Ethos Urban

Murra Warra Wind Farm Economic Benefits Case Study

Stage II Construction Phase

Final Version

Prepared for RES Australia Pty Ltd

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Cover photo sourced from the Murra Warra Wind Farm Twitter

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Contents

01 Constructed turbine and agriculture activities continuing, Source: Murra Warra Wind Farm Twitter

Executive Summary

The Murra Warra Wind Farm II construction project has delivered the following economic and community benefits over an 18-month assessment period spanning September 2020 to February 2022:

1. Installation of renewable energy generating capacity of 209 Mega Watts (MW), involving 38 turbines.
2. Capital investment of approximately $580 million.
3. Direct economic stimulus to the Wimmera Region of approximately $40 million; through project contracts, supply of services and non-local worker wage spending.
4. Widespread project expenditures across other regional Victorian areas, metropolitan Melbourne and Interstate.
5. Significant construction employment generation, including:
    - 120 full-time equivalent (FTE) construction-related jobs (average per day)
    - 190 FTE additional indirect jobs through consumption and supply chain activities spread across regional, state and national economies
6. Provided business and employment resilience for the Wimmera Region during a time of economic contraction associated with significant COVID-19 lockdown periods.

Once operational, Murra Warra II will:

7. Generate sufficient clean energy to power the equivalent of 150,000 homes and reduce carbon emissions by approximately 500,000 tonnes annually.
8. Support the Snowy Hydro 2.0 project through a major Power Purchasing Agreement between Murra Warrra II and Snowy Hydro.
9. Generate 10 direct FTE regional ongoing jobs, plus a further 30 FTE jobs in the wider economy through operational supply chains.
10. Provide significant new annual revenues for Yarriambiak Shire Council through the Victorian Government's Payment in Lieu of Rates framework.
11. Ensure ongoing community benefits through an annual Sustainable Community Grants Fund, supporting local projects and programs.

02 Continuation of agricultural activities
Source: Murra Warra Wind Farm Twitter

Introduction

Ethos Urban have been commissioned by RES Australia Pty Ltd (RES) to prepare a case study describing and quantifying economic benefits associated with the construction of Stage II of the Murra Warra Wind Farm (Murra Warra II).

Murra Warra II forms part of the Murra Warra Wind Farm project. The already constructed and operating Stage I (Murra Warra I) which includes 61 turbines with an installed capacity of 226 MW.

Murra Warra II is being constructed on an 1,800 hectare site approximately 40km north of Horsham in Victoria's Wimmera region.

The construction phase of Murra Warra II commenced in mid-2020 and is expected to be completed by H2 2022. Murra Warra II involves installation of 38 turbines with an installed capacity of 209 MW and associated infrastructure.

This report specifically describes and quantifies economic benefits relating to construction activities over the period September 2020 - February 2022 (project assessment period). Economic indicators include project investment, employment generation, local industry participation, wage stimulus benefits, and community benefits.

Benefits are focused on the immediate region (Wimmera Region), but where possible are highlighted for other geographical areas including metropolitan Melbourne and Interstate locations.

The assessment includes feedback from contractors, local businesses, government agencies and other stakeholders involved in the project.

This Report

This report is structured as follows:

Executive Summary

Introduction

Chapter 1: Project Overview

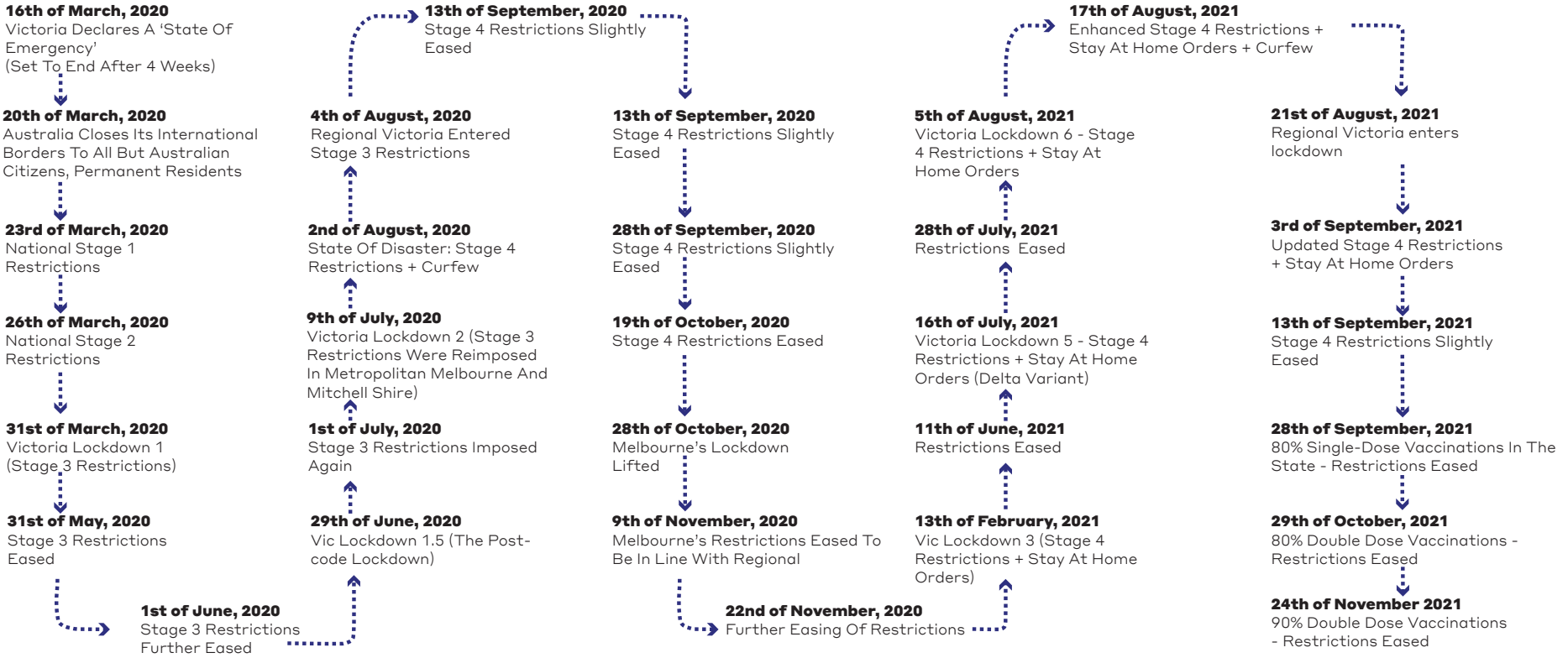
Chapter 2: Economic Impact Assessment

Chapter 3: Supply Chain Benefits

Chapter 4: Case Studies

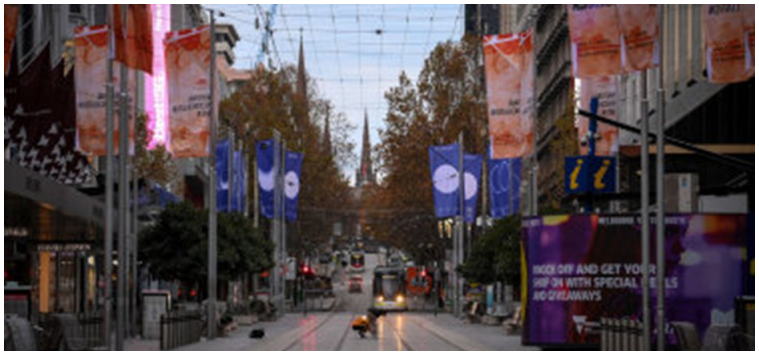
03 Installation of blade
Source: Murra Warra Wind Farm Twitter

COVID-19 Pandemic - Project Context



03 Victorian COVID-19 Lockdown Timeline,Source: Ethos Urban

From mid-March 2020 to late-November 2021, the State of Victoria faced a number of Government mandated lockdowns and restrictions on activities and movement put in place to help ease the spread and impact of the COVID-19 virus (refer to time line above). Over this period most businesses across Victoria were forced to reduce operations or shut completely leading to extreme financial pressures for some. The construction phase of Murra Warra II has continued though these restrictions under health guidelines. The ability of the project to progress reflects both good site management and a dedicated workforce. Importantly, the construction of Murra Warra II has provided employment opportunities and economic stimulus at a regional, state and national level during a broad COVID-19 related economic downturn.



