

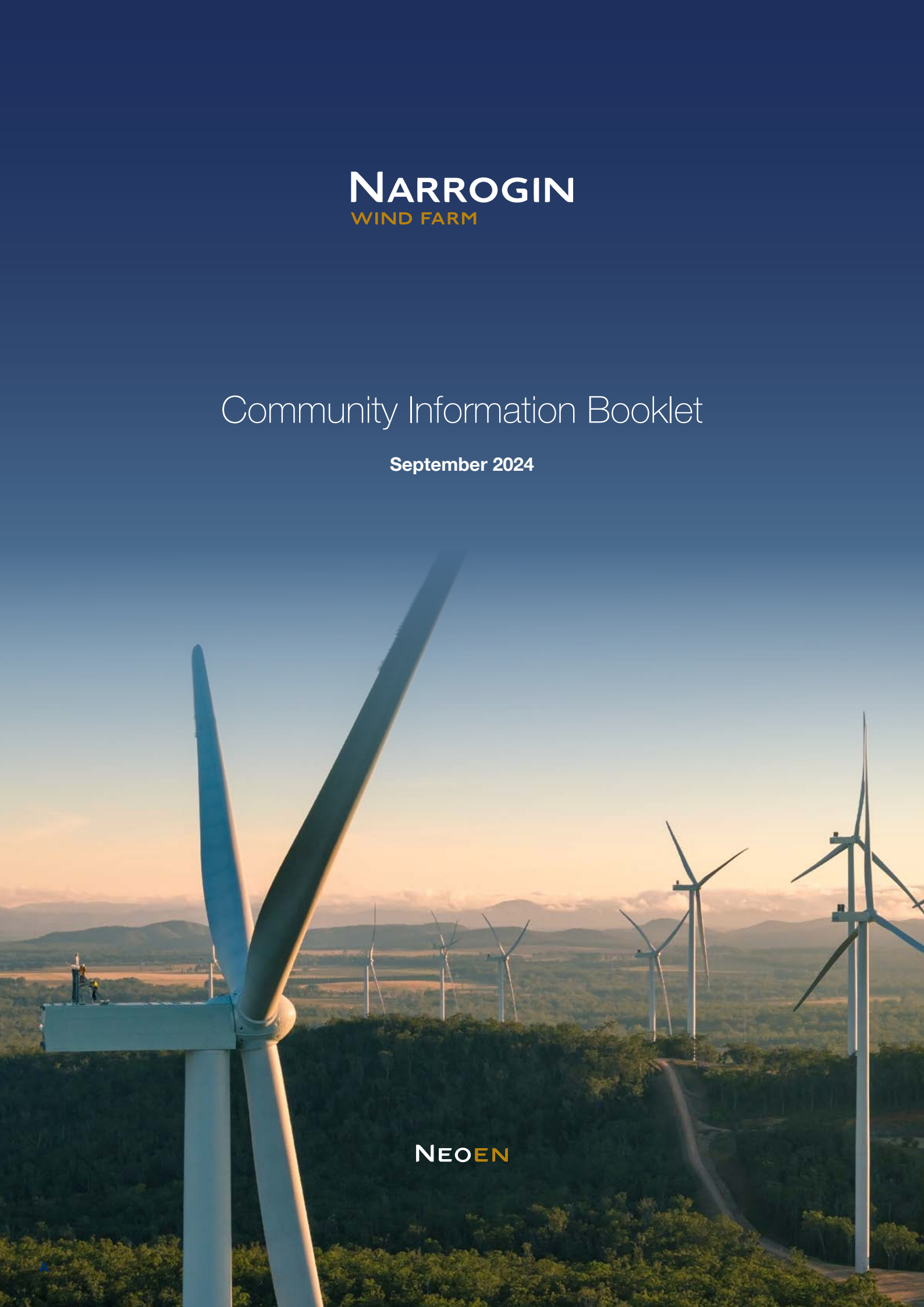
NARROGIN

WIND FARM

Community Information Booklet

September 2024

NEOEN



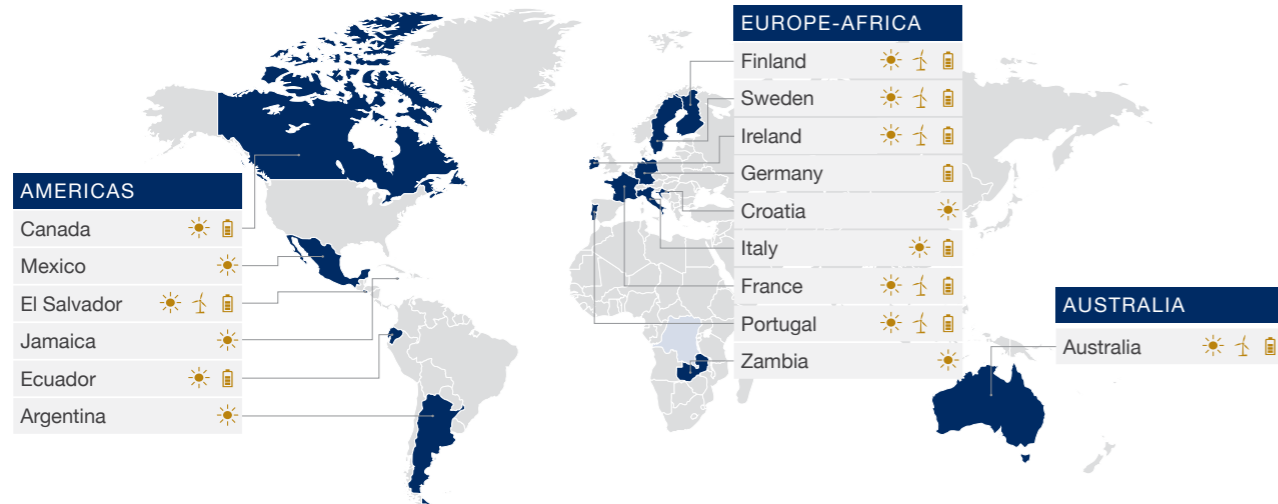
Contents

About Neoen	1
Leaders in the energy transition	2
Narrogin Wind Farm	3
Project lifecycle	4
Project layout	5
Project refinements	7
Ecological surveys	8
Proposed transportation route	9
Visual studies	11
Economic opportunities	13
We monitor our assets 24/7	14
Benefit-Sharing	15
Education & training	17
About wind turbines	18
Frequently asked questions	19

Neoen produces green electricity from renewable sources such as sunlight and wind using mature, tried and tested technologies. We are also leaders in energy storage.

