Battery Energy Storage System (BESS)

Frequently Asked Questions

About North Harbour Clean Energy

North Harbour Clean Energy (NHCE) is an Australian company dedicated to owning and operating a portfolio of energy assets, with a focus on energy storage.

Our team is passionate about contributing to Australia's clean energy future and using technology and capability to deliver on-demand, clean energy.

We offer significant energy and infrastructure sector experience across design, construction, commercial operations, financing and investment.

What are Battery Energy Storage Systems (BESS)?

BESS are an energy storage technology designed to absorb and release electrical energy. When there is excess energy in the grid the BESS will charge and store that energy.

When there is demand for energy the BESS will discharge. This avoids a shortfall in electricity supply and helps to stabilise the grid. Batteries can respond to the system needs faster than other energy storage or generation technologies.

What does a BESS look like?

BESS facilities look like modular systems that can be configured based on specific site and capacity requirements.

The technology is continuously evolving with BESS components becoming increasingly more efficient and compact in size.

BESS facilities can be screened using either vegetation or walls to minimise any potential visual impacts.

info@northharbourpl.com www.nhcleanenergy.com 02 9137 4142

How does a BESS operate?

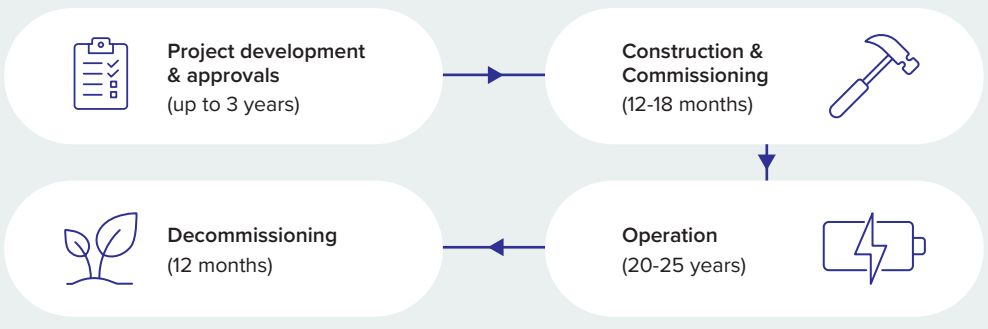
A BESS operates (charges and/or discharges) based on network and market conditions. These are the key features of the BESS:

- Operates continuously throughout the week, typically undergoing 1 x charging cycle and 1 x discharging cycle per day, each lasting approx. 2 hours.
- Largely operated remotely
- Construction typically takes 12-18 months, with peak activity lasting only approx. 2 months within that period
- Operational lifespan of around 20 - 25 years (with potential to repower).

What jobs are created during BESS construction and operation?

- Surveyors
- Geologists
- Traffic controllers
- Civil labourers/ managers
- Site engineers
- BESS installers
- Electricians/ Fitters
- Electrical trades assistant
- Concrete suppliers
- Operational inspections and maintenance
- Increased patronage at Service providers: accommodation, food, local pubs.

BESS lifecycle



Project Development and Approvals

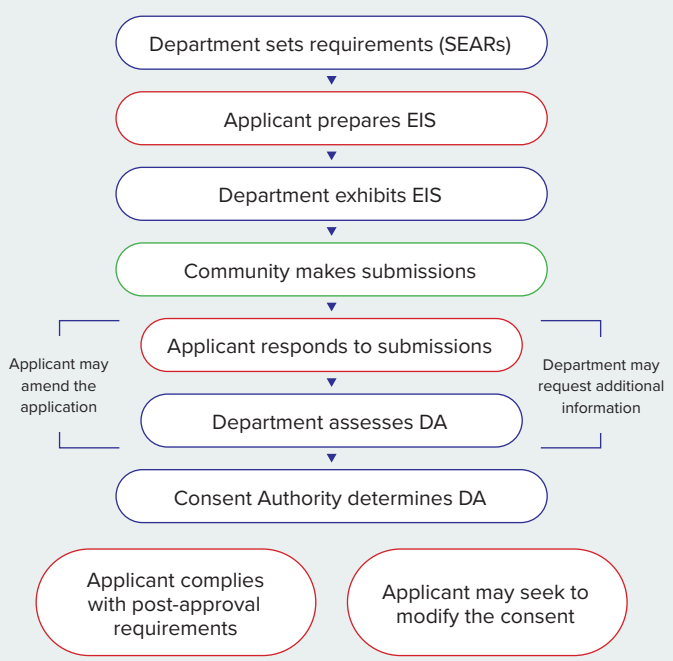
The BESS projects proposed by NHCE are classified as State Significant Development (SSD), meaning they need to be assessed and approved by the NSW State government.

To support the planning and environmental approvals process for a BESS, an Environmental Impact Statement (EIS) must be prepared that assesses the potential environmental, social and economic impacts of a proposed project.

The EIS comprises a range of technical studies identified in the Secretary's Environmental Assessment Requirements (SEARs). These typically include:

- Biodiversity
- Noise
- Visual and Landscape
- Traffic
- Hazards
- Bushfire
- Hydrology

State significant development



How are fire risks managed?

Battery energy storage is safe, with technology constantly improving to reduce risks. Our BESS projects incorporate comprehensive fire risk mitigation strategies developed through global industry experience and the latest safety technologies, with multiple layers of protection from equipment selection to emergency response.