04 Bourke Street July 2020

05 Agricultural activities continuing, Source: Murra Warra Wind Farm Twitter

1.0

PROJECT OVERVIEW

This Chapter provides an outline of the Murra Warra II project including its location, specifications and contribution to renewable energy policy. A regional catchment to assess economic benefits of the Murra Warra II construction project is also identified.

1.0 Project Overview

1.1 Site Location

Murra Warra II is being constructed on an 1,800 hectare site located approximately 40km north of Horsham in Victoria's Wimmera region. The project site consists of 49 individual land parcels and is entirely situated in the Yarriambiack Shire. Key infrastructure delivered as part of Murra Warra 1 and the presence of a 220KV transmission line in proximity to the Murra Warra II site, enable efficient connection to the National Electricity Grid.

The townships of Warracknabeal (to the north), Minyip (to the east), Dimboola (to the west) and Horsham (to the south) are all located within a 30-40 minute drive of the Murra Warra II site. Horsham is the major regional centre for the Wimmera Region with a population of 16,070 persons (2020). Horsham provides a wide-range of services, including many supporting large infrastructure projects. Warracknabeal (2,315 persons), Minyip (370 persons) and Dimboola (1,390 persons) are comparatively smaller settlements and offer a more limited range of project supporting services.

Population growth in the Wimmera region has been marginal over recent times, with most of the region's townships observing population declines over the past decade. For a regional centre, Horsham's population has only grown moderately and new investment in the centre has been somewhat limited. There is a broad need to continue to diversify the regional economy which is predominately focused on agriculture (mainly broad-acre cropping) which is vulnerable to a range of factors such as the impacts of climate change (including drought, bushfire and flooding), commodity price fluctuations and an ageing farming workforce.

The introduction of the renewable energy sector to the Wimmera through the major investment in the Murra Warra I development, and now continued through the construction of Murra Warra II, marks a significant step in the regional diversification process. This is particularly the case given the co-location of agricultural activities and clean energy generation through these projects.

Table 1 – Population Trends

Town	2011	2020	Change 2011 to 2020
Horsham	15,460	16,070	+610
Warracknabeal	2,360	2,320	-40
Dimboola	1,390	1,390	0
Miniyip	450	370	-80
Murtua	820	740	-80

Source: ABS Regional Population Growth, Cat 3218.0

The Murra Warra II site has historically been used for cropping and grazing. Under current plans, the operational footprint will be less than 2% of the 1,800 ha site with the remainder of the site available for the continuation of agricultural activities.

The regional location of the Murra Warra II site is shown in Figure 6.

06 Context Map
Source: Ethos Urban

1.2 Project Partners

Murra Warra II is a joint venture between RES Australia, one of the world's leading independent renewable energy companies, and investment bank Macquarie (Macquarie's Green Investment Group). RES is overseeing the planning, construction and delivery of the project, while Macquarie is the co-developer and equity financier.

Partners Group, a major global investment funds firm, is the owner of both Murra Warra I and Murra Warra II.

Clean energy generated by Murra Warra II will principally be sold to Snowy Hydro under a power purchase agreement, contributing to the operation of the Snowy Hydro 2.0 project which is currently under construction.

MACQUARIE | Green Investment Group

Partners Group
REALIZING POTENTIAL IN PRIVATE MARKETS

Snowy Hydro is one of Australia's largest energy companies with a focus towards renewable or green energy. Snowy Hydro is a multi-faceted company with generating and storage capabilities and energy sold via the retail arms of Red Energy and Lumo. Across Victoria, New South Wales and South Australia, Snowy Hydro has a generating capacity of more than 5,500MW of which 4,100MW is produced by the Snowy Mountains Hydro-electric Scheme. Snowy Hydro is an important component of the National Electricity Market with the ability of the scheme to produce on-demand energy in order to stabilise energy markets.

1.3 Murra Warra II Project Specifications

The Murra Warra II project comprises the following key components:

- Delivery, assembly and commissioning of 38 turbines which will produce around 209 MW when fully operational
- Installation of GE's synchronous condenser which is a first of its kind in Australia
- GE Cyprus wind turbines
- Civil and construction works relating to turbine foundations, access tracks, underground and overhead electrical cables
- Internal track and intersection construction
- Local road improvements
- Internal underground cabling and overhead power lines

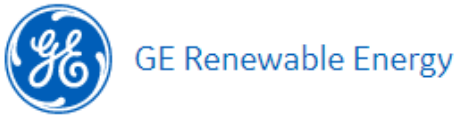
Construction of Murra Warra II commenced in mid 2020, with completion planned for H2 2022.

07 Installation of blade
Source: Murra Warra Wind Farm Twitter

08 Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter

Construction Partners

The Wind Farm is being constructed by a team of companies consisting of GE, Zenviron and RES:



American company GE (General Electric) is a world-leading manufacturer of wind turbines and developer of wind farms. The renewable energy sector of GE, known as GE Renewable Energy is responsible for approximately 30,000 turbines (units) with an installed wind capacity of approximately 60 GW globally. GE are the Principal Contractor and are responsible for the safe manufacturing, delivery, installation, and commissioning of the wind farm, primarily the wind turbines and synchronous condenser equipment.

Since the merger between ZEM Energy and Monadelphous in 2016, Zenviron has transformed into one of Australia's top civil and electrical contractors with on-site responsibilities including design and construction of civil and electrical works. Zenviron's involvement on Murra Warra II includes carrying out the design and construction of the Balance of Plant (BOP) Civil and Electrical works.

RES is the world's largest independent renewable energy company. At the forefront of the industry for 40 years, RES has delivered more than 22GW of renewable energy projects across the globe and supports an operational asset portfolio exceeding 9GW worldwide for a large client base. RES employs more than 2,000 people and is active in 11 countries working across onshore and offshore wind, solar, energy storage and transmission and distribution. In regards to Murra Warra II, RES are responsible for the construction and operational asset management services.

1.4 Contribution to Renewable Energy Policy

Murra Warra II will contribute to achieving State Government energy policy.

The Renewable Energy Action Plan sets out how Victoria will ensure a renewable, affordable and reliable energy supply, which uses large-scale renewable energy technology and ensures grid stability. This will support Victoria's pathway from a carbon-intensive to net zero emissions energy sector by 2050, with renewable energy generation targets set for 25% by 2020 and 40% by 2025.

The Action Plan focuses on the following key areas:

- Supporting sector growth
- Empowering communities and consumers
- Modernising our energy system.

The Victorian Government has since increased the Victorian Renewable Energy Target (VRET) to 50 per cent by 2030. The increased target of 50% by 2030 has been legislated in the Renewable Energy (Jobs and Investment) Act 2017 (Vic). The Victorian Government has also committed to legislating a long-term target for Victoria of net zero greenhouse gas emissions by 2050.

New installed capacity at Murra Warra II (in addition to the completed Murra Warra I) will provide a significant boost towards achieving these legislated targets and support the transition of Victoria's energy generation infrastructure to a lower emissions base.

