
- Electrical engineering
- Legal and financial services.

#### **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 375 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 610 FTE jobs (235 direct and 375 indirect) are expected to be generated by the Murra Warra Wind Farm project during the construction phase.

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 135 jobs. This represents less than 5% 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’.

## ***Operational Phase***

### **Direct Operational Employment**

RES Australia indicate that around 15 FTE jobs will be supported on an ongoing basis through the operation of the Murra Warra Wind Farm, with some of these jobs expected to be supported in the Study Area, while other jobs would be located in other areas, including Head Office.

This estimate broadly aligns with research included in *‘Driving Investment, Generating Jobs: Wind Energy as a Powerhouse for Rural & Regional Development in Australia’* (Dr. Robert Passey, 2003) which shows 0.06 operational and maintenance jobs are created per MW of installed capacity. In the case of the Murra Warra Wind Farm this would equate to approximately 20 jobs.

### **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 15 direct operational and maintenance jobs, a further 45 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 25% of direct FTE jobs and 10% of indirect FTE jobs are created in the Study Area. This equates to approximately 8 ongoing FTE positions.

### **Total Operational Employment**

In summary, approximately 60 FTE jobs (15 direct and 45 indirect) are expected to be generated by the Murra Warra Wind Farm project through its ongoing operations, of which 8 FTE positions are expected to be created locally.

## **3.3 Competing Projects**

Discussions with Councils and the WDA identified major projects in the broader region over the coming decade or so that may compete for labour and resources. 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)
- Bulgana Wind Farm (Greater Western, 15km south of Stawell)
- Ararat Wind Farm (15km north-east of Ararat)

The general consensus is that these projects do not represent a major challenge for the Murra Warra Wind Farm project, either in terms of resources required or timing.

Planning approval for the Stawell Gold Mining project was rejected in 2014; however, the current State Government has indicated it is prepared to reconsider this decision if suitable environmental safeguards can be provided. This may require another Environmental Effects Statement process, therefore considerable uncertainty regarding the project remains.

According to statements by proponent Astron, the Donald Mineral Sands mine is expected to be constructed and operating by late 2016, which is prior to the construction phase of the Murra Warra Wind 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 – although no commitment has yet been made to fully fund the project.

The Bungana 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 Wind Farm project commencing.

The 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 Wind Farm project.

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, 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 Wind Farm 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 wind 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 major regional centre, Horsham has many firms of sufficient scale to compete for project contracts and 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. Discussions with the WDA in the preparation of this study confirm that many opportunities would exist for local contractors to participate in the project. The WDA (with whom RES have already been engaged regarding this project) would be able to assist RES facilitating these opportunities.

The Industry Capability Network (ICN) is another organisation that often plays an important business facilitation role for major infrastructure projects, such as the proposed wind farm. 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 100 non-local staff may need to be accommodated in the region at the project's peak. These staff will include a range of occupations, including managers and specialist technicians. Contracts 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 750 rooms/cabins/ powered sites and equivalent to approximately 1,125 bed spaces (at an average of 1.5 persons per unit). Assuming each non-local worker requires individual accommodation, approximately 13% of total accommodation stock would be required at peak times to service the project. Of course, the actual proportion would be lower on the expectation that 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 are likely to share motel rooms/ cabins etc to reduce costs.

ABS Tourism Accommodation data for 2014/15, shows the Western Grampians Tourism Region (of which Horsham is an integral part) had a room occupancy rate of approximately 50% and a bed occupancy rate of 26% for its hotels, motels and serviced apartments. These rates compare respectively to 69% and 45% for Victoria over the 2014/15 period.

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

### 3.6 Local Wage Spending Stimulus

RES estimate that typically 40% of jobs (100 jobs) would possibly be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to \$7.7 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 \$77,700 including on-costs (source: ABS Average Weekly Earnings 6302.0, November 2015).

A considerable portion of these wages would be spent in Horsham and the surrounding region. An estimated \$5.8 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, household cleaning services, fuel, vehicle maintenance and so on.

