Frequently Asked Questions: Hanworth Battery Energy Storage System (BESS)

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A brighter way



General

What is proposed?

Octopus Australia is pursuing development approval for a Battery Energy Storage System (BESS) up to 1.2 gigawatt (GW) / 4.8 gigawatt-hour (GWh) in Bannaby, NSW. The Project is approximately 20km east of Taralga and 60km north of Goulburn in the Upper Lachlan Shire, with an anticipated development size of 26 hectares.

What is a BESS and why is it needed?

A BESS is a group of batteries used to store excess electrical energy from the grid. A BESS allows the storing of energy from the National Energy Market (NEM) grid when supply is high and demand is low, to deployed when energy demands are high. The energy stored in the BESS could be from a variety of energy sources, including solar, wind, rooftop solar or coal.

The BESS can compensate for the intermittency of renewable energy generation sources such as solar and wind, to provide energy stability to the national gird. For example, when the sun is not shining or when the wind is not blowing, a BESS will be able to provide additional power, and in reverse when solar power and wind power is in excess, a BESS will be able to store that energy for use when demand is needed.

A BESS can provide backup power to address both weather conditions and lack of grid space, therefore maintaining system strength and ensuring network security. They are crucial to the increased adoption of dispersed energy sources and infrastructure, reducing the risk of widespread power outages. BESS will serve as a crucial piece of energy infrastructure as the national energy system transitions away from centralised coal fired power generation, and will help to stabilise the grid ensuring around-the-clock, reliable energy supply.

BESS' are a cost-effective alternative to meeting peak energy demand, compared the gas fired power generation, help to avoid the need for greater network upgrades, and can assist in the case of emergencies. The Project will contribute towards grid stabilisation requirements while creating new jobs and contribute to placing downward pressure on the wholesale cost of electricity, leading to electricity price reduction.

What stage is the Project up to?

The Hanworth BESS project is in the Environmental Impact Statement (EIS) phase of a NSW State Significant Development (SSD) development application.

The Project completed and submitted the Scoping report to the NSW Department of Planning, Housing and Infrastructure (DPHI) in November 2024 and received the Secretary's Environmental Assessment Requirements (SEARs) on 12 December 2024. The "SEARs" lists the information and detailed specialist assessments that need to be undertaken in the EIS.

Technical assessments are currently underway. During this time community engagement and opportunities for community input and feedback are available throughout. Once complete, the EIS will be submitted to DPHI. It will be placed on public exhibition for a minimum of 28 days for community and agency comment. A Response to Submissions Report will be completed following the exhibition period addressing any comments or feedback received. Following this, DPHI will determine the outcome of the project.

Who approves the Project?

As a state-significant project, the Project will be reviewed by the NSW Department of Planning, Housing and Infrastructure (DPHI).

Is the Hanworth BESS Project a part of the Humelink project?

No, the Hanworth Battery is completely independent of the proposed HumeLink project. The BESS would not require HumeLink to be constructed in order to operate.

Who is the developer of this Project?

Octopus Australia is the owner, developer and long-term operator of the Hanworth BESS Project. Octopus Australia will manage the project from development and construction into operation and eventually decommissioning.

Octopus Australia has engaged Enervest to provide certain development services for the Hanworth BESS Project.

Who is Octopus Australia?

Octopus Australia is an energy fund manager and developer harnessing capital and expertise to accelerate the energy transition, with a portfolio and pipeline of over $16 billion across wind, solar and battery storage projects.

Octopus Australia's team of over 70 highly skilled professionals across Melbourne, Sydney and Brisbane have a unique blend of skills and deep industry expertise across investment, energy markets, development, construction, grid, engineering, stakeholder and community engagement, and legal. This allows them to manage projects across their entire lifecycle and to construct and operate a large integrated energy portfolio.

Visit: octopusaustralia.com.au

Who is Enervest?

Enervest is an Australian-owned and operated company specialising in the design, construction and operation of energy generation and storage assets. Enervest was founded in 2008 and provides engineering and operational services for Australia's decarbonisation journey. Enervest has a national presence, working alongside local communities and industry partners to develop projects that provide an overall positive impact on both the environment.

Design considerations

What does a BESS look like?

A BESS is a container-like modular systems that are configured based on site and capacity obligations and can be compared to shipping container-like objects. As technology improves, the systems are becoming increasingly efficient and more compact.

Why was this site chosen?