09 Construction of turbine
Source: Murra Warra Wind Farm Twitter

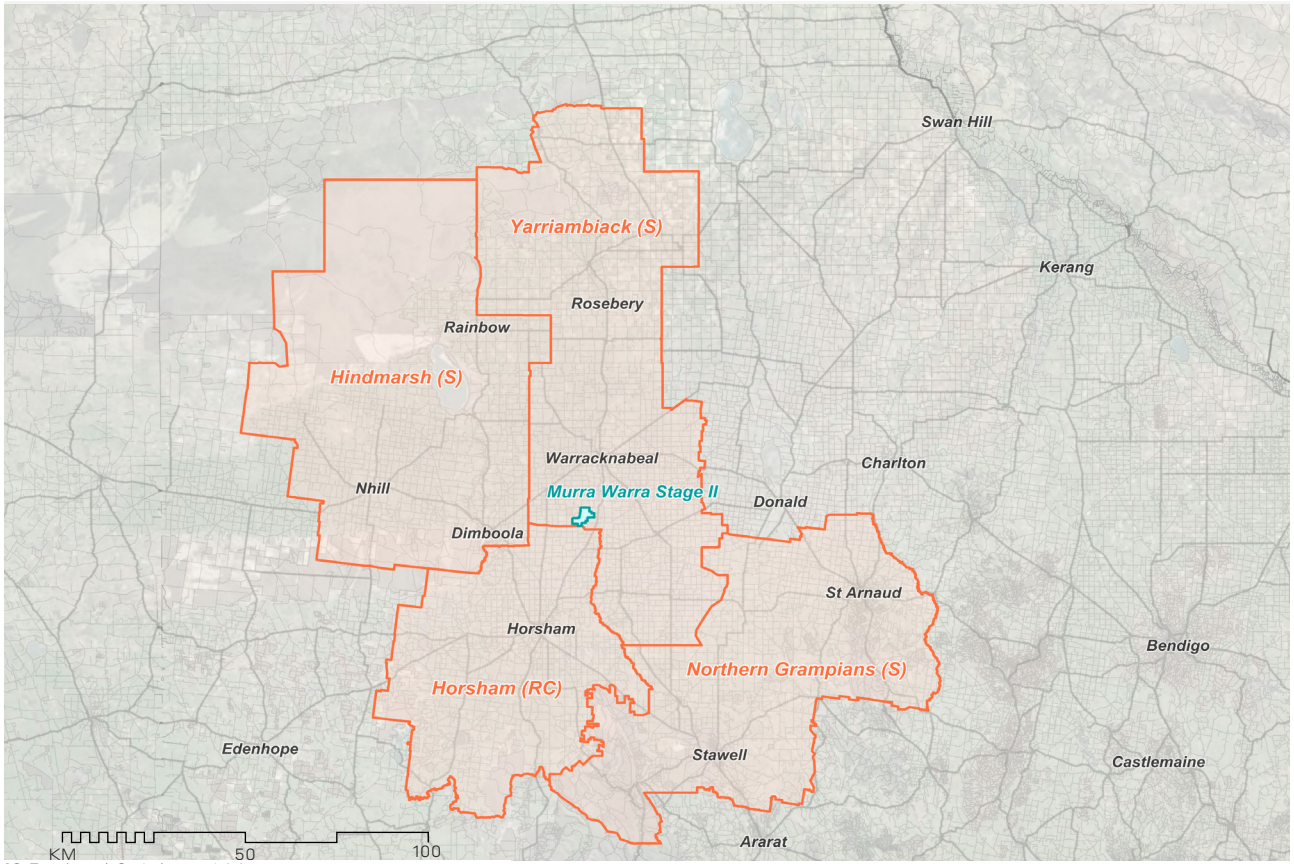
1.5 Regional Catchment Identification

A regional catchment has been identified which comprises the Local Government Areas (LGAs) of:

- Horsham Rural City Council,
- Yarriambiack Shire Council,
- Northern Grampians Shire Council,
- Hindmarsh Shire Council.

This regional catchment broadly represents the Wimmera Region, in which the majority of regional economic benefits associated with the construction of Murra Warra II have or will accrue. These economic benefits primarily relate to:

- Opportunities leveraged by businesses supporting on-site construction activities and their associated supply chains.
- Wage stimulus associated with interstate construction workers living in the community and their flow-on impacts to the service industry (accommodation, retail, food and beverage etc.).
- PiLoR revenue and Community Fund payments flowing to Yarriambiack Shire and community groups, supporting local projects and programs (once Murra Warra II is operational).



10 Regional Catchment Map

Source: Ethos Urban

2.0

ECONOMIC IMPACT ASSESSMENT

This Chapter provides an overview of the economic implications and benefits associated with the Murra Warra II construction phase. Reference is made to the employment mix (local verses regional), local wage stimulus and flow-on impacts to service industry businesses, impacts to agricultural land and financial returns to the community.

2.0 Economic Impact Assessment

2.1 Project Investment

Total capital investment in the construction of Murra Warra II is estimated at approximately $580 million.

Major construction items and costs are attributed to:

- Purchase, delivery, assembly, construction and commissioning of 38 Wind Turbines
- Construction and commissioning of the terminal station and wind farm substation, including a Synchronous Condenser
- Civil works – turbine foundations, intersections, internal roads, temporary on-site offices, underground cabling etc.;
- Financing, project management, insurance and other costs.

Project capital expenditures have been widely distributed in a geographic context and include purchases of major items, such as towers and turbines from overseas and sourcing of other capital items, services and labour from metropolitan Melbourne and Interstate. Where possible, suppliers located in the Wimmera Region have been contracted, ensuring significant financial and employment benefits have flowed at a regional level. Regional business participation and employment is explored in further detail in Chapters 3 and 4.

11 Turbines Being Constructed On-site During Murra Warra II
Source: Murra Warra Farm Twitter

12 Newly constructed turbine Source: Murra Warra Wind Farm Twitter

2.2 Local Investment Impact

Murra Warra II construction has stimulated considerable investment into the Wimmera's regional economy. Over the 18-month assessment period, approximately $40 million was spent in the regional economy through supplier contracts, direct project purchases and wage spending by non-local workers. This level of spending represents a significant economic boost for the Wimmera Region, especially considering the negative impact COVID-19 had across many Victorian regional economies over this period.

Examples of local expenditure include:

- Electrical contractors
- Civil work force
- Steel workers
- Access track equipment and works
- Power line upgrade works
- Supply of batch plant materials
- IT and communications services
- Transport services
- Site maintenance and cleaning
- Staff accommodation.

13 Murra Warra substation
Source: Murra Warra Farm Twitter

2.3 Onsite Employment

Total Workers Hours and Full Time Equivalent Employment

Total on-site employee hours, as well as full-time equivalent employees (FTEs) and the average monthly number of employees have been calculated by the consultant for the period September 2020 – February 2022 using data provided by RES.

On-site employment peaked in November 2021 with 35,290 onsite monthly employee hours or 210 FTE workers. This peak in on-site employment was associated with the delivery and installation of towers and turbines, as well as work undertaken on the wind farm substation.

