

Battery Energy Storage Systems explained



A Battery Energy Storage System (BESS) is a facility that stores electricity in battery units and releases it back to the grid when needed.

In addition to the batteries themselves, a BESS includes power conversion equipment, monitoring and control systems, and safety infrastructure to ensure reliable and efficient operation.

A BESS also requires supporting infrastructure such as transformers, a substation, access roads, security fencing,

and grid connection assets. Together, these components allow the facility to store excess electricity when supply is abundant and discharge it during periods of peak demand, helping support a more reliable and resilient energy network.

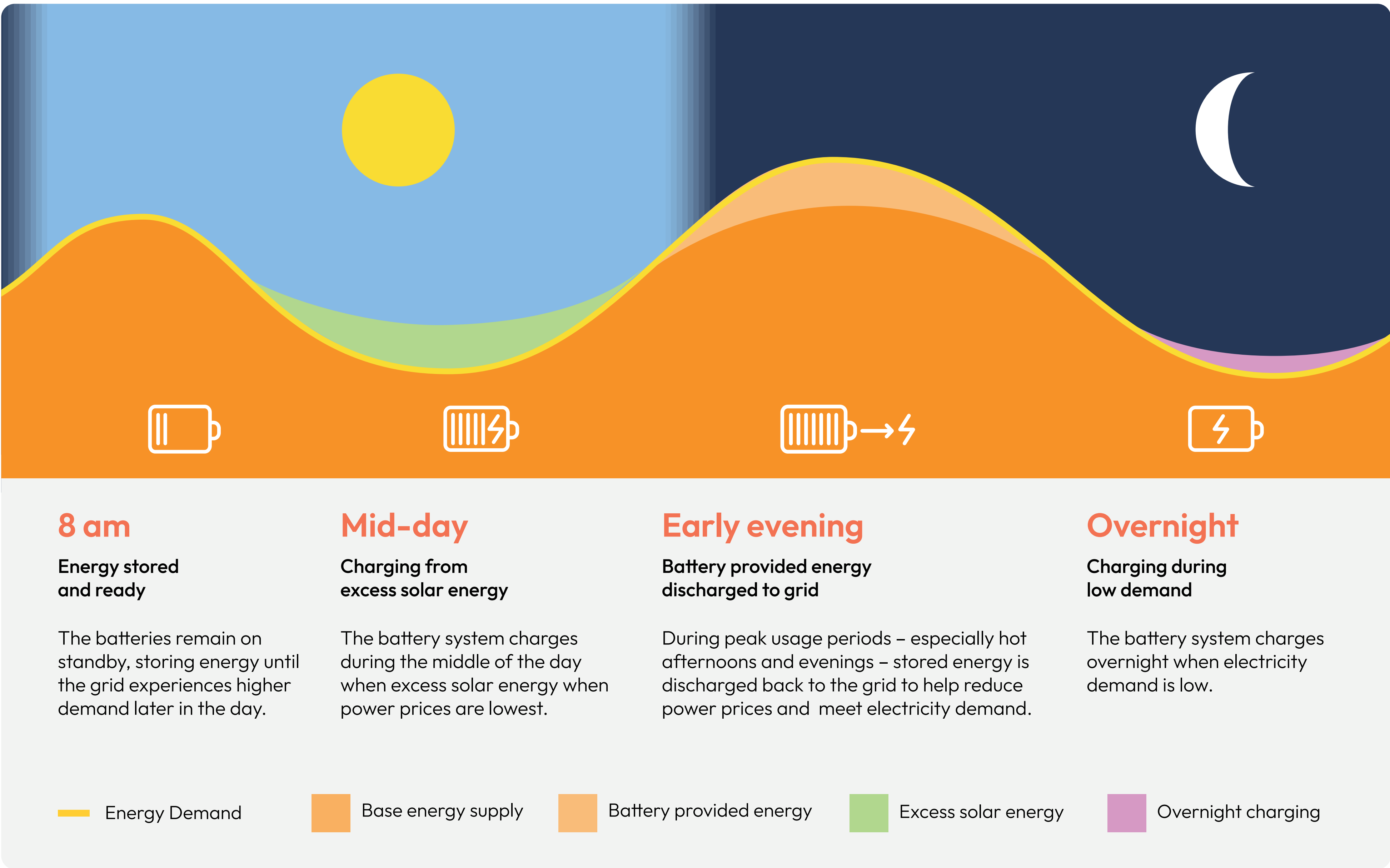
Why is energy storage needed?

