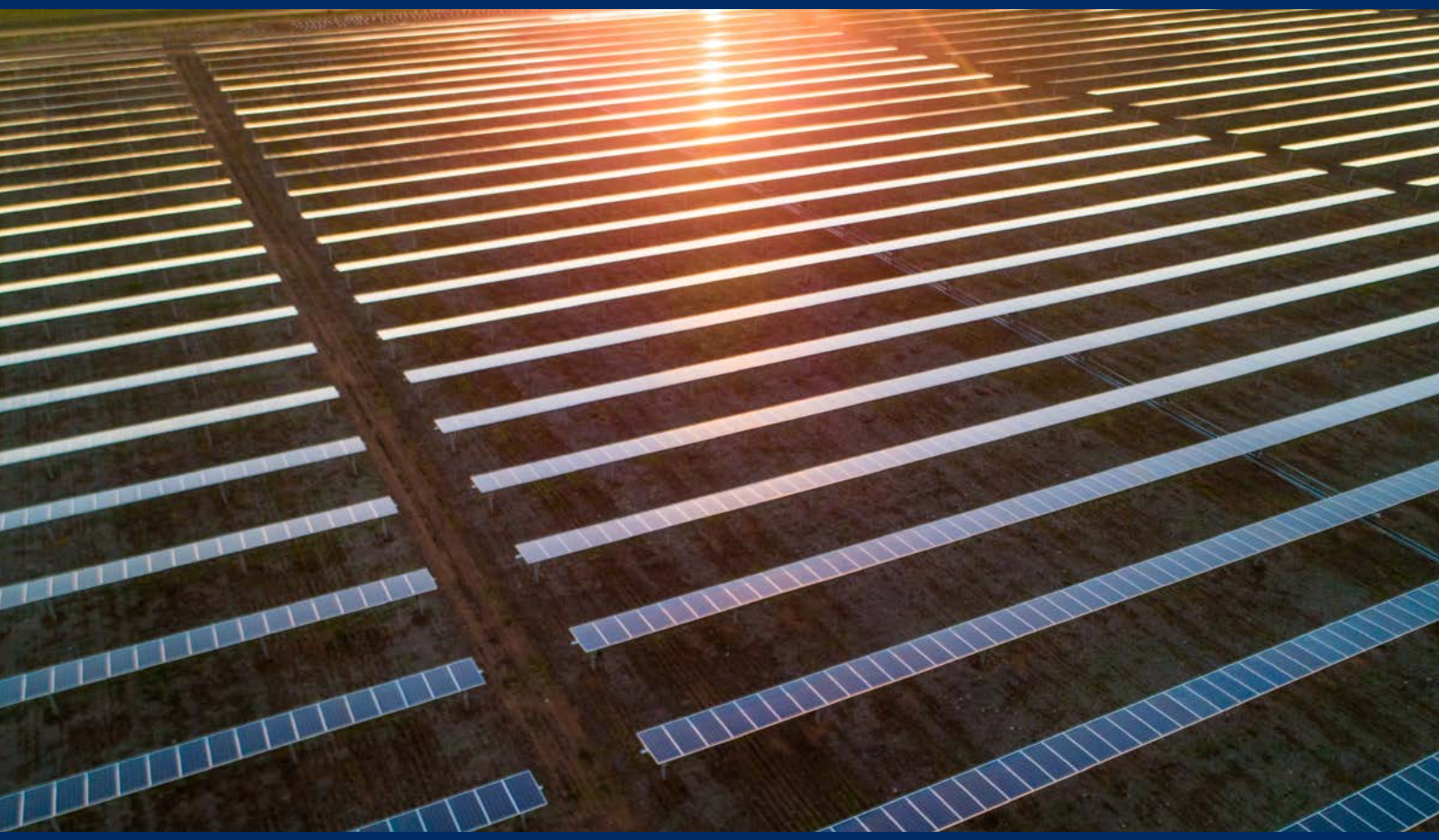
CULCAIRN
SOLAR FARM



Community Information Booklet

September 2023

NEOEN

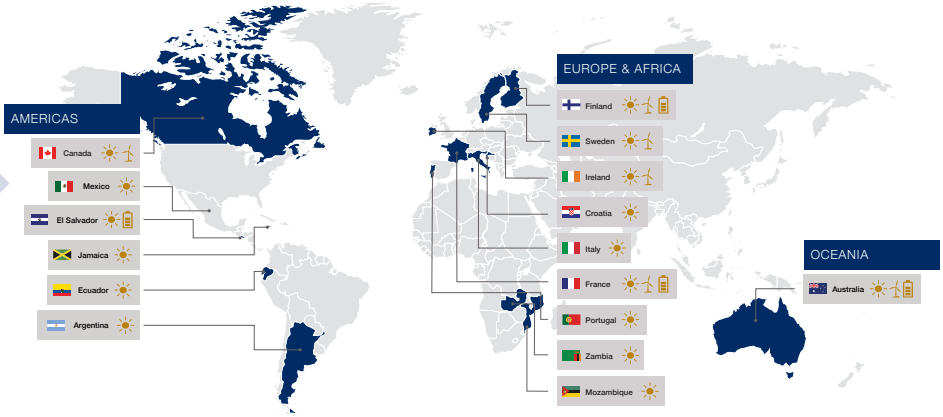
NEOEN

GLOBALLY

The company is head quartered in Paris, France, and has seven Australian offices in Brisbane, Sydney, Canberra, Melbourne, Hobart, Adelaide and Perth.

We operate across renewable energy technologies including solar, wind and storage in Europe, the Americas, Africa, and Australia.

Neoen's total capacity in operation and under construction is over 7 GW and we are aiming for 10 GW by the end of 2030.