Globally

Neoen has a presence in 16 countries with over 8 GW of assets in operation and under construction worldwide.



Leaders in the energy transition



COLLIE BATTERY STAGES 1 & 2

UNDER CONSTRUCTION

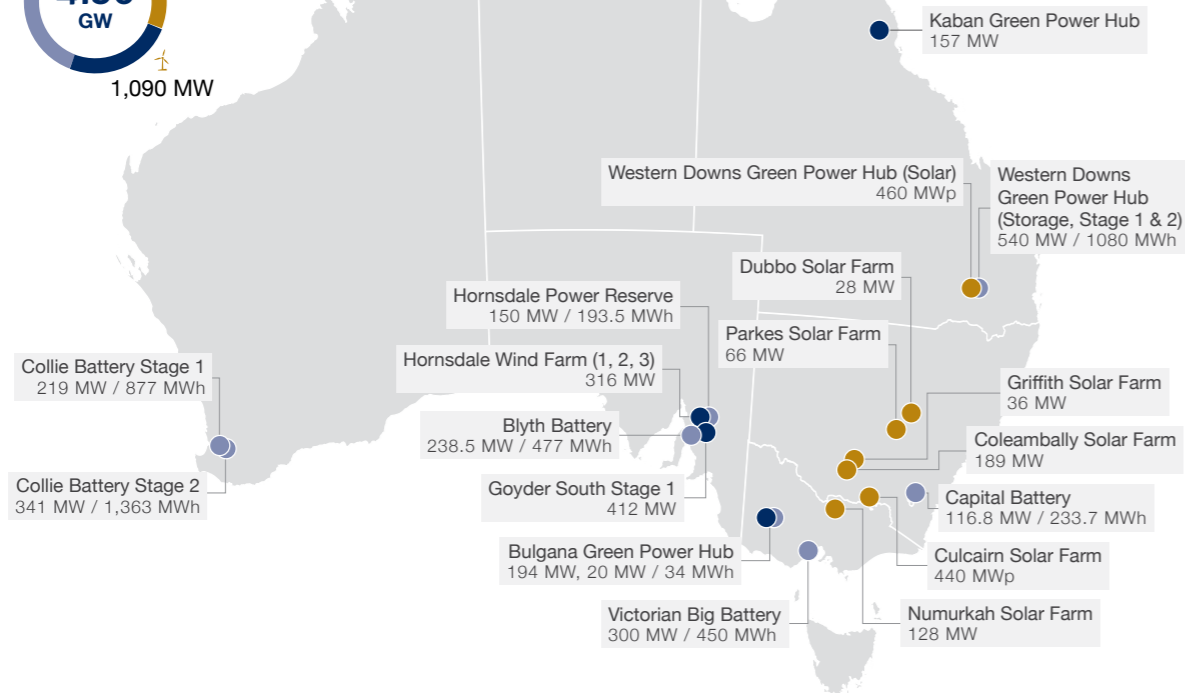
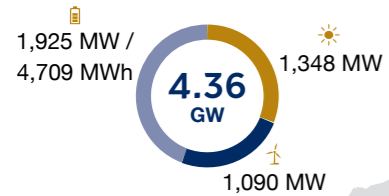
540 MW / 2240 MWh, Western Australia

The first long-duration 4-hour battery in our portfolio and in the state, with development approval for up to 1 GW / 4 GWh.

In Australia

Neoen began its journey in Australia over 12 years ago. Since then, we have developed over 4.3 GW of wind, solar and storage projects across six states and territories.

● Solar ● Wind ● Storage



KABAN GREEN POWER HUB

IN OPERATION

157 MW, Queensland

Supplying 100% clean energy to CleanCo to help Queensland achieve its target of 50% renewables by 2030.



WESTERN DOWNS GREEN POWER HUB

IN OPERATION

460 MWp, Queensland

This site hosts Australia's largest operating solar farm, providing over 30% of the energy required for CleanCo to meet its target of 1 GW of new renewable energy generation by 2025.



Narrogin Wind Farm

THE SITE



Up to 25 turbines



Electricity into existing 220kV power line



Up to 200 MW of renewable energy

HELPING THE CLIMATE

The proposed wind farm is expected to generate

630,000 MWh annually
which is equivalent to:

346,000 tonnes of CO₂ emissions displaced

100,000 homes powered

75,200 cars off the road

13.8 million trees planted

Project lifecycle

We are aiming to submit a Development Application to the Department of Planning, Lands and Heritage, later this year / in Q4 2024. There will be a public exhibition period during which community members will be able to view our submission and express views on the project.