Energy storage plays an important role in balancing the supply and demand of electricity across our complex national and regional grids. Traditionally, this service has been provided by hydro-electric plants and gas peaked plants. While these technologies continue to play a part in electricity networks,

BESS are considered a better alternative as it can deploy energy with faster response times, lower operational costs, and less environmental impact.

Energy storage helps to balance out differences between demand and supply. Electricity demand is the amount of power consumers require at any given time, which fluctuates throughout the day and across the seasons. Electricity supply is the amount of power that is available for a generation plant, which fluctuates based on time of day, season, weather, as well as operating condition of individual power stations.

How battery energy storage works



Our journey to planning approvals



The Hazelwood East BESS Project is seeking planning approval via the Development Facilitation Program, run by the Victorian Government’s Department of Transport and Planning (DTP).

The Development Facilitation Pathway is a Victorian Government planning pathway designed for projects that are of public benefit, support investment, energy security, jobs and infrastructure delivery.

All projects are assessed on planning merit having regard to the requirements of the *Planning and Environment Act 1987*, State and local provisions of the planning scheme, and site context, including potential amenity, social and environmental impacts.

The Hazelwood East BESS project must undergo:

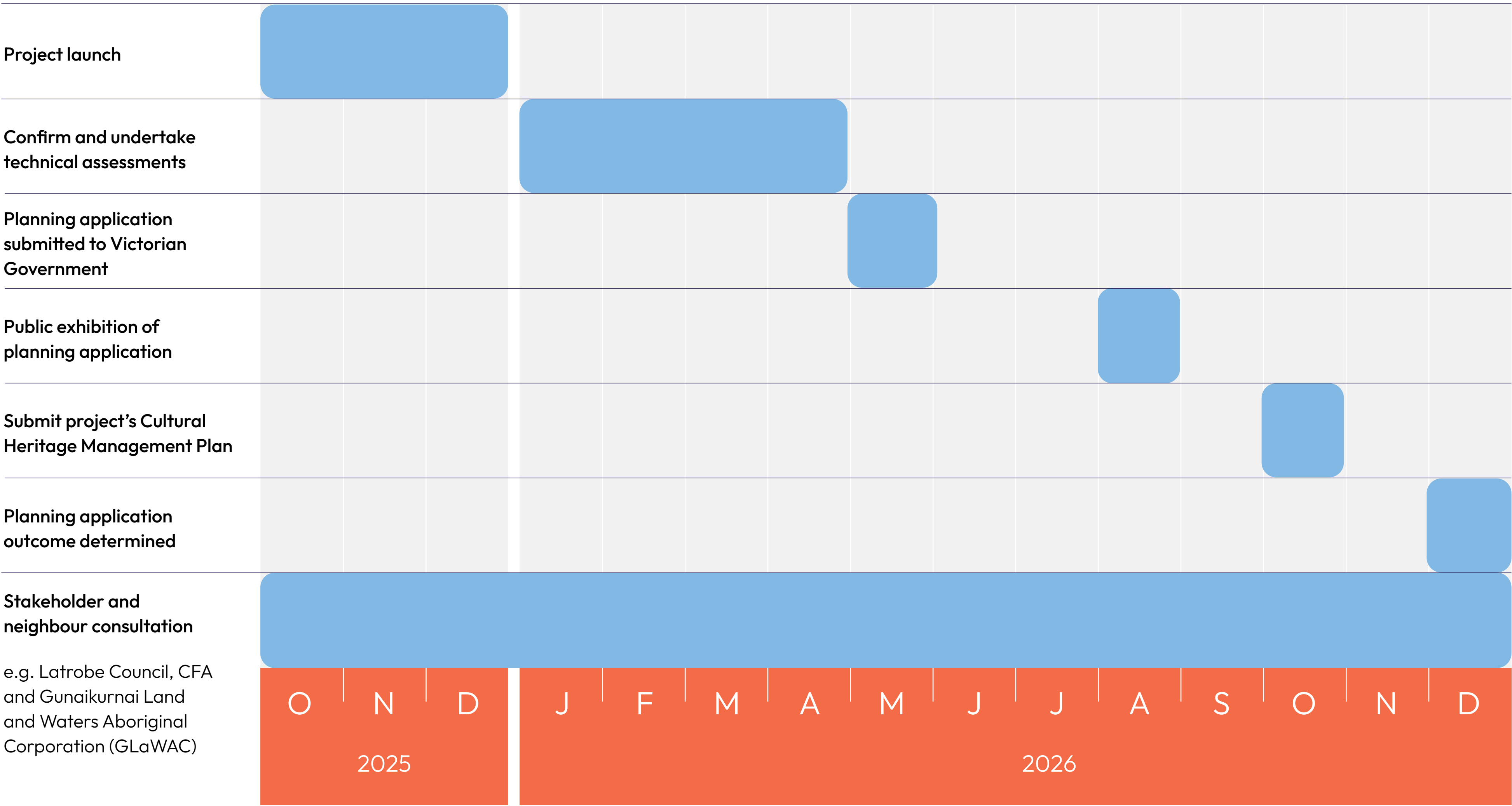
- Detailed technical and environmental assessments
- DTP and referral agency review
- Public consultation.