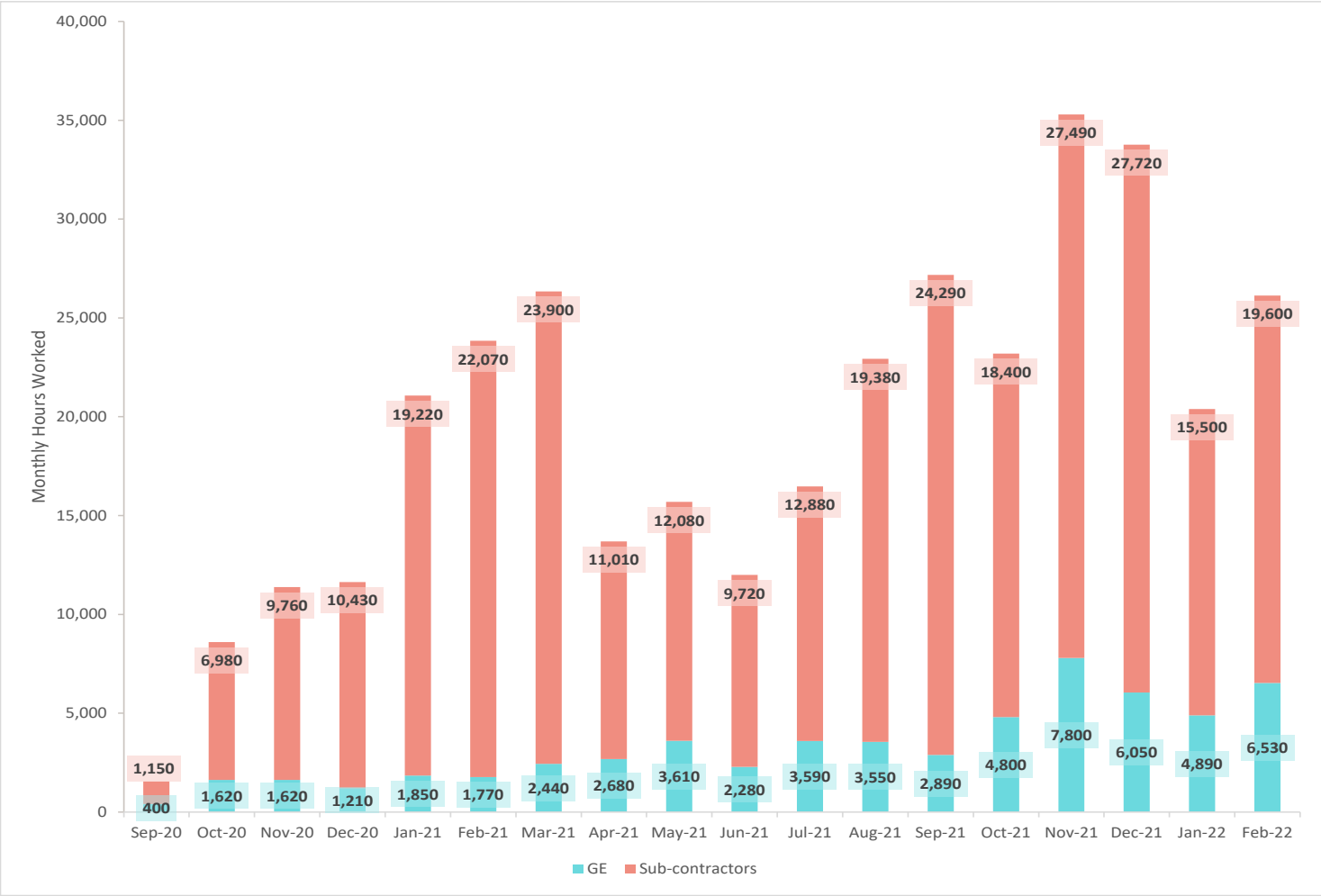
Other key phases in the construction program include the construction of internal roads, intersections and other site preparation (October to December 2020) and the completion of earthworks and wind turbine foundations (January to March 2021).

The average onsite employment over the 18 months was approximately 120 FTE.

In addition to on-site employment, significant additional employment has been supported by Murra Warra II indirectly through the employment multiplier effect.

Applying the ABS multiplier of 1.6 for 'other construction' to the 120 onsite jobs, an estimated 190 FTE jobs have been supported through consumption and industrial effects. These indirect jobs will be spread across regional Victoria, metropolitan Melbourne and Interstate locations.

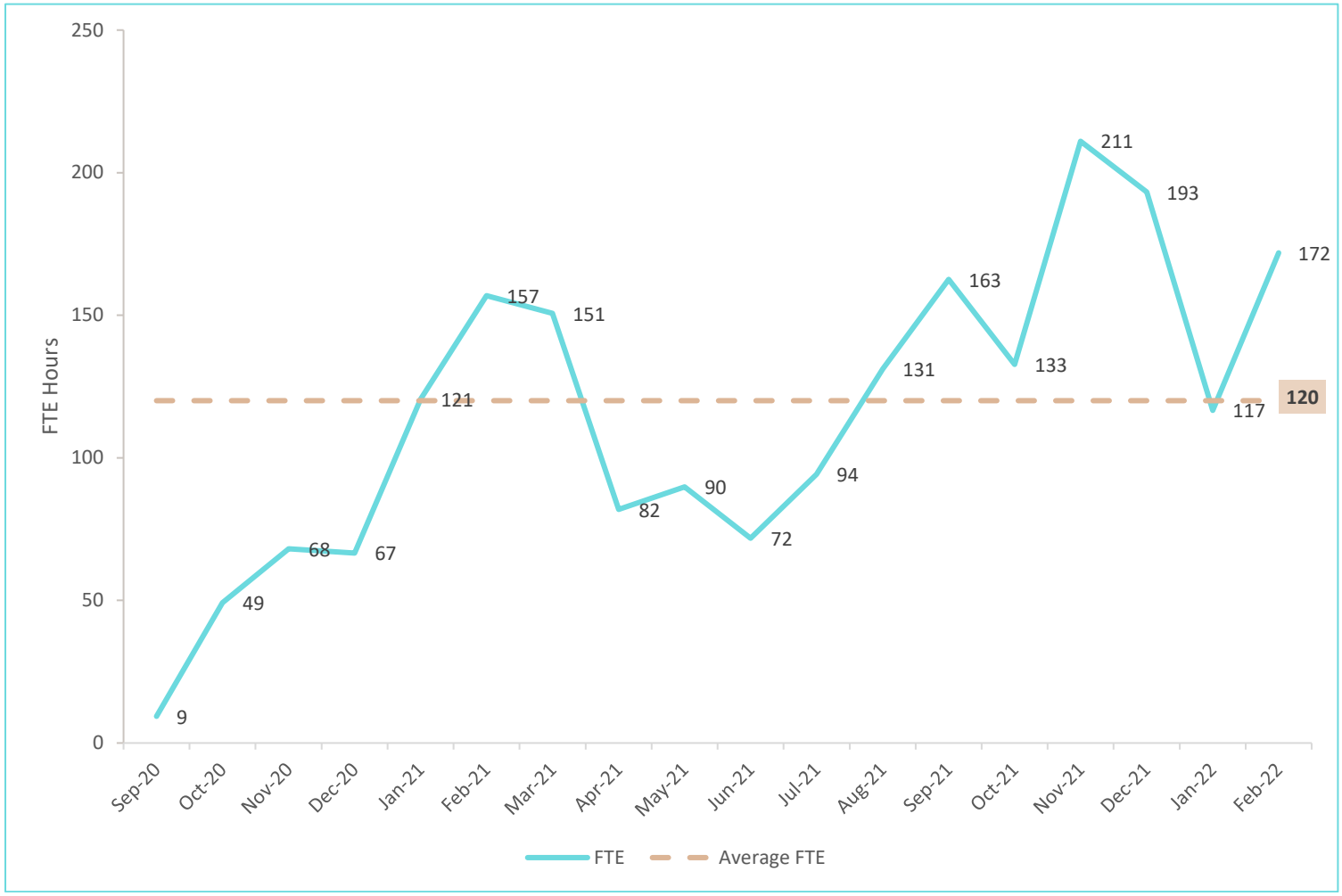
14 Employees at the Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter



15 Total Workers Hours: September 2020 – February 2022

Source: RES Australia & Ethos Urban

Note: Figures have been rounded



16 Full-time Equivalent Employees (FTE) & Average Employees Onsite per day, September 2020 – February 2022

Source: RES Australia & Ethos Urban
Note: Figures have been rounded

2.4 Onsite Employment: Local Verses Non-Local Employment

Wimmera Region residents (i.e. locals) represent approximately 45% of the on-site workforce across the assessment period. The balance of on-site workers, approximately 55%, are estimated to originate from other parts of Victoria and Interstate. Minimal international labour has been used in the construction of Murra Warra II, noting the closure of Australian borders over the assessment period due to COVID-19.

A survey of the on-site workforce was undertaken by the consultant and RES between March 2021 to August 2021. The following key findings for local and non-local employees are identified.

Local Employees

- The majority of local employees lived in Horsham, with a small share based in Natimuk, Dimboola and Warracknabeal.
- The majority of local employees undertook technician or civil works roles. Some local employees were involved in technical advisory and administrative roles.
- Contract terms varied widely in length – from around 6-9 months for some workers to an indefinite time frame for other employees.

Non-Local Employees

- Main projects roles for non-local workers were Electrician/technician, Machinery Operator (specialist crane crews) and Site Supervisor. A higher number of non-local workers were employed in supervisor or management roles.
- This share of non-local workers on specialist or senior roles is to be expected given the limited number of energy generation projects which have been undertaken in the Wimemra region to date.