This level of personal spending would support approximately 30 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 impact of the Murra Warra Wind Farm on agricultural activity is likely to be small, due to the following factors:

- Only a very small proportion of agricultural land (estimated at 1%) will be lost due to required internal access roads, siting of turbines and other infrastructure requirements.
- The land is principally used for growing wheat, barley and other crops and this can continue as normal, with the wind farm operational activity on the farm.
- Aerial spraying is very rare in this area (according to discussions with stakeholders), with more efficient large-scale ground spraying techniques now widely used.
- A 220v power line runs through the site, allowing for efficient access to the national grid, therefore minimising land consumption compared to wind farm projects which require external grid connections and involve grid route corridors.

### 3.8 Ongoing Economic Stimulus

RES advise that turbines are likely to be spread across 18 land owning families, providing income returns to these landowners.

These new income streams can be particularly important in supporting the financial sustainability of some farms, especially as primary agricultural activities are not impacted upon to any great extent (as outlined above).

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. Potential exists for landowners to continue to host turbines post the initial 25-year period (assuming the wind farm is not decommissioned) and this would provide income for future generations or new landowners.

Additionally an estimated 8 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, it is estimated the Study Area's economy will receive a stimulus of \$51.0 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 wind farm is operational in 2020 and built to its maximum capacity (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 Wind Farm operation, and this would amount to approximately \$650,000 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 wind farm would add an additional 2% 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 wind farm site is likely to be relatively small and would be limited to planning, road maintenance, garbage removal etc. Therefore, rates revenues generated from the project would represent, in effect, a substantial net return to Council, and would deliver additional cumulative revenue of \$24.3 million (in 2016 dollars) 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.

It is also 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.

### **Community Fund**

RES is committed to providing \$1,000 pa (linked to CPI) to a Community Fund for each turbine installed as part of the Murra Warra Wind Farm. This equates to \$116,000 pa, or \$4.2 million

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. The management and criteria for distribution of the fund has yet to be determined.

Discussions with Horsham and Yarriambiack officers highlighted the importance of such a fund in assisting the delivery of community infrastructure, especially in rural areas of each municipality. In view of the relatively small rates revenue generated by local councils, this guaranteed annual income which can be allocated for specific community purposes provides a positive legacy for the project.

Consultation with Council officers emphasised the need for such a fund to be widely distributed and not dominated by allocations to sporting organisations, which can often be the case with these types of funds. In this regard, the structure and operational mechanism of the fund will be important to ensure all community groups have an opportunity in benefiting from the fund.

### 3.10 National Grid Supply Benefits

The Murra Warra Wind Farm has the capacity to provide sufficient renewable energy to support the annual electricity needs of approximately 420,000 households. This calculation is based on  $430 \text{ MW capacity} \times 8,760 \text{ (household hours per annum)} \times 0.45 \text{ (capacity factor)} / 4,026 \text{ Kwh representative Victorian household consumption in 2016 (Australian Energy Market Commission – 2016 Electricity Price Trends Report)} = 420,000 \text{ Victorian homes (rounded)}$ .

When considered in a State-wide context, this level of renewable power generation has the capacity to support the annual electricity needs of approximately 15% of all Victorian dwellings in 2021 (with the State Government's *Victoria in Future 2016* estimating total dwellings to be approximately 2.86 million dwellings at that time). This highlights the State significance of the proposed project. In a local context, it is noted that by 2021 the total number of dwellings in the Study Area is projected to be 13,610 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 projected to reach 75,000 dwellings.

### 3.11 Reduced Greenhouse Gas Emissions Benefits

Once fully-operational, the Murra Warra Wind Farm facility will result in the reduction of an estimated 1.7 million tonnes in carbon dioxide emissions on an annual basis compared to the same level of electricity generation using fossil fuels. This is calculated as follows:

$430 \text{ MW (Wind Farm Capacity)} \times 8,760 \text{ (Hours per annum)} \times 0.45 \text{ (Wind Farm Capacity Factor)} \times 1.00 \text{ (Carbon Offset Figure)} = 1.7 \text{ million tonnes of CO}_2 \text{ emissions pa (rounded)}$ . This reduction on CO<sub>2</sub> emissions is the equivalent of taking approximately 610,000 cars off the road (based on an average of 14,000km travelled with CO<sub>2</sub> emissions of 200g/km).