The Planning Application is supported by a range of detailed technical studies, including:

- Planning and regulatory report
- Noise assessment
- Traffic, transport and logistics study
- Landscape and visual impact assessment
- Ecological assessment
- Aboriginal and non-Aboriginal heritage assessment
- Surface water assessment
- Bushfire, battery fire and emergency management planning
- Agriculture and land assessment.

Detailed management plans will be developed to address construction, transport, visual, noise, soil, and water management throughout the construction and operation phases.

Planning approvals timeline



Understanding noise impacts



The Hazelwood East BESS Project is undertaking noise assessments to understand and minimise any potential impacts during operation.

Specialist acoustic consultants have completed noise modelling using recognised industry software and Australian and international assessment standards.

The assessment considered factors that can influence how sound travels, including:

- Distance
- Weather conditions
- Terrain and ground cover
- Buildings and surrounding structures.

We have met with the Environment Protection Authority (EPA) and the Department of Transport and Planning (DTP) to gain some feedback on the assessment methodology and design.

The noise modelling helps inform the project’s technology, layout and potential mitigation measures as part of the concept design development and planning assessment process.

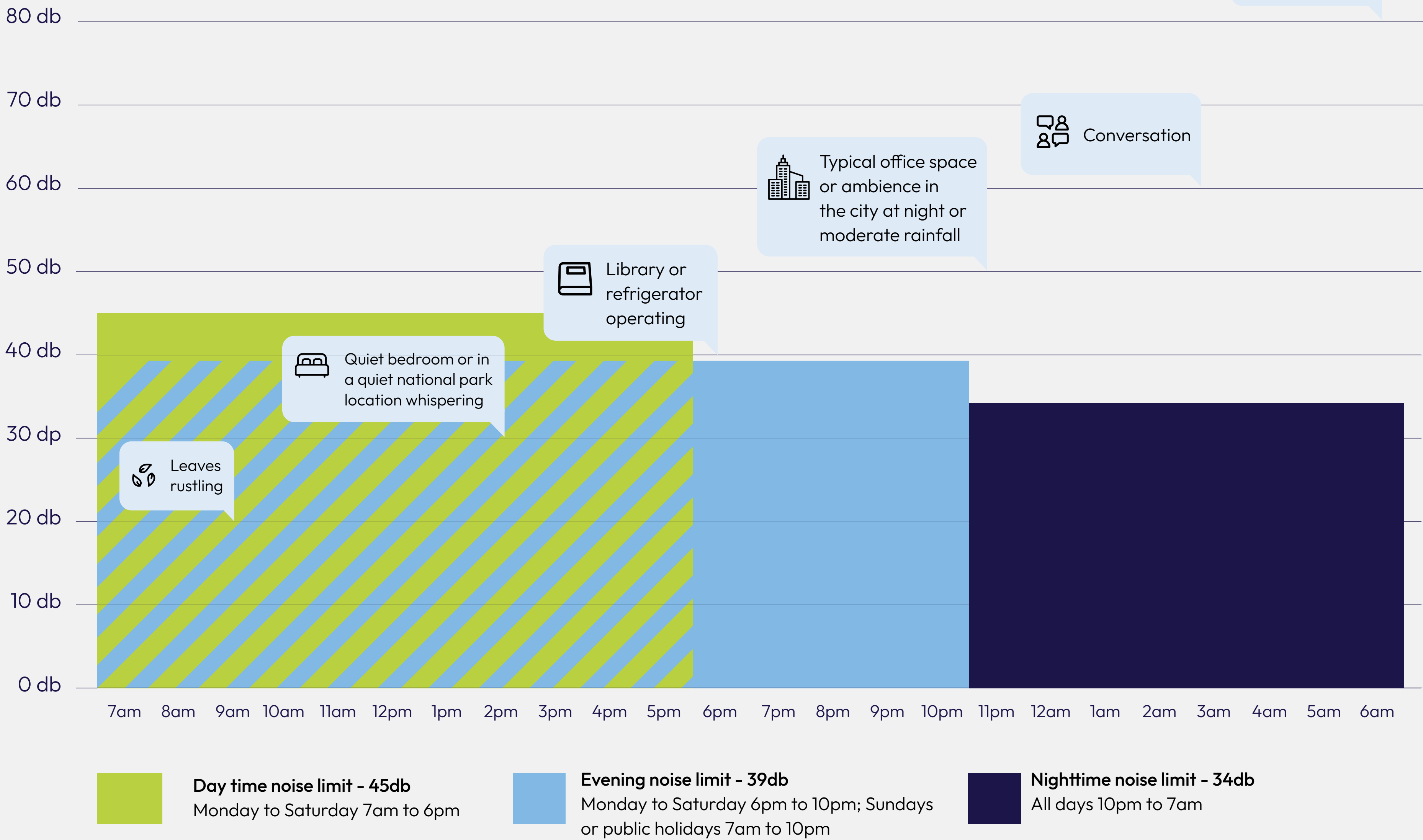
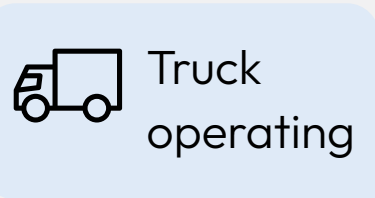
What we found

