

BLYTH BATTERY

Construction Information Booklet

NEOEN



blythbattery.com.au



George Schinckel, Construction Manager



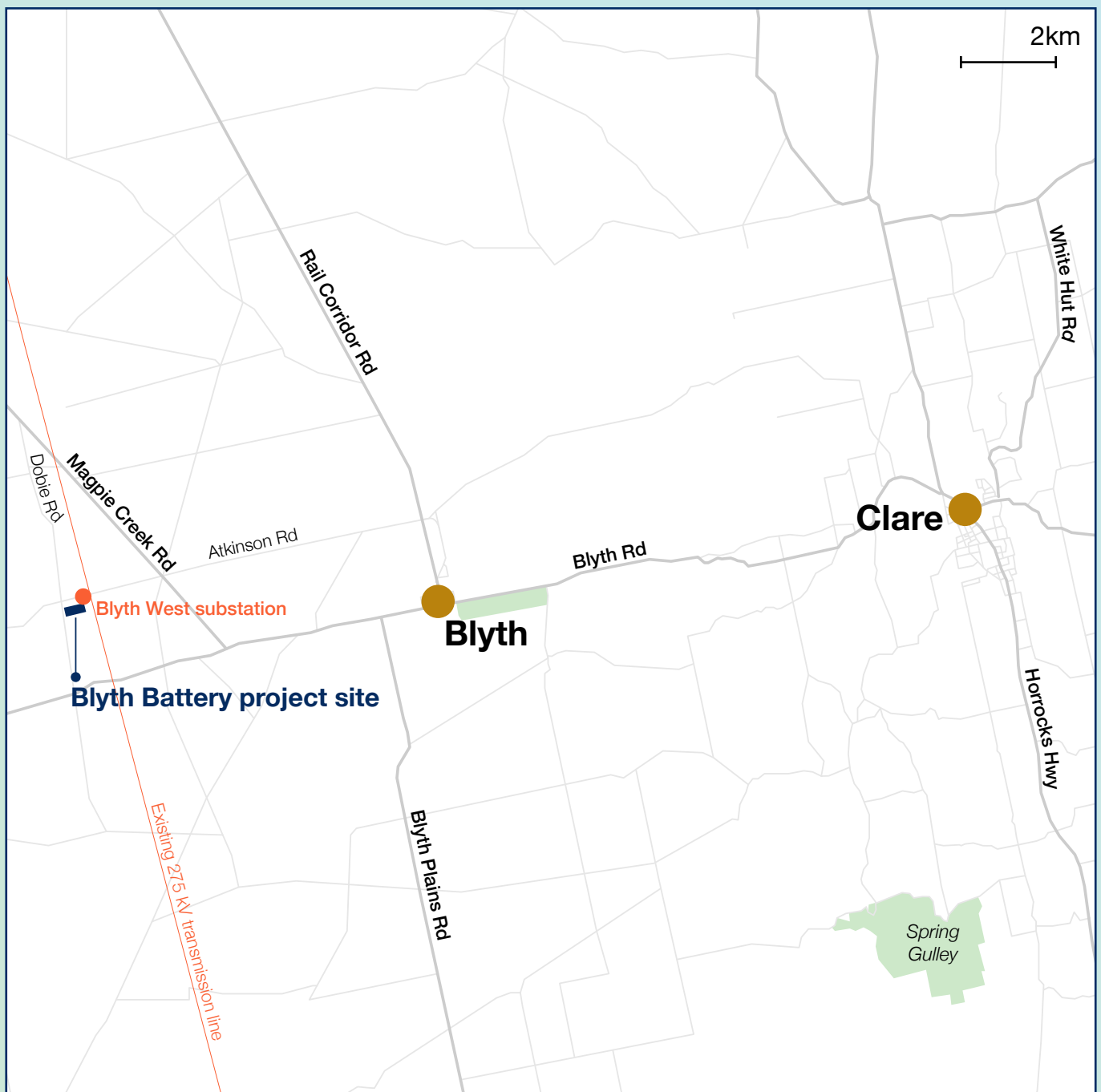
contact@blythbattery.com.au



1800 966 101

PROJECT OVERVIEW

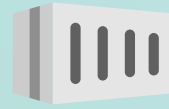
Blyth Battery will be located approximately 7.5 km west of Blyth in South Australia's Mid-North region. It will connect into ElectraNet's existing 275 kV network. It will be located directly adjacent to the existing ElectraNet Blyth West Substation.