LOCALLY

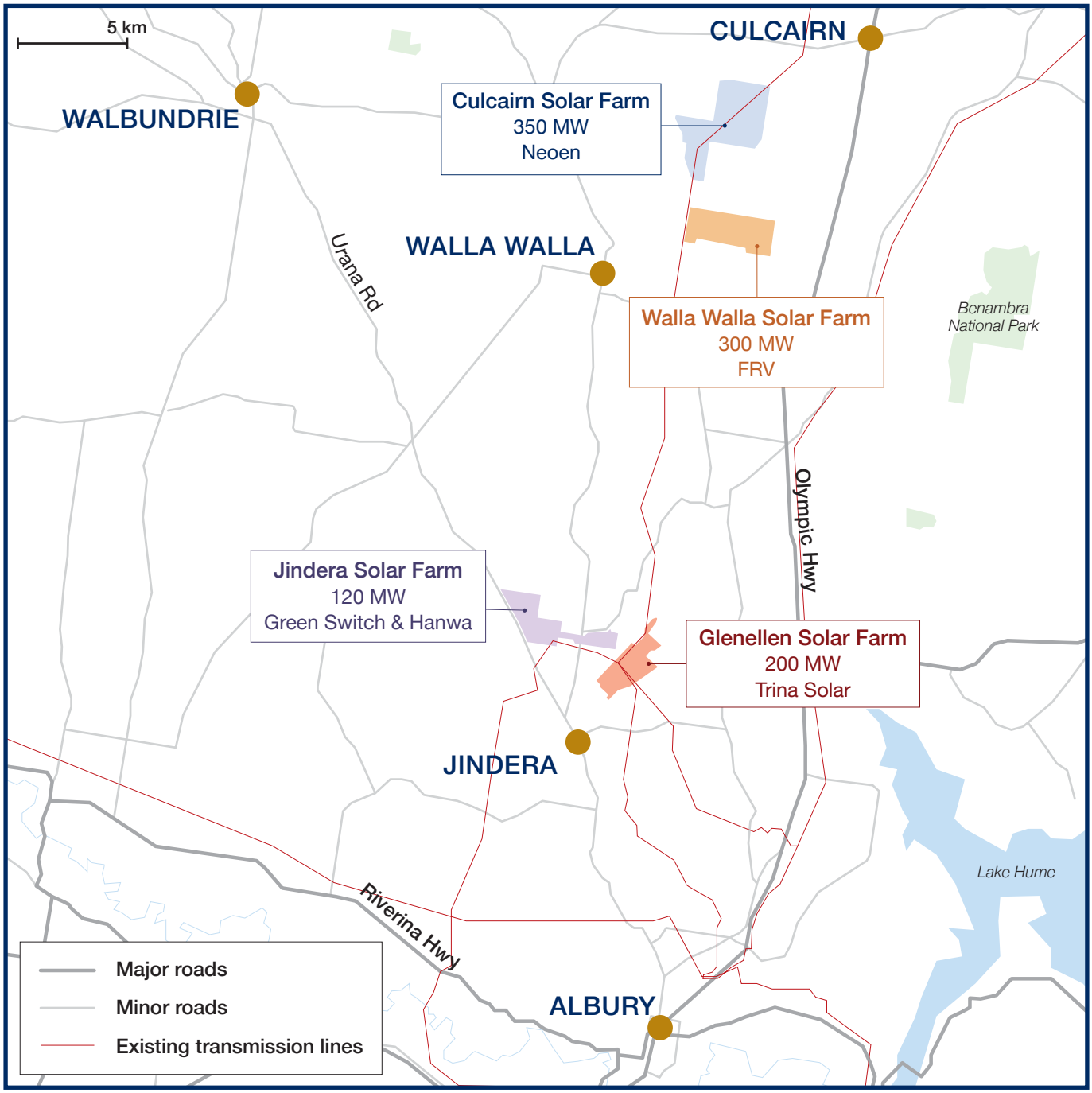
Neoen Australia began operations in 2012. Over the last eleven years, the company has initiated the development of over 3.3 GW of solar, storage and wind projects through organic growth, local partnerships and strategic acquisitions.

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

PROJECT OVERVIEW

The Culcairn Solar Farm is a 420 MWp (350 MW AC) renewable electricity project comprising solar arrays near the town of Culcairn, New South Wales.

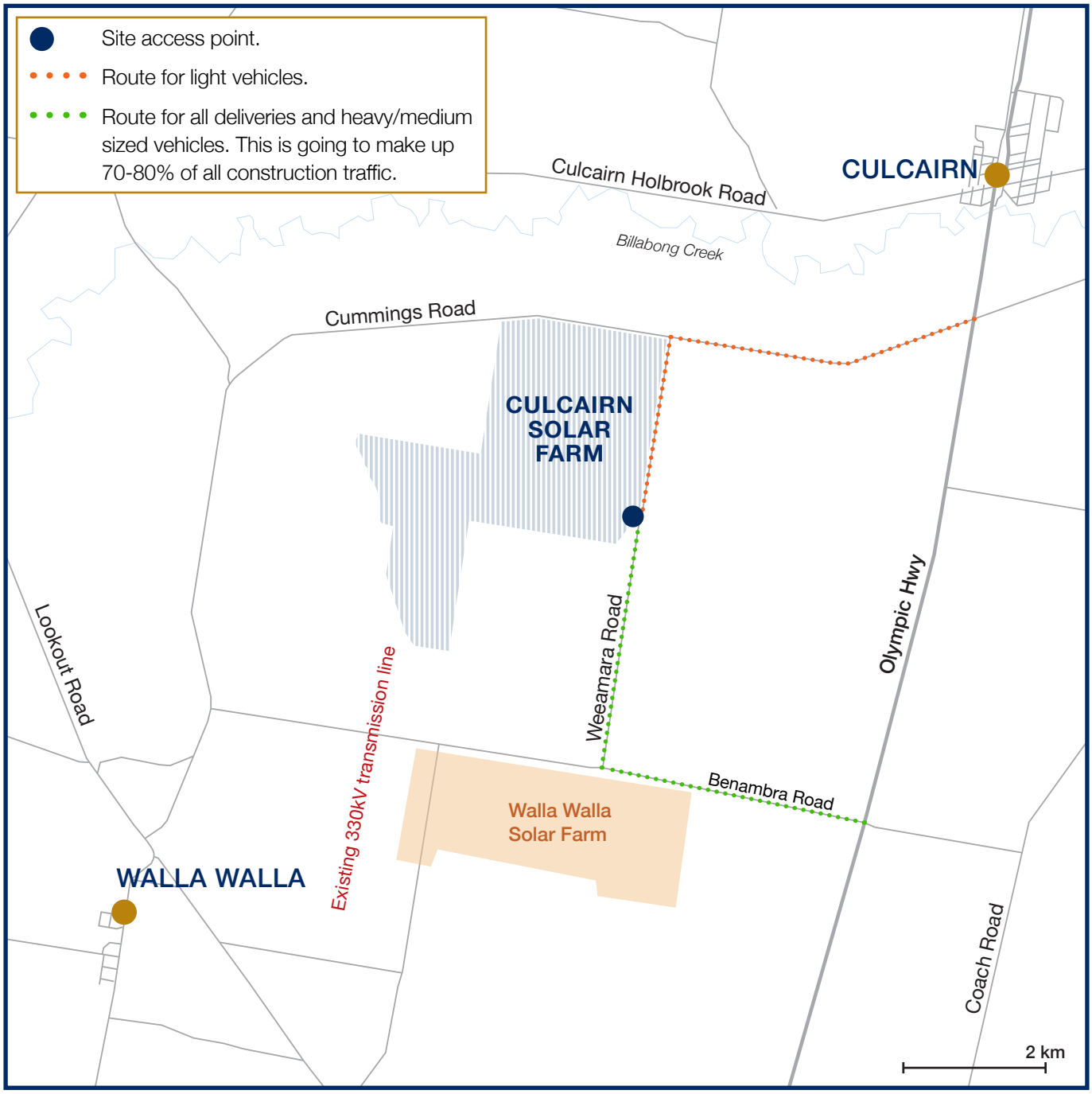
The Culcairn Solar Farm is located in the South East Riverina Region of New South Wales, approximately 45km north of Albury and 70km south of Wagga Wagga.