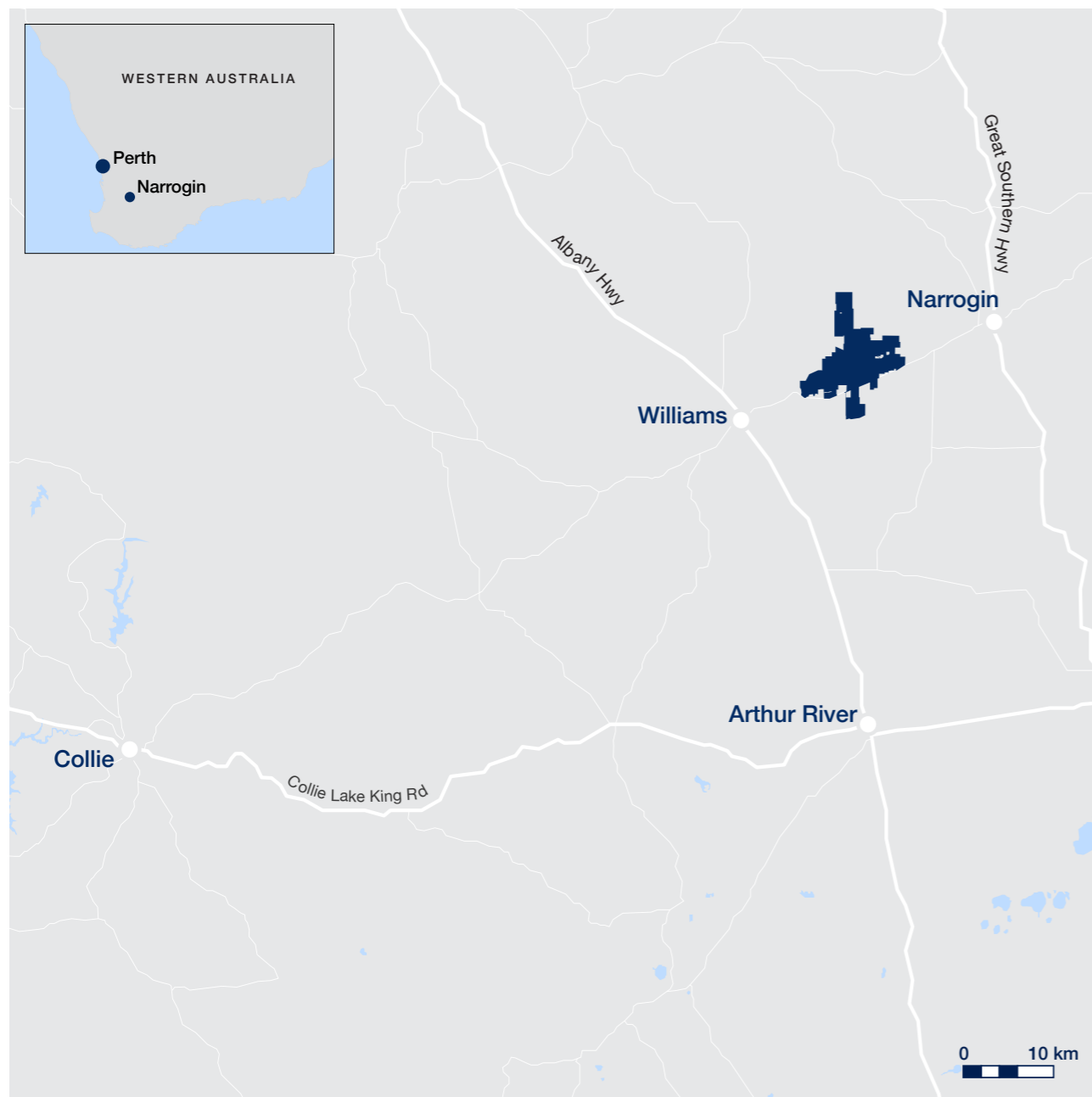


Project layout

The proposed Narrogin Wind Farm will be up to 200MW, comprising up to 25 turbines near the towns of Narrogin and Williams in Western Australia.

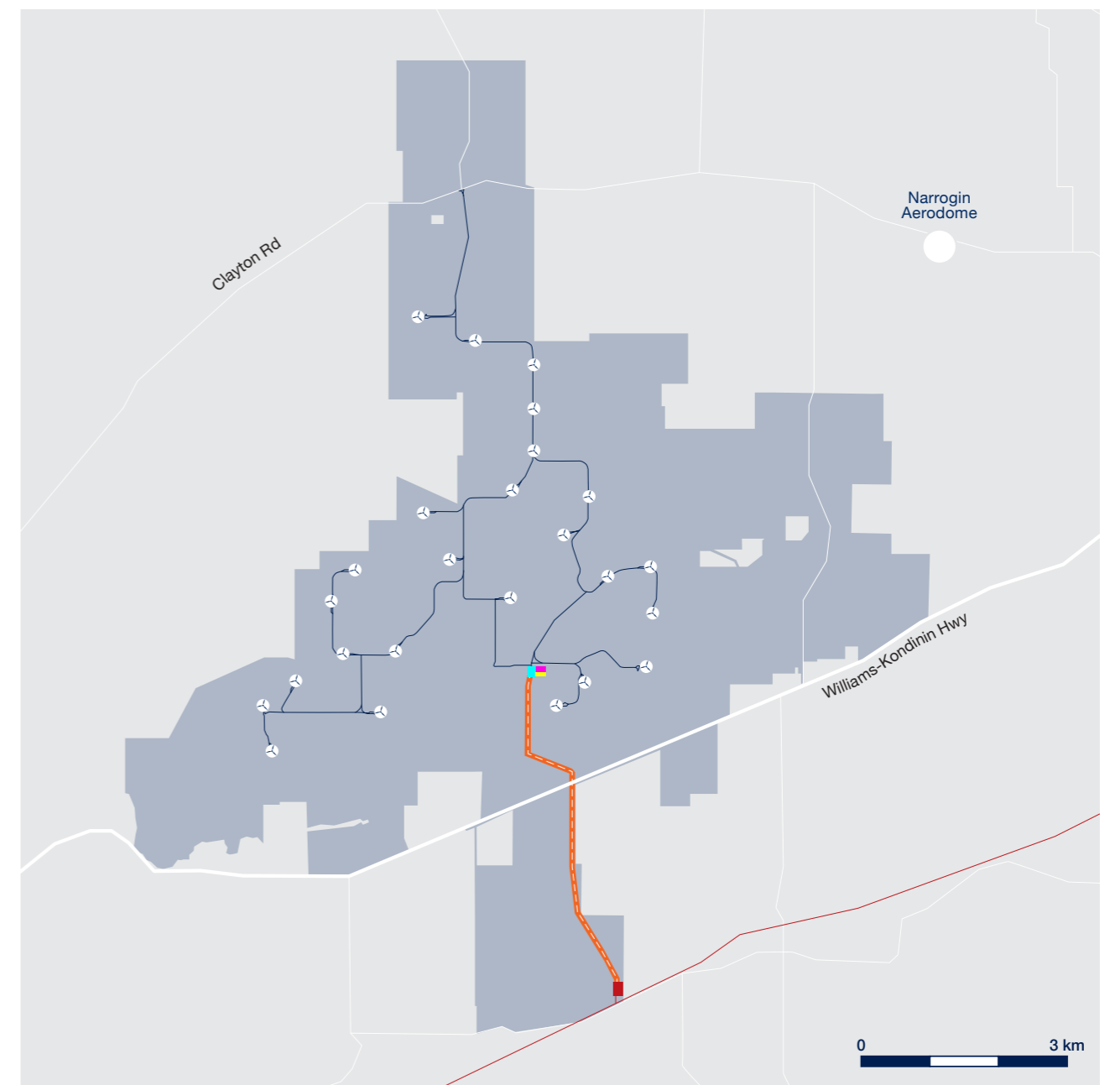
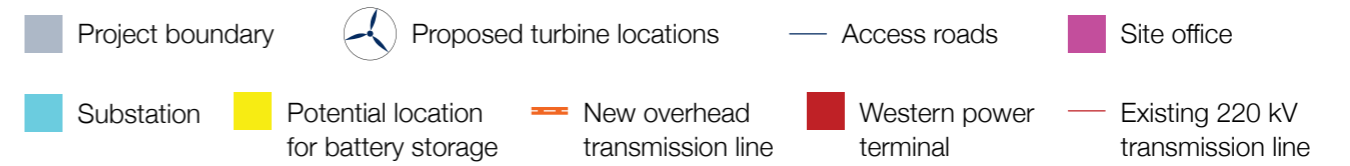
The site can connect into the South West Interconnected System (SWIS) from an existing 220 kV transmission line near its southern boundary and has the potential to host a big battery in the future.