FACTS & FIGURES

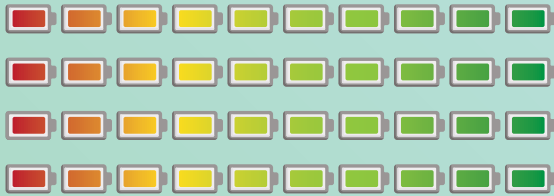


200 MW
power capacity



400 MWh
energy storage

an industrial amount of energy,
discharges quickly on demand



Up to
40,000x
more capacity than a household battery

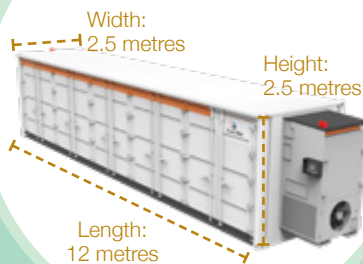
BATTERY TECHNOLOGY

Battery packs are enclosed in custom designed, dust and waterproof 'cabinets' made of galvanised steel. Cabinet colour is white or light coloured to assist with heat management and each cabinet has its own internal thermal management system.

Will conform to electricity industry standards

Will use an industrial inverter to convert DC power to AC when discharging (vice versa when charging)

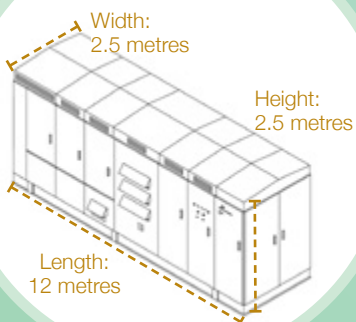
Battery cabinet



Likely to be lithium-ion battery packs enclosed in steel cabinets, similar to shipping containers