The noise assessment for the Hazelwood East BESS Project demonstrates that the project is compliant with the EPA Regulations and Noise Protocol.

The project must demonstrate compliance with these requirements before construction can commence and during the life of the project.

EPA Regulations and Noise Protocol

Hazelwood East BESS will need to comply with these noise limits



Landscape and visual impact assessment



A Landscape and Visual Impact Assessment has been undertaken as part of the Hazelwood East BESS Project's planning application process.

The assessment helps identify:

- ✓ How the project may change the surrounding landscape character
- ✓ Where the project may be visible from
- ✓ Potential impacts on nearby residents and road users
- ✓ Measure to reduce visual impacts over time

What we found

Existing landscape

The surrounding area is located opposite the Hazelwood Terminal Station and is characterised by open grazing and agricultural land, existing transmission infrastructure lines and energy infrastructure, limited vegetation cover and gently undulating terrain.

The broader Latrobe Valley landscape already contains significant energy infrastructure associated with the Hazelwood energy precinct.

Landscape character findings

Four landscape character zones were assessed:

1. Rural agriculture
2. Energy infrastructure
3. Environmental living
4. Residential.

Key findings include:

- The greatest change would occur within the rural agricultural landscape closest to the site.
- Existing transmission infrastructure, including high voltage electricity lines and the Hazelwood Terminal Station, already influences the visual character of the area.
- Residential and environmental living areas would experience little to no landscape character changes.
- Overall landscape character impact as assessed as low.

Visual impact findings

The assessment found that once operational:

- Views of the project would generally be limited by distance, topography and existing vegetation
- Surrounding residences are more than 1 km from the project
- No significant long-distance views or impacts to tourism or recreation locations were identified
- Overall operational visual impact was assessed as moderate (adverse) prior to any mitigation measures.

Construction phase

During construction, temporary impacts may include construction equipment and activity, increased visual clutter and short-term changes to local views.

The impacts to visual amenity during the project's construction were assessed as high to moderate (adverse), which would reduce once construction is complete.

