

# Energy Reserve 1



## A hybrid power station

PROJECT FACT SHEET MARCH 2023

<b>Total Generation Capacity:</b>	<b>400 megawatts (MW)</b>
<b>Battery Generation Capacity:</b>	<b>200MW/400 megawatt-hours (MWh)</b>
<b>Gas-fired Power Generators (GPG):</b>	<b>200MW</b>
<b>Energy sources:</b>	<b>Grid electricity for battery &amp; natural gas for GPG</b>
<b>Expected lifespan:</b>	<b>Estimated closure 2045</b>

### ABOUT LOCHARD ENERGY

The proposed Energy Reserve 1 (ER1) project is being developed by Lochard Energy.

Lochard Energy are trusted infrastructure specialists that develop, own and operate energy infrastructure, which help facilitate a smoother and more rapid transition toward a lower carbon emitting economy.

We are committed to operational excellence, an outstanding safety culture and being a dependable member of the communities in which we operate.

### OUR ENVIRONMENTAL VALUES

Lochard Energy is supportive of sustainable practices and aims to minimise harm to the environment.

We strive to ensure that at a minimum, we comply with Victorian legislation regarding health, safety and environmental considerations and the necessary regulatory approvals are obtained during the development phase of our projects.

We are committed to the continued focus and growth in areas relating to sustainability. We recognise that the success of our business is dependent on our operations minimising environmental harm and having a positive and meaningful impact on our employees and the communities we operate in.



# Energy Reserve 1

## About the project

Recently, the Australian Energy Market Operator (AEMO) reported that supply gaps and electricity shortages will emerge in the Eastern Seaboard States as early as 2025.

These gaps are due to the planned exit of coal-fired power stations over the next decade, and insufficient replacement infrastructure being ready. AEMO has called for urgent investment in firming generation, such as pumped hydro, gas and long-duration batteries, which they state is critical to complement Australia's growing fleet of weather-dependent renewable generation, to meet electricity demand without coal generation.

Lochard Energy is proposing to develop a fast-start dispatchable power station, near Winton, Victoria, to be known as "Energy Reserve 1", which will provide power to the electricity network thereby increasing supply. The project is currently in the planning stage and seeking stakeholder input.

### PROJECT LOCATION

The site for Energy Reserve 1 is well situated to export energy to Victoria's and NSW's energy markets, and is located between the Hume Highway and the Melbourne to Sydney railway line.

The land is largely clear having previously been used for farming, with a few pockets of native flora that will be preserved as far as possible.



### COMMUNITY ENGAGEMENT

We are committed to engaging with the local communities we operate our sites and business responsibilities in, and community engagement will help inform final design and operational plans for Energy Reserve 1.

Draft plans are now on public exhibition and during this phase, community members can provide feedback to the State planning authority (the Department of Transport and Planning (DTP)).

Our Information Drop-In Sessions provide the opportunity to meet our project team, ask questions, provide feedback, and guidance on how you can write and leave a submission with DTP.

For more information on the Project, or to register for updates – including dates for any future community sessions - please visit our website: [www.lochardenergy.com.au/energy-reserve-1](http://www.lochardenergy.com.au/energy-reserve-1)

# Energy Reserve 1

## Dispatchable energy

**Retiring coal-fired power plants will leave an energy supply and security void. This void must be filled with a combination of projects and technology. The vast majority of Australia's future energy supply (volume) will likely come from zero emission projects like wind and solar, but the energy security (capacity) will have to be underwritten by projects like ER1.**

**ER1 will deliver dispatchable power generation, almost instantly, including during times when there is insufficient renewable energy generation to support the market.**

**This will help with system reliability and help ease upwards pressure on electricity prices.**

### CONNECTING TO THE GRID

Our chosen site for the facility has onsite access to existing gas transmission line and nearby access for the electricity connection (Glenrowan Terminal Station). These existing connections will minimise the necessity for any new connection infrastructure, minimising impact to the environment and community.

A 3km (approx.) underground transmission line is proposed from the Glenrowan Terminal Station to the site, to enable connection to the electricity grid.

The underground transmission line will cross the Hume Highway and leverage the existing easement northwest. It will then head east within the road reserve of Lee Road, before entering the site.