Will meet all safety and bushfire risk requirements

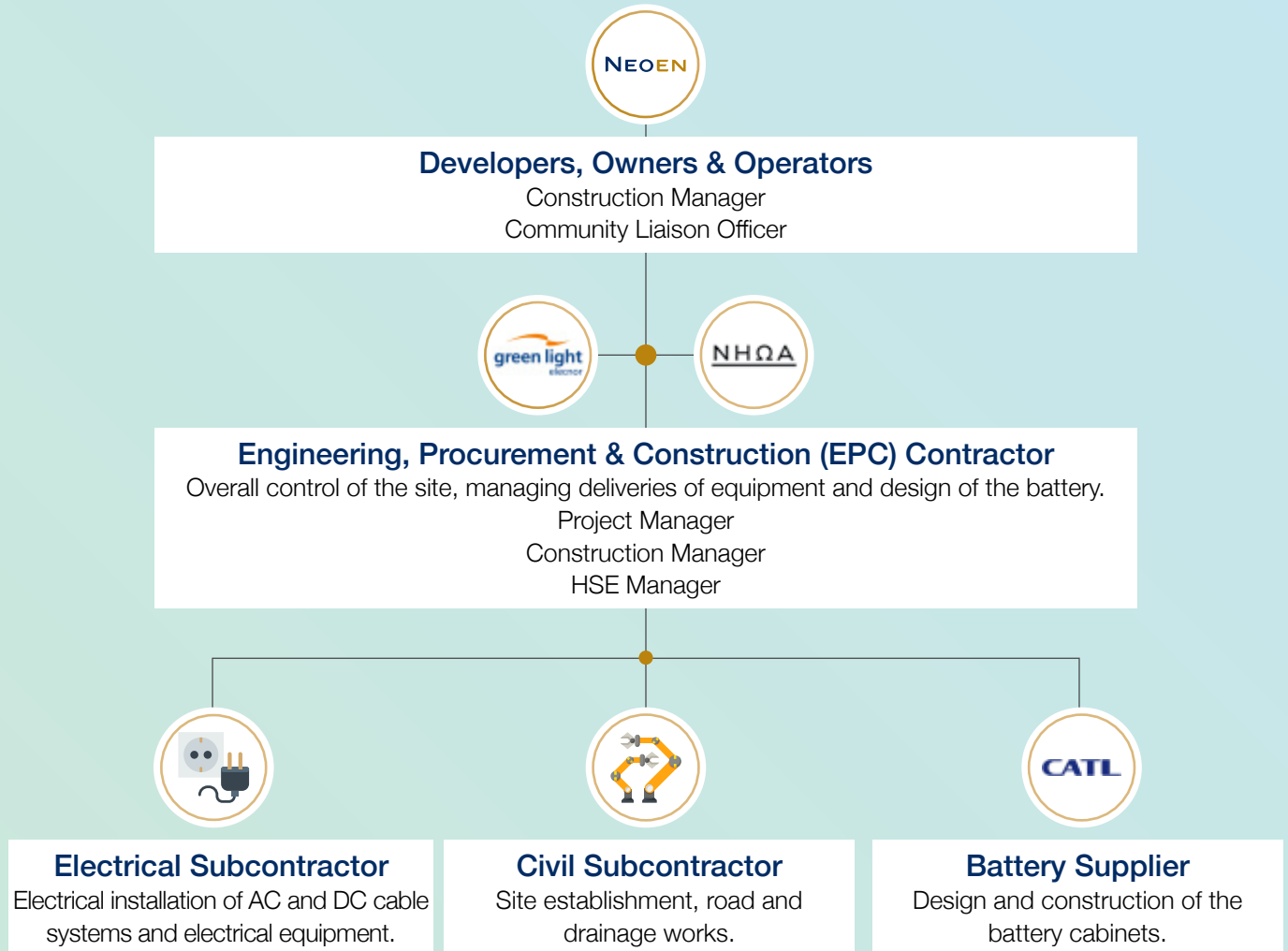
Inverter



A power inverter changes the stored DC power from the battery into conventional AC power.

Inverters are made from galvanised steel, and may exist as one single 20ft container or a few outdoor cabinets on concrete slabs.

OUR TEAM



Contacts

Neoen

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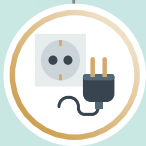
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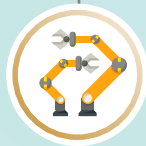
EMPLOYMENT OPPORTUNITIES

ENGINEERING, PROCUREMENT & CONSTRUCTION CONTRACTOR



Electrical

Electricians
Electrical Trade Assistants



Civil & Mechanical

Civil	General Labour
Concreters	Grader
Dump Truck	Loader
Excavator	Mechanical Fitter
Foreman/ Supervisor	Roller
Forklift and/or Telehandler	Trade Assistant
	Trucks
	Watercarts



Substation

Administration
Equipment Maintenance

SUPPLIER OPPORTUNITIES

Goods and services we expect to be procured:

Accommodation
Cleaners
Crane (minor lifts)
Concreters
Concrete supply (offsite supply)
Earthworks plant (wet and dry hire)
Fencing and gates
Food and catering service
Freight
Fuel
Material testing

Mechanical fitter/maintenance
Operation and maintenance facility construction
Quarry products
Safety Products (local)
Septic pump out services
Small equipment hire
Transport (minor)
Waste management (liquid and solid)
Water (construction and potable)
Welding & engineering fabrication (site services)



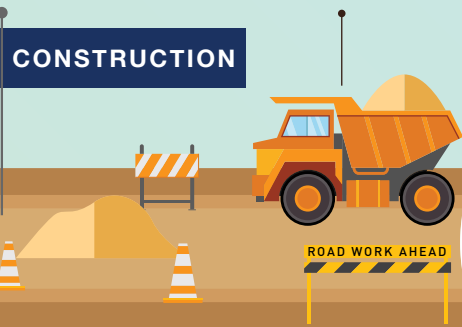
Anyone interested in working on the project, can register their interest via the **'work with us' page on the project website.**

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



- 1** Early works
- Some minimal site activity (e.g. geotechnical studies)
 - Contractors are tendering work packages
 - Establishment of the temporary construction compound
- 3-6 months