TRANSPORT ROUTE

The Project will be overbuilt (420MWp), in order to maximize the hours of the day in which 350MW can be exported to the electricity grid.

The 350 MW project will span across 1,000 hectares of land and connect into the on-site 330kV TransGrid Electricity Line.

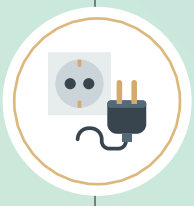


OUR TEAM

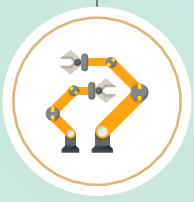
NEOEN

Developers, Owners & Operators
Construction Manager
Community Liaison Officer

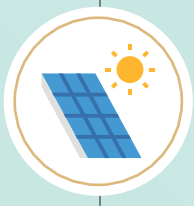
Engineering, Procurement & Construction (EPC) Contractor
To be confirmed in October
Overall control of the site, managing deliveries of equipment and design of the battery.
Construction Manager
HSE Manager



Electrical Subcontractor
Electrical installation of AC and DC cable systems and PV module cables.



Civil Subcontractor
Site establishment, road and drainage works.



Mechanical Subcontractor
Mechanical installation of the PV panels and tracking system.

EMPLOYMENT OPPORTUNITIES

Engineering, Procurement & Construction (EPC) Contractor

Administration | Security | Waste Recycling | Health & Safety

Electrical Subcontractor

Electricians
Electricity installation
Electrical Trade Assistants

Civil Subcontractor

Loader
Excavator
Grader
Roller
Dump Truck
Watercarts
Concreters
Pipe Layers
General Labour

Mechanical Subcontractor

Pile driver
Forklift and/or Telehandler
Trucks
General Labour

SUPPLIER OPPORTUNITIES

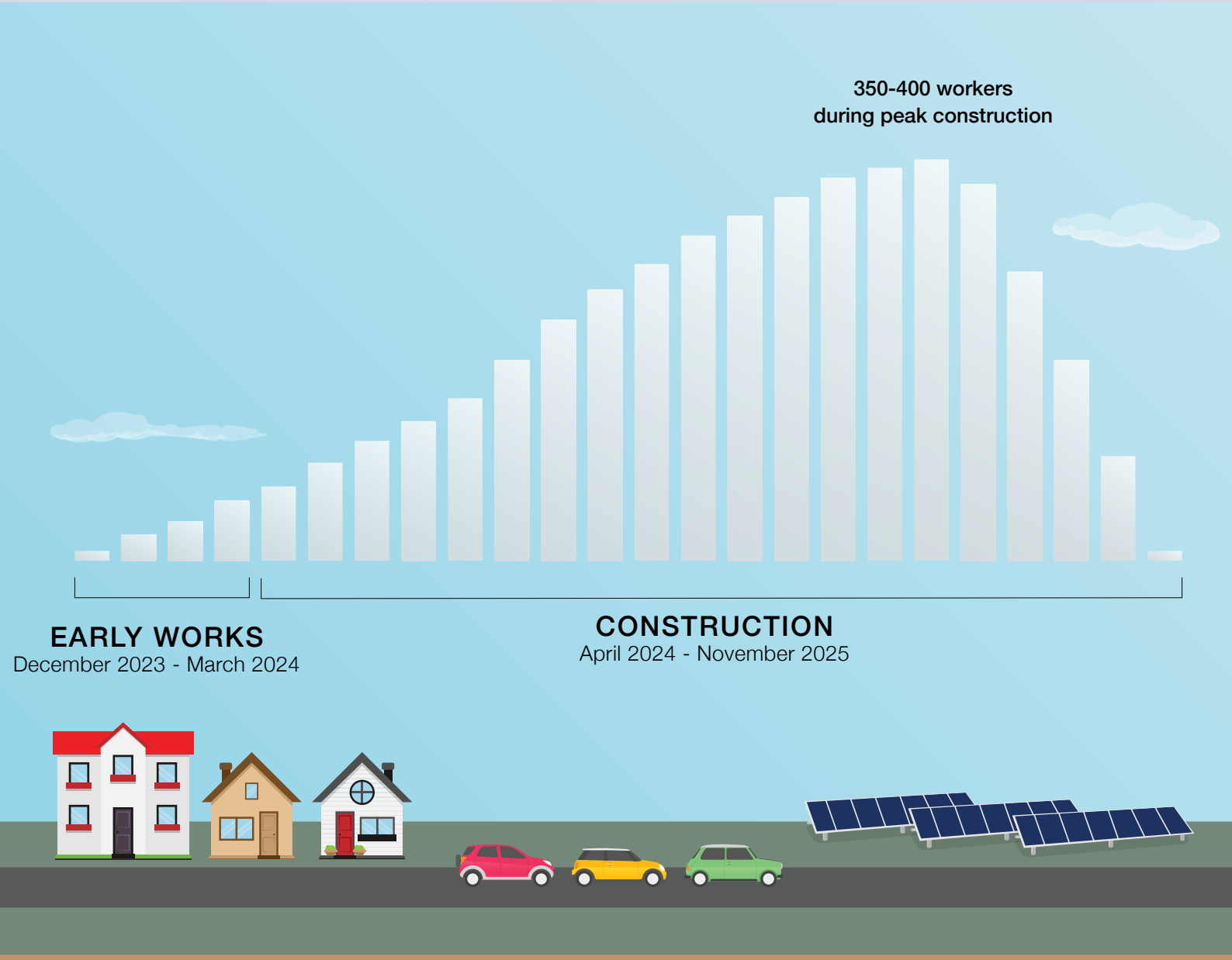
Goods and services we expect to be procured:

