Pleystowe BESS

GENERAL

What is proposed?

The Pleystowe Battery Energy Storage System (BESS) Project is a proposed large-scale energy storage facility located at 244 Pleystowe School Road, Pleystowe, approximately 2.5 kilometers northwest of Walkerston and 13 kilometers west of Mackay in Queensland. It aims to store renewable energy for later use, supporting grid reliability and Queensland's renewable energy goals.

Who is Trina Solar?

Trina Solar is an internationally recognised leader in solar farm developments, known for its supply of PV modules with its own manufacturing divisions of solar modules, trackers, electrolysers, and Battery Energy Storage Systems (BESS).

With local offices in Melbourne, Sydney, Perth and Brisbane, the company has demonstrated its capability to deliver renewable energy projects by developing, constructing, and operating over 8GW of solar farm projects worldwide. Trina also has a strong pipeline of new projects currently in the development and construction phase, indicating its ongoing global commitment with the transition to clean energy and reaching net zero.

With an enviable global manufacturing division, significant record of accomplishment, Trina Solar brings its demonstrated capability in renewable energy projects to the local Australian market. The company's expertise and experience make it well-positioned to play a leading role in Australia's transition to renewable energy.

Why is this proposal needed? Isn't there enough renewable energy being produced in the area?

Queensland has committed to achieving 70% renewable energy by 2032 as part of its Energy and Jobs Plan. The state is making significant strides towards its renewable energy targets. This proposal will support this transition, create local jobs, and contribute to reducing electricity prices and carbon emissions, ensuring a more sustainable energy future for the region.

What is a BESS?

A BESS is an energy storage system that uses a group of batteries to store electrical energy from a variety of sources, including solar. The system compensates for the intermittency of sources, providing backup power to address certain constraints such as weather conditions and lack of grid space. They are crucial to the increased adoption of dispersed energy sources and infrastructure, reducing the risk of widespread power outages. BESS is also major type of generators apart of synchronous machines to support system

https://pleystowebess.com.au/

strength during contingencies and normal operation for network security.

What stage is the proposal at?

Trinasolar is in the early investigation stages of a development application and is currently assessing the limitations and restrictions of the project through environmental assessments and stakeholder engagement. The information gathered at this stage will be compiled to ensure the development plans align with local landscape values and identity, and therefore inform the final planning permit application.

Once submitted, it will be decided whether to issue a development approval.

Who approves the project?

In Queensland, the application for this project will usually be assessed and approved by the local council in accordance with relevant planning and environmental regulations. The evaluation process ensures the project aligns with community needs, environmental standards, and regional development goals, supporting a streamlined pathway for approval.

When will construction commences and how long will construction take?

The construction start date is dependent on a variety of factors, including obtaining Development Approval from relevant authorities, selecting a construction company, and receiving grid connection approvals, negotiation of a Power Purchase Agreement (PPA) and completion of the Financial Close process. Once construction contractors are appointed, works on site are to take approximately 12 months.

How long will this project operate for? What happens after that?

The operational life of the project is expected to be at least 20 years. After this time, the site will be decommissioned and the land rehabilitated and returned to its original use. The decommissioning process is a critical part of the development application process, and a decommissioning plan will be included for the development to be considered.

What will happen to the residual land?

The residual land will remain as it is currently used.

DESIGN CONSIDERATIONS

What does a BESS look like?

BESSs are container-like modular systems grouped with multiple inverter stations that are configured based on site and capacity obligations and can be compared to shipping container-like objects. Containerized form of BESS will reduce install and maintenance duration, improve electrical and environmental safety of whole plant, reduce impact on original landscape. As technology improves, the systems are becoming increasingly efficient and more compact.

Why has this specific site been chosen?

The development site was selected for its proximity to the Yabulu South Substation—one of the largest grid terminal stations in QLD. The site also features setbacks designed to minimise any impact on neighbouring properties, and the Formosas Road can be utilized for cable route, allowing for reduced disturbance to connect the BESS to electrical infrastructure.

Will there be any visual impact?

Inevitably, the installation of a BESS will have some effect on the current look of the landscape, though the BESS cubicles are unlikely to emit glare or reflection. The Development 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.

Trina Solar is committed to working closely with the local community to address any concerns and encourages the community to approach them with any issues that may arise.

