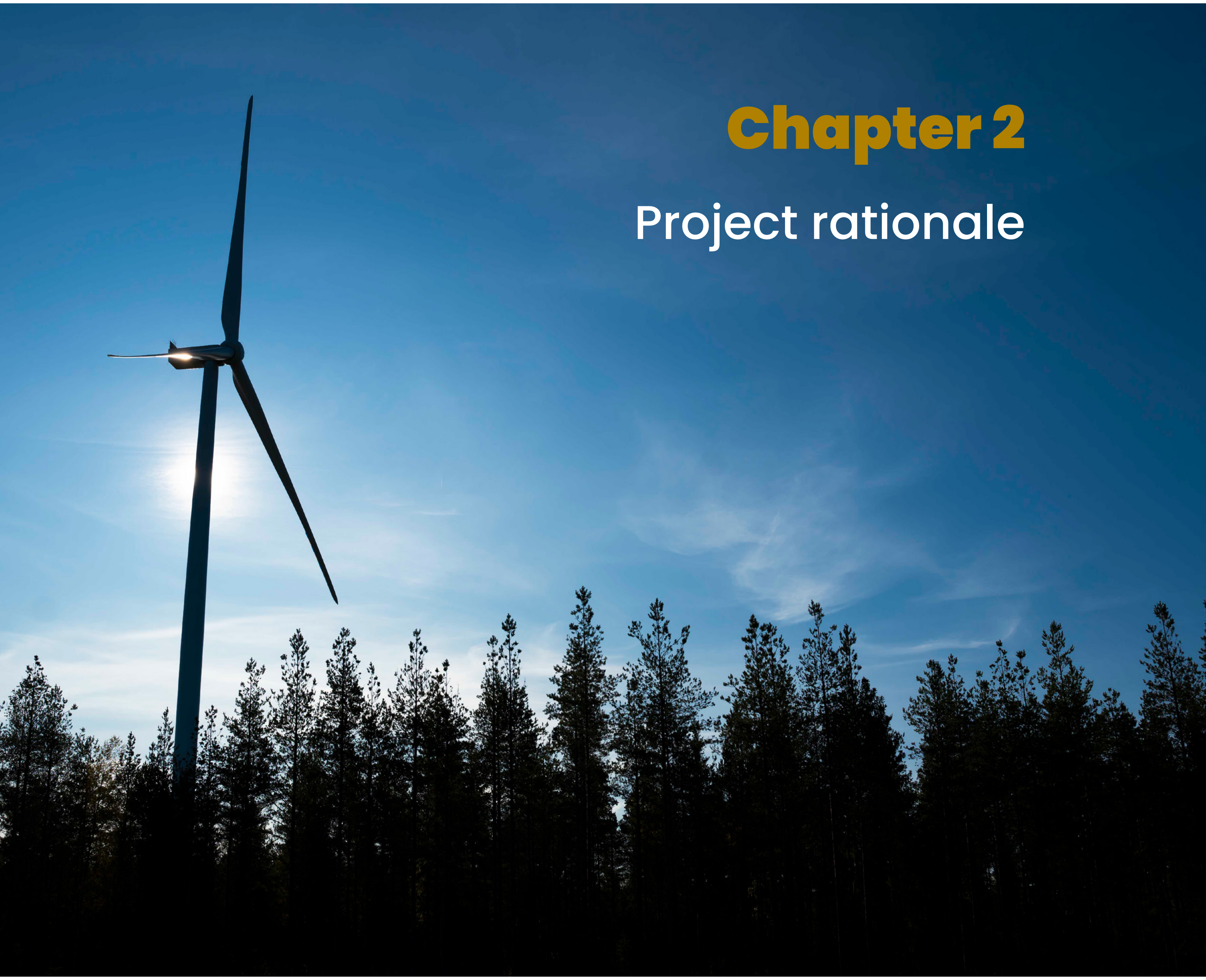
Chapter 2

Project rationale



Acknowledgement of Country

Neoen Australia acknowledges the traditional custodians of the land in which we live, and pays its respects to their elders, past and present. The Gunditjmara are the original custodians of the Country on which the Project is located and we acknowledge them as the original custodians. We are committed to Aboriginal engagement and reconciliation and aim to bring Aboriginal and Torres Strait Islander people, local communities and the councils along for the journey to strengthen relationships and enhance local community outcomes.

