FACT SHEET

## Penrith High Voltage Battery Energy Storage System

# Environmental Impact Statement (EIS) Guide

DECEMBER 2025


*Figure 1: Photomontage – View from Thornton Drive towards substation with future proposed Battery Energy Storage System (BESS), showing noise wall concept design.*

AUSCONNEX

Building a Smarter Energy Future

# Overview of the Battery Energy Storage System (BESS) Project

Ausconnex, part of the Endeavour Energy Group, is planning to install Battery Energy Storage Systems (BESS), across Greater Western Sydney.

This initiative supports the upgrade of the existing electricity grid through the growth of renewable energy sources. The BESS will help deliver safe, clean and more reliable power, contributing to the NSW Government's goal of reaching net zero emissions by 2050.

## What is a BESS

A Battery Energy Storage System (BESS) captures and stores electricity from both renewable and non-renewable sources using large, commercial-scale batteries. This stored electricity can then be released when it's needed most, such as during times of high demand, to help keep the power supply stable and reliable for homes and businesses.

There are two main types of BESS, which vary in size and how they connect to the power grid:

- **High-Voltage (HV) BESS** - is a large scale system connected directly to the high-voltage transmission network. These systems can deliver up to 100 megawatts of power and store around 200 megawatt-hours of energy, enough to supply electricity to roughly 80,000 homes at once.
- **Medium-Voltage (MV) BESS** - is smaller scale and connects to the local, medium-voltage distribution network, closer to homes and businesses. These systems can deliver up to 5 megawatts of power and store up to 10 megawatt-hours of energy, enough to power around 4,000 homes at a time.

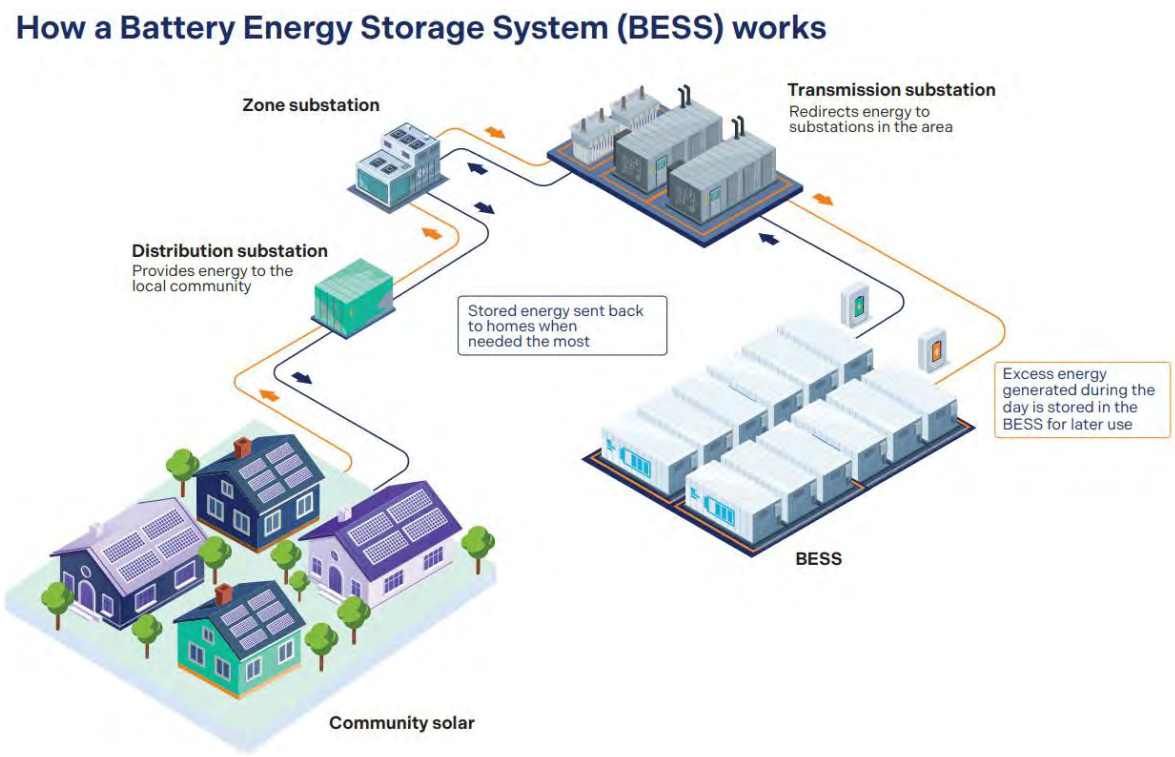



*Figure 2: How a BESS works in the distribution network to support the community.*

# Penrith HV and MV BESS

Ausconnex is proposing a HV BESS and MV BESS to be located within the existing transmission substation site at **2235-2249 Castlereagh Rd, Penrith NSW 2750**. Co-locating the BESS adjacent to the existing transmission substation minimises environmental impacts and maximises land use. The HV and MV BESS will be managed as separate assets and follow separate planning and environmental approval processes.