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

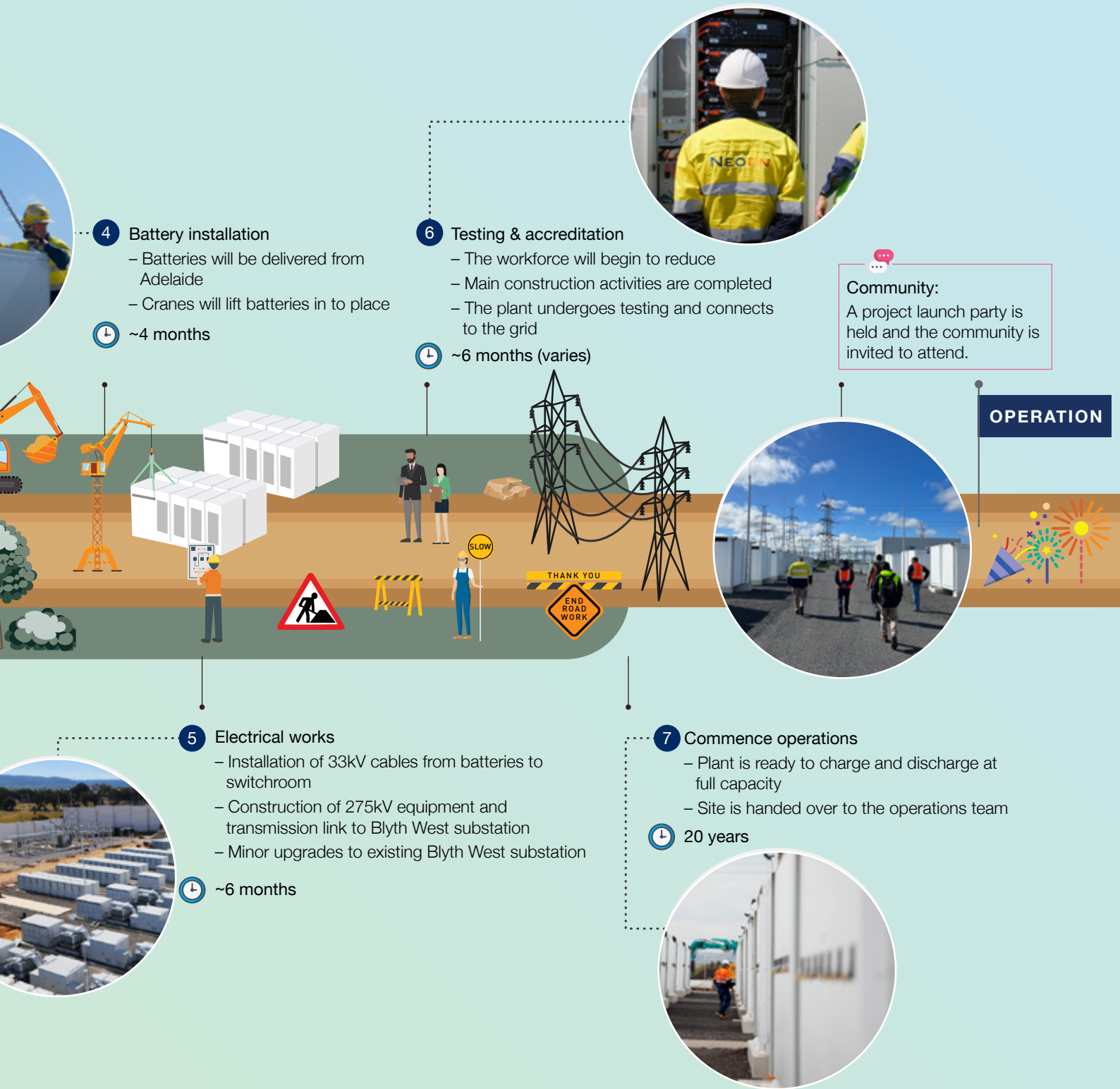


- 2** Civil construction
- Bulk earthworks to complete bench and lay down areas
 - Public road upgrades (as required)
- 2 months

- 3** Foundations
- Excavation and foundation pouring for battery and equipment
- ~4 months