Will I be able to hear the BESS?

Like all large-scale developments, BESS facilities may generate noise, however, in Queensland, due to the state's environmental protection regulations and the BESS's location with propose designs, it is not expected to be heard by nearby residents or the community. The main source of the sound include (1) inverter station and unit transformer, (2) HV transformer in voltage step-up substation, (3) internal cooling fans required to regulate the operating temperature of the individual battery cells. The inverter stations are built in containerized cabinet to reduce noise level naturally. The sound of HV transformer at fully loading conditions is lower than the existing transformer at Yabulu South Substation. The sound of battery cooling load make is similar to an air conditioning unit or a dull whirring noise. All the noise level decrease with distance and can be further reduced by install of acoustic enclosures or barriers. Studies are ongoing to assess noise levels, the impact this may have on the area, and clear mitigation recommendations.

TECHNICAL

What type of BESS units will be used?

The design is still to be finalised; in general, BESS units is using mature liquid-cooled LFP batteries with electrically isolated coolant. However, the latest technology will be used at the time of construction. BESS units also can be adapted to utilise updates in technology, and with Trina Solar being a global leader in battery research and development, they are well placed to make these adaptations.

How high will the units be?

BESS units will be installed on low-lying structures and are expected to not exceed 3m above the natural ground level. It is expected that the project area will be at the same height or lower than other existing features in the landscape.

How will construction and operation traffic and road impacts be managed?

Access to the development site is anticipated to be from Formosas Road. The anticipated 12 months construction period including (1) early works period like site levelling, clearing, fencing, survey, design, procurement, etc. (2) approximate half year as peak period for equipment delivery, install and civil works, (3) rest of period testing and

commissioning time. During the peak construction period, construction vehicles would range from light vehicles to B-Doubles. Light vehicles would arrive during AM/PM peaks with heavy vehicle deliveries to be spaced out during the day. The rest of period, there will be much less transportation on local traffic. During the operation phase, traffic impact will be minimal, with fewer than 10 contractors required for maintenance.

Will there be outages during construction?

There will be no outages expected during the construction phase. Trina will work closely with Powerlink during the different phases of the project to minimise the impact to any distribution power line. Once the BESS is built and operational, it will help to increase the grid stability.

Are there health risks associated with living near a BESS?

There are no situations in which being in the proximity of a BESS can have adverse health effects. The operation of a BESS generates no emissions such as CO2 or any other harmful gases.

ENVIRONMENTAL

Will the surrounding land be impacted by any 'heat island' effects?

BESS units do not directly contribute to the urban heat island effect, as they do not generate any heat on their own, however; they can indirectly affect the urban heat island effect depending on their location and only temporarily through their construction management.

As the Pleystowe BESS will be in a rural area, the surrounding environment is not known to be a direct contributor to the heat island effect given its low density of human-made urban structures. Therefore, the combination of the BESS location with the surrounding environment will not pose a risk of contributing to the 'heat island' effect.

What happens in the case of a chemical spill?

BESS

facilities are designed to manage chemicals and avoid chemical spills on site. Battery pack protection level is IP67 and the liquid-cooled bottom plate of pack can prevent spills. In addition, the container is sealed from bottom side to avoid any leak. In the unlikely event of a leak, containment measures such as bunding (a form of secondary containment consisting of a raised, impermeable barrier used to retain liquids), spill trays at BESS foundation, and chemical absorbents are in place to capture materials on site. As part of our flood hazard and stormwater risk assessments, we propose integrating a retention basin into the design. This basin will effectively manage flooding and stormwater while also mitigating potential chemical spill risks and preventing contamination through filtration.

Do batteries increase fire risk?

The BESS plant will be located outside Bushfire Management Overlay. The project

layout design considers and is compliant with latest CFA Design guidelines and model requirements for Renewable energy facilities document regarding clearance, accessibility, firefighting water supply, fire break buffer zones, etc. Site specific fire management plan and emergency response plan will be prepared in detail design and pre-construction stage.

The Proposal will not increase the risk of bushfires in the area. Trina Solar will work closely with the relevant fire service agencies to confirm access requirements for the BESS if there is a bushfire that moves into the area, or if a fire starts in the BESS.

Trina Solar will continue to seek and take guidance from the Queensland Fire Department (QFD) to ensure the final design meets all requirements and standards.