Area map



Following feedback from the Shire of Williams, the Shire of Narrogin, the community and findings from detailed studies, we have made multiple refinements to our project.

Detailed map



Project refinements



PRELIMINARY DESIGN

Over the past twelve months, we have completed surveys and studies to develop a preliminary design to minimise the project's impact on the environment and the community.

A meteorological mast was installed in 2023 and it has collected valuable data to ensure we achieve the most efficient wind farm design.



NOISE

Noise modelling has been undertaken to inform the design and ensure our wind farm complies with WA and Federal government regulations.

Background noise monitoring has been completed at the site and will be used for compliance testing once the wind farm becomes operational.



AVIATION

Neoen understands the importance of the aerodrome to the community and has undertaken several studies to inform the design. An aviation impact assessment concluded the wind farm can co-exist with the aerodrome, ALAs and existing gliding and RFDS operations.

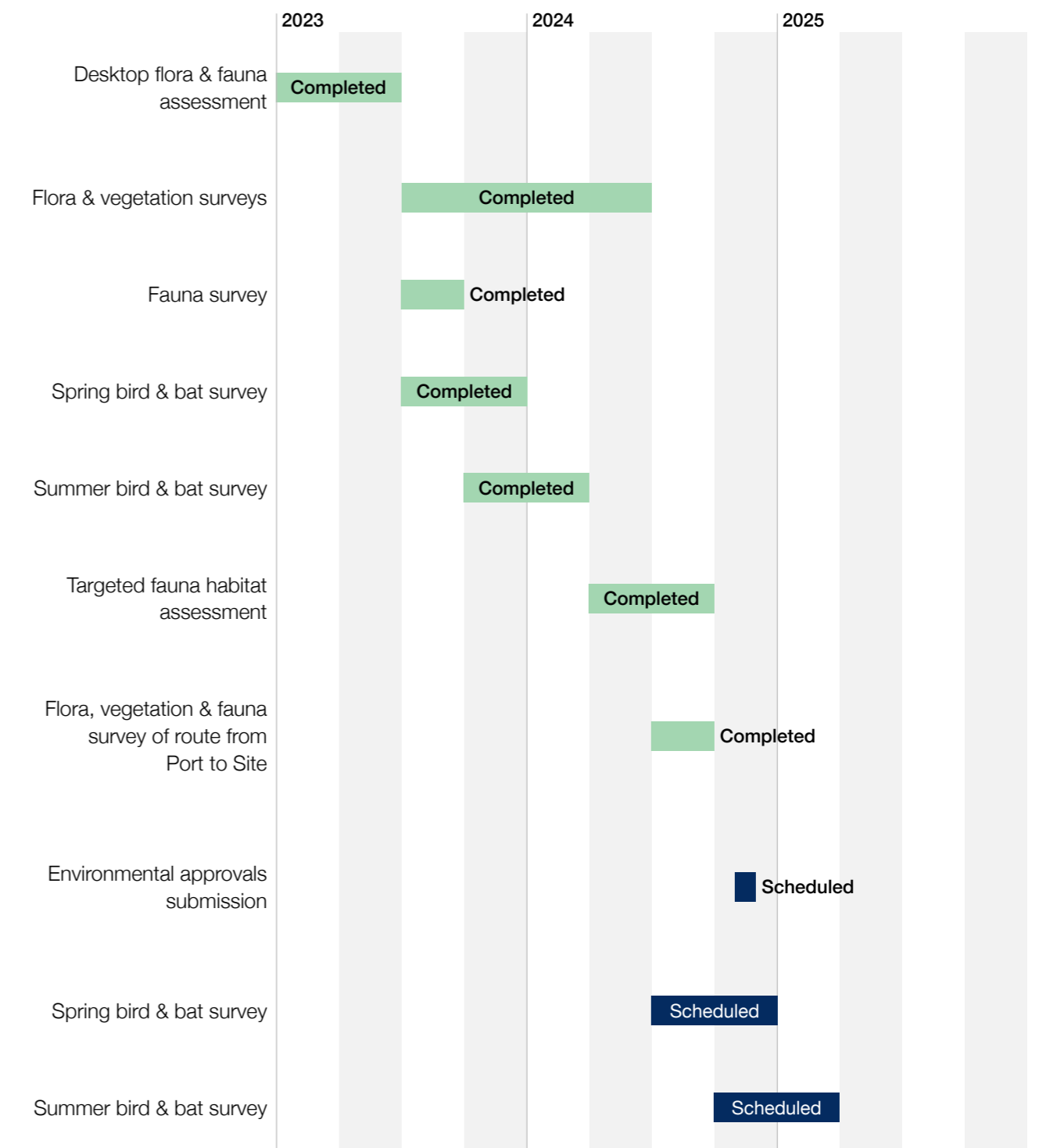
We reduced the number of turbines to ensure the wind farm doesn't prevent the aerodrome from seeking CASA certification in the future.

Ecological surveys

The project area has been surveyed for ecological impact and a majority of the land has been cleared for agricultural activities.

The Eucalyptus Woodlands of the Western Australian Wheatbelt Ecological Community were found to occupy 41.8 hectares across five patches of surveyed land which will be avoided to minimise impact.

We also identified that the region is home to many species of fauna. No active black cockatoo hollows have been found in our studies, and our detailed design will ensure that infrastructure can be 'micro-sited' to avoid sensitive areas. No trees with active hollows will be cleared.