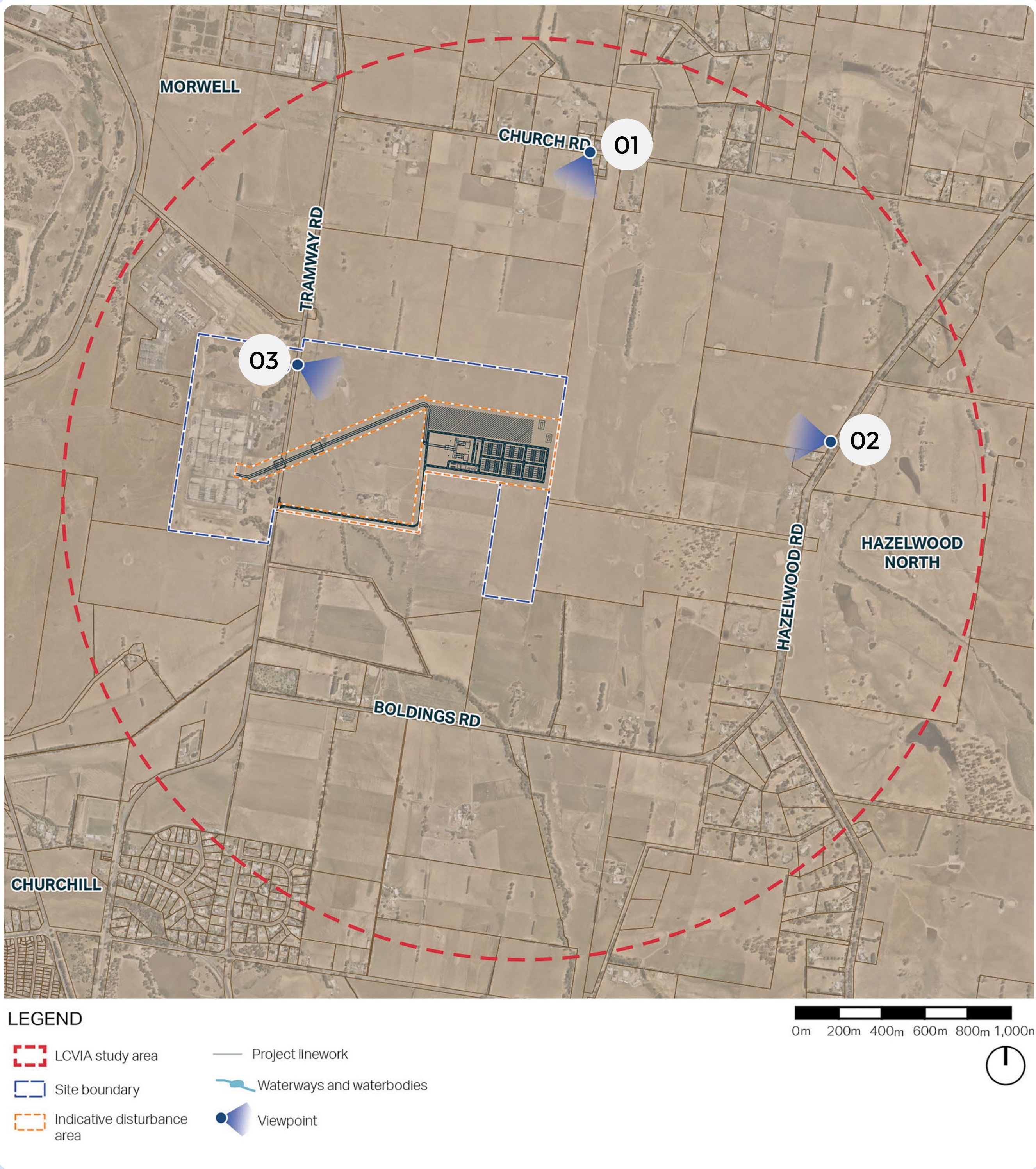
Measures to reduce visual impacts

- Careful selection of colours and materials
- Directional and controlled lighting
- Landscape planting and screening
- Preparation of a detailed landscape plan.

These measures are intended to reduce visual prominence over time.

Landscape and visual impact assessment

The images below provide visual representation of the proposed changes to visual amenity from key viewpoints. These were prepared by overlaying a 3D model of the project over existing views at each location.