Do the batteries have their own fire suppression capabilities?

BESS's have a three-fold approach to fire suppression, in the unlikely event of a battery failure.

- **Battery management system:** If the BMS detects any abnormal conditions (rise in temperature, for example) it shuts the battery down.
- **Gas detection:** Activation of a ventilation system within the BESS enclosure to remove flammable gases and heat.
- **Fire suppression:** A smoke detector alarms, and the signal triggers a fire suppression system that activates an agent to be released to extinguish developing fires.

Trina BESS is designed with a multi-level approach to fire suppression
Equipment level:

- Battery cell has gas outlet hole to release internal pressure and detach from circuits for any fault caused by short-circuit or overheating to reduce further damage.
- Battery pack which has multiple battery cells inside has enclosed structure and signal interface for fire prevention and monitoring.
- Each battery container has built-in liquid fire suppression system, combustible gas detection system, active ventilation system, and aerosol fire extinguishing system. The internal design the balance for cabinet heat, coolant isolation from electrical circuit,

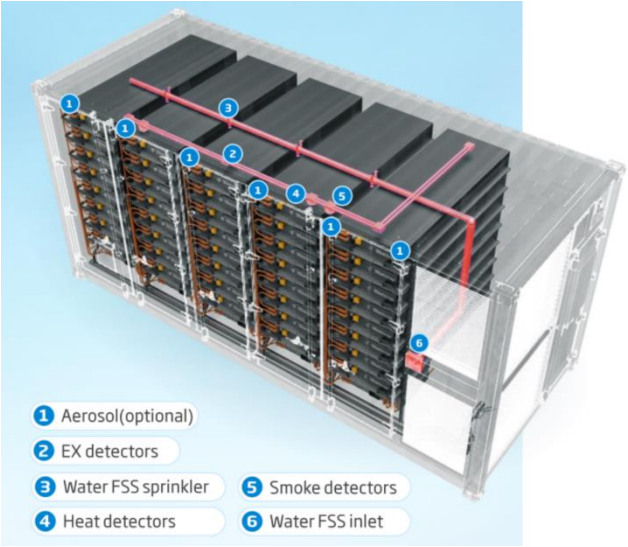
Control and plant level:

- All levels of sensors and equipment has over-temperature and fire signals interface with BMS and plant SCADA system. Remote controls are incorporated into SCADA system and this will enable the signal and alarm will be received simultaneously and the alarm message will be sent to pre-assigned phone number or email address for quick response in 24*7 mode.
- Automatic shutdown control is implemented on both battery string levels and plant EMS/SCADA level. Battery container controller to shutdown battery strings on any potential electrical, heating, or chemical safety and hazards incidents. Inverter will have alarm to stop electrical generation. SCADA can be programmed to disable generation from battery strings at alarms.

Is the site affected by flooding?

Assessments completed to date indicate that the site is not flood-prone. Stormwater drainage will be built along natural waterways. In the unlikely event of stormwater flooding, where water may pool from heavy rainfall events, BESS infrastructure is expected to remain stable.

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 99% 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.

SOCIAL AND ECONOMIC

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

Employment opportunities will range from skilled to manual labour, with an estimated up to 82 full time equivalent (FTE) construction jobs at peak construction, and up to 10 contractors annually. Using qualified local contractors is always a key element for Trina when developing a project, and they intend to work with local service and product suppliers to boost the local economy.

What other benefits will the community receive?

As the project will be operating for more than 20 years, Trina 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.

Trina 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 road or intersection upgrades, diversified income within the community, and clean, zero-emissions electricity to meet the region's energy needs.

Will there be always a contact onsite in case of emergency?

There will be a 24/7 contact and other staff members will be based near the project. The

project will also be monitored continuously by a remote Control Center and CCTV.

What is a Power Purchase Agreement (PPA)?

A power purchase agreement or a PPA is simply a contract to buy power at a specific price. The 'Seller' in this type of agreement is usually a utility-scale generator e.g. solar, BESS and wind farms. The 'Purchaser' in this type of agreement will have significant electricity requirements which allow them to purchase all or some of the output of a project. Examples of buyers include utilities, governments, and major corporates. Examples of companies that have entered into PPAs across Australia include Telstra, Mars, Blue Scope Steel, Snowy Hydro, UNSW, and