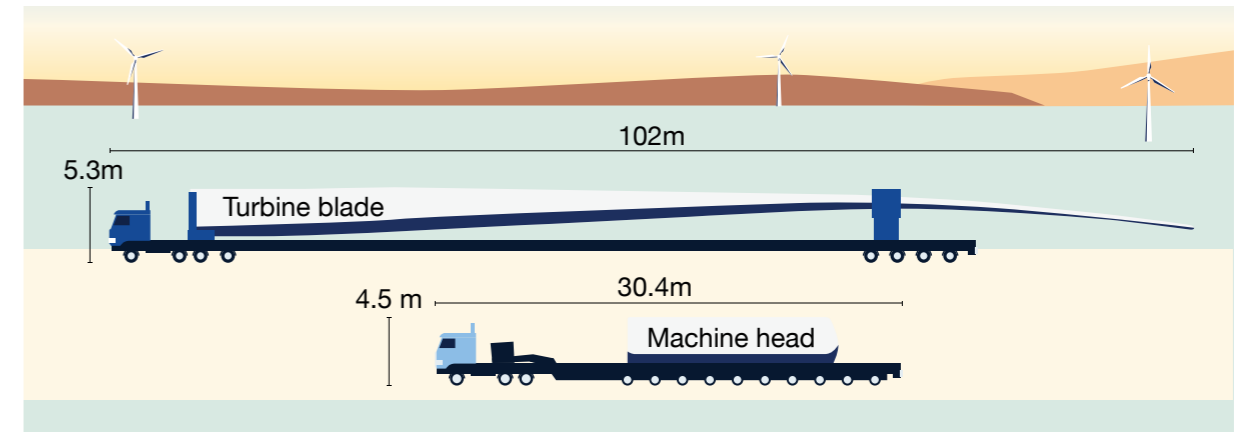
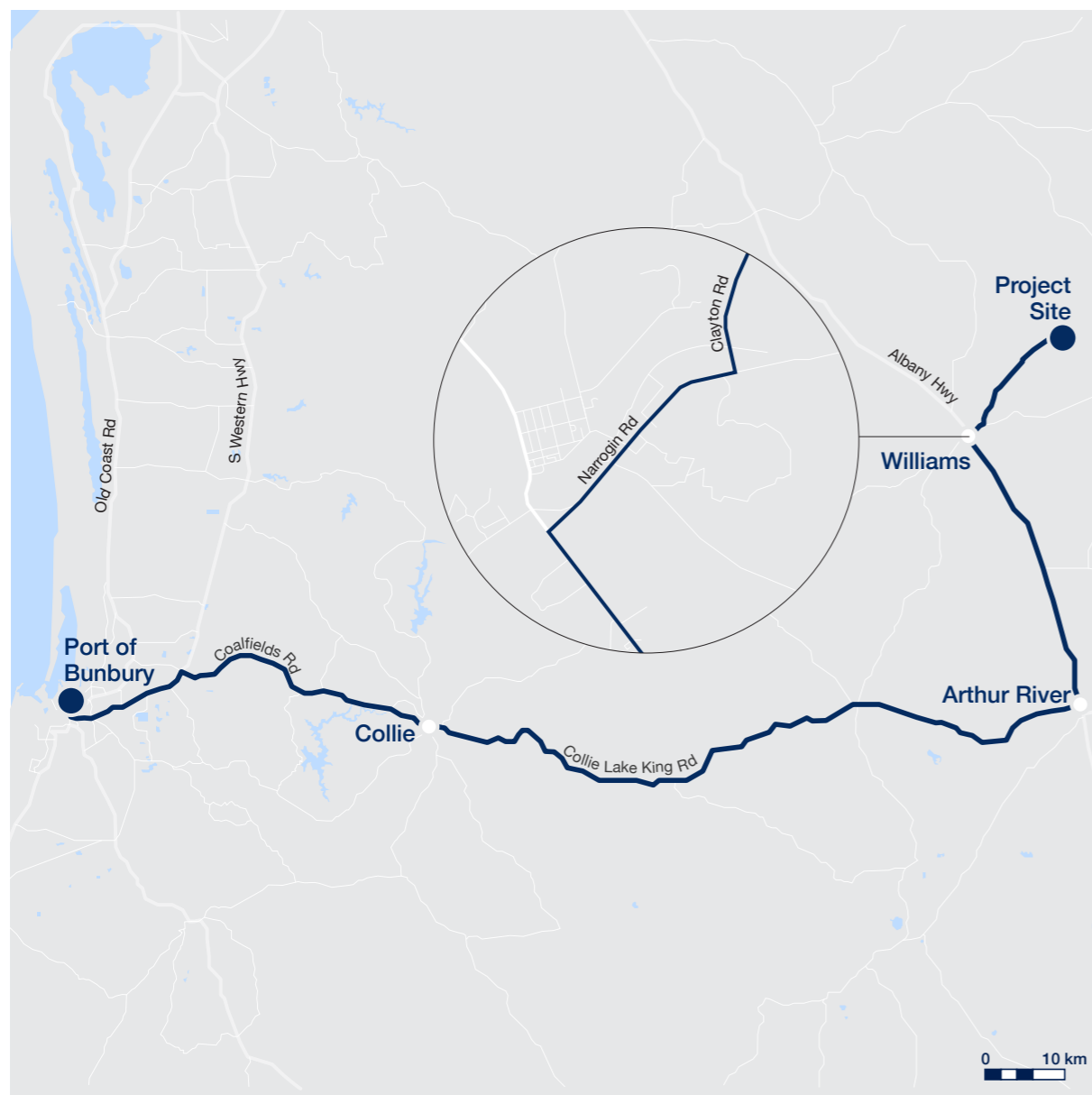
Proposed transportation route

Following consultations with key stakeholders including MRWA, Heavy Vehicle Services and locals shires, we propose to transport all wind turbine components from Port of Bunbury in WA to our project site.

The turbine components are oversized and heavy equipment, delivered by skilled and certified drivers with escort vehicles (as needed) to ensure road safety.

Turbine components expected to be delivered include:

- Nacelles
- Hubs
- Generator / drive trains
- Blades
- Tower sections



Visual studies

We conducted a landscape and visual impact assessment using a range of desktop and field studies to assess and mitigate the potential impact of the proposed wind farm in accordance with the Western Australian Government's planning requirements.

Current northerly view from Williams-Kondinin Road, Williams



New northerly view from Williams-Kondinin Road, Williams



Current southerly view from Curnows Road, Minigin



New southerly view from Curnows Road, Minigin



Economic opportunities

The Narrogin Wind Farm is expected to create approximately 250 new jobs during construction and up to 15 new, permanent positions during operations.



FOR JOBSEEKERS



FOR SUPPLIERS



Anyone interested in working on the project can register their interest via our project website or by scanning the QR code below:

narroginwindfarm.com.au/workwithus



In the pre-construction period, we will hold a Local Employment and Supplier Networking session.



We monitor our assets 24/7

The Narrogin Wind Farm will be monitored around the clock by our manned Operations Control Centre (OCC) in Canberra, which already oversees our 14 operating assets across Australia.

The OCC will coordinate with our Asset Manager in the Perth office as well as with the local maintenance team on site to ensure safe, effective and compliant operations of our proposed wind farm.

The OCC will manage Neoen's interactions with Western Australia's (WA) Wholesale Electricity Market (WEM) in the Southwest Interconnected System (SWIS), once Stage 1 of our Collie Battery goes into operation this year.