Project overview

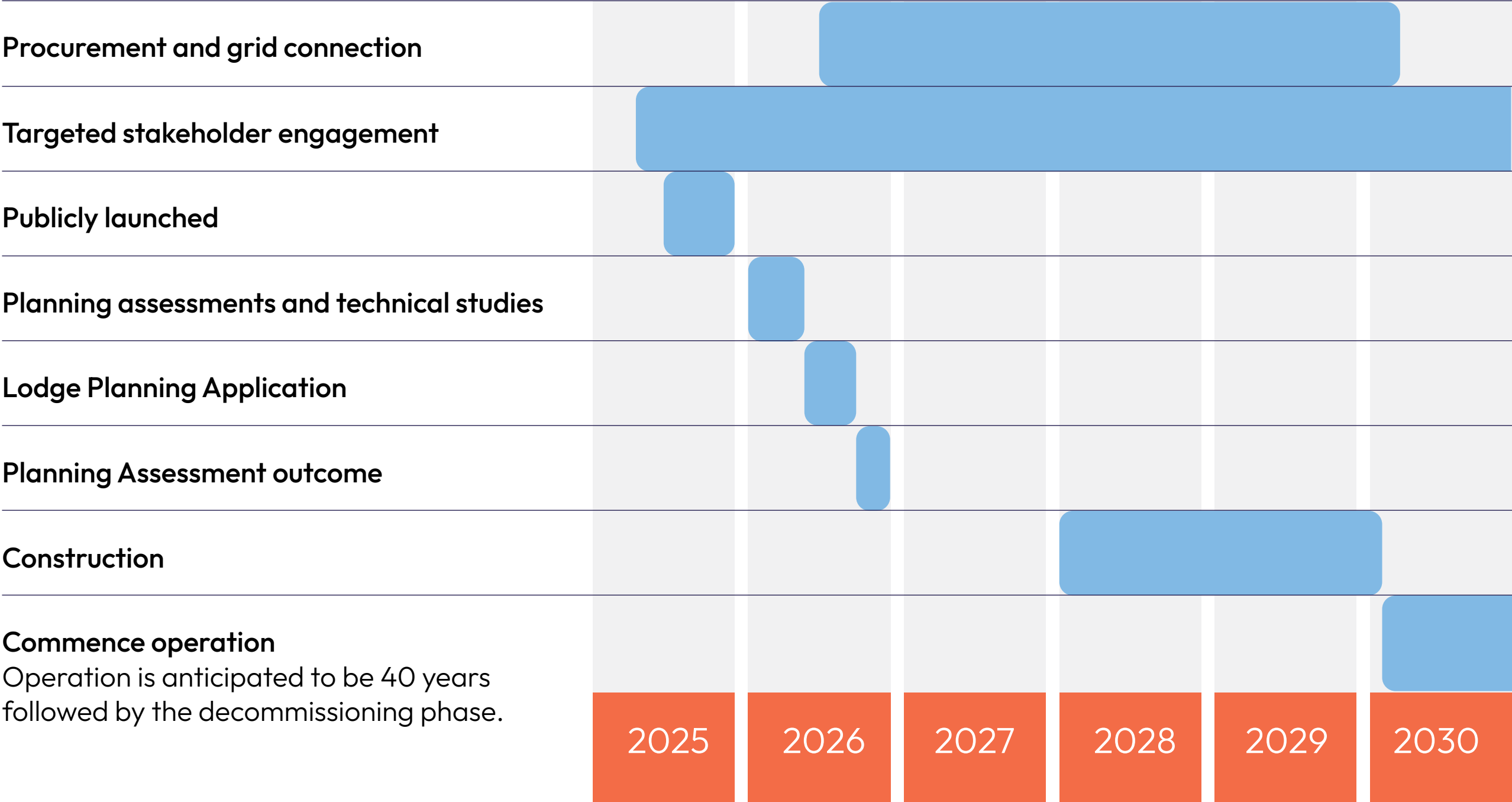


The Hazelwood East Battery Energy Storage System (BESS) Project is a large-scale, 500 MW / 2,000 MWh battery strategically located near the Hazelwood Terminal Station in Hazelwood North.



The project, located in the Gippsland Renewable Energy Zone, will support grid reliability by storing energy and releasing it back to the grid during periods of high demand.

Proposed project time line



Key project details

Capacity: 500MW / 4-hour storage system

Designed to store electricity for later use

Expected to power hundreds of thousands of homes during peak demand periods

Project site: approx. 141.2 hectares

Project benefits



Energy reliability

A battery can deliver stored electricity when demand is high, helping reduce the risk of power shortages.



Community benefits

A community benefit fund will provide direct support for local projects and initiatives that deliver lasting value to the region.



Lower power bills

Batteries help balance electricity supply and demand, supporting a more efficient energy system and helping put downward pressure on power prices.



Economic benefits

Approximately 150 jobs expected during construction with opportunities for local suppliers and contractors and continued investment in the Latrobe Valley.