17 Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter

2.5 Wage Stimulus

The wage stimulus associated with the Murra Warra II construction phase broadly represents the additional spending in the Wimmera region's economy associated with those 65 FTE non-local workers (on average) employed on the project for 18 months.

Approximately $8.8 million in wages (2022 dollars) were paid to non-local employees working on-site over the period September 2020 to February 2022. An estimated $4.9 million or 55% of these wages (after tax and savings) flowing to businesses in the Wimmera region including spending on fuel, accommodation, clothing, food and beverage, entertainment and other retail items and services. This $4.9 million represents the 'net' induced spending effect in the regional economy and excludes wage spending by local workers employed on the Project.

The project has been largely constructed during the COVID-19 pandemic, a time where the Wimmera Region has been impacted by a series of Government mandated restrictions. The $4.9 million in estimated induced spending from non-local workers living in the community is therefore likely had a positive impact on business resilience during these lockdown periods, supporting jobs and incomes.

18 Project workers in Horsham Town Centre
Source: Murra Warra Wind Farm Twitter

2.6 Accommodation

The worker survey indicates the vast majority of non-local workers employed on the construction phase of Murra Warra II were based in Horsham.

Typically, corporate workers stayed in motels and hotels such as the Horsham Comfort Inn Capital or Horsham International Hotel, whereas contractors generally stayed in a rental properties. In some instances, workers were given the option to stay in local caravan parks.

With regard to the observed inflow of non-local workers and the prolonged time spent in the local area due to strict COVID-19 travel restriction between states, the project has resulted in:

- A stabilisation of overall occupancy rates for commercial accommodation providers in Horsham, noting many other regional centres in Victoria experienced significant decreases in occupancy rates over this period.
- Increased revenue for landlords and real estate agencies associated with leasing and managing private housing stock to accommodate Murra Warra II construction workers.
- An increase in the number of rental properties offered by local homeowners leasing their properties to project workers, generating additional income streams for these homeowners.
- Investment in the quality of existing rental stock (building improvements and repairs etc.) to bring dwellings up to a sufficient standard to lease.
- Increase in services associated with rental properties including cleaning services, furniture rentals and gardening services.

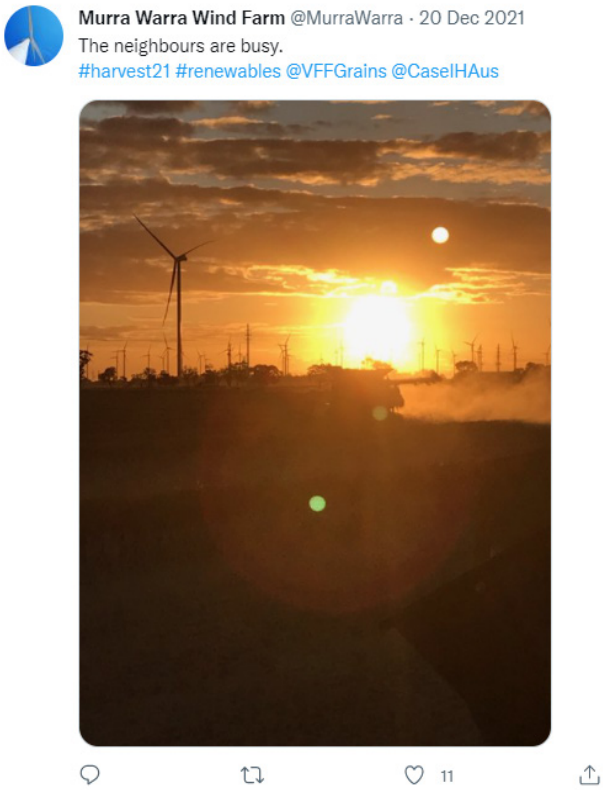
19 Rental property in Horsham
Source: Harcourts Horsham

2.7 Continuation of Neighbouring Agricultural Activities

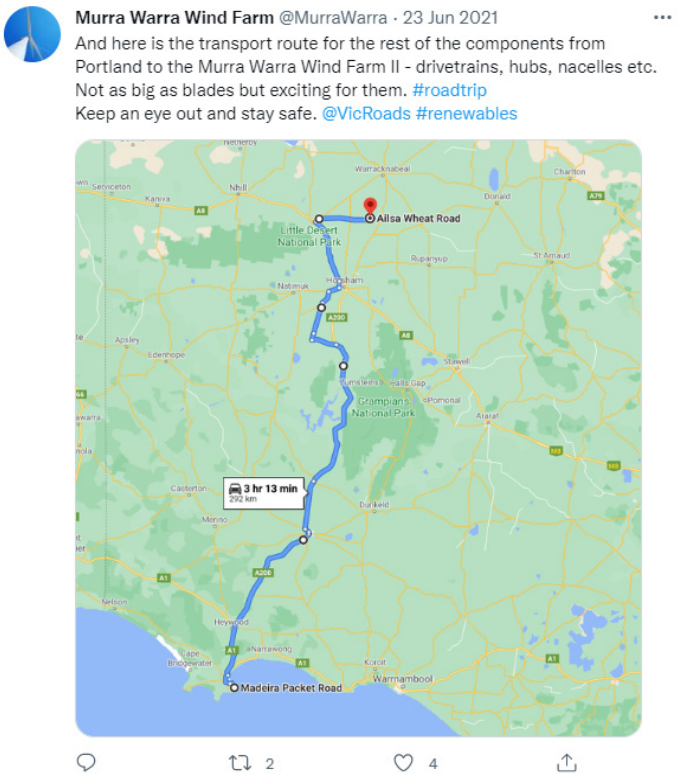
Murra Warra II is being constructed on land which has been historically used for cropping and grazing. When fully completed the Wind Farm's operational footprint will be less than 2% of the site, with the remainder available for the continuation of agricultural activities.

During the construction phase, agricultural activity has generally been precluded across areas hosting a particular stage of construction. However, disruption to agricultural activities across the site overall has been minimised through project management and ongoing communication with host landowners.

The land surrounding the Murra Warra II site is also largely used for agricultural purposes and minimising disruption to the neighbouring landowners has been a key focus for the project. As with all major wind farm projects, some disruption has occurred in relation to significant transport movements associated with the delivery of towers, turbine blades and other specialist equipment. Social media (Twitter) and mobile technologies (SMS services) have been effectively used during key construction stages providing notice to neighbouring farms, as well as other stakeholders in the wider region, (e.g. Portland to Murra Warra) of the timing of any road disruptions.



20 Murra Warra Twitter Post
Source: Murra Warra Wind Farm Twitter



21 Murra Warra Twitter Post
Source: Murra Warra Wind Farm Twitter

2.8 Financial Returns to Council and the Community

Council Revenue

Established under section 96(6A) of the Electricity Industry Act 2000, the Payment in Lieu of Rates (PiLoR) framework allows councils and electricity generators to negotiate annual payments.

In general, financial returns to Council from renewable energy projects are considerably higher than revenue associated with rateable agricultural activities. For example, the 2018/19 PiLoR guidelines include a fixed charge of $54,400 and a variable charge of $1,225 per MW (of installed capacity).

Using the PiLoR framework, it is estimated Yarriambiack Shire Council will receive approximately $340,000 in the first year of full operation of the wind farm. Under the PiLoR guidelines, this value will then increase in line with Consumer Price Index (CPI) over the operational lifetime of the wind farm (i.e., 25 years) resulting in estimated returns to Council of $1.3 million. (based on 2022 dollars, adjusted for CPI @ 2.5% pa).

PiLoR revenue generated from Murra Warra II will be an important source of additional income for Yarriambiack Shire, noting general rates increases are now subject to rate capping (currently at 2.5%) under the Victorian Government's Fair Go Rates System. Rate capping has effectively reduced the ability of many rural councils to fund and provide essential services for their constituents – particularly councils where essential services are funded by a low or declining rate payer base due to declining populations. Yarriambiack Shire is an example of a rural municipality which struggles to fund an adequate level of services for the local community. The Shire's rates base, therefore, needs to be supplemented by alternative revenue streams. In this context, the PiLoR revenue earned from Murra Warra II will make an important contribution to service provision in the Shire.