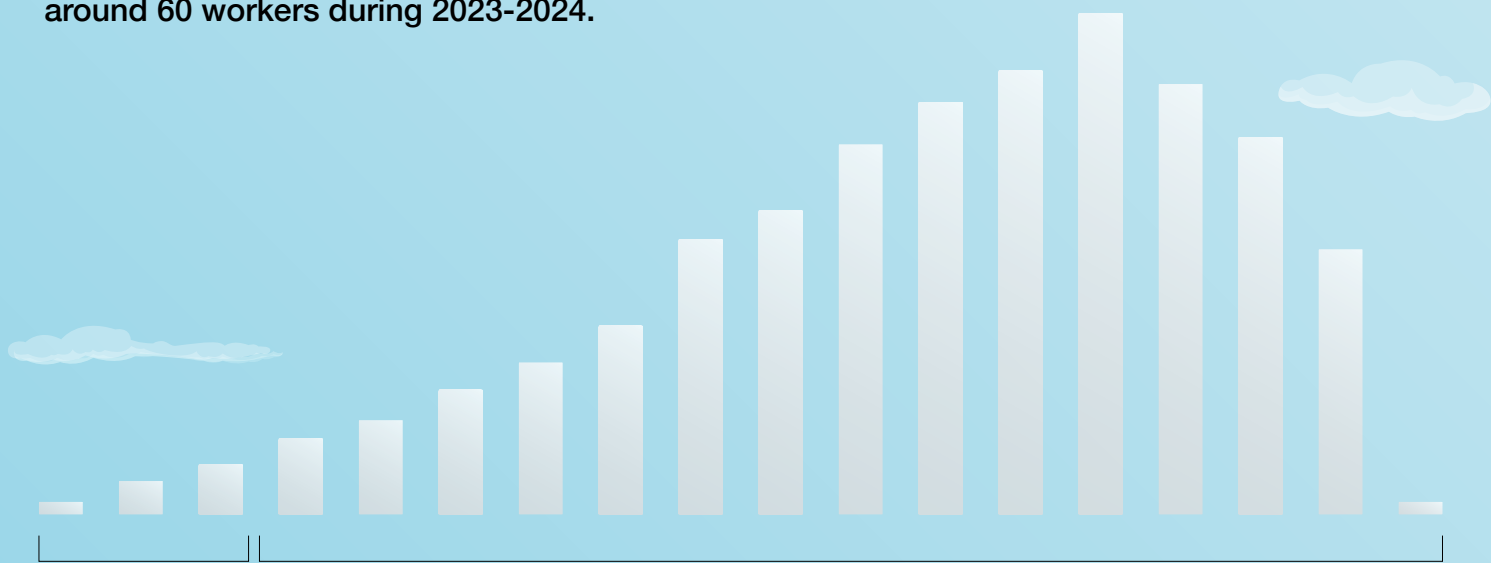
RING CONSTRUCTION



WORKFORCE

The workforce is expected to fluctuate during project phases, and peak at around 60 workers during 2023-2024.

~60 workers during peak construction



EARLY WORKS
2-3 months

CONSTRUCTION
18-24 months



WORKDAYS

**7 days a week including public holidays
7:00am to 6:00pm.**

Works may occur outside these hours such as concrete pours or battery installation.

BENEFITS

ECONOMIC



LOCAL



Some of the options we are investigating for community benefits:



Community benefit fund

The funds would be allocated to local community projects through a competitive annual grants process.



Educational resources

Develop educational resources for local schools to support learning about renewables and our future energy system.

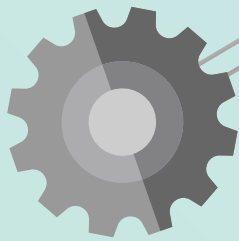


Local tourism

Develop a local tourism initiative centred on batteries or renewable energy



To submit your ideas, please fill out our online survey: surveymonkey.com/r/blythbattery



Basic function

When there is excess energy, the battery will charge. When there is high demand for energy, the battery will discharge.

Frequency support

To maintain the stability of the system, the grid requires frequency control services. The battery discharges electrical power into the network in response to frequency changes. The battery can lower the cost of these service markets which could result in lower electricity prices for everyday consumers.