2 Project rationale

This chapter provides the rationale for the Project. It describes the policies that underpin renewable energy development in Victoria and how the Project is expected to meet the relevant objectives of these policies. It also details the benefits of the site selected for the Project.

This chapter addresses Sections 3.2 and 3.3 of the *Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement* (Scoping Requirements).

2.1 Background and policy context

Australia's greenhouse gas (GhG) emissions are amongst the highest in the world per capita. Data from the World Bank show that Australia had the tenth highest GhG on a per capita basis in 2019, at approximately 15.2 tonnes per capita, and the third highest of any country in the Organisation for Economic Co-operation and Development (OECD) (The World Bank, 2022).

Just over half of Australia's GhG emissions in 2019 were attributed to stationary energy (fossil fuel combustion for generation of electricity and use in manufacturing and construction) (DISER, 2020). Emissions from electricity generation accounted for 65 % of emissions from stationary energy, or 34 % of Australia's total 2019 emissions (DISER, 2020).

The State of Victoria contributed to 16.7 % of Australia's GhG emissions in 2019, behind Queensland (32 %) and New South Wales (NSW) (26.6 %) (DISER, 2020), despite being home to 26 % of the Australian population (ABS, 2019). The majority of Victoria's emissions were generated by stationary energy (71 %), with a total of 50 % arising from electricity generation (DISER, 2020).

In an effort to help reduce global GhG emissions, governments at all levels in Australia have implemented a range of legislation and policies, committing them to various GhG emission reduction targets and activities to meet these goals. Those relevant to the Victorian electricity sector are discussed below.

2.1.1 National policy

Australia became party to the Kyoto Protocol in April 1998 (now superseded) and the Paris Agreement in December 2015. Under the Paris Agreement, Australia has agreed to work with other parties to combat climate change and take action to adapt to adverse impacts (UNFCCC, 2021). Article 2 of the Paris Agreement requires parties to (United Nations, 2015):

(a) Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.
(b) Increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development.
(c) Make finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.

Australia's first Nationally Determined Contribution under the Paris Agreement, made in December 2020, committed Australia to reducing GhG emissions by 26–28 % below 2005 levels by 2030 (Australian Government, 2020).

Australia's commitment to reaching net zero emissions by 2050 has been in place since 2022. The *Climate Change Act 2022* established a 2030 emissions reduction target of 43% (from 2005 levels), supported by an 82% renewable energy target. Supporting those targets are the Powering Australia Plan, the Rewiring the Nation policy, the expansion of the Capacity Investment Scheme and the Renewable Energy Transformation Agreements.

The Australian Energy Market Operator (AEMO), the independent planner of the National Electricity Market (NEM), released its 2024 Integrated System Plan (ISP) in June 2024 (AEMO, 2024). The ISP is a plan for investment in the NEM to ensure a reliable and secure power system as Australia transitions to a net zero economy. The 2024 ISP identifies that Australia's coal-fired generators are reaching the end of their serviceable lives, with up to 90 % of the NEM's coal-fired power stations projected to retire before 2035 and the entire fleet before 2040. The 2024 ISP identifies that renewable energy connected with transmission and distribution, firmed with storage (and supported by gas-powered generation) is the lowest-cost way to generate electricity in a net zero economy.

The ISP identifies that grid-scale variable renewable energy capacity such as wind and solar will need to triple by 2030 and six-fold by 2050 (AEMO, 2024). Both wind and solar technologies will be needed to ensure resource diversity across the NEM, although wind projects are expected to account for up to 70 % of new utility-scale renewable generation prior to 2030 (AEMO, 2024).