For context, total rates and charges collected by Yarriambiack Shire Council in 2020/21 were $12.8 million. Therefore, the additional $340,000 provided by Murra Warra II PiLoR payments represents an uplift in Council's rates base of 2.7% on an annual ongoing basis.

22 Sunset at Murra Warra
Source: Murra Warra Wind Farm Twitter

23 Installation of electrical infrastructure
Source: Murra Warra Wind Farm Twitter

Community Fund

The proponent has committed to providing $1,000 pa per turbine (linked to CPI) to a Sustainable Community Grants Fund (Community Fund) as part of the operational phase of Murra Warra II. Community Fund revenue is likely to be available from the 2022/23 financial year and is estimated $38,000 (Year 1) or $1.3 million over 25 years (based on 2022 dollars, adjusted for CPI @ 2.5% pa).

For Murra Warra I, the aims of the initial Community Fund were:

- To provide the opportunity for community groups and organisations to develop innovative and sustainable environmental projects
- To provide the opportunity for improved health and education across the community by developing long-term partnerships and cohesive community projects
- To strengthen community connections and social well-being in developing projects focusing on long term sustainability
- To develop projects that enhance and encourage healthy and active communities
- To develop projects which enhance cultural diversity, creative community activities and projects

The first round of the Murra Warra I Community Fund, which was administered through the Wimmera Development Association, provided $55,000 for the following seven successful applications:

- **Horsham Motor Sports Club** - for installation of an automatic sprinkler system utilising recycled rainwater to create parkland-style grassed and tree lined shaded areas within the confines of the sporting facility.
- **Centre for Participation** - for installation of solar panels at the Centre's main site which will provide significant operational cost savings and support the organisation to thrive and be more sustainable.
- **Enterprise Rupanyup** - for installation of solar panels providing operational cost savings and improved sustainability outcomes.
- **1st Warracknabeal Cubs & Scouts** - for supply of equipment for engaging with local water ways, including canoes to be used to experience, explore and move through the environment.
- **Warracknabeal Girl Guides** - for replacement of rainwater tank, pipes and fittings to increase the amount of water collected for the hall. This will allow the Guides access to clean drinking water, and water to install garden beds.
- **Beat the Heat Inc. & Wimmera Off Street Drag Racing Club** - to support youth motor sport and automotive mentoring for at risk youth aged 11-25 years. Specifically, the grant will allow for the purchase of a printed marquee for use by volunteers at events and displays, safety equipment and training sessions for junior officials.
- **Guides Victoria, Dimboola** - for painting of the exterior of buildings at the Arura Campsite, Riverside, Dimboola.

3.0

SUPPLY CHAIN BENEFITS

This Chapter provides an overview of industry and business participation in the construction phase of Murra Warra II with a focus on those subcontractors engaged from the Wimmera region, regional Victoria, and other locations.

3.0 Supply Chain Benefits

3.1 Subcontractors

Murra Warra II is being built by a team consisting of multiple construction partners, with the 3 key companies being: GE (General Electric), Zenviron and RES. A range of subcontractors have been engaged by each construction partner to assist in delivering the services required for Murra Warra II; and in turn, these subcontractors have often engaged other subcontractors in delivering respective contracts.

Subcontractors engaged have varied from large engineering companies and component manufacturers based in Australian capital cities, to local and regional operators – both large and small – contributing varying services.

Local Subcontractors

In excess of 15 subcontractors engaged during the Murra Warra II construction phase were 'local business' – i.e., they originated from the Wimmera Region.

Local subcontractors provided more general construction services or inputs including security, earthworks, land surveying, fencing etc. Niche technical inputs tended to be sourced from further afield, as is typical on many major infrastructure projects.

A number of local subcontractors already had previous experience working on renewable energy projects including Cec Hopper & Sons (CHS) and Nati Rope Access (refer Case Studies in Chapter 4). For other local subcontractors, Murra Warra II has provided an opportunity to gain experience in the renewable sector including working with state-of-the-art technology such as the GE built Cyprus wind turbine which is the largest turbine currently installed in Australia, and the installation of a synchronous condenser which is rarely seen in a renewable energy project, although will be a key aspect of future projects.

Importantly, engagement of local subcontractors brings revenues into the Wimmera Region. Participation in large infrastructure projects also provides opportunities for local firms to participate in national supply chains and build relationships with firms located further afield – with potential flow-on opportunities for local firms to build scale and undertake future work on projects beyond the confines of the Wimmera Region. A number of firms based in the Wimmera have successfully built scale through participation in renewable energy projects throughout south-eastern Australia.

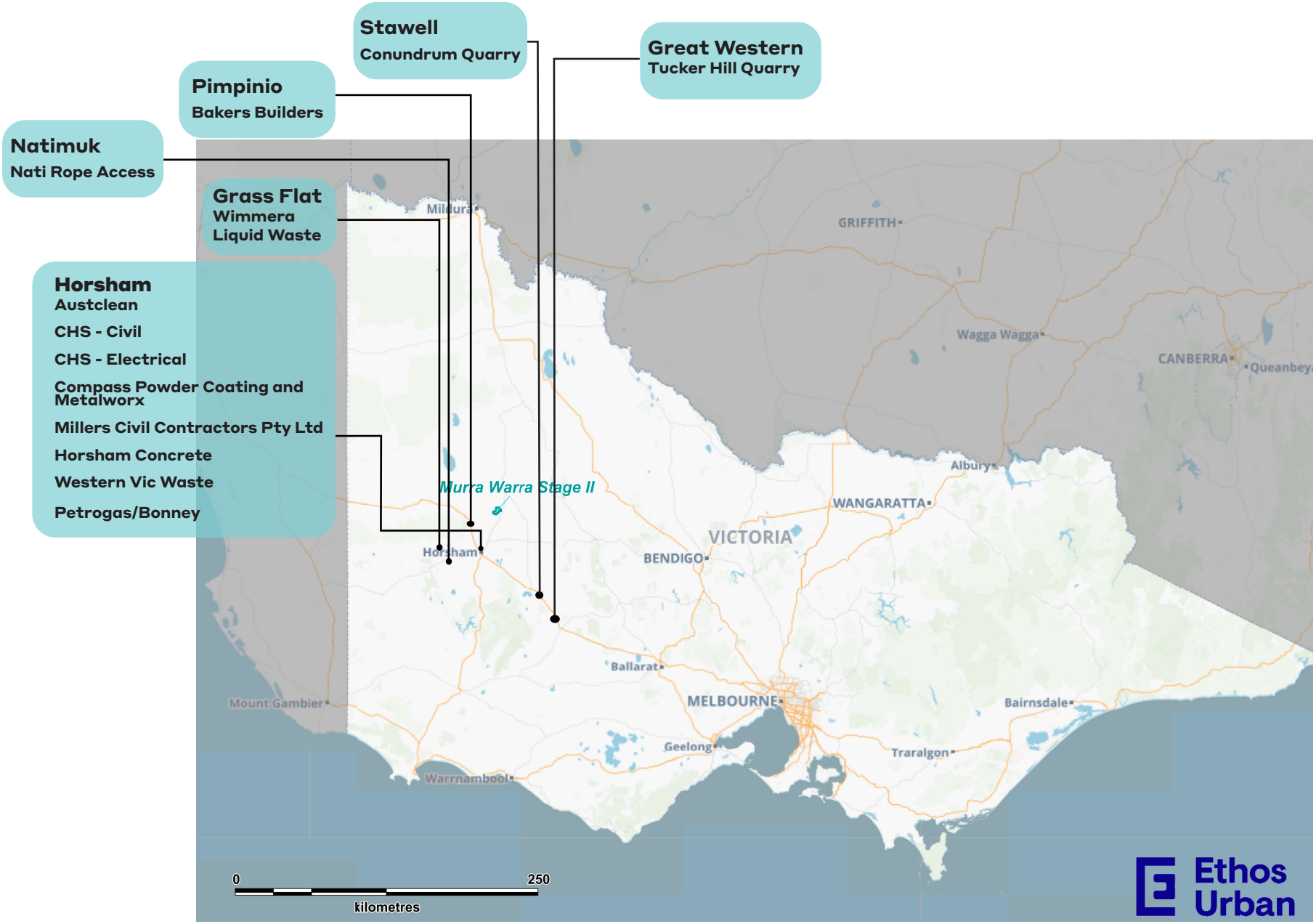
24 Construction of Murra Warra II turbine foundations of Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter

Table 2 – Local Subcontractors

Company Name	Service
Grass Flat	
Wimmera Liquid Waste	Waste Services
Great Western	
Tucker Hill Quarry	Sand and Gravel Supply
Horsham	
Austclean	Cleaning
CHS - Civil	Civil Work
CHS - Electrical	Electrical Work
Compass Powder Coating and Metalworx	Metal Work
Millers Civil Contractors Pty Ltd	Civil Work
Horsham Concrete	Concrete Supply
Western Vic Waste	Waste Services
Petrogas/Bonney	Fuel Supply
Natimuk	
Nati Rope Access	Turbine inspections, repairs and Maintenance
Pimpinio	
Bakers Builders	Water Cartage
Stawell	
Conundrum Quarry	Sand and Gravel Supply

Source: RES & Ethos Urban

25 Map of National subcontractors
Source: Ethos Urban



26 Map of Victorian subcontractors
Source: Ethos Urban

Table 3 – National Subcontractors

Company Name	Service
Victoria (Beyond Regional Catchment)	
GE	Construction Partner
DNV Australia	Power Curve Verification Testing
West Cranes	Crane Services
RANS Electrical	Electrical Testing
MKM Constructions	Construction
Dundrum	Civil Work
Golders	Geotechnical Testing
Rebar - AusReo	Rebar Supplier
Holcim	Concrete Batch Plant supplier and operator
Construction Science	Engineering Consultant
Menzel	Electrical
Tutt Bryant	Equipment Hire
Hull Plumbing	Plumbing
Premier Fencing	Fencing
Coates Hire Bendigo	Equipment Hire
Prospect Engineering	Engineering consultant
Powernet	IT Consultant
Hamilton Constructions (SHS Civil (S.T.Hamilton & Son Constructions)	Construction
New South Wales	
ART Australia	Met Mast Installation
Rigcom	Fibreglass Repairs
Zenviron	BoP Construction Partner
Allthread	Foundation Bolts
Coastal Steel	Foundation Steel Installation
SCP	IT Consultant
Diamond IT	IT Consultant
Precision Oxycut	4 piece turbine foundation anchor cage fabrication and supplier
Queensland	
AusSafe	Safety Consultant
Hiway Stabilizers Australia	Pavement Improvement
Icubed	Civil BoP Design Consultant
LCR	Heavy Haulage
Freo	Crane Hire Services
Cosmic	Crane Operators
CCS Foundations	Foundation Works
South Australia	
Pearce Geotechnical	Geotechnical observations
WTS	Turbine internal installation
Konic	SynCon assembly and testing
RJE	Engineering consultant
Western Australia	
Minetech	Gantry Crane Assembly and SynCon installation
Motherwell	Technical Component Supplier

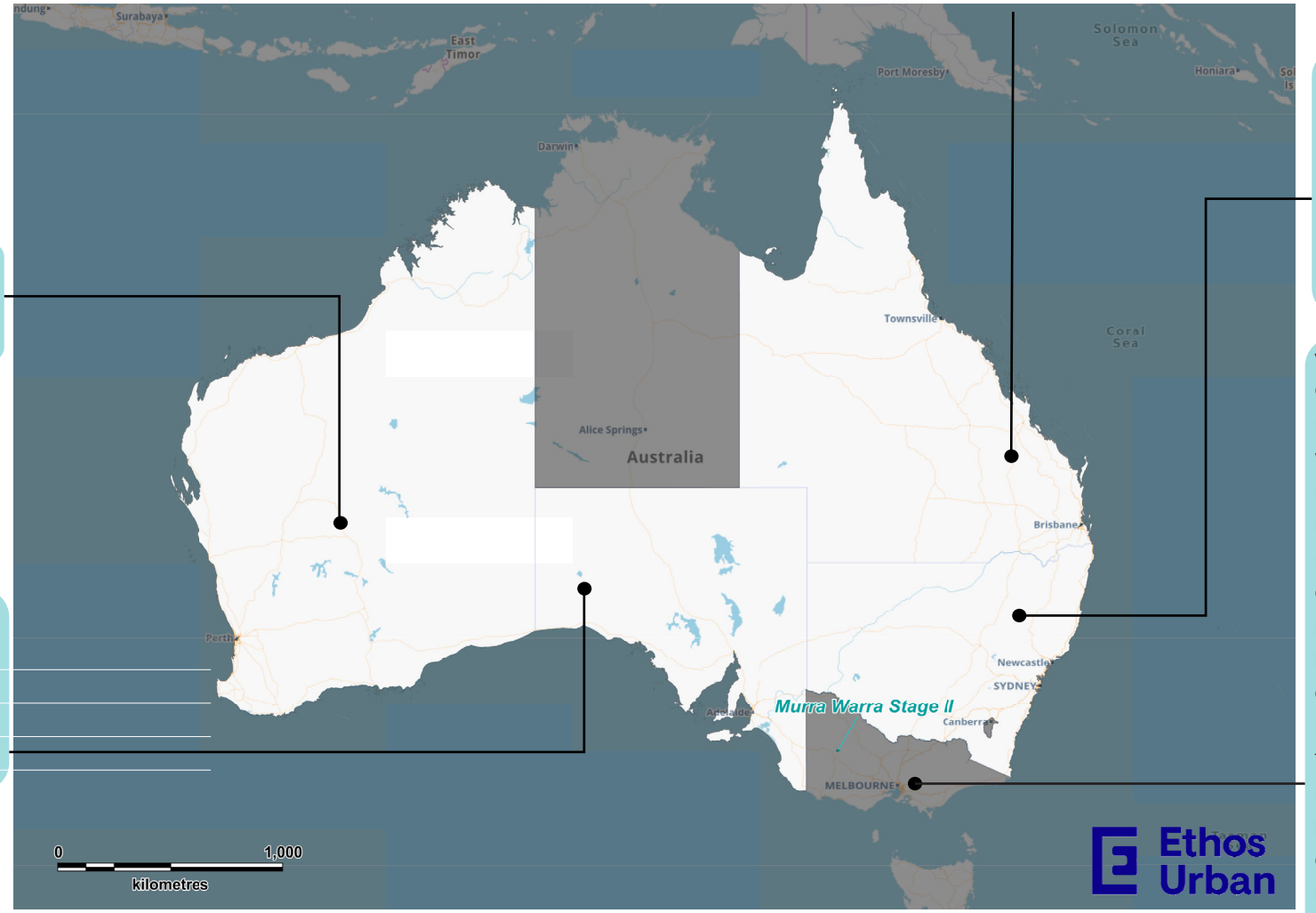
Source: RES

Queensland

- AusSafe
- Hiway Stabilizers Australia
- Icubed
- LCR
- Freo
- Cosmic
- CCS Foundations

Western Australia

- Minetech
- Motherwell



27 Map of National subcontractors
Source: Ethos Urban

New South Wales

- Rigcom
- Zenviron
- Allthread
- Coastal Steel
- SCP
- Diamond IT

Victoria

- GE
- DNV Australia
- West Cranes
- RANS Electrical
- MKM Constructions
- Dundrum
- Golders
- Rebar - AusReo
- Holcim
- Construction Science
- Menzel
- Tutt Bryant
- Hull Plumbing
- Premier Fencing
- Coats Hire Bendigo
- Prospect Engineering
- Powernet
- Hamilton Constructions (SHS Civil (S.T.Hamilton & Son Constructions)

South Australia

- Pearce Geotechnical
- WTS
- Konic
- RJE

4.0

CASE STUDIES

This Chapter presents case studies of companies and organisations involved in the construction phase of Murra Warra II, including testimonials of associated benefits of their involvement.