Accommodation
Safety Products (Local)
Cleaners
Computer Network Support
Concrete Supply (Offsite Supply)
Concreters
Construction
Crane (Minor Lifts)
Earthworks Plant (Wet and Dry Hire
Fencing and Gates
Food and Catering Service
Freight
Fuel
Material Testing
Mechanical Fitter/Maintenance
Quarry Products
Operation & Maintenance Facility
Septic Pump Out Services
Small Equipment Hire
Transport (Minor)
Waste Management (Liquid)
Waste Management (Solid)
Water (Construction)
Water (Potable)
Welding & Engineering Fabrication
(Site Services)

Anyone interested in working on the project, can register their interest via the **'work with us' page on the project website**.

If you have any questions about work opportunities, email **contact@culcairnsolarfarm.com.au**.

WORKFORCE



The workforce is expected to fluctuate during project phases, and peak at around 400 workers during 2024-2025.

Workdays:

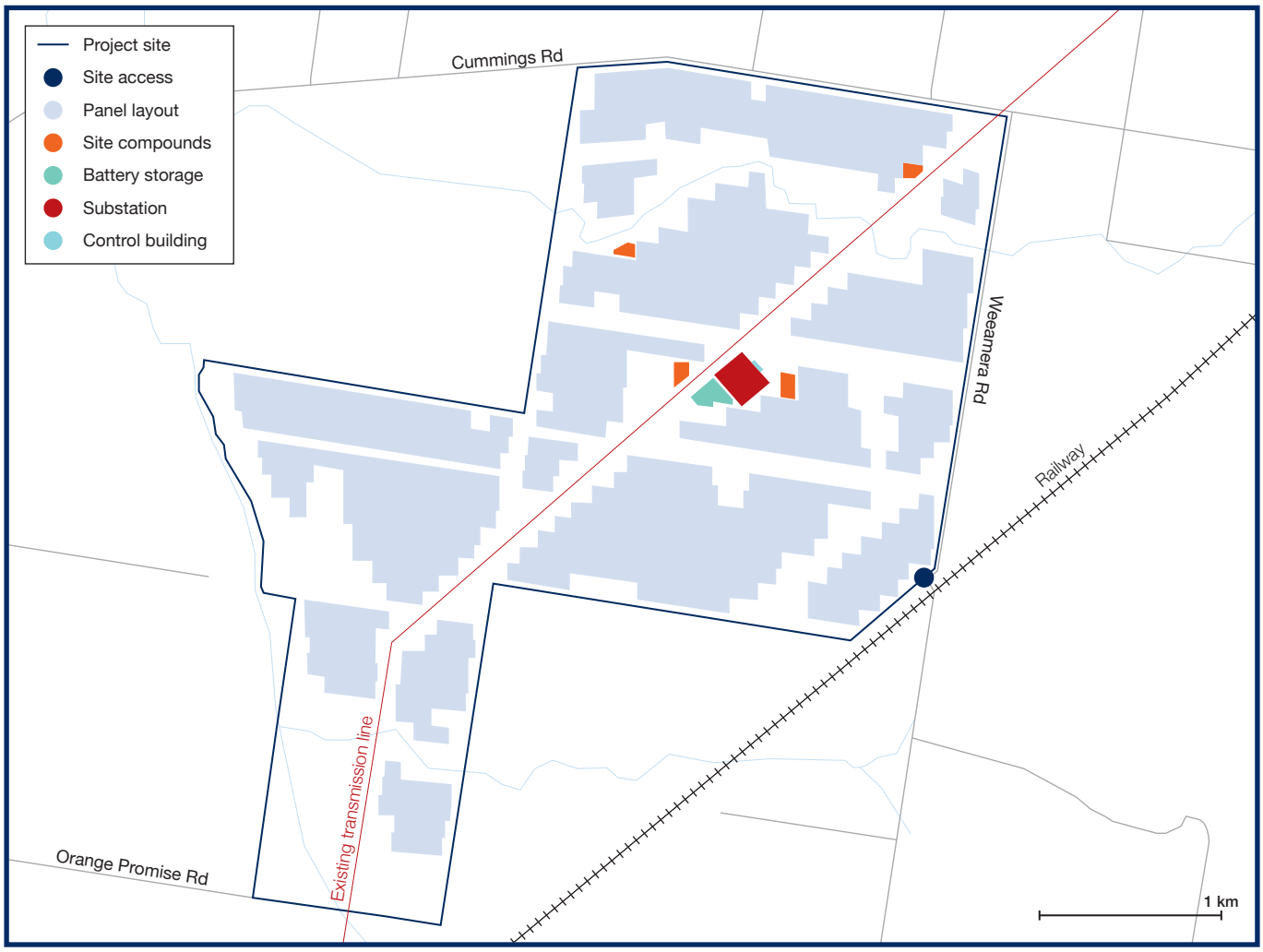
7:00am to 6:00pm Monday - Friday

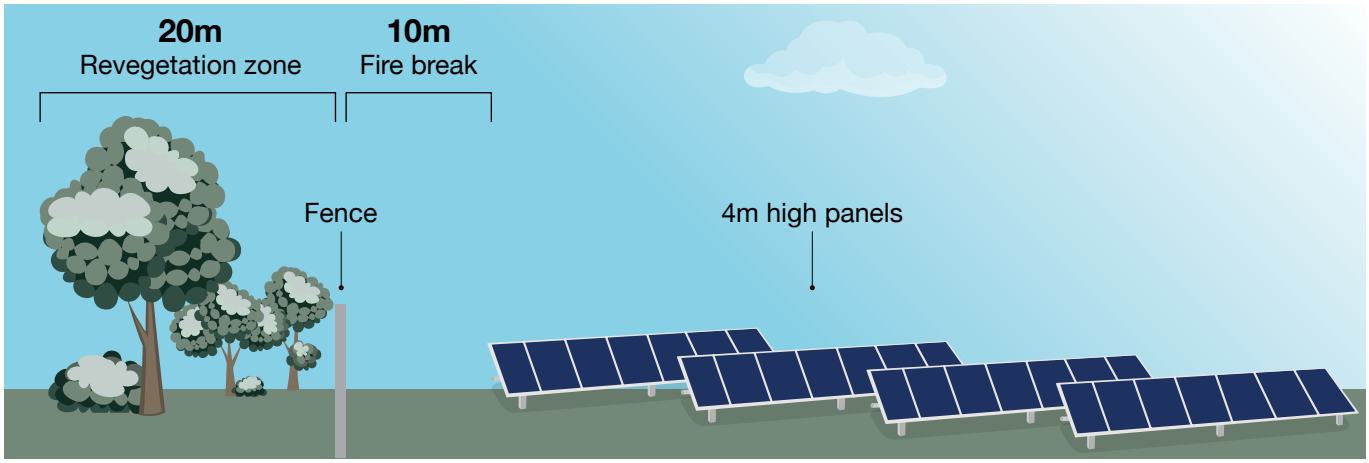
8:00am to 1:00pm Saturdays

No work on Sundays or Public Holidays

Deliveries may occur outside these hours with approval from the NSW Department of Planning.

APPROVED LAYOUT & PROTECTION ZONE





WHAT TO EXPECT DU

1 Early works