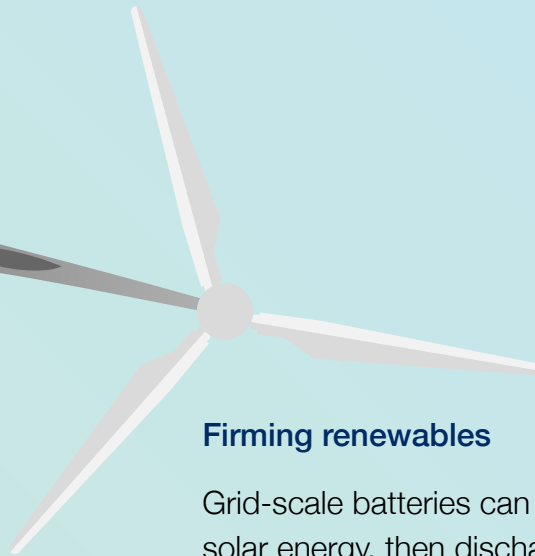
FREQUENTLY ASKED QUESTIONS

BATTERY DO?



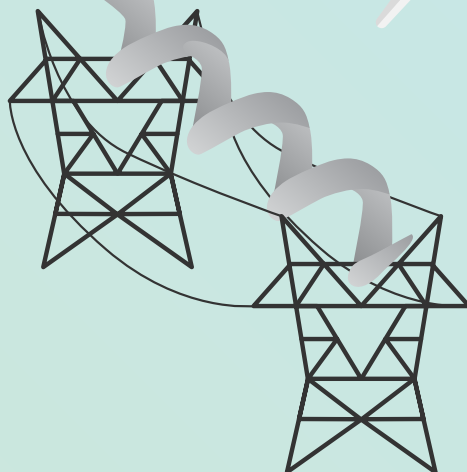
Inertia

Like a cruise control button in your car, inertia services are a way of maintaining stability of the grid. The advanced power inverters associated with a big battery can emulate the inertia services that are currently provided by an ageing fleet of fossil fuel power plants. This service is currently being deployed at our Hornsdale Power Reserve in South Australia.



Firming renewables

Grid-scale batteries can store wind and solar energy, then discharge it when the wind isn't blowing and the sun isn't shining. The Blyth Battery aims to be an essential component in the stable transition to clean electricity.



Transmission network support

Grid-scale batteries can provide dynamic millisecond responses so existing transmission lines can operate at full capacity. Like adding another lane to a freeway, the battery can unlock additional capacity on existing transmission networks – saving customers millions of dollars in expensive transmission line upgrades.

FREQUENTLY ASKED QUESTIONS

ABOUT STORAGE

Q1. How long will it take to build the battery?

Construction of the Blyth Battery will take around 18-24 months.

Q2. How big will it be?

The Blyth Battery will be 200 MW / 400 MWh. Once completed, a 200 MW battery and associated infrastructure takes up to 5 hectares of land. The battery cubicles are normally around 2.5 meters tall.

Q3. Where will it be located and why?

The Blyth Battery will be located near the existing Blyth West substation, approximately 7.5 km west of Blyth. The land is ideal because it is flat, in a rather isolated area and very close to the substation. The Blyth Battery will support in stabilising the grid and the increasing number of renewable projects in South Australia.

Q4. What technology is being used for the project?

The Blyth Battery will utilise Lithium-Ion batteries and associated equipment from leading manufacturers. These manufacturers are selected through a competitive tender process.

The facility will be an orderly arrangement of battery cabinets, inverters and control systems including electrical and data cabling. The battery packs are enclosed in custom designed, dust and waterproof 'cabinets' made of steel. The cabinet colour will be white, or light coloured to assist with heat management and each cabinet has its own internal thermal management system.



Q5. What is the life cycle of the Battery?

Current battery technology comes with an industry-leading 25-year warranty. The batteries will still retain the majority of their capacity during this period and will be capable of operating beyond it depending on market conditions and other factors.

Q6. How does it work?

The Blyth Battery will store energy in times of high production and release energy in times of high demand, similar to how a battery on a home solar system works. It will also help to stabilise the grid in a few different ways – it has an emergency response mode to prevent blackouts and it can help maintain voltage and frequency levels.