4.0 Case Studies

4.1 Harcourt Real Estate, Horsham

Harcourts Horsham is one of the Wimmera's and Mallee's leading real estate agencies. Since starting in 2015, the business has gone from strength to strength with a high performing sales and rental departments across the residential, commercial and industrial sectors. The business currently manages a significant share of dwellings rented to Murra Warra II contractors, supported by one of the largest residential property management teams in Horsham.

A conversation was undertaken with Mark Clyne (Principal and Director). Key points are summarised as follows:

- The development of Murra Warra II has mainly impacted the rental market. Horsham's rental market was already considered strong prior to the development of the wind farm, although has gone to another level with unprecedent demand for rental dwellings.
- In addition to increased jobs in property management, an increase in jobs and hours associated with gardening and cleaning the worker rental properties has occurred as a result of the surge in rental demand.
- Typically, a fully furnished 3-bedroom house which is likely valued between $300,000 to $450,000 is being rented for $900 - $950 a week with the landlord recording a 60% profit. Moreover, a fully furnished 4-bedroom dwelling, would commonly record weekly rent between $1,000 to $1,100 in Horsham.
- It is noted that the vast majority of dwellings rented to contractors are located in Horsham due to the services, amenity and housing stock compared to other surrounding smaller townships.

28 Harcourt Real Estate rental property
Source: Harcourts Real Estate website

4.2 Horsham College Geography Program

Horsham College is Horsham's largest secondary school accommodating 1,000 FTE students in 2021. During the construction phase of Murra Warra II, Horsham College continued to develop and enhance its geography curriculum by incorporating a major infrastructure project as a real world case study for both year 11 and year 12 students. The focus for each year level was:

- Year 11 Research focus: What are the hazards associated with Murra Warra Wind Farm's establishment, and how are they managed?
- Year 12 Research focus: Students wrote their own reports on land use change at Murra Warra Wind Farm from agricultural to energy production, its impacts on the surrounding region, and sustainability outcomes.

The key points from a discussion with Rosemary Lloyd the Geography teacher at the time of reporting are as follows:

- For both year levels the research projects are a key component of their exams, in addition to a field work report component, with the students required to write a 1,500 to 2,000-word report.
- For the 18 students across years 11 and 12, the program was structured to take place for half a term and included site excursions to both Murra Warra I and Murra Warra II projects.
- The projects were an eye-opening experience for many students, with one student excited to see that women were involved in the development of the wind farm and a career in energy and development is a possible pathway.

29 Year 12 site visit to Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter

4.3 Compass Powder Coasting and Metalworx

Compass is a small business located in southwest Horsham specialising in custom metal work and powder coating projects. Opening 2013, Compass have successfully completed projects for a number of large national companies while completing small custom projects for local clients.

Compass have had an important involvement in the construction phase of Murra Warra II, through the production of approximately 60 metal stools with an individual weight capacity of 30,000kg used to support delivered components prior to installation. Additionally, further work has been awarded to Compass for the production of 34 foundation plates, numerous small components and the customisation of 3 shipping containers into GE branded storage facilities.

The Compass workforce of five employees (four full-time and one casual) was able to deliver the 6-week contract (for metal stools) in 3 weeks. This contract was of critical importance to the firm with the initial shock of COVID-19 impacting the business. However, during the ongoing pandemic Compass has experienced favourable trading conditions, of which contracts from GE for Murra Warra II have been an important component.

30 Custom made metal stool
Source: Ethos Urban

31 Custom metal stools in use
Source: Ethos Urban

"It's good when a large international company such as GE have got a lot of work done locally."

"When these large projects use local businesses it's great for the local community and economy."

"From our work on this wind farm, it looks like we'll be continuing the relationship with GE on other wind farms."

4.4 LCR Group

LCR is a major transport and crane company based in Hendra, Queensland. LCR have extensive experience delivering components for renewable energy projects with specialised equipment for blade delivery. The presence of a specialist transport company from Queensland such as LCR, is a reflection of the influence and requirements that a major infrastructure project such as Murra Warra II has on national supply chains.

Rod Pino is the operations manager for the renewable energy division at LCR and provided the following insights in regard to LCR's involvement in the construction phase of Murra Warra II.

- 13 LCR employees from QLD have been based in Horsham and Portland, with most remaining in Victoria for the entirety of the 20-week contract with only a small share returning to QLD to collect resources. This is in part due to the COVID-19 related travel restriction between states. As a result, a significant share of wages (including living away from home allowance) have been spent locally in Portland and Horsham.
- A further 24 sub-contracted workers from three Regional Victorian firms are assisting with services including crane operations and pilots.
- LCR purchase orders for uniforms (sourced from RSEA Portland), truck servicing (Skiddy's Diesel Services) and fuel (Liberty and Shell) represents a notable financial injection into the Portland economy.
- LCR's local expenditure in Horsham is not to the extent to that of Portland, however, it is still significant. LCR are renting four utes from Horsham Toyota with all servicing also undertaken by Horsham Toyota. Further, LCR are renting one fully furnished dwelling for some employees located in Horsham with many workers electing to stay in the local caravan park.

32 Delivery of Nacelle
Source: Murra Warra Twitter

33 Delivery of turbine blade
Source: Murra Warra Twitter

4.5 Nati Rope Access

Nati Rope Access is a local business based in Natimuk. The business started in 2019 with Anthony and Gareth teaming up after both had around 25 years of experience in the field.

Nati Rope Access specialise in works at heights and in confined spaces with a notable amount of work completed on renewable energy projects in Victoria. The team of 26 employees (six permanent, 10 permanent casual and 10 specialists) are all equipped with relevant trades including mechanical fitters, grade A electricians, and advanced riggers.

The construction phase of Murra Warra II has seen around 10 Nati Rope Access employees working on the projects on average for the past three months working an array of tasks including blade repairs.

Nati Rope Access' work on Murra Warra II has had a positive impact on the local community. Four of the full-time employees at Nati were previously rock-climbing instructors with trade experience and qualifications prior to the COVID-19 pandemic. Although after the tourism industry in Victoria was largely shut down these workers were offered a full-time role at Nati and are now when working on Murra Warra II.

34 Works by Nati Rope Access
Source: Nati Rope Access

35 Works by Nati Rope Access
Source: Nati Rope Access

"Projects such as Murra Warra II provide opportunities for locals and newcomers to live in our amazing rural environment and contribute to the ongoing vibrancy of our local communities"

Key Stakeholder Feedback

"Wimmera Development Association (WDA) were proud to facilitate the inaugural Murra Warra Wind Farm Sustainable Community Grants program. The fund provides support to promote social and environmental sustainability initiatives for the benefit of communities within the Horsham Rural City, Hindmarsh and Yarriambiack Shires. WDA received an overwhelming response to the fund and the steering group committee were able to allocate funding to seven very worthy projects. The benefits of the fund to local community have been widespread, and WDA look forward to continuing our role in the grants program for years to come"

– Vernetta Taylor (Project Manager, Wimmera Development Association)

36 Murra Warra Wind Farm
Source: Murra Warra Wind Farm Twitter

Associated benefits with the construction stage of Murra Warra II is as follows:

- **Accommodation in short stay options such as Caravan Parks, Motels, as well as longer term accommodation stays in housing rentals. Increasing income generation across the Shire.**
- **The Murra Warra Grants Program supports a number of initiatives including the guides and scouts building upgrades and the Warracknabeal band buildings blinds.**
- **Increase contractor spend at retail outlets, including cafes, supermarkets, and service stations.**
- **Our benefit will also be in the Payment in Lieu of Rates (PILOR) for Council, with majority of towers in Stage 2 being constructed in Yarriambiack Shire Council.**

  – Tammy Smith (Chief Executive Officer of Yarriambiack Shire Council)

37 Foundation works Source: Murra Warra Wind Farm Twitter

Ethos Urban