- Any required public road works
- Contractors are tendering work packages
- Establishment of the temporary construction compound
- Site clearing and levelling commences
- Tree planting

~3 months

Community:
We will provide regular community updates via email and newsletters.

CONSTRUCTION

2 Piling and substation works
- Cable laying and inverter footings commence
- More construction staff will be in town, local service economy will see increase
- Commence civil works for substation bench

~3-4 months

3 Module and tracker installation
- Inverter installation to follow
- Construction force ramps up with many general labour roles for mechanical install of trackers and PV modules

2 months

RING CONSTRUCTION

4 **Electrical connection of PV modules commences**

- Initial commissioning of first completed inverter stations
- Workforce at peak with most workfronts working simultaneously
- Installation of cables from arrays to switchroom

~4 months

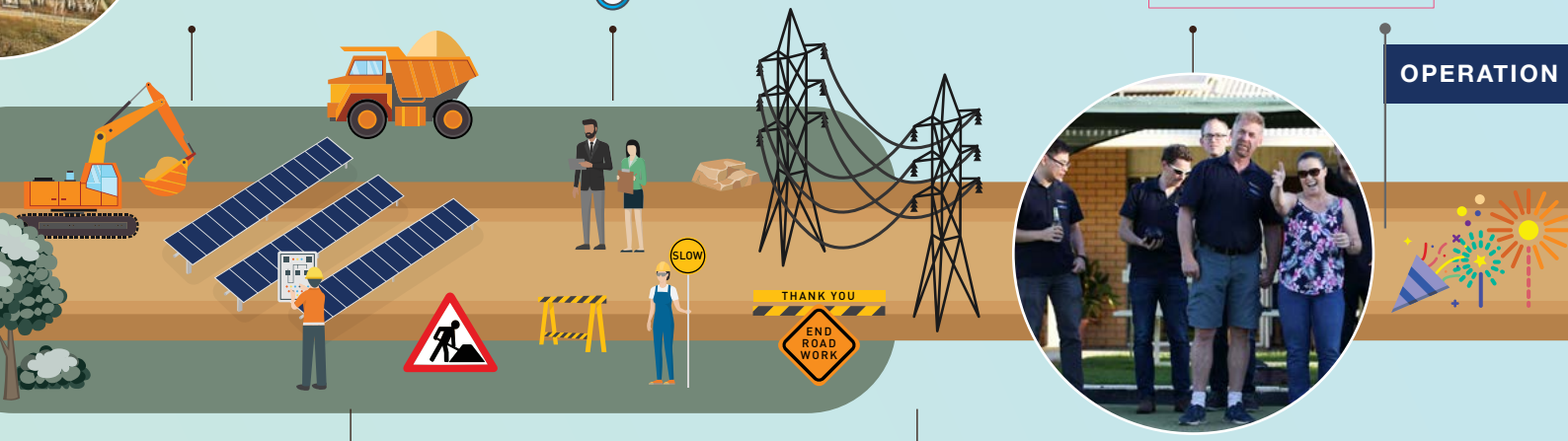
6 **Testing & accreditation**

- The workforce will begin to reduce
- Main construction activities are completed
- The plant undergoes testing and connects to the grid

3 months

Community:
A project launch party is held and the community is invited to attend.