The Commonwealth Government has a ‘Powering Australia’ plan that will support its GhG emissions targets ((DCCEEW, 2024). The plan aims to create jobs, reduce pressure on energy bills, and lower emissions by boosting renewable energy. The Powering Australia plan includes commitments to unlock investment in the energy grid through $20 billion in low cost funding through Rewiring the Nation. The plan also includes securing agreement to establish a new National Energy Transformation Partnership, which will help to transform Australia’s energy system to achieve net zero by 2050. This includes expanding the Capacity Investment Scheme to target a total of 32 GW of new capacity by 2030.

The Project may also make an important contribution to Australia’s federal renewable energy targets. The Project was successful in being selected in Tender 1 – NEM Generation of the Capacity Investment Scheme (CIS), which is an Australian Government scheme seeking competitive tender bids for underwriting contracts to support renewable generation and dispatchable projects. The scheme aims to:

- help deliver the Australian Government’s 82% renewable electricity by 2030 target
- deliver an additional 32 GW of capacity by 2030
- support electricity generation growth and reliability as demand grows and ageing coal power stations retire
- place downward pressure on electricity prices.

The CIS aims to create jobs, reduce pressure on energy bills, and lower emissions. It supports Australia’s clean energy transition and complements other programs under the Powering Australia Plan.

The Project would make a substantial contribution to the established need for more utility-scale renewable energy in the NEM which is needed to replace the retiring coal power plants and meet the increased demand over the coming decades due to increased electrification. It would directly contribute to the Commonwealth GhG emissions reductions targets and to supporting the transition to increased renewable energy as outlined in the ISP.

2.1.2 State policy

The Victorian Government has committed to reducing Victoria’s GhG emissions to net zero by 2045, as legislated under the *Climate Change Act 2017* (Vic), with interim five-yearly targets(DEECA, 2023).The Victorian Government has set targets to reduce Victoria’s emissions to 75–80 % below 2005 levels by 2035 (DEECA, 2023). Victoria’s Climate Change Strategy provides a roadmap for achieving these targets. Actions included in this energy pledge support a shift to renewable energy and distributed energy resources (DEECA, 2023). Of relevance to this Project are the following actions:

- The Victorian Government’s ambitious targets that chart a course to net zero, with legislated targets to reduce the state’s emissions from 2005 levels set at 28 % to 33 % by 2025, and 45 % to 50 % by 2030.
- Development of Victorian renewable energy zones (REZs) to address system constraints and enhance access to the transmission network and planning and support for investment in renewable energy infrastructure.

The Project would play an important role in contributing to renewable energy development within Victoria, thereby helping to meet the State’s GhG emissions targets.

This large wind farm could contribute approximately 5 % of Victoria’s electricity generation, a substantial step towards the achievement of the State’s renewable energy targets.

2.2 Project objectives

The fundamental objective of the Project is to provide a source of clean, renewable energy to help power homes and businesses in Victoria and throughout eastern Australia which are connected to the NEM.

The Project is anticipated to deliver approximately 2,000 gigawatt-hours (GWh) of renewable electricity per year. The Project would reduce Australia’s carbon emissions by approximately 2.4 million tonnes annually, thereby contributing to State and Commonwealth Government targets for GhG emission reductions (see **Section 2.1**). The Project would also directly contribute to achieving Victoria’s currently legislated renewable energy target

The Portland Aluminium Smelter is the largest employer in the region, injecting approximately $61 million into the Victorian community in 2020 through direct salaries, wages and benefits, and $108 million in Victorian supply contracts (Alcoa, n.d.). the Proponent and Alcoa can share grid connection challenges and solutions to system strength issues and are investigating opportunities for the Project to supply renewable energy to assist in Alcoa’s plans to produce green aluminium products and reduce the smelter’s reliance on aging coal power plants. The smelter’s current electricity supply contract is due to expire in 2026, and the Project is currently one of the few options available to ensure the smelter can obtain low-cost electricity and continue to operate.