**“Dispatchable resources are needed to firm renewable energy intermittency through all weather conditions across the NEM.**

**Diversity in those firming resources will become more valuable as renewables become the dominant source of generation. That diversity may be both geographical and technological, including gas-fired generation and energy storage of varying depths.”**

**Australian Energy Market Operator, Integrated System Plan 2022, P52**

# Energy Reserve 1

## How will it work?

**Energy Reserve 1 is being developed to incorporate two technologies:**

A 200MW/400MWh (2 hours) of large-scale battery to absorb excess power from the network, and quickly dispatch (within milliseconds) to support the network and electricity market stability

200MW of highly efficient fast-start natural gas generators that can deliver power to the electricity network during periods of renewable energy supply shortage and for long periods of time if required

**A planning application is being lodged to enable either or both technologies to be commercially considered at a later date on the basis of customer, market, social and regulatory requirements.**

### WHY NOT JUST BATTERIES?

Batteries are required to absorb excess energy (generally signaled by low market pricing) and very quickly dispatch energy during system shortfalls (generally signaled by high market pricing). However, batteries are limited; they can only provide power for a short period of time (e.g. 2 to 4 hours), and they are not always charged when you might need them.

This can be a significant issue when our energy system experiences longer-term impacts (e.g. transmission line failures, extended heat waves and/or periods of sustained renewable energy shortages). When longer duration support is required, ER1 can generate electricity for sustained periods of time, with its efficient gas-fired generators.

# Energy Reserve 1

## Environment



### OUR COMMITMENT

Lochard Energy adopts an 'avoid and minimise' approach to manage adverse project impacts. Every environmental aspect will be considered and respected and ER1 will be carefully designed to minimise, or avoid where possible, significant impacts.



### IMPACT TO WATER

Fortunately, expected impacts to water are minimal. ER1 does not interact with any designated watercourses or floodplains and there is no farming irrigation on the site. There will be some water use, limited to the site offices. Other key points:

- Low potential for groundwater related impacts
- No significant flood risks



### IMPACT TO BIODIVERSITY

Our 'avoid and minimise' approach will ensure the removal of native vegetation is restricted to only what is reasonably necessary, and that replacement or 'offset' vegetation is provided to compensate for any removal of native vegetation that is approved.

It is envisaged approximately 1.39ha of native vegetation will be affected, including 8 large trees. However, there is no impact to any species in line with the Flora and Fauna Guarantee Act and Environment Protection and Biodiversity Conservation Act.



### IMPACT TO WINTON WETLANDS

The site is separated from the Winton Wetlands by the railway line and is located closer to the Hume Highway. The site was specifically selected due to the physical separation from the wetlands and from populated areas. Based on the environmental assessments that we have undertaken, there will be no impact to Winton Wetlands.



### MITIGATION TECHNIQUES

To help mitigate the impacts of the project, Lochard Energy will:

- Implement a rainwater harvesting or water reuse scheme
- Construct infrastructure to capture, contain & manage any spills
- Continue ongoing consultation with Goulburn Broken CMA on water quality requirements
- Offset any removed vegetation
- Continue voluntary cultural heritage management plan in consultation with the Yorta Yorta Nation Aboriginal Corporation

# Energy Reserve 1

## Project impacts



### OPERATIONAL NOISE

Regulations limit operational noise to very low levels and ensure operations don't intrude on the existing rural soundscape.

Once built, batteries are very quiet and require no additional acoustic treatment. However, gas-fired generators do emit some noise and will require additional acoustic treatment with engineered enclosures. The residual profile will conform to EPA regulations.

This mitigation may include:

- Sound-proofing building materials & insulation
- Exhaust gas stacks & intake air filters fitted with high-performance silencers
- All associated engine radiators fitted with low-noise fans

Lochard Energy will monitor, in accordance with EPA's requirements, noise during operation to ensure noise impact to neighbours and the surrounding community conform with the regulations.



### VISUAL

Energy Reserve 1 is being designed to complement the surrounding landscape as a means of reducing visual impact to neighbours.

The facility will be low profile and modular in form, with the gas engines housed within an acoustic attenuating shed, screened by vegetation buffers. The tallest structure will be the flue (exhaust) stack, at approximately 25 meters tall, which is lower than nearby transmission towers.

Preliminary visual impact assessments have concluded that the project will result in no change to a slight to moderate adverse visual impact on two identified sensitive receptors - from elevated vantage points to the east and the Mokoan Rest Area.



### TRAFFIC

During operation, there will be approximately 20 vehicle movements per day. It's expected that the traffic will primarily utilise Bowers Road and the Hume Highway intersection and the adjoining Lee Road.

A traffic management plan will be developed prior to construction to ensure project traffic is managed safely.