Careful consideration is needed to select the most appropriate site for a BESS. There are many factors to consider including:

- Landowner agreement,
- Access to the electricity grid,
- Proximity to existing substation,
- Current land use,
- Environmental impacts,
- Proximity to residents.

Will there be a visual impact?

Inevitably, the installation of a BESS will have some effect on the current look of the landscape, though it is anticipated that the Project will have low visual impacts and the BESS cubicles are unlikely to emit glare or reflection. A BESS container system can be described as similar to a 20 ft shipping container and are approximately 2.6 m high.

The SSD application process consists of independent technical assessments, and visual impact will be assessed as part of this. If required, BESS facilities can be screened (by either vegetative or artificial means) to minimise any potential visual impacts.

Will I be able to hear the BESS?

Like all large-scale developments, BESS facilities may generate noise, and detailed noise assessments and the impacts on the surrounding area will be investigated as part of the EIS.

The main source of the sound includes:

- The inverter station and unit transformers,
- The main HV transformer in the voltage step-up substation,
- The cooling fans required to regulate the operating temperature of the battery containers.

The inverter stations are built in a containerised cabinet to reduce noise level naturally. The sound of the battery cooling load is like an air conditioning unit or a dull whirring noise.

The noise level will decrease with distance and can be further reduced by the installation of acoustic enclosures or barriers (if required). Studies are ongoing to assess noise levels, the impact this may have on the area, and clear mitigation recommendations.

Environmental

Do batteries increase fire risk?

DPHI have implemented Preliminary Hazard Analysis (PHA) guidelines for safety assurance of development Projects. This process is applied as part of the EIS procedures under the Environmental Planning and Assessment Act 1979. The objective of a hazard analysis is to develop a comprehensive understanding of the hazards and risks associated with an operation or facility and the adequacy of safeguards.

Octopus Australia will work closely with the relevant fire service agencies to confirm access requirements for the BESS. Management Plans will be produced prior to construction commencing that will include site-specific Fire, Risk and Emergency Management Plans to address the management of potential fires during construction, operations, and decommissioning.

An additional key component of the fire management plans will be the implementation of Asset Protection Zones (APZs) around the facility. APZs are designed to reduce the risk of bushfires impacting the BESS containers by maintaining cleared and managed areas that limit the spread of fire to critical infrastructure on site.

Octopus Australia will continue to seek and take guidance from relevant agencies to ensure the final design meets all requirements and standards.

Do batteries have their own fire suppression systems?

Yes, they do. To mitigate potential fire risk from batteries the following steps are undertaken:

1. The substation and BESS have protection systems commissioned to prevent overcurrent or any electric faults occurring which could cause fire.
2. The plant facility will have a Battery Management System which includes multiple detectors, including heat detectors and smoke detectors as standard. The units themselves will also have fire extinguishing system, such as: Aerosol fire extinguishing system; and, dry pipe sprinkler system.
3. Water tanks and fire extinguisher tools will be installed on site.

Are there health risks associated with EMFs and living near a BESS?

Electro-Magnetic Fields (EMF) are naturally present in the environment. They are present in the earth's atmosphere as electric fields, while static magnetic fields are created by the earth's core. EMF are also produced wherever electricity or electrical equipment is in use (e.g. household appliances like fridges, and powerlines).

The use of electricity in daily life exposes us to low frequency EMF and are not considered a risk to human health (NSW Government 2022). Your kitchen stove has an EMF range of 2-30 milligauss (mG) and your hairdryer 1-70mG. Standing at the edge of a transmission powerline easement would be in the range of 10-50mG, and under a transmission powerline 20-200mG.

The current international standard for limiting human exposure to EMF, established by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), is 2000mG (NSW Government, 2022). EMF from a BESS are typically less than household appliances and are not distinguishable from background levels at the site boundary.

Technical and engineering experts, including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), have found no known or documented electromagnetic radiation impacts associated with big batteries.

Do BESS developments impact native flora and fauna?

Expert consultants have undertaken flora and fauna surveys to understand the ecological characteristics of the site. The Project infrastructure area has been carefully decided upon and established to avoid the removal of important or protected vegetation, minimising impacts on native habitats.

Octopus Australia is committed to minimising impacts on native flora and fauna during the construction and operation phases. During these phases, management plans will be developed to ensure this compliance is maintained.

Is the site affected by flooding?