The Proponent's environmental and social objectives for the Project are to:

- Maximise Project benefits (see **Section 2.4**) such as affordable electricity production, local jobs and investment and direct financial benefits to neighbours, the community and biodiversity funding, while avoiding or minimising adverse impacts on the local community and biodiversity.
- Develop the Project in accordance with the principles of ecologically sustainable development, in particular, recognising the importance of natural resources and ecosystems for meeting environmental, social and economic needs now and into the future.
- Consider the rights and values of the community and stakeholders, human health, environment, and cultural heritage in the decision-making process.
- Provide regular, consistent and considered consultation with stakeholders and the community to ensure their expectations and preferences are reflected in the Project's design and approach to operations from an early stage.
- Where possible, identify opportunities to partner with community stakeholders in the co-design and delivery of equitable, lasting community benefits including procurement, employment, training and support for key social groups.

The Proponent's objectives relating specifically to the transmission line component of the Project (and the broader Project where relevant) are to:

- Deliver renewable electricity from the Project to the NEM.
- Seek opportunities to co-locate infrastructure with existing compatible land uses such as existing easements and transport routes.
- Avoid or minimise potential adverse impacts on the natural environment.
- Avoid or minimise potential impacts on public land and associated public land management activities.
- Avoid or minimise potential adverse impacts on Aboriginal and historical heritage.
- Avoid or minimise potential adverse impacts on nearby residents and other sensitive receptors associated with visual amenity, noise, traffic, and air quality.
- Avoid impacts on business and commercial operations.
- Avoid or minimise potential impacts on productive agricultural land.
- Avoid or minimise the risk of bushfire.
- Ensure an appropriate land use outcome by avoiding areas of sensitivity and potential land use conflicts
- Be able to obtain necessary agreements with landowners and land managers to install and operate infrastructure.
- Be able to obtain planning and environmental approvals from all necessary authorities.
- Provide a constructable and cost effective grid connection.

The Proponent will continue to develop the Project in accordance with industry best practice and applicable Commonwealth and State legislation, policies, guidelines and standards.

2.3 Project location

Wind farms are best suited to areas with frequent and sustained winds, which means wind turbines are commonly located on top of hills and ridgelines or near the ocean (ARENA, 2021).

The windiest areas are typically coastal regions of continents at mid-high latitudes and in mountainous regions (Geoscience Australia, n.d.). Locations with the highest wind energy potential include the westerly wind belts between latitudes 35° and 50°, which are generally characterised by high, relatively constant wind conditions (Geoscience Australia, n.d.).

Regions with high wind potential and which are most suited to wind farms are characterised by:

- high average wind speeds
- winds that are either constant or coinciding with peak electricity consumption periods
- proximity to a major electricity consumption region such as an urban or industrial area.
- A smooth landscape, which increases wind speeds and reduces mechanical stress on wind turbines that is caused by turbulent wind conditions associated with a rough landscape.

The following sections describe the advantages of the Project Area for siting of a wind farm.

2.3.1 Wind resource

Australia has some of the best wind resources in the world, which are mostly located in the southern parts of the continent within the westerly wind belt (known colloquially as the 'roaring 40s'), including in western Victoria (Geoscience Australia, n.d.).

The Project is would be located around latitude 38°S where average wind speeds range from 7–8 metres per second (m/s) at 100 metres (m) above ground level, to 8-9 m/s at 150 m above ground level (DCA, 2021). Long-term weather data collected at the Bureau of Meteorology (BoM) weather station closest to the Project Area, Portland (Cashmore Airport), show that average wind speeds in the region range from 4.1–5.4 m/s in May to 6.1–7.1 m/s in October, with gusts up to 29.4 m/s (BoM, 2021). The Project is anticipated to have a high capacity factor of 43 % meaning that the Project on average generate 43 % of its maximum power capability, reflecting the excellent wind resource in the Project Area with consistently high average wind speeds.