### FIRE RISK

Fire prevention is a significant part of our planning focus. We have met with the regional CFA and EPA, and both will be closely involved in the development of our fire prevention and management strategies for the site, to ensure all surrounding areas, like the Winton Wetlands, are protected from any fire risk.

# Energy Reserve 1

## Emissions

### GREENHOUSE GASES

While ER1's proposed gas-fired generators would produce greenhouse gas emissions when operating, their emissions intensity (per unit of electrical energy produced) will be significantly lower to that of Australia's coal-fired generators.

ER1 will aid in the uptake of more renewables entering the market in the following ways:

- 1) Its battery assists renewable generators by absorbing excess generation and dispatching it again when there is greater need for supply.
- 2) Its gas-fired generators can start quickly and provide prolonged power (if required), with a relatively low carbon emission profile. A stable energy market encourages intermittent renewable energy projects to participate. This form of energy security is expected to be vital throughout the coming decades.

### AIR QUALITY

Modelling indicates potential pollutants produced by ER1, will not exceed strict legislated air quality standards and will not contribute significantly to air pollution emissions already present in the region (i.e. emissions from transport on the Hume Highway).

### MANAGEMENT MEASURES TO MINIMISE EMISSIONS

To ensure compliance with all EPA emission regulations, the project will implement the following measures:

- Use of low nitrogen oxide pollutant technology
- Regular maintenance and testing of gas engines
- Installation of state-of-the-art monitoring systems on engine stacks to ensure emissions are constantly monitored

Lochard Energy will monitor emissions at all stages of the project's lifespan to ensure they conform with all EPA requirements.

# Energy Reserve 1

## Indicative timeline



Site identification  
Early stakeholder management



2021  
PLANNING

2021 - 2022  
CONCEPT



Environmental assessments  
Concept refinement

Development approvals  
Re-engagement of planning stakeholders  
Engagement of neighbours  
Engagement of local community groups



2022  
DEVELOPMENT APPLICATION

2023  
STATE GOVERNMENT APPROVALS



Community drop-in sessions  
Engagement of Victorian portal  
Bushfire/fire management development  
Further design/project refinement

Connection agreements (2023-2024)  
Construction (2025-2026)  
Operation (2026-2027)



CONSTRUCTION & OPERATION



# Energy Reserve 1

## Benefits to the region

Energy Reserve 1 will likely provide significant benefits to the local Winton and Benalla economy; including:

- A significant number of jobs during the construction phase
- An estimated 5 - 10 full-time jobs once the facility is in operation
- Local suppliers and contractors will be engaged wherever possible during construction
- Community funding and support for local projects and initiatives
- Opportunities to grow local capabilities and diversify local skills
- Regular rates income for the local Council

### SOCIAL BENEFITS

Community sponsorship and benefit schemes are a long-held tradition at Lochard Energy and we are currently exploring optimal means of supporting the North East Victorian community.

We openly invite sponsorship and grant ideas from the community at any time.

### COST OF LIVING PRESSURES

Variable renewable energy, such as solar and wind, are the cheapest form of energy in the market (on a per MWh basis). However, when there is a shortage of supply (such as periods of low wind and/or solar radiation), prices can escalate quickly if the system has insufficient dispatchable capacity to support it.

Energy Reserve 1 is intended to address exactly this problem, thereby doing its part to help ease upwards pressure on electricity prices.

# Energy Reserve 1

## Construction

The construction phase is expected to start in early 2025 and last approximately 12 to 18 months. Main construction activities will include:

- Site establishment – fencing, ground preparation, construction of internal roads and paths, preliminary civil works and any necessary drainage
- Installation of steel post and framings
- Installation of underground cabling (trenching) and installation of inverter stations
- Installation of power generators
- Construction of control, switch room and storage building
- Construction of the substation and connections
- Removal of temporary construction facilities and rehabilitation of disturbed areas
- Landscaping
- Installation of screening vegetation (if required)

### CONSTRUCTION TRAFFIC

At peak construction periods, it's expected that there will be approximately 230 daily vehicle movements to and from site. This includes:

- 100 light vehicle return journeys (based on 100 staff traveling to and from site each day).
- 15 heavy vehicle return journeys.

These peak traffic volumes have been deemed to be suitably supported by the surrounding road network.

It's expected that the traffic will primarily utilise Bowers Road and the Hume Highway intersection and the adjoining Lee Road.

A traffic management plan will be developed prior to construction.

### CONSTRUCTION NOISE

Construction is expected to generate some source of temporary noise. To avoid this, construction machinery will only operate during daylight hours. Construction noise will be managed to ensure it remains within the Victorian EPA Noise Control Guidelines.