Q7. What are the benefits of battery energy storage?

In making the transition from fossil fuels to renewables, the ability to store and dispatch energy will play a key role. Pumped hydro is an example of longer-term storage that is suitable for storing energy and releasing it over days or weeks. However, pumped hydro has a relatively slow 'ramping' time and is less suitable for providing rapid-response services to grid contingency events. Battery storage, such as lithium-ion technology, fills this key short-term response role.

These are some of the functions a grid-scale lithium-ion battery may be expected to perform:

- Network security services including Frequency Control Ancillary Services, and Network Support Control Ancillary Services
- System Restart Ancillary Services
- Arbitrage (spot market trading)
- Peak shaving
- Block/load shifting
- Renewable firming and smoothing
- Virtual inertia

Many of these services have been provided by coal and gas generators in the past. But as they close down, battery energy storage can, and is, being used to deliver these critical services.

ECONOMIC

Q8. Who will pay for it?

The project will be privately financed by Neoen.

Q9. How is the battery reducing costs for consumers?

Blyth Battery can reduce costs for consumers in three ways:

1. supporting more wind and solar, which are now the cheapest forms of power;
2. increasing competition in ancillary markets which lowers (or reduces) electricity prices; and
3. helping to avoid blackouts and the associated costs.

Q10. Will local jobs be created?

It is expected the Blyth Battery will create a significant volume of construction jobs and a number of full-time ongoing positions.

We will also provide opportunities for local suppliers, businesses, schools, and community groups.

LOCAL

Q11. I live nearby – what impact will this have on me?

During construction, we expect some localised traffic, noise, and dust impacts. However, we will be managing these to minimise them as much as possible. Following installation, the battery will be visible at the site and will look like an enclosure of white containers.

Q12. How will this project benefit me?

The battery will help to put downward pressure on your electricity bills (see Q9.). It will also deliver a number of benefits for people living in and around Blyth, from local job opportunities to a benefit-sharing program to support local community building initiatives.

Q13. How can I have my say on the project?

We will be working with the community throughout the project to understand local concerns and aspirations, and ensure we minimise any impacts. We encourage the community to provide feedback through completing the survey.



In 2021, Neoen hosted a learning day at a local school near our Victorian Big Battery to teach kids how renewable energy and big batteries work.

FREQUENTLY ASKED QUESTIONS

SAFETY & ENVIRONMENT

Q14. Will the battery increase the risk of fire?

The Blyth Battery will meet all relevant standards for fire safety, and we will work with the local fire authority to ensure the project also meets their requirements.

Q15. What happens to the batteries when they reach the end of their life?

We make a commitment that all above-ground infrastructure will be removed, and the site rehabilitated when the project ceases to operate. After removal, a large percentage of the material in the batteries will be reclaimed or recycled; over 60% of materials, especially critical minerals, will be recovered for re-use.

Q16. Are there any health risks?

The Blyth Battery is using similar technology to the batteries that are being increasingly installed in homes, just on a larger scale. There are no known health risks associated with properly maintained large-scale battery installations.

Q17. Is the project reducing 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.

ROADS & CONSTRUCTION

Q18. During construction, what is the average number of vehicle movements per day? And how many vehicle movements during peak construction periods?

For a typical site, the number of vehicle movements depends on where workforce comes from. Typically, 100+ vehicle movements per day, with approximately 10 being trucks. The vehicle movements are based on a project size of approximately 25-35 and may vary from project to project. The expected number of vehicle movements will be outlined in the traffic management plan. Generally, there are many vehicle movements to site, but within the site there is less movement.

Q19. Are cables (underground or overhead) installed at the same time as the roads. Is it correct to assume that most of the underground cables will be located next to the roads?

Yes, usually underground cables are located next to roads where possible depending on a few factors. The first cable is typically laid at about the same time as the first road is constructed. Please note that the roads take the longest to build, so the construction of roads and cables will not always coincide.

Q20. Where is the main site compound located - office; carpark; heavy vehicle storage; etc?

These are commonly located near the site entrance.



Construction compound for big battery site

BLYTH

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blythbattery.com.au



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