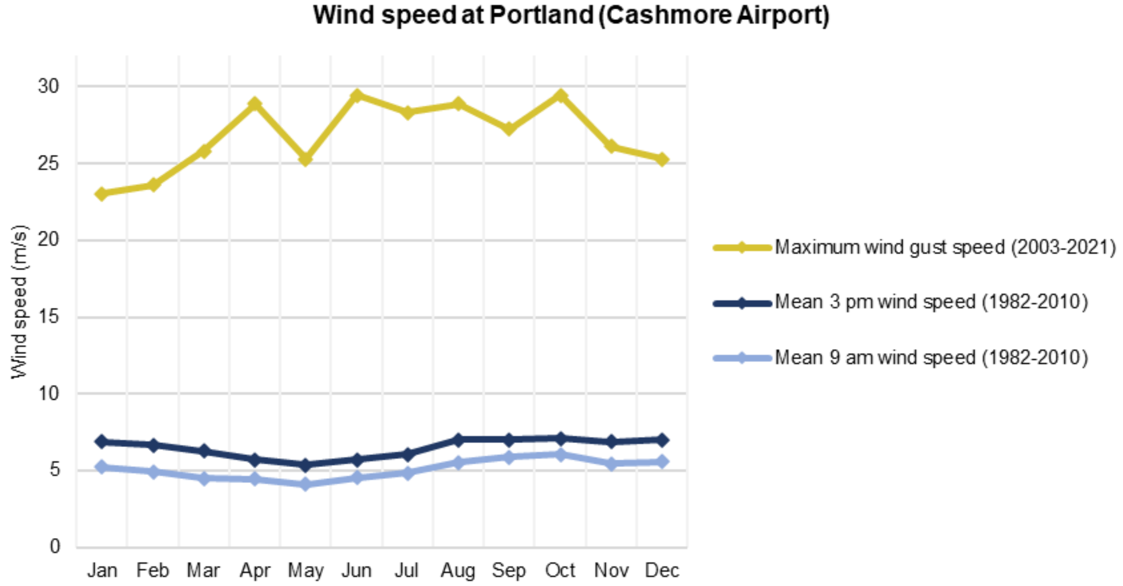


Figure 2.1: Wind speed patterns at the BoM Portland (Cashmore airport) weather station between 1982 and 2021 (BoM, 2021)

2.3.2 Site context

In addition to a good wind resource, suitable locations for a wind farm are determined by proximity to electricity transmission infrastructure, available capacity of the transmission network, proximity to areas with high electricity demand, and the environmental and social constraints.

The wind farm site is located approximately 23 km west of an existing 500 kilovolt (kV) transmission line running from the Portland Aluminium Smelter, through Melbourne, and east to the site of the former Hazelwood coal-fired power station (AEMO, 2021). This transmission line connects into the Heywood Terminal Station, which would be the connection point for the Project located approximately 24 km east of the wind farm site. The AusNet 500 kV network is extremely secure with the capacity to transport large amounts of electricity to major load centres in Victoria including the Portland Aluminium Smelter and Melbourne. Network security is essential for ensuring that dispatchable generation, including renewable energy power stations such as the Project, will be able to effectively dispatch electricity when required by the Victorian electricity market.

The wind farm site is situated within heavily disturbed pine plantation and farming land used for grazing. The proposed transmission line route has been located primarily within existing roads and farming land to further minimise potential impacts on environmental receptors including native vegetation and threatened species and other sensitive such as dwellings. The area surrounding the Project has a very low population density, with a total of 15 non-involved residential dwellings identified within 5 km of the wind turbines. The closest township to the Project is the small community of Nelson (population 191), located approximately 3 km to the west of the wind farm site. This relatively low population density would allow the Project to minimise potential adverse social impacts relating to amenity, noise and traffic.

The Project Area is located within an existing oversize overmass (OSOM) vehicle transport network in proximity to the Port of Portland which Project infrastructure can be shipped to. Delivery of wind farm infrastructure would use the existing access points and road network in the pine plantation which are currently used by logging trucks.

Further context about the environmental and cultural values in the broader region is provided in **Section 3.2.1**.

2.4 Benefits of the Project

2.4.1 Environmental benefits

The Project would provide at least 30 years of clean energy to Victoria, producing approximately 2,000 GWh of electricity per year, which is the equivalent of removing 616,000 cars from the road or planting 15.9 million trees. This would not only contribute to energy security in the State, it would also assist the Victorian Government in achieving its Climate Change Strategy, emission reduction targets and renewable energy targets. The Project also has the potential to bring significant economic and social benefits to Victoria, including to Portland and the local area, associated with job creation and the use of local service providers. This is discussed further in **Section 2.4.2**.