### 3.12 Tourism Opportunities

In view of the proposed wind farm's remote location, tourism opportunities associated with the facility would be expected to be minimal. However, this does not preclude the possibility of providing an interpretation area which would allow people to visit the facility.

In the longer -term potential may develop for a specific tour to be operational which enables visits to a number of wind farms in the broader region, including Murra Warra, Chalicum Hills, and Ararat. This would likely appeal to students and other visitors to the region.

### 3.13 Conclusions

- 1 The Murra Warra Wind Farm project will involve \$650 million in investment during the construction phase and will support 235 direct and 375 indirect FTE positions over the construction period. Once operational, 15 direct and 45 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 5% 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, Bungana 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 wind farm project, principally due to uncertainty regarding some projects and different construction time frames for approved projects.
- 4 The project will provide significant business 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 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 10-15% of total commercial accommodation rooms/cabins and powered sites and would provide a boost to local accommodation operators, noting that occupancy rates are around the 50% 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 \$5.8 million in additional spending to the regional economy over the construction phase, supporting around 30 jobs in the service sector in Horsham and the smaller towns.
- 7 Agricultural land use will only be marginally affected by the project, with existing farm activities continuing as normal.

- 8 Ongoing economic stimulus associated with new local wage spending from permanent operational staff and financial returns to host landowners is estimated at \$51.0 million over 25 years (adjusted for CPI).
- 9 Council rates revenue returns are estimated to total \$24.3 million over 25 years (adjusted for CPI); while the proposed Community Fund would contribute a further \$4.2 million (adjusted for CPI) over the 25-year period and this can be directed to new community infrastructure and programs.
- 10 The project has the capacity to supply sufficient clean energy to power approximately 420,000 homes and, in the process, to reduce CO<sup>2</sup> emissions by 1.7 million tonnes per year.
- 11 The project could potentially support small-scale tourism initiatives, such as viewing opportunities for visitors to the region, and in the longer-term potentially organised tours to major facilities in the surrounding region.

## 4 CASE STUDY – THE ARARAT EXPERIENCE

---

This Chapter provides a Case Study relating to wind farm developments in the Shire of Ararat, which is located to the south-east of the Study Area. The analysis focuses on one of Victoria's first wind farms, Challicum Hills, and a wind farm at Ararat which is currently being developed. The Case Study includes feedback from consultation held with Ararat Shire Council in relation to the developments.

### 4.1 Challicum Hills Wind Farm

#### Background

Challicum Hills Wind Farm as shown in Figure 4.1, is located to the east of Ararat. The facility was completed in 2013 and at that time was the largest wind farm in Australia.

**Figure 4.1: Images of Challicum Hills Wind Farm**



Source: [http://en.wikipedia.org/wiki/Challicum\\_Hills\\_Wind\\_Farm](http://en.wikipedia.org/wiki/Challicum_Hills_Wind_Farm)

Prior to construction, extensive consultation was undertaken with local community members and businesses on a wide range of issues, including the project's visual impact and its effect on birdlife, native vegetation and indigenous cultural heritage. Ultimately, strong community support was secured for the project, with no objections lodged when the planning permit was issued by the Ararat Rural City Council for the construction of the wind farm.

The construction phase of the 52.5MW facility involved approximately 12 months and investment totalled approximately \$76 million.

The 35 turbines are located across seven host properties, with consumption of agricultural land estimated at only 1% for turbines, access roads and other infrastructure, thus allowing farming activities to continue uninterrupted.

At the commencement of the project the proponent (Pacific Hydro) established a community fund – The Ararat Sustainable Communities Fund – which allocates \$50,000 per year for

community programs. Applications are invited across five areas: health and safety, education and training, sport and recreation, art and culture, and the environment.