The WEM supplies electricity to homes and businesses in WA (through the SWIS). Electricity retailers purchase electricity from generators, like Neoen, either directly or indirectly through the WEM.



1ST

Renewable energy generator chosen by AEMO to supply network stability services



Benefit-Sharing

Community Benefit-Sharing Program

Neoen has made an **annual commitment of \$100,000** under the Community Benefit-Sharing Program to provide significant, meaningful benefits to communities living around our Narrogin Wind Farm.

This funding will become available once the project goes into operations and will continue for its 25+ year lifespan. We aim to fund local projects and initiatives bringing benefits for the communities in one of the following growth areas. Community members are encouraged to share their views and ideas on long-term projects through the survey on our website.

Growth Areas



Arts, culture & events



Education & training



Energy efficiency & environment



Disaster relief & emergency services



First Nations Initiatives



Health & Wellbeing



Submit your ideas:
Scan this QR code or
visit our website

Case Study: Concongella Primary School

Our Bulgana Green Power Hub has a \$120,000 annual Community Benefit Fund which is administered by the Northern Grampians Shire Council. Each year, local community groups apply for grants ranging from \$1,500 to \$20,000.

"We applied for a grant to install a wind turbine and solar panel array at the school...for the students to understand the different streams of energy production. It was a very simple application process."

– Kristie Miller, Principal

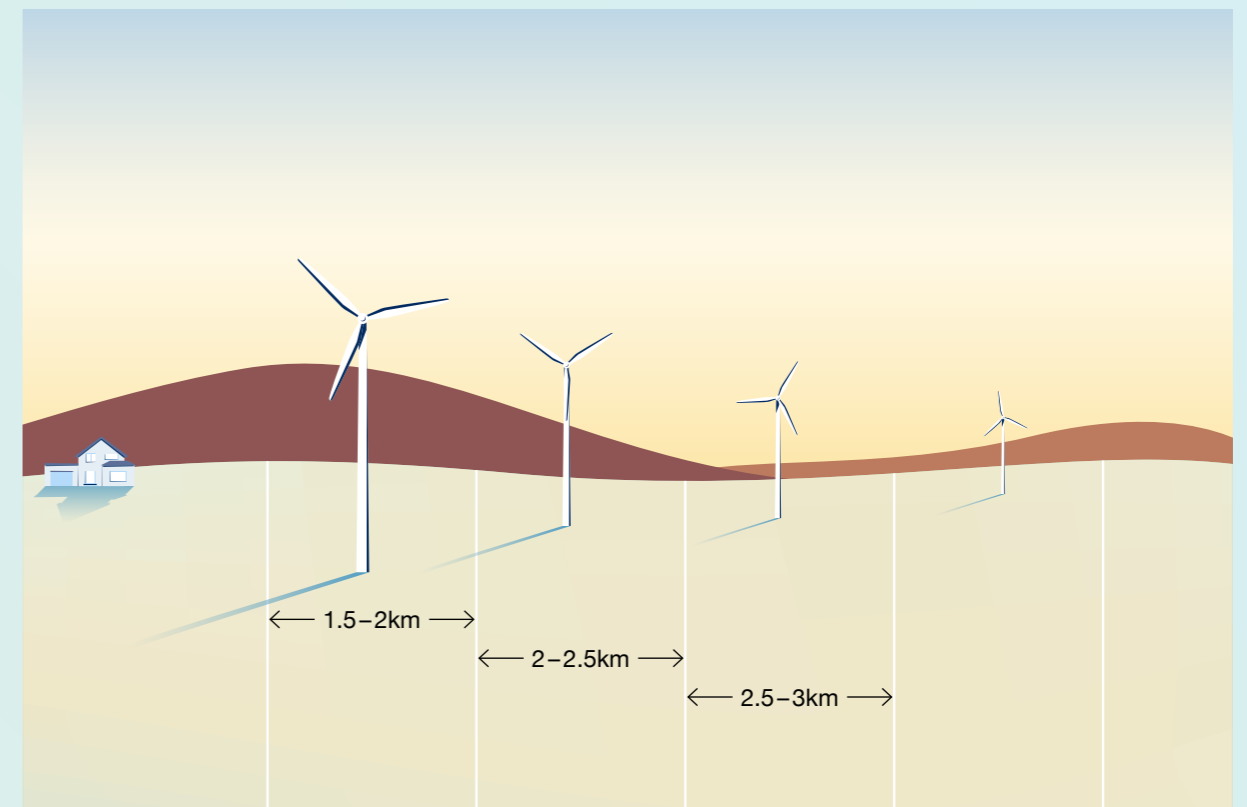


Neighbour Benefit-Sharing Scheme

The project will deliver a Neighbour Benefit Scheme (NBS), going 'above and beyond' the state government's planning requirements for large-scale renewable energy project in WA.

This is in addition to our Community Benefit-Sharing Program for the wider project communities and our agreements with landowners directly hosting wind turbines on their land.

Neoen is committed to delivering an NBS to ensure near-neighbours can directly benefit from the region's energy transition. It is based on the number of wind turbines within certain distances of a neighbour's primary residence. The nearer the turbines to a primary residence, the higher the amount on offer.



Neoen decides on a minimum amount and a maximum cap for an NBS during the development stage. The final amount depends on our project's wind turbine layout, which is determined if and after we receive approval on our Development Application and during the construction stage.

Please note: the NBS does not prevent neighbours from expressing their views for or against the project, either privately or publicly at any time.

Education & training



LEARNING HUB

Developed by Neoen, the Learning Hub helps strengthen engagement with regional communities around our projects. Designed for students in Years 5 to 12, it covers the basics of electricity to the impacts of renewable energy sources and the possible careers in the sector. Curriculum-aligned videos, resources and classroom activities provide students with dynamic and engaging lessons.

Learn more by visiting neoenlearning.com.

SCHOOL ENGAGEMENT

Kardinia International School has a farm campus next to our Victorian Big Battery where years 5/6 learn about sustainability, nature and biodiversity. The school helped develop our Learning Hub and Neoen has a long-term benefit-sharing agreement to support its farm campus sustainability initiatives.

We are happy to explain renewable energy technologies at local Narrogin and Williams schools and will encourage they apply for our Community Benefit-Sharing grants.



SKILLS & TRAINING

Neoen has been working in partnership with the Canberra Institute of Technology (CIT) since 2015.

Together, we launched the Renewables Skills Centre of Excellence, to provide practical training to students interested in a career in the renewable energy sector.

Neoen, CIT and Vestas won the 2021 Industry Collaboration Award from the Australian Training Awards.