Potential ecological impacts of the Project have been thoroughly assessed over a period of more than three years in consultation with the Victorian Department of Transport and Planning (DTP), Department of Energy, Environment and Climate Action (DEECA) other Victorian Government agencies and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), and in accordance with the Scoping Requirements (see Chapter 7 *Biodiversity*l). The overall impact of the Project on biodiversity values has been carefully minimised as a result of information and data collated by the Proponent over several years. The Project would act as a net benefit to communities across Victoria as a viable wind farm for long term investment.

Additional to this, given both the size of the Project and its proximity to sensitive ecosystems, the Proponent has committed a fund for the sponsorship of ecological studies, protection activities and species recovery projects worth $1 million per year from the commencement of operations for the 30-year expected life of the Project. The fund would be administered by the Proponent and would initially have a focus on Southern Bent-wing Bat species recovery (see **Flora and Fauna Impact Assessment (Appendix C)** for further information). This funding is intended to make the Project nature positive, meaning that it would have a net positive effect on the environment in which it is located.

2.4.2 Socioeconomic benefits

The Project also has the potential to bring significant economic and social benefits to Victoria, including to Portland and the surrounding area. It is estimated to involve a $1.2 billion infrastructure investment, creating up to 350 jobs during construction and 14 jobs when operational.

Construction of the Project would help support businesses in the Glenelg Shire Council (GSC) local government area (LGA) and across the State more broadly, with the potential to generate up to $164.8 million for the Glenelg LGA and up to $659.3 million for the State of Victoria (assuming 25 % employment from the study area). Operation of the Project has potential to generate up to $49.9 million for the Glenelg LGA, and up to $62.3 million for the State of Victoria.

The Proponent would use local service providers and businesses to service or supply the Project where possible and will develop a Local Participation and Social Procurement Strategy prior to construction commencing, which will contain targets for local and regional employment during construction and operation. The Proponent's first focus is to hire local people to deliver its projects, recognising that locals are familiar with the land involved and often have the skills required for construction.

One of the most significant social benefits associated with the Project include provision of training and upskilling for local people, and local employment and procurement opportunities. Depending on how the Project is constructed, in either a single stage or over two stages, up to a peak of 350 workers would be required to construct the Project. If a single stage construction program is assumed, an estimated 350 employees would be required, with close to 253 full-time workers required across the State during the two-year construction period, 52 of which are expected to be apprentices and trainees. There is strong and consistent evidence that the provision of apprenticeship and trainee opportunities during construction of a project would benefit the individuals involved by increasing their probability of employment and expected hourly weekly wage rate in subsequent years.

The Project also has the potential to increase tourism in the area by becoming a new attraction for visitors. Members of the broader community have suggested that the Proponent could support eco-tourism ventures and promote the area as a green energy tourism location and develop a strong legacy in the area through support of local tourism ventures.

The Proponent is working with the Gunditj Mirring Traditional Owner Aboriginal Corporation (GMTOAC) to undertake an extensive cultural values assessment in partnership with to ensure the Project has a positive legacy for the Gunditjmara community. Cultural heritage surveys have been undertaken to ensure the wind farm's design protects local cultural artefacts and values and a Cultural Heritage Management Plan (CHMP) will be finalised with the GMTOAC for the Project.

The Proponent will also develop and implement an Aboriginal Participation Plan which will provide strategies to enhance benefits to the broader Gunditjmara community and other Indigenous occupants of the social locality, including to develop targeted workforce and training and accommodation strategies. This will be supported by an Aboriginal engagement process.

Further information is provided in **Chapter 17 *Socio-economics***.

2.4.3 Community benefits

The Proponent has committed to providing $150,000 per year for local projects and initiatives throughout the Project's lifetime as part of its Community Benefit Fund. The Proponent implements these programs for all of its assets in Australia and believes it to be industry best practice. This program is separate to the sponsorship of ecological funds mentioned in **Section 2.4.1**.