Assessments are currently underway to determine whether the site is flood prone. While it's not expected, there is a small chance that stormwater flooding could occur in the form of surface pooling during intense rainfall events. In such cases, the BESS infrastructure is designed to remain stable and secure, with all critical components either elevated or adequately protected. Further analysis of flood risk and mitigation measures will be carried out as part of the EIS.

Technical

How will power supply be affected in the local area – will there be outages during construction?

There will be no outages expected during the construction phase. Once the BESS is built and operational, it will help to increase the grid stability.

How long will construction take? How will construction traffic and road impacts be managed?

During the anticipated 29-month total construction period, construction vehicles would range from light vehicles to 26m B-Doubles, to large oversize, overmass (OSOM) vehicles. Light vehicles would arrive during AM/PM peaks with heavy vehicle deliveries to be spaced out during the day.

Will this battery technology still be relevant once it is constructed?

Yes. The BESS can be adapted to utilise updates in technology closer to the construction and operation period. The BESS equipment manufacturers are a global leader in battery research and development and are well placed to make these adaptations.

How long is the project lifespan? What will happen with the BESS once it reaches its end of life?

The lifespan of a BESS is typically up to 20-25 years. At the end of its operational life, the BESS can be decommissioned, components can be recycled and the land can be restored to its original or an agreed-condition. This process includes the removal of the BESS, associated infrastructure, and site rehabilitation, as outlined in both landowner agreements and the project's approval conditions.

Alternatively, if deemed financially viable, the Project may be re-energised, subject to a Development Application (DA) modification or a new approval, in accordance with NSW planning regulations.

Are batteries recyclable?

Battery manufacturing has greatly improved in efficiency and scale in the past decade, driven by the critical growth phase of battery recycling. Nearly all materials in a lithium-ion battery, including nickel, cobalt, graphite, copper, aluminium, iron, and lithium, can be recycled, with up to 95% recovery rate.

CSIRO is actively involved in supporting lithium-ion battery recycling through research on metal and material recovery processes, new battery materials development, and fostering a circular economy for battery reuse and recycling.

Australia's lithium battery recycling industry, though in its early stages, is already demonstrating progress towards a cleaner and more sustainable future, with operational recycling facilities like Envirostream in Victoria.

The Ecocycle Group of companies have recently commenced operation of the largest and most advanced lithium battery recycling plant in Australia in late 2025.

Social and Economic

How will the Project work and engage with First Nations groups?

Octopus Australia seek to protect and conserve Aboriginal Cultural Heritage by carrying out the appropriate site investigations and due diligence. Project teams have engaged with and will continue to engage with the local Traditional Owners, as we plan to work together to deliver the Project with mutual benefits.

How many jobs will be created by the construction of the project?

The Project would bring direct employment opportunities ranging from skilled to manual labour with approximately 200 Full-Time Equivalent (FTE) jobs expected during its up to 2.5-year construction period.

How many jobs will be available during the operations of the project?

Once the Project is operational, up to 4 permanent FTE roles will be required.

Apart from job creation, what other benefits will the community receive?

Octopus Australia is committed to delivering long-term investment in the regions and the communities in which we operate. Engaging with your community is essential to us and ensures that our project offers mutually beneficial economic and social outcomes.

Octopus Australia will be continuing to engage and update all stakeholders that have an interest in – or may be impacted by – the project and will use information gathered to develop the most appropriate community benefit programs that foster positive outcomes and provides value to the local community.

Benefits will also include potential community grants, diversified income within the community, and clean, zero-emissions electricity to meet the region's energy needs.

Will neighbouring insurance premiums be impacted by the development?

Based on available information, there is no indication that the development of energy infrastructure will have a direct impact on neighbouring insurance premiums. As confirmed by the Insurance Council (May 2024), there have been no reported cases where their members have denied coverage or increased premiums solely due
to the presence of energy infrastructure on a property or nearby.

The Clean Energy Council similarly highlights that any adjustments to insurance premiums are unlikely to be directly tied to clean energy developments. Instead, rising insurance costs are largely driven by broader factors, including the escalating frequency and costs of natural disasters, inflation affecting building and vehicle repair
expenses, the increasing value of homes and vehicles, and higher operational costs for insurers.

How can local businesses or individuals get involved in the Project?

Octopus Australia encourages local individuals or businesses who wish to be involved in the project to contact the Project team to arrange a meeting. Contact us through the methods outlined above, or by submitting a request through the 'get in touch' section of the Project website: hanworthbattery.com.au

Find out more

To learn more about the project or the community benefit fund application process please contact:

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