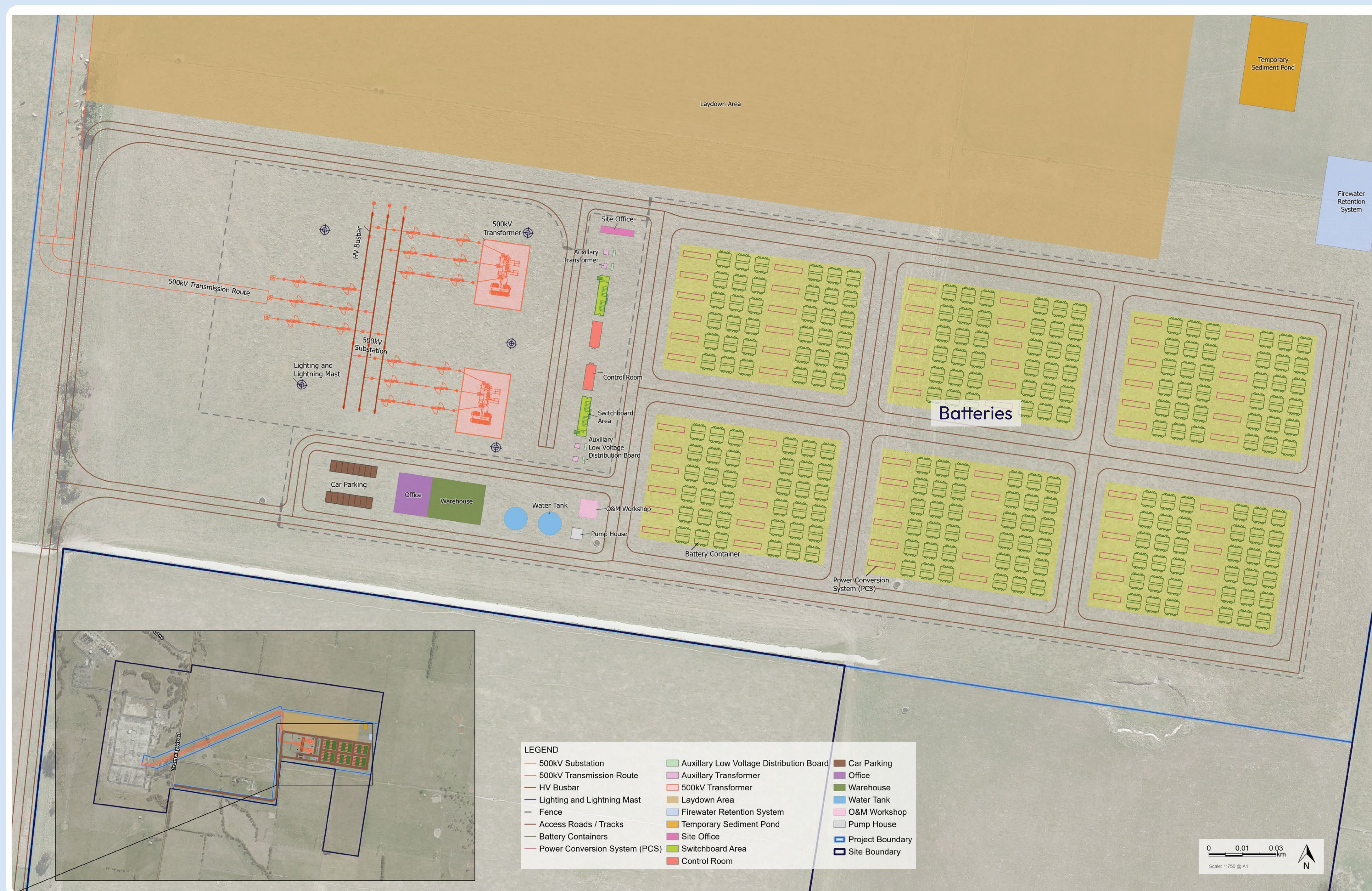


Energy transition

The Project will support Gippsland's transition from coal-fired power generation to renewable energy technologies.

Indicative project layout

The images below provide visual representation of the proposed changes to visual amenity from key viewpoints. These were prepared by overlaying a 3D model of the project over existing views at each location.



Help shape our local investment

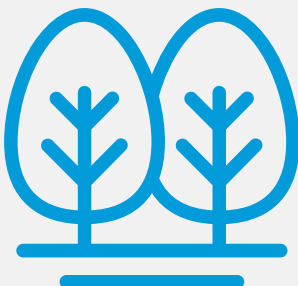


The Hazelwood East BESS will establish a community benefit fund to support initiatives that matter to our local community.

Where should we invest?