OPERATION



5 **Module installation complete**

- Cleaning up of site
- Punchlisting
- Rehabilitation of site commences

2 months

7 **Commence operations**

- Plant is ready to charge and discharge at full capacity
- Site is handed over to the operations team

20 years

CULCAIRN
SOLAR FARM

ECONOMIC BENEFITS

$400-500 MILLION
INFRASTUCTURE
INVESTMENT

350-400 JOBS
DURING
CONSTRUCTION

~22 MONTHS
CONSTRUCTION
DURATION

5-10 JOBS
DURING
OPERATIONS

ENVIRONMENTAL BENEFITS

ABILITY TO PRODUCE
895,000 MWh
PER YEAR WHICH IS EQUIVALENT TO:

DISPLACING
648,000 TONNES
OF CO_2 EMISSIONS

POWERING
155,000 HOMES

REMOVING
18,135 CARS
FROM THE ROAD

PLANTING
6,642,000 TREES

COMMUNITY BENEFITS

Construction disruption payment

Payment made to qualifying neighbours at the start of construction.

Community benefit fund

We allocate funds to local community projects such as sports, clubs, tourism and heritage via a yearly grants process.

Voluntary contribution

Voluntary contribution paid to council in the Greater Hume Shire.

Tell us your ideas

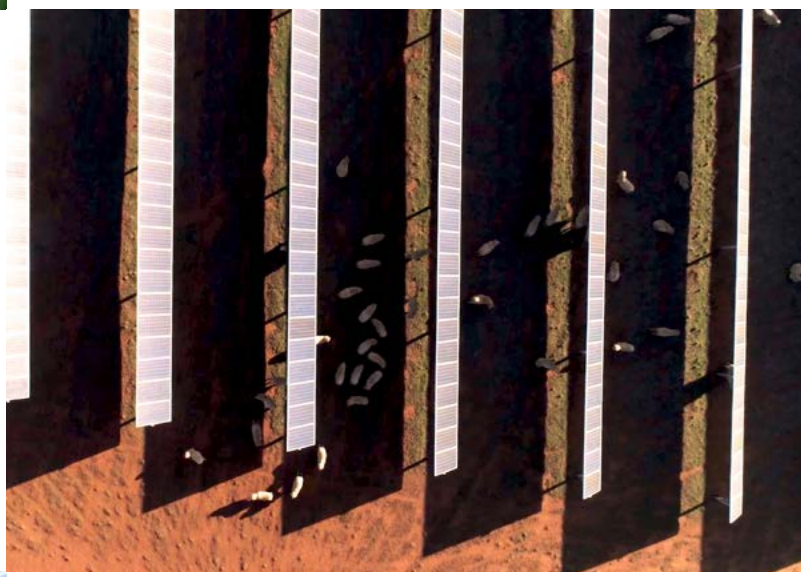
To submit your ideas, please fill out our online survey via the **Your Feedback button** on our website: culcairnsolarfarm.com.au/local-benefits

COMBINING AGRIC

2017 PARKES TRIAL

Our first sheep grazing trial was conducted at Parkes Solar Farm in 2017 during a high rainfall and high produce year. It was a joint exercise between Neoen, local landowners and solar construction company Bouygues.

The 3 week trial involved 400 sheep within a 15 hectares zone to help reduce dry grass under the solar panels in order to manage grass fire hazard. It successfully showed that this combined land use had positive outcomes for farmers and solar operators.



2019 EXPERT REVIEW

By 2019, sheep grazing began on all five of our operating solar farms in NSW and VIC. These were assessed by an independent grazier expert to document existing practices and make recommendations on how to integrate grazing into each stage of the solar farm's lifecycle.

> *"No change to the grazing productivity potential is expected…compared to as if the land did not host panels...climate conditions are identical except that concentrated water occurs along the edges of the trackers with the potential of allowing for concentrated feed growth."*
>
> – Phil Graham, Livestock Specialist

ULTURE WITH SOLAR

2019 DUBBO AGRISOLAR

Tom Warren, host landowner at Dubbo Solar Hub has been grazing sheep on the land under the panels since 2018 and has learnt from this experience about how to make this work well.

Watch his video interview at: dubbosolarhub.com.au/learn

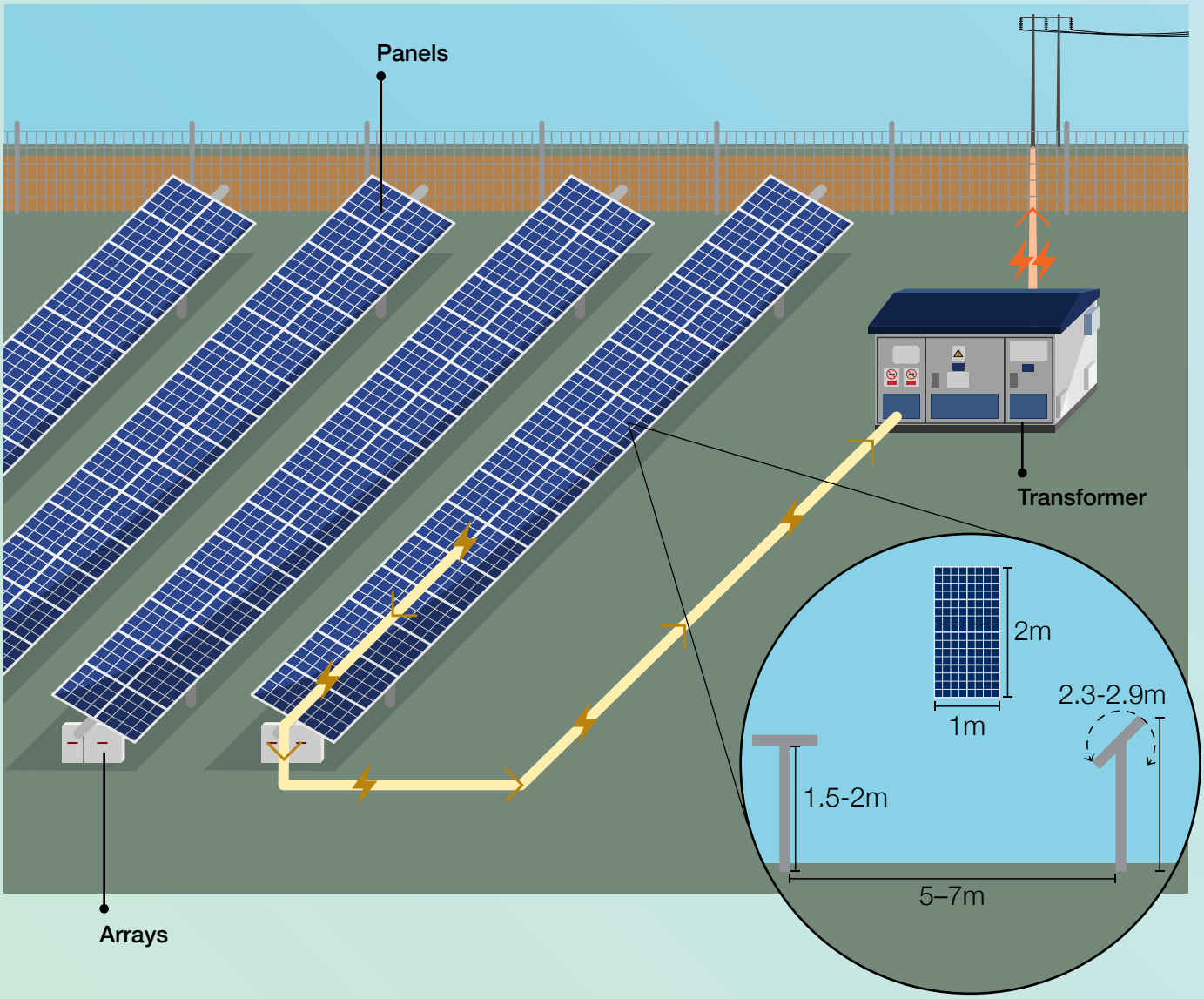
> *There are no issues with sheep-grazing co-existing with solar farms. Providing you have the right breed of merino or merino-cross and get stock numbers right, you can reach at least 80% of normal stocking rates. It's an opportunity and a win-win for farmers and renewable energy producers."*
>
> – Tom Warren, Farmer