### HOURS OF OPERATION

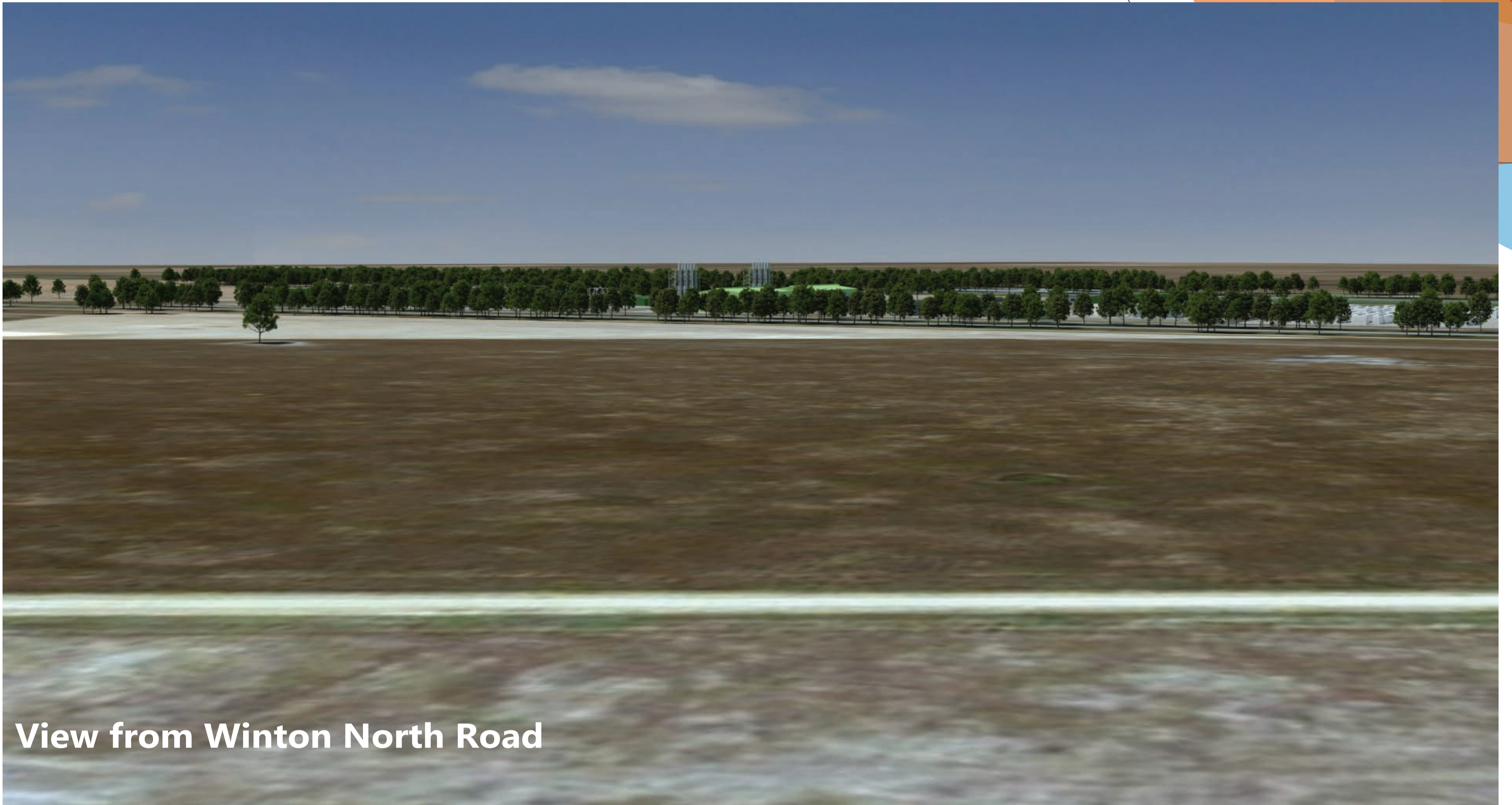
Construction will take place during standard daytime construction hours (7.00am to 6:00pm Monday to Friday and 7.00am to 1.00pm on Saturdays) or as otherwise agreed.

### LIFESPAN

Energy Reserve 1 is expected to operate for 20 years – bringing its expected decommissioning date before Australia's goal of net zero by 2050.

# Energy Reserve 1

## Visualisation



View from Winton North Road



View from Mokoan Rest Area

# Energy Reserve 1

## Visualisation



Aerial View 1



Aerial View 2