*Figure 3: Aerial view of the Penrith substation and proposed Penrith HV and MV BESS site.*

## The HV BESS Planning Approval Pathway

As a State Significant Development (SSD), the HV BESS requires the preparation of an Environmental Impact Statement (EIS) to be lodged to the Department of Planning, Housing and Infrastructure (DPHI). The EIS is a comprehensive report including multiple specialist studies to demonstrate the following:

- The current condition of the existing project site and the surrounding context
- All potential environmental, social impacts and economic benefits of the project
- Proposed solutions to avoid, minimise and reduce the potential impacts of the project

**High Voltage (HV) Battery Energy Storage System (BESS) Project Planning Approval Pathway**


*Figure 4: The Penrith HV BESS EIS Planning Pathway.*

# Have your say during the EIS

As part of the planning approval process, the EIS is placed on public exhibition for at least 28 days. The public exhibition period provides the community an opportunity to read the EIS document, seek clarification on content and provide feedback directly to the DPHI via formal submission on the Penrith HV BESS Major Projects Portal.

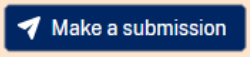
The DPHI determines the time period the EIS must be placed on public exhibition. The Penrith HV BESS public exhibition period commenced on Tuesday 2 December 2025.

**Submissions must be received by the DPHI before midnight on Wednesday 21 January 2026**.

### How to view the EIS and make a submission:

You can view the EIS and make a submission online through the Major Projects Hub on the NSW Planning Portal:

1. Search for the "**Penrith HV Battery Energy Storage System**" project, or type in address https://www.planningportal.nsw.gov.au/major-projects/projects/penrith-hv-battery-energy-storage-system. From this page you can view the EIS and make a submission
2. To make a submission, click "make a submission":




3. Select whether you will be making a personal submission or on behalf of an organisation
4. Disclose any reportable political donations
5. Decide whether to include your personal information in your submission
6. Make a brief statement on whether you support or object the proposal
7. Fill in the online submission form. Your submission can be either typed or uploaded as a pdf
8. Agree to the terms and conditions and click submit.

For additional information on how to make a submission, please visit https://www.planningportal.nsw.gov.au/major-projects/have-your-say.

Ausconnex acknowledges the collective sentiment of submissions received are used by the DPHI to guide the final determination, as well as any conditions of approval for the project. The Ausconnex project team will be available to any interested stakeholders and community members in the lead up to and during the EIS public exhibition to provide clarifications on any information included in the EIS.

## Assessing and minimising impacts

The EIS brings together expert studies that help us understand how the project might affect the environment and local community. It also explains what measures will be put in place to minimise impacts during construction and operation.

The specialist studies undertaken for the EIS include:

- Noise and Vibration Assessment (NVIA)
- Visual Impact Assessment (VIA)
- Traffic and Transport Impact Assessment (TTIA)
- Social Impact Assessment (SIA)
- Bushfire Assessment of bushfire prone land
- Electric and Magnetic Fields (EMF) Assessment
- Preliminary Hazard Analysis (PHA)
- Flood Impact and Risk Assessment
- Contamination via a Detailed Site Investigation report (DSI)
- Surface and Groundwater Assessment
- Statement of Heritage Impact (SOHI)
- Waste Management Plan (WMP)
- Aboriginal Cultural Heritage Assessment Report (ACHAR)
- Cumulative Impact Assessment

An overview of each specialist study and relevant sections of the EIS where you can find more information is provided below.

**The full list of specialist reports will be available via the Major Project Planning Portal and in-person during the public exhibition period. To view online, visit https://www.planningportal.nsw.gov.au/major-projects/projects/penrith-hv-battery-energy-storage-system**

## Understanding and reducing noise impacts

The Noise and Vibration Impact Assessment (NVIA) identifies the current noise levels in the area and potential impacts the project will bring, as well as methods on how we propose to minimise these impacts.

During construction, noise levels are expected to stay within acceptable limits for nearby homes and businesses, and no vibration issues are anticipated.