Equipment and Technology
NHCE projects use third-generation battery technology that meets leading international safety standards and incorporates improvements made through each generation based on global operational experience. Advanced monitoring, temperature control, and automatic shutdown systems ensure safe operation, supported by 24/7 remote oversight.

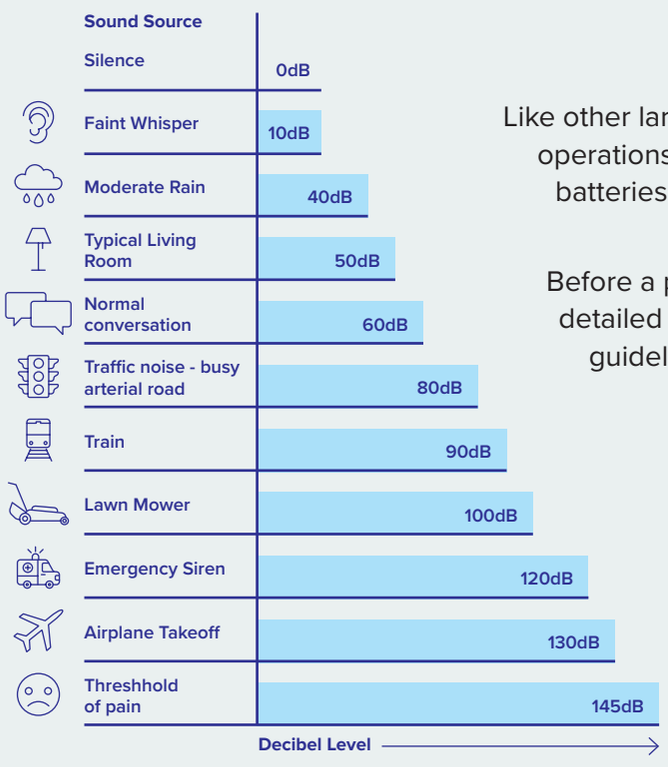
Site Design and layout
The layout minimises fire risk with adequate spacing, on-site firefighting infrastructure, and Asset Protection Zones. Emergency access roads provide clear entry for responders.

Fire Preparedness and Emergency response
Fire Safety Plans are being developed in collaboration with local fire authorities, including isolation and shutdown protocols, advanced detection systems, and a site-specific Emergency Management Plan finalised before construction.

How are bushfire risks managed?

NHCE takes every precaution in the planning, delivery and operation of BESS to ensure batteries are built to Australian standards, including safeguards to help prevent risk to the development in the event of an external bushfire.

We incorporate asset protection zones, setbacks, emergency access, providing a static water supply and other preventative measures into the design. We also actively engage with the local emergency services to develop robust fire management plans that address hazards specific to the site and surrounding environment.



Decibel Levels of Common Sounds

Source: Environment Protection (Commercial and Industrial Noise) Policy 2023 & Noise Awareness Organisation

Will I be able to hear the BESS?

Like other large facilities, a BESS can create some sound during operations. The main source is the cooling fans that keep the batteries at a safe temperature. This sounds similar to an air conditioner running or a low whirring noise.

Before a project is approved, specialist consultants carry out detailed noise studies. These studies use strict government guidelines to measure expected noise levels and confirm the facility will meet required limits.

Once operating, the BESS must continue to meet these strict noise rules.

Regular monitoring and compliance checks are in place to make sure the facility does not exceed the approved limits.

Diagram: Typical BESS noise levels are 45dB approx. 200m from the facility.

What should I expect during construction?

TRAFFIC: Peak construction traffic will occur over approx. 2-month period within the 12–18 month construction timeline, mostly during the delivery of main components. A Traffic Management Plan will be developed with Council and Transport for NSW to manage traffic impacts and ensure safe access.

WORKING HOURS: Construction will occur during standard hours (7am–6pm Mon–Fri, 8am–1pm Sat).

NOISE: Development consent will include construction noise limits. A Noise Management Plan will be prepared before works begin, detailing measures to minimise impacts, such as scheduling noisy activities to less sensitive times, reducing machinery noise, and managing noise from construction vehicles.

What happens at the end of the project?

When a BESS reaches the end of its life, the facility can be decommissioned and the area returned to its original condition. This includes:

- Dismantling and removing the BESS facility infrastructure
- Removing related infrastructure
- Respread stockpiled top-soil and revegetate site.

The BESS operator is responsible for decommissioning, with commitments outlined in the Environmental Impact Statement and assessed by the Department of Planning, Housing and Infrastructure.

Most parts can be recycled, including batteries (for valuable metals), steel and concrete structures, cabling, inverters, transformers, and cooling and fire systems. Some components remain harder to recycle but industry advances are expected to increase reuse and recovery options over time.

What local benefits does a BESS offer?

BESS projects can deliver affordable and reliable electricity to communities while helping to meet future electricity needs in NSW.

These projects can provide economic, social and environmental impacts, including:

- Energy storage that helps to stabilize the grid
- Creation of local jobs
- Funding for local community benefit programs
- Financial contributions to local Council's under planning agreements.

Contact us

If you have any questions about the project, feedback, ideas about benefit sharing opportunities or would like to share your local knowledge, please contact us via the information below

Visit our website: **www.nhcleanenergy.com**

Email us at: **info@northharbourpl.com**

Call us on **(02) 9137 4142**

Acknowledgement of Country

North Harbour Clean Energy acknowledges and pays respect to the past, present and future traditional custodians and elders of this nation and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.