Applications are reviewed by a volunteer Fund Allocation Panel comprising community members, Pacific Hydro staff and local Council staff. This ensures local priorities and projects that support sustainability across the wider community are identified.

Council reports that the performance of the wind farm has met expectations and that no unexpected issues have arisen over the initial decade of operation.

### **Economic and Community Benefits**

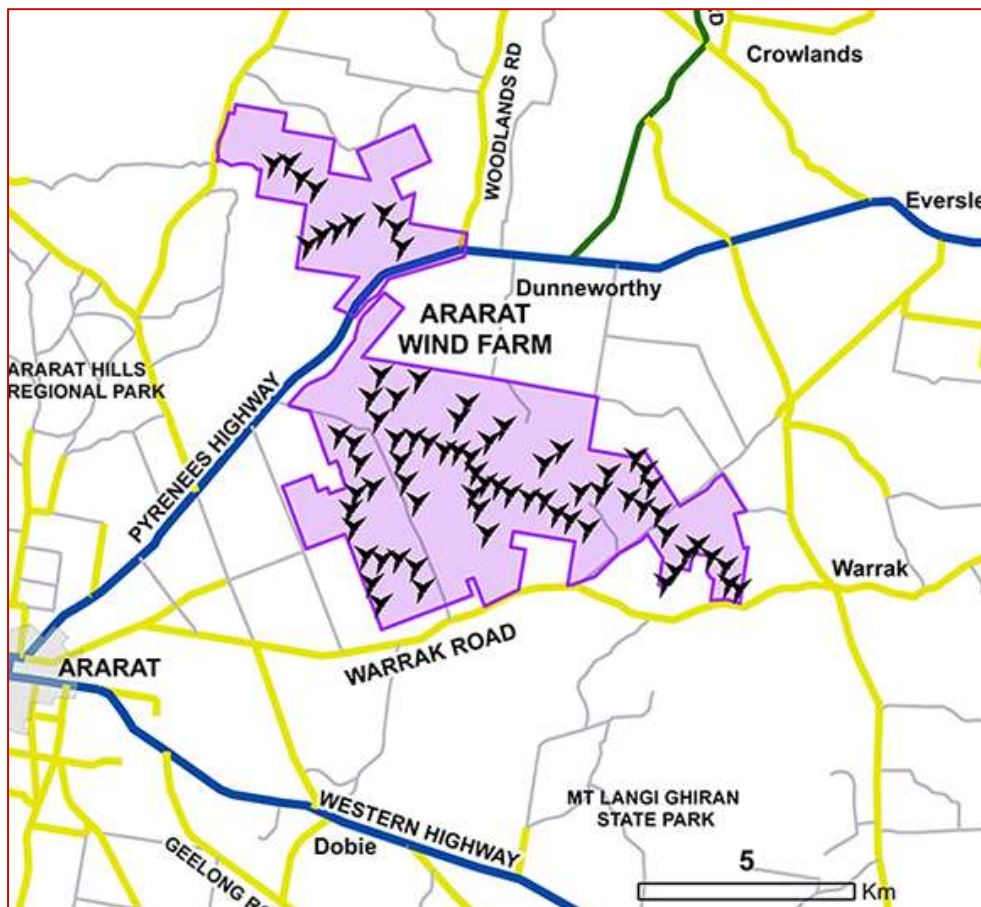
- Challicum Hills wind farm generates around 141GWh per year and its associated carbon abatement is the equivalent of removing 35,000 cars from the road (source: Energymatters.com.au).
- The facility generates enough clean energy to supply approximately 26,000 homes each year, while abating approximately 140,000 tonnes of greenhouse gas emissions each year.
- The proponent estimates approximately 50% of project costs so far have flowed into the local economy through construction, operation and maintenance.
- Five full-time permanent local jobs have been created in Ararat, including a manager and four technicians who are at work on-site on a mainly daily basis.
- The Ararat Sustainable Communities Fund has so far provided \$440,000 to approximately 175 local community groups, including hospitals, kindergartens, local environmental forums, rain water collection programs, sporting club uniforms and local festivals.
- Approximately \$1 million in rates revenue has been generated for Council to date.
- Approximately \$2 million in financial payments to landowners to date (assumes \$5,000 per turbine per year).
- Re-vegetation programs are increasing native flora and this will help to protect local biodiversity and improve the habitat of indigenous wildlife.
- The successful development of Challicum Hills Wind Farm was a precursor for Ararat Rural City Council to receive Federal Government funding for the development of the fully zoned Ararat Renewable Energy Park. The 30ha site is earmarked for green industries as part of a drive to attract component manufacturers and other businesses to the township, and to generate green jobs for local residents.