CLEAN ENERGY COUNCIL

2020-2023 INDUSTRY REPORT & RESEARCH

We led an initiative with the Clean Energy Council to bring together research, case studies and lessons from across the industry into a ground-breaking Agrisolar Report which was launched in March 2021. The report guides and informs farmers, solar farm operators and government to integrate agriculture and solar. We are also collaborating with Agriculture Victoria who have been researching microclimatic conditions and pasture species under solar panels at our Numurkah Solar Farm in Victoria.

FREQUENTLY ASKED QUESTIONS



To learn more, watch a video from our Learning Hub website:

Topics include “how can sunlight charge my phone?” And “how can solar energy power the night?”

ABOUT SOLAR FARMS

Q1. How does solar generation work?

Solar PV cells generate electricity by absorbing sunlight and using that light energy to create an electrical current. Inverters convert the accumulation of electricity from a selection of solar panels from DC to AC power and at the substation the voltage is stepped up for distribution to the grid. The angle at which the light hits the panel relates to the amount of energy that can be harvested from it, which is why tracking systems help to optimise solar generation.

Q2. How long does it take to build a solar farm?
The construction time frame depends on the project size and the number of workers deployed on site. For a 400 MW power plant, an 18 to 22-month time frame is typical, with a peak construction period of 2 to 3 months.

Q3. What technology does Neoen use to build its solar farms?
Neoen uses similar technology to that used in residential solar photovoltaic installations with the main difference being that panels are usually mounted on systems that track the sun through the sky. Culcairn Solar Farm will use premium quality solar panels and other technologies provided by leading manufacturers, selected through a competitive process. All components come with long warranty periods; solar panels and inverters are generally warrantied for 20 to 25 years.

Q4. What is the life cycle of a solar farm?
A solar farm will typically operate for between 25 and 30 years. Depending on the local environment, the panels can generate electricity for 30 years or more with only about 0.5% efficiency loss each year.

Q5. How does solar generation work?
When a photon of light shines on a solar panel, it knocks electrons free on an electrical circuit and produces electricity. Inverters are then responsible for converting this electricity into a form that can be exported to the grid. The angle at which the light hits the panel relates to the amount of energy that can be harvested from it, which is why tracking systems help to optimise solar generation.

Q6. How high are solar panels?
Most solar panels are 1m x 2m in size. Arrays of solar panels are usually 30, 60 or 90 m long. Rows of panels are separated by 5 to 7m. However, this can vary from project to project. The top of the panels will be up to 4 metres from the ground.

Q7. How do you stop the solar facilities from impacting our landscape?
We acknowledge that solar facilities do impact the look of the surrounding area and we work with communities to ensure they have the lowest possible impact including planting trees which will eventually provide a screening, Overall, we consider that the immediate and long-term benefits which solar farms bring to communities are greater than the visual impact it may have.

Q8. Will the solar panels generate glare?
Photovoltaic panels are designed to reflect as little light as possible (generally around 2%) in order to maximise their efficiency. This is why solar farms are not considered reflective and have been installed at or near number of airports.

Q9. What will happen at the end of a solar farm's life?
At the end of a solar farm's operational life, Neoen either refurbishes and re-energises the project, or decommissions it. If Neoen decides to decommission this solar farm, we will convert the site back to grazing/agricultural land.

Q10. What is your recycling policy?
Neoen is a long-term owner and operator and a committed project custodian and will establish circular procurement initiatives with its project partners to follow best practices in recycling and waste management. Components such as solar panels will be recycled – typically by the manufacturer.

Q11. Why are you building a solar farm here?
This site has been selected owing to some key advantages:
- its high solar irradiance,
- topography of the land,
- limited vegetation and impact to biodiversity,
- proximity to the transmission network,
- and availability to connect more energy capacity in this part of the network.

Q12. What steps have been taken to engage with the local community and stakeholders regarding the proposed solar farm? Have public consultations or information sessions been conducted?
We have been engaging with immediate neighbours and the community from early stages of the development process. We have engaged with the local branch of NSW Farmers, hosted a community drop-in session and been liaising directly with community members in small groups to respond to their questions. Before receiving approval on our Development Application, we also organised a bus trip for neighbours and interested community members to Neoen's Numurkah Solar Farm, and an on-site fire management workshop.

Q13. How will Neoen Australia address any concerns or feedback raised by the community regarding the solar farm?
We welcome local knowledge and feedback from the community on a range of topics including how they would like to see the project benefit-sharing program to be executed. You can submit your thoughts by filling the community feedback survey on the website.