About wind turbines

New turbine models are larger than their predecessors. Often during permitting, higher hub and tip heights will be requested to accommodate the next generation.

Larger turbines generate more and cheaper energy because they can access higher wind speeds at higher elevations. They are spaced further apart (approximately 500–1,000m depending on the project) and have lower rotational speeds than smaller turbines.

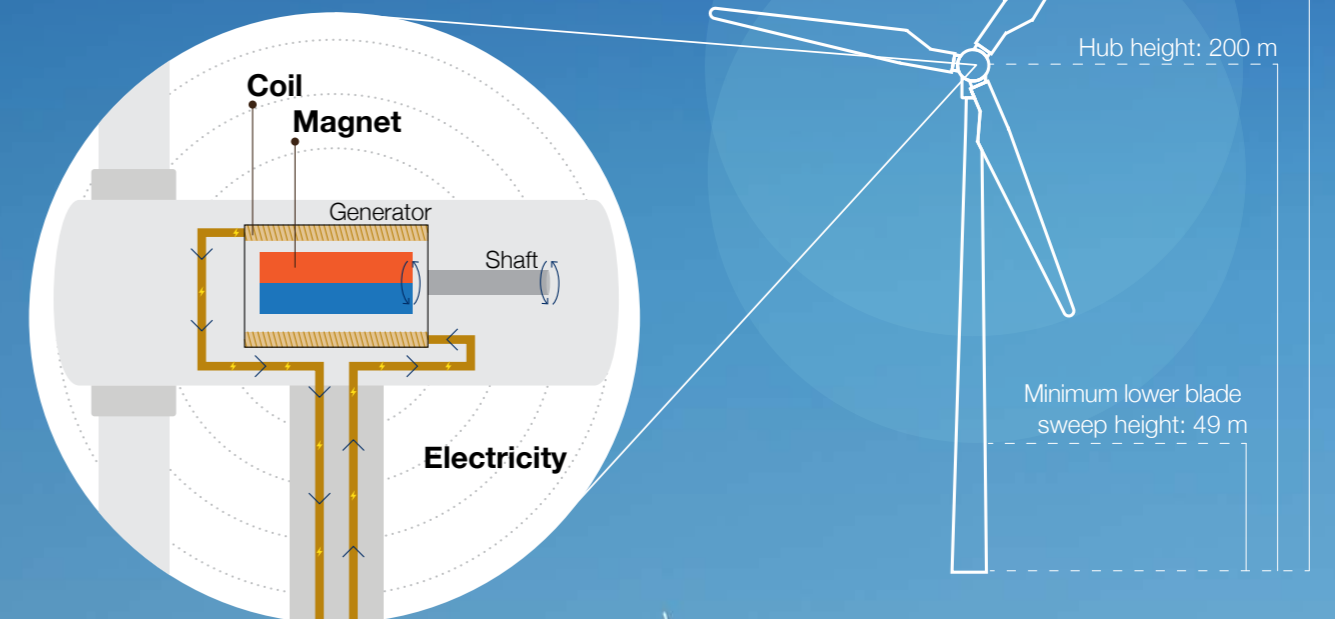
Larger turbines generate savings in civil and electrical costs because they require less concrete, roads and cables per unit of energy generated. This reduces carbon emissions, construction traffic, and vegetation clearance. Their blades are also above the flight paths of most birds, which greatly reduces the impact to avifauna.

To learn more, watch a video on the Learning Hub:



What's inside?

Winds push the turbine blades which then turn the magnets. This generates a magnetic field, causing electrons to race through copper wires, creating electricity.





Wind farms

How long does it take to build a wind farm?

The construction time frame depends on the project size and the number of workers deployed on site. For a 100 MW power plant, a 14-month time frame is typical, with a peak construction period of 2 to 3 months. A large project like Narrogin will take around 30 months to construct with a longer peak construction.

What technology is used to build a wind farm?

Neoen's projects use premium quality wind turbines and battery technology provided by leading manufacturers. This is selected through a competitive process for each project. All components come with long warranty periods, wind turbines are generally warrantied for 25 to 30 years.

What is the lifecycle of a wind farm?

A wind farm will typically operate for 25–30 years.

What are the advantages of taller, modern turbines?

Economic: Larger turbines generate more and cheaper energy because they can access higher wind speeds at higher elevations. They also generate savings in civil and electrical costs (foundations, roads, cables, etc.).

Visual: Larger turbines are spaced further apart (up to 1000m) and have lower rotational speeds than smaller turbines.

Noise: Larger turbines don't necessarily make more noise than smaller turbines, due to their slower speed and improvements in blade design.

All turbines in WA are subject to strict noise limits imposed by the Environmental Protection Authority. The noise impacts that are permitted are the same regardless of turbine sizing.

Environmental: Larger turbines require less concrete, roads and cables per unit of energy generated. This reduces carbon emissions, construction traffic, and vegetation clearance. Their blades are also above the flight paths of most birds, reducing impact to avifauna.

How do you stop wind turbines impacting the landscape?

Neoen is currently conducting a Landscape and Visual Impact Assessment to identify key risks associated with the Project in relation to landscape and visual amenity to provide information to help inform the projects design.

The Narrogin Wind Farm project will be designed to minimise and mitigate impacts on landscape character, scenic amenity and landscape values to the greatest extent possible through careful siting of turbines. The approach to the LVIA has been developed with reference to accepted guidelines for Landscape and Visual Impact Assessment from Australia and elsewhere.

Neoen encourage individuals and groups that have questions about visual impact and remedies to engage with us early.

What happens at the end of the wind farm's life?

At the end of the wind farm's life cycle (typically 25-30 years) the wind farm is decommissioned and we remove the wind turbines and all above ground structures and rehabilitate the site. This is a condition of the wind farm's development approval from the State government and our agreement with the landowners. During decommissioning most of the materials the wind farm is made from can be reclaimed or recycled.

Economy

Do renewable projects benefit the Australian and local economy?

A 2012 study by SKM on the economic benefits of wind farms in Australia found that, for every 50 MW in capacity, a wind farm delivered the following benefits:

- Direct employment of up to 48 construction workers, with each worker spending approximately \$25,000 in the local area in shops, restaurants, hotels and other services (a total of up to \$1.2 million)
- Indirect employment during the construction phase of approximately 160 people locally, 504 state jobs and 795 nationwide jobs

How much do renewables cost compared with other energy sources?

According to the 2024 CSIRO GenCost report, renewable energy projects are the cheapest sources of new energy generation even with the cost of storage to provide firming with the trend likely to continue into the 2030s.

Who pays for any road upgrades required?