## 4.2 Ararat Wind Farm

### Background

The proposed Ararat Wind farm (RES Australia) is to be located approximately 15km northeast of Ararat in Victoria. The facility will be located on farming land located in Northern Grampians Shire and Ararat Shire, with a substation planned to be located in Pyrenees Shire. The wind farm will comprise 75 turbines with a rated capacity of 3.2MW each, providing a total capacity of 240MW.

**Figure 4.2: Plan and Impressions of Proposed Ararat Wind Farm**



The project was submitted to the Minister for Planning in January 2010 and was approved in October 2010. Further planning applications for the grid route and substation to connect the wind farm to the main transmission network were approved in 2012.

Discussions with Council note significant community support for the project in its ten-year planning phase, resulting in no formal objections lodged during the approvals process.

Phase 1 works commenced in September 2013 and were completed in November 2013 on the portion of the Wind Farm located to the north of the Pyrenees Highway.

A 2km access road into the site was constructed off Woodlands Road, with the work involving general earthworks, drainage improvements and the installation of a bridging ramp over the Ararat gas supply line in conjunction with Gas Pipelines Victoria. Intersection improvements at the Woodlands Road / Pyrenees Highway were also completed, as required by Vic Roads.

Horsham-based Millers Construction was the successful Contractor for the work and they utilised local Ararat suppliers for concrete and road materials. Local Ararat residents were also employed in heavy machinery operations and fencing works.

### **Economic and Community Benefits**

The wind farm is expected to deliver environmental, social and economic benefits to the region, including:

- Investment of approximately \$450 million during the two-year construction phase, with ongoing investment once the wind farm is operational. Based on similar wind farm projects in regional Victoria, it is expected that up to 50% of this investment over the lifetime of the project would remain in the regional economy.
- Considerable construction employment during the development phase, estimated at 175 jobs, with permanent jobs created in Ararat and the broader region over the 25-year operational phase.
- Enough electricity for up to 110,000 average Victorian households per annum.
- Approximately \$1.9 million in direct support for local communities through the Community Fund (over 25 years), noting the proponent is currently sponsoring the Ararat Football and Netball Clubs and a number of other local clubs and groups.
- Ongoing economic stimulus associated with new local wage spending from permanent operational staff and financial returns to host landowners is estimated at \$20 million over 25 years (constant 2014 dollars).
- Estimated rate returns to Council of approximately \$12.5 million over 25 years (in constant 2014 dollars).



### 4.3 Conclusions

The case studies show that wind farm projects can be an important economic stimulus in regional areas (in addition to generating important environmental benefits). The main findings of the Chalicum Hills and Ararat wind farm projects show that with strong Council and community support, the following range of benefits can be secured:

- 1 New large-scale investment, a significant amount which flows to local business operators in a range of sectors, including transport, trade supplies, vehicle maintenance, fuel supplies, accommodation, retail, cafes and restaurants.
- 2 Local job creation, both through the short-term construction phase (which can be considerable) and on an ongoing basis.
- 3 New revenue streams to support community infrastructure and programs, both through proponent community contributions and wind farm rate revenues.
- 4 Contribution to land diversification and financial security for host landowners.