During operation, modelling shows that noise levels could exceed nighttime limits for apartments located on the upperfloors of Combewood Avenue. To mitigate this and ensure the project remains within the required limits, several mitigation measures are proposed:

- Installation of a 7m (height) noise wall along the eastern and northern boundaries of the BESS
- Reduced battery fan movements in the evening (6pm-10pm) and night periods (10pm –7am)
- Noise monitoring once the facility is operational

These steps will help ensure the project remains respectful of the surrounding community and maintains a safe and comfortable environment for nearby residents.

*Additional information on the noise impacts can be found in Chapter 6.1 of the EIS.*

## Managing visual impacts

A Visual Impact Assessment (VIA), outlines how the project may affect views from nearby homes, roads, and public spaces. Four key viewpoints were assessed, with the most noticeable changes expected from upper-level apartments along Lord Sheffield Circuit and Combewood Avenue. These residents may see parts of the site during construction and the 7m noise wall will be visible once the project is operational.

Overall, visual impacts are considered moderate to low and consistent with the area's existing industrial character. Most views will be naturally screened by vegetation and surrounding buildings.

To help reduce visual impacts, the project will include measures such as:

- Sympathetic visual design of the 7m noise wall surrounding the northern and eastern boundary of the site
- New landscaping (where feasible) along Thornton Drive

*Additional information on the VIA can be found in Chapter 6.2 of the EIS.*

## Managing traffic around the site

A Traffic and Transport Impact Assessment (TTIA) has been completed to ensure safe and smooth traffic flow throughout construction, operation, and future decommissioning. Access to the site during construction will be via Thornton Drive, including light, heavy and, oversized and overmass vehicles. Internal roads are designed to prevent queuing. A parking strategy will be developed to ensure off-site parking is available for workers accessing the site. Emergency vehicles will have access to the site primarily via Thornton Drive, however Museum Drive entrance will be provided as a secondary entrance to all emergency vehicles throughout construction phase.

The busiest period will see up to 120 vehicle trips per day to the site but impacts during peak traffic hours are expected to be minimal. Oversize and Overmass (OSOM) vehicle movements will be scheduled outside peak hours to reduce disruption.

*Additional information on the TTIA can be found in Chapter 6.3 of the EIS.*

## Community impacts and benefits

A Social Impact Assessment, (SIA) was completed to understand how the project may benefit and impact the local community. The assessment looks at key factors such as population, housing, local services, employment, and access.

The assessment determined that any potential impacts during construction, operation, or decommissioning are expected to be minimal, short-term, and/or manageable. Ongoing engagement with nearby residents and businesses will help ensure concerns are addressed through a tailored Community and Stakeholder Engagement Plan.

Once operational, the project is expected to deliver positive benefits such as local job opportunities, energy reliability, and support community values around sustainability and climate action.

*Additional information on the SIA can be found in Chapter 6.4 of the EIS.*

## Understanding and assessing potential bushfire impacts

Findings from the technical assessments indicate vegetation to the south of the proposed HV BESS site is classified as bushfire-prone land. The proposed site has been designed with an 11-metre year-round Asset Protection Zone (APZ) from the BESS units on the southern side to the Bush Fire Prone vegetation along Museum Drive. These measures follow NSW's bushfire safety

standards and will be detailed in a comprehensive Bush Fire Emergency Management and Evacuation Plan. Fire hydrants will also be strategically installed as part of the HV BESS project. With these protections in place, the project will meet all required safety guidelines and help ensure the wellbeing of the local community.

*Additional information on the Bushfire Assessment can be found in Chapter 6.5 of the EIS.*

## Ensuring community health and safety

An Electric and Magnetic Fields (EMF) assessment was completed in line with international safety guidelines to make sure any health concerns related to electromagnetic fields were properly addressed. The assessment was undertaken in line with the International Commission on Non-Ionizing Radiation Protection (ICNIRP). These guidelines address health and safety concerns associated with EMF.

The EMF assessment confirmed that the project meets all necessary safety standards and the design ensures EMF exposure remains within safe limits for the community.

*Additional information on EMF can be found in Chapter 6.6 of the EIS.*

## Review of potential hazards

Potential risks associated with the 48 battery modules at the site include fire, gas release, or noise. The battery modules have been carefully designed to meet NSW safety guidelines and minimise impacts.

The assessment reviewed all potential hazard scenarios, and due to embedded controls and recommended treatments, no significant risks remain. Safety features include:

- Battery enclosures to isolate potential risk of fire
- Automatic fire suppression as well as heating, ventilation and cooling systems
- Smart site design to ensure flood and bushfire resilience.

The assessment shows that the Penrith HV BESS is not considered a hazardous project provided the recommended safety measures and mitigations methods are implemented.