Q14. Will the project include any community investment or benefit-sharing initiatives to ensure the local community directly benefits from the wind farm's presence?
We believe in sharing the benefits of renewable energies with the communities we operate in. Neoen Projects have a community benefit sharing program. This will provide meaningful benefits to communities surrounding the Culcairn Solar Farm. We welcome feedback from the community on how this program can be executed. Please let us know your views by completing the survey on our project website.

ECONOMY

Q15. Do solar farms benefit the Australian/local economy?
Each project benefits the local community by creating employment opportunities. At Neoen's Culcairn Solar Farm, approximately 300-400 people will be employed locally during the construction phase and 5-10 people will be employed locally in full-time, permanent positions during the operations phase. Neoen in collaboration with its project's engineering, procurement and construction (EPC) contractor provides opportunities for local suppliers to submit tenders and local job-seekers to seek employment. A local employment information session is hosted by the team in a community hall / venue before construction works begin. In addition, Neoen will establish a community benefit sharing program to fund local projects. Media reports also indicate that farmers can drought-proof their businesses through hosting solar as an additional income stream.

Q16. How much do renewables cost compared with other energy sources?
Wind and solar are the cheapest form of new energy production. The transitioning energy system needs a mix of wind, solar and storage and transmission.

Q17. Who pays for any transmission upgrades required?
Neoen pays for any 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.

Q18. Do solar farms result in a decrease in electricity prices?
Solar energy forms just one part of the Australian Energy Market Operator's (AEMO) move towards a zero-emission grid. Solar farms add to the supply side of the electricity supply-demand equation, which puts downward pressure on all electricity bills.

Q19. 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 generated by our projects.

Q20. 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.

Q21. Who is going to be liable for the removal of the plant and equipment should the company fail financially?
Neoen has a strong balance sheet with over $1bn in cash and strong earnings, and listed on the European stock exchange. There is residual value in the infrastructure which will offset the cost of any decommissioning. The solar farm can be resold and operated by a third party.

ENVIRONMENT

Q22. Do solar 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.

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.

Q23. Do solar farms affect farm/domestic animals?
Neoen owns and operates the Coleambally, Dubbo, Griffith, and Parkes solar farms on multiple properties in New South Wales. We have sheep grazing on all of these solar farms. Sheep take a couple of days to get used to the site, and then are very comfortable with them – they use the shade from the solar arrays for shade during summer.

Q24. How is any potential fire risk managed?
There is a cleared vegetation zone around the edges of the solar farms to prevent fire propagation and vegetation levels are maintained according to regulations. Neoen ensures there is robust design and commissioning practices on its solar farms. This can be in the form of automatic fire suppression installation where appropriate, water storage on site for dedicated fire suppression. Engagement with local fire services is also an important element of bushfire preparedness.

Q25. Has there been any studies done on soil health and fertility under the solar farm panels?
A recent study commissioned by Agriculture Victoria studied soil conditions underneath a utility scale solar farm with single axis tracking. The study hypotheses that the installation of solar panels had no negative effects on soil

or climate characteristics below/around the panels was largely supported and concluded the following:

- Analysis of the data revealed that only subtle differences in temperature and humidity are found within the panel array compared to outside, and that these differences only occur at certain times and conditions;
- Directly under the panels, cooler soil temperature was observed under the panel centre due to the shadow cast by the panel tracking the sun. This contrast only occurred during the summer months.

Q26. How much water is used to clean solar panels and is this an expensive process?

The expense of the cleaning process and the amount of water used can vary widely depending on the size of the solar farm, the local climate (rainfall received in the region) and the cleaning technology employed.

How can I find out more about solar farms and their impact on agricultural production?

The Clean Energy Council, industry association for the renewables sector, published the "Australian Guide to Agrisolar for Large-Scale Solar" in March 2021. You can learn more by reading this guide on their website.

HEALTH & CULTURE

Q27. Are there any health risks associated with solar farms?

Solar panels are deployed on more than 25% of Australian homes and have been deployed for the past 10 to 15 years on people's homes across the world. No health issues have been associated with solar panels and the Culcairn Solar Farm would use the same type of technology. High voltage infrastructure would remain along the existing transmission line and would not increase health risks.

Q28. Can solar farms' noise affect local residents?

Solar farms create no noise during operations.

Q29. 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.

Q30. 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 First Nations peoples to ensure cultural heritage is protected. The Traditional Owners of the land on which Culcairn Solar Farm will be located are the Wiradjuri people. Neoen has drafted a Cultural Heritage Management Plan in consultation with Wiradjuri representatives and will continue to work with them across the construction and operational stages.

CONSTRUCTION

Q31. During construction, what is the average number of vehicle movements daily? And how many may occur during peak construction?

A maximum limit of 100 heavy vehicle movements in a day will apply on Culcairn Solar Farm during construction. We anticipate reaching this limit only during the 2-3 month peak construction period, the traffic volume would be lower outside this time.

Q32. Are cables (overhead or underground) installed at the same time of any road upgrades?

No overhead or underground transmission lines need to be installed off-site since our solar farm will connect into the existing transmission network from a new on-site substation.

Q33. Where is the main site compound located?

The site entrance will be off Weeamera Road. A site office will be built near the middle of the solar farm.

Q34. What impact can be expected during construction?

Some of the changes that may be noticeable during construction relate to:

- Increased traffic on public roads (Weeamera and Benambra Roads)
- Traffic on-site and noise from piling works
- Upgrades to any access roads to ensure they can handle construction traffic.
- Increased dust due to civil works on-site

Q35. How will Neoen address the construction traffic impact and road upgrades?

Neoen is carrying 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.

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. Neoen pays for any road upgrades or repairs caused by or for building its project. A traffic management plan has also been drafted in consultation with the Greater Hume Shire Council, Transport for NSW, and other relevant stakeholders in order to address the impacts from construction traffic.

CULCAIRN
SOLAR FARM

culcairnsolarfarm.com.au

Alexis Good, Development Project Developer

contact@culcairnsolarfarm.com.au

1800 966 122