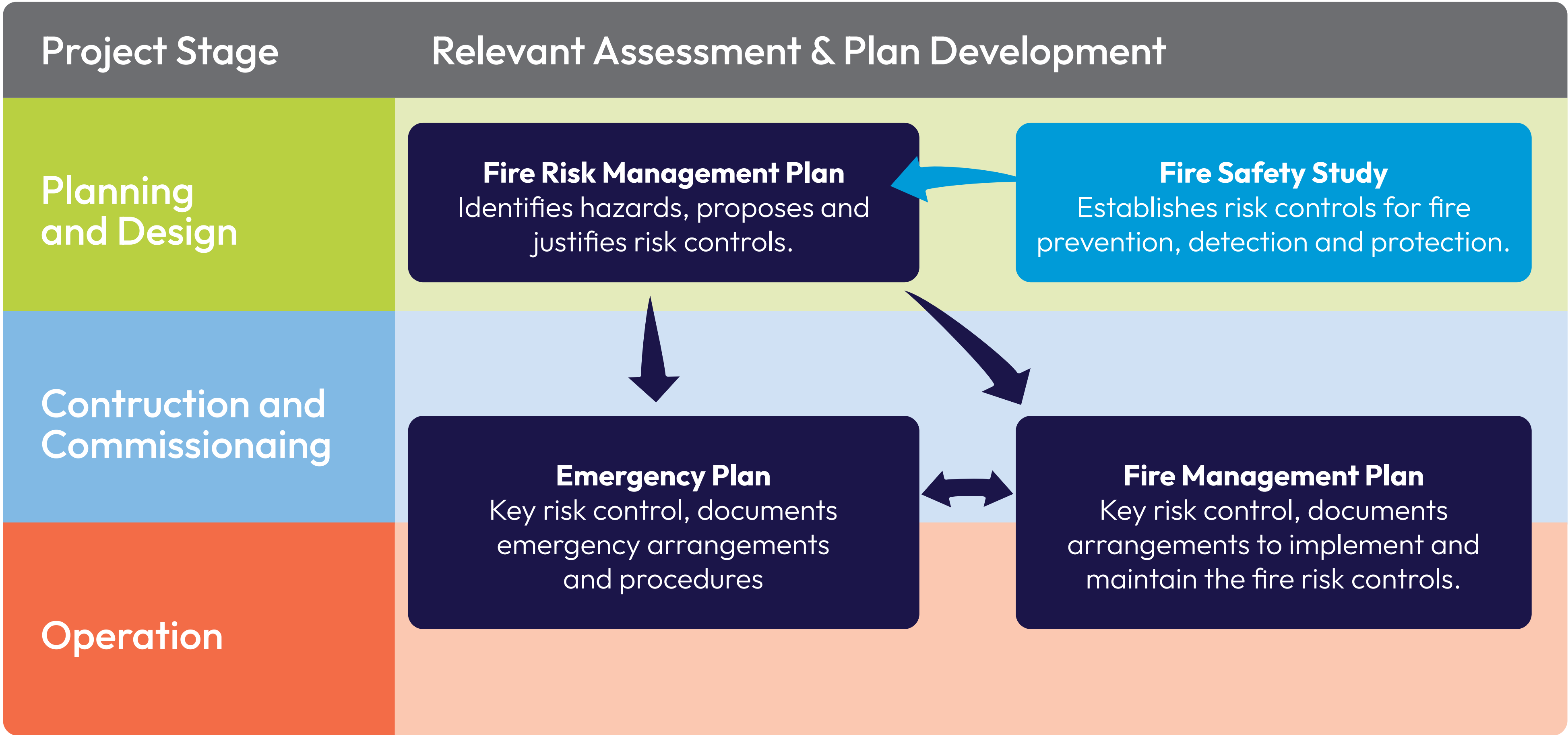
Please tell us what matters most to you.
Have we missed anything?



 Community wellbeing - Local clubs and volunteer groups - Community facilities and gathering places - Health and wellbeing initiatives	
 Skills, jobs and economic development - Local training and apprenticeships - Support for local businesses - Programs that help build future workforce skills	
 Education and young people - School programs and equipment - Scholarships and training opportunities - Youth leadership and community activities	
 Energy and resilience - Community energy projects - Programs that help households reduce energy costs	
 Environment and community spaces - Tree planting and habitat restoration - Parks, trails and public spaces - Community sustainability initiatives	

Our early research suggests several areas that may be important to the community, but we want to hear directly from you.
Please tell us what matters most to you. Have we missed anything?

Bushfire and fire safety



Plans and assessments for large-scale battery energy storage systems

Ensure fire safety is a key consideration in the design and planning of the Hazelwood East BESS.

A Fire Risk Management Plan is being prepared in accordance with the Country Fire Authority (CFA) guidelines for renewable energy facilities. Additionally, a Fire Safety Study and Risk Management Assessment will consider potential fire risks primarily during operation of the project

The assessment includes:

- Detailed review of battery technology, fire detection and fire suppression systems.
- Site-specific bushfire and emergency response planning.
- Assessment of potential impacts on neighbouring properties and surrounding infrastructure.
- Evaluation of emergency access arrangements.
- Consultation with the CFA throughout the planning process.

Key fire safety measures will be incorporated into the project design to minimise risk, support emergency response and protect workers, neighbouring properties and the broader community.

An Emergency Plan will be prepared for the construction and operation of the

project, to ensure appropriate emergency preparedness and response if a fire were to occur.

The project must demonstrate compliance with the CFA requirements and relevant Australian risk management standards before construction can commence.

What we found

Overall, the residual fire risk was considered low to moderate due to:

- Integrated fire detection and suppression systems.
- Two above ground fire water storage tanks available on site.
- Minium of 10m perimeter fire breaks around BESS and equipment as well as vegetation clearance zones.
- Emergency vehicle access to and around the site as well as adequate spacing between BESS units.
- Hard standing around tanks and retention ponds to allow emergency vehicle access.
- A Fire Risk Management Plan provides a clear pathway for the safe development and operation of the BESS.