*Additional information on the PHA can be found in Chapter 6.7 of the EIS.*

## Minimising water levels and flooding risks

A Flood Impact and Risk Assessment confirmed the project will not increase flood risk or affect flood behaviour in the area. The site is located within the Hawkesbury-Nepean and Boundary Creek catchments, which are subject to both mainstream and local flooding. The project has been carefully designed to stay above the flood planning level of 26.9 metres, to protect the BESS from flooding risk even under future climate scenarios. The project is also not expected to impact flood behaviour, safe evacuation of people servicing the BESS and or project site.

The project meets all flood resilience standards and supports a cleaner, more reliable energy future for the community.

*Additional information on Flood Risk can be found in Chapter 6.8 of the EIS.*

## Current condition of the site

A Detailed Site Investigation (DSI) was completed to assess soil conditions and identify any potential contamination risks. The study followed NSW Enviromental Protection Authority (EPA) guidelines and included site inspections and fieldwork.

A section near the Penrith substation contained demolition-related fill materials, such as ceramics and bricks, but no significant contamination was identified. As a precaution, an Asbestos Management Plan will be in place during construction if any asbestos-containing materials are discovered. This plan will include clear procedures, responsibilities, and an asbestos register to meet workplace health and safety standards. These steps help ensure the site remains safe for workers and the community throughout the project.

*Additional information on the DSI can be found in Chapter 6.9 of the EIS.*

## Understanding impacts to ground and surface water

A detailed assessment has been completed to understand how the project may affect surface water and groundwater during construction and operation. The proposed design ensures the project protects local water resources and meets all environmental standards.

*Additional information on the Surface and Groundwater Assessment can be found in Chapter 6.10 of the EIS.*

## Study of heritage items around the site

A Statement of Heritage Impact (SOHI) ensures the project respects and protects nearby heritage sites. While there are no heritage-listed items within the project site, nearby landmarks such as the Museum of Fire and Penrith Railway Station were carefully considered. The assessment found

that the project is consistent with the area's existing commercial and industrial character. The Museum of Fire is protected during both construction and operation by means of a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP).

*Additional information on the SOHI can be found in Chapter 6.11 of the EIS.*

## Managing waste

A Waste Management Plan (WMP) was completed to ensure responsible handling of materials throughout construction, operation, and decommissioning. The WMP adheres to NSW Environmental Protection Authority guidelines and aims to prevent harm, reduce waste, and promote resource recovery.

During construction, waste will be minimal since most equipment is delivered ready to install on site. Expected waste includes packaging, excavation materials, and general worker activity.

During operation, waste generated will be negligible as no full time staff will be present on site. When the project reaches the end of its 20-year serviceable life, BESS components and equipment are expected to be returned to the supplier or recycled by a licenced facility. A dedicated decommissioning waste plan will be prepared at the end of the 20-year lease for the project. All waste will be managed according to NSW EPA guidelines.

*Additional information on the WMP can be found in Chapter 6.12 of the EIS.*

## Surrounding Aboriginal cultural heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was undertaken to understand the Aboriginal cultural heritage values. No Aboriginal sites were found within the project footprint and there is no potential harm to any Aboriginal sites. To reduce any potential impacts to Aboriginal cultural heritage values, the project will include measures such as following a protocol for unanticipated discovery of significant materials during ground disturbance and excavation works.

*Additional information on the ACHAR can be found in Chapter 6.13 of the EIS*

## Surrounding projects in Penrith

The Cumulative Impact Assessment (CIA) looks at future developments within 2km of the site and considers any potential impacts from overlapping construction and operation of the projects.

There is a total of seven future projects identified near the site, including the Penrith MV BESS. Cumulative impacts considered include potential impacts to traffic and transport during overlapping construction. Consultation with Penrith City Council and Transport for NSW would be undertaken to ensure traffic impacts are well understood and managed. Operational impacts, including maintenance traffic, are expected to be minimal. The Project aligns with the long-term goals of the Penrith LGA to improve sustainability and climate resilience, community wellbeing and inclusion, and support a growing city.

*Additional information on the CIA can be found in Chapter 6.14 of the EIS.*


Figure 5: Photomontage – View from Museum Drive facing the substation with future proposed Battery Energy Storage System (BESS), showing noise wall concept design.

## Contact Us

To speak with Ausconnex about the Penrith HV BESS or EIS, you can contact the project team via email or phone.

batteries@ausconnex.com.au

1800 955 224

ausconnex.com.au/bess-project-penrith/

We’re here to listen and make sure the community is kept informed every step of the way.