The Proponent has also publicly announced a Neighbour Benefit Plan. The Proponent is committed to an equitable, transparent and easy-to-understand Neighbour Benefit Plan which offers direct payments to landowners of residential dwellings within 3.5 km of a wind turbine. Payments would be made on a sliding scale based on the distance of the dwelling to wind turbines and the number of nearby turbines. The payments are annual and are proposed to commence at the beginning of the operations phase of the Project and continue for the life of the Project, which is expected to be between 25 and 30 years. The final amount received by neighbours would depend on the final wind turbine layout, which would be determined prior to construction when final distances from dwellings to turbines are confirmed.

The Proponent continues to engage with community members to identify options and priorities for local community benefits. A summary of this is provided in **Chapter 6 *Community and stakeholder engagement.***

2.4.4 Energy security benefits

As outlined in **Section 2.3.1**, the coastline near Portland experiences some of the strongest winds in Victoria. Strong wind speeds mean competitively priced electricity and reliable electricity generation, which supports energy security in our changing grid.

AEMO's ISP provides a blueprint for Australia's complex and rapid energy transformation towards net zero emissions, enabling low-cost renewable energy and essential transmission to provide consumers with reliable, safe, secure, and affordable power. The 2024 ISP confirmed the importance of this area, by identifying the Western Victoria Grid Reinforcement as a future ISP project in the optimal development path, triggering preparatory design to harness more renewable generation along the 500 kV backbone of the State's transmission system.

The Project's proposed connection point at the Heywood Terminal Substation has multiple bays available for connecting energy generation projects to the network. This part of the NEM is near the Portland Aluminium Smelter which produces high grade materials and has a very large electricity load, and which also employs a significant portion of the local population. Siting generation and connection near Victoria's largest single electricity load (around 8-10 % of Victoria's electricity demand) can reduce the amount of electricity that is transported from over 500 km away in the Latrobe Valley, and thereby have an impact on reducing fossil fuel generation. The wind farm could also help lower the energy costs for the smelter, and in doing so help support its financial viability. The Proponent and Alcoa are working together to ensure that grid security solutions on this section of the network are coordinated.

2.4.5 Benefits of wind energy

The wind energy industry is one of the fastest growing sources of renewable energy in many countries (Geoscience Australia, n.d.). Wind was Australia's leading source of clean energy in 2022, supplying 36 % of the country's clean energy and 12.8 % of Australia's overall electricity (Clean Energy Council, 2023). Installed wind energy capacity in Australia more than doubled between 2015 and 2022, growing from 4,181 megawatts (MW) to 10,533 MW in seven years (Clean Energy Council, 2022).

Wind energy provides a number of benefits, including:

- Wind energy is an inexhaustible renewable energy source.
- Wind farms do not emit toxic substances or contaminants into the air, such as GhGes or particulates.
- Wind farms do not generate waste during operation and pose a minimal risk of contaminating the surrounding land or water resources.
- Wind farms are compatible with existing land uses such as agriculture and forestry.
- Wind energy provides a low-cost source of electricity.
- Wind farm sites can be readily returned to their pre-development conditions after decommissioning.
- Wind farm development creates jobs.
- Wind farms can provide income for nearby landowners and economic benefits to the broader community through the use of local services and employment.

Wind energy is one of the least GhG intensive energy sources. Although wind energy does not produce any GhG emissions during operation, some emissions are generated from the use of non-renewable energy sources in the production of materials and infrastructure for a wind farm (Moss, Coram, & Blashki, 2014). Over the lifetime of a wind farm, GhG emissions are typically 97 % lower than for coal fired power plants and 70 % lower than solar (Moss, Coram, & Blashki, 2014).

Wind energy is also currently the cheapest source of large-scale renewable energy and is one of the cheapest of all sources of electricity. The International Energy Agency (IEA) (2020) has estimated that the cost of electricity generated by onshore wind farms, averaged across their lifetime, is cheaper than all other sources of electricity except for nuclear energy. The medium cost of electricity is around 43 % lower than for coal power plants and 10 % lower than utility-scale solar (IEA, 2020).

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