Neoen pays for any upgrades to State or Local Government or landowner roads required for transporting wind turbine components to site. If we damage roads, we will pay for repairs.

Who will pay for any electrical transmission upgrades required?

Neoen pays for any electrical transmission upgrades necessary to connect and operate the project in the electricity grid. This includes construction and maintenance costs for the life of the project.

Does Neoen require government subsidies to build its projects?

Neoen does not require government subsidies to finance its projects. We finance our projects through a combination of our own equity and long-term bank loans. However, we sometimes enter into agreements with governments or businesses to sell the power produced by our projects.

Who assesses the projects?

All Neoen projects meet strict State and Federal Government regulations and are assessed under these regulations. We work closely with governments to ensure we meet all legal requirements and exceed these requirements wherever possible.

Do wind or solar farms cause property values to decrease?

Studies into the potential impact of wind farm developments on property prices, including by the NSW Valuer-General (2009) and Urbis (2016), have concluded there is insufficient evidence to suggest wind farms can be linked to adverse impacts on property prices.



Health & culture

Are there any health risks associated with wind farms?

There are nearly 200,000 wind turbines installed worldwide — many of them in more densely populated areas close to houses.

Some 17 reviews of research literature conducted by leading health and research organisations from all over the world, including the World Health Organisation, Australia's National Health and Medical Research Centre, the UK Health Protection Agency and the US National Research Council, have concluded there is no published evidence to positively link wind turbines with adverse health effects.

Can wind turbine noise affect local residents?

Before it can operate, a wind farm has to demonstrate that noise levels at neighbouring residences will meet strict noise limits. These limits are designed to ensure that noise from a wind farm is not intrusive for the average person.

Will the project reduce air quality?

Monitoring of dust levels during construction is a basic requirement of each project. Dust generating activities are assessed during windy conditions and are stopped and rescheduled where adequate control of dust generation cannot be achieved.

Visual observation of machinery is undertaken during site inspections in addition to daily pre-start checks which ensure all machinery has appropriate emission control devices, is in good working order and is maintained correctly.

Is cultural heritage taken into consideration?

Neoen complies with all legislation, including laws regarding the protection of cultural heritage. A cultural heritage assessment forms part of initial studies as does consultation with local Indigenous groups to ensure cultural heritage is protected.

Can wind turbines impact aircraft fly zones?

Low flying aircraft are required to fly by sight. Wind turbines are large and clearly visible. All wind turbines and met masts will be registered with the relevant aviation authority according to aviation requirements.

How Neoen address the construction traffic impact?

Neoen will carry out a detailed assessment of the access road's suitability and upgrade requirements including a survey of the road to accurately map out the existing road and where any upgrades or road widening may be required. Any access road to be used will need to be suitably upgraded to handle construction traffic, and Neoen will comply with obligations set out in planning conditions relating to road upgrades and maintenance. This will be done in consultation with neighbouring landowner and regional councils.

Can turbines induce Electromagnetic Interference and disrupt Telephone communication/ Internet?

To address this matter, an Electromagnetic Interference (EMI) Study has been completed, and actions will be taken according to the results to avoid mobile phone and internet disruptions. Neoen will comply with all obligations set out by the State in their Decision Notice, relating to pre and post construction assessments of television and radio reception strength to identify if the Project has had a negative impact, and to implement measures to address this.

Environment

Do wind farms impact on flora and fauna?

Neoen engages specialist consultants to undertake detailed flora and fauna surveys to determine the ecological attributes of the land.

On all of our projects, we aim to minimise the impact on flora and fauna by designing projects to be constructed outside areas of high conservation significance and adopting control measures during the construction process. During the detailed design, wind turbines will be micro-sited to minimise the potential impact on fauna habitat with turbine heights selected to minimize the overlap between rotor swept area and bird flight heights.

Other mitigation measures include preparing management plans, identifying 'no-go zones' within the project site and conducting pre-clearance surveys. Neoen also consults with government departments of environment and biodiversity throughout the development, construction and operational stages of projects, as well as local non-government organisations.

Do wind turbines affect farm/ domestic animals?

Stock including sheep and cattle take a couple of days to get used to wind turbines, and then are very comfortable with them – they rub up against turbines and use the shade from the towers during summer.

Do wind farms harm birds?

While wind farms are sometimes accused of threatening birds, an energy governance study completed in Singapore has shown that wind farms harm 17 times fewer birds per unit of electricity produced than fossil fuel generation.

Studies show that wind farms are probably responsible for impacting birds at rates that are:

- 400 times fewer than cars
- 500 times fewer than pesticides
- 1200 times fewer than high-tension wires.

Which actions does Neoen take to tackle the potential spread of weeds with increased traffic?

In accordance with the Construction Environmental Management Plan (CEMP) requirements, Neoen will do pre and post construction weed survey for the disturbance footprint plus a buffer of 5m. Any identified weeds in the disturbance footprint will be removed or treated prior to any ground disturbance works commence. There will also be a detailed weed management plan in place for study area.

Moreover, in accordance with the Environmental Protection and Biodiversity Conservation Act (EPBC) Neoen will implement a vegetation management plan taking weeds in account. The management of weeds within the disturbed footprint, including rehabilitation areas will continue for up to two years post construction or until weed presence cannot be detected.



Bushfire mitigation

How are bushfires considered in development?

Neoen undertakes risk assessments and will prepare a bushfire management plan during development. The residual risk of a fire because of a wind turbine is very low.

What measures will be taken to reduce the risk of fire?

Location: the turbines are on cleared construction pads that reduce the available fuel load.
Lightning protection: the turbines are equipped with devices that reduce ground strikes that might otherwise start a bush fire.
Continuous monitoring: Neoen maintains a 24-hour control room in Canberra, which monitors the wind farm and can turn off the turbines remotely, in addition to the local maintenance staff and technicians.

Will wind turbines prevent aerial fire fighting?

Authorities also do not consider that turbines pose unique issues in aerial fire fighting. Pilots view turbines as no different from tall structures and hazards such as power lines, transmission towers, radio masts, mountains and valleys; turbines are simply another piece of infrastructure in the environment that needs to be managed on a risk basis when fighting fires.

Is there any potential for the wake turbulence from wind turbines to influence fire behaviour?

Local wind speeds and direction are already highly variable across landscapes affected by turbulence from ridge lines, tall trees and buildings.
Additionally, Neoen will shut down the turbines in the event of a fire.

NARROGIN

WIND FARM



narroginwindfarm.com.au



CJ Murray, Project Manager
Rhys Williams, Project Manager



contact@narroginwindfarm.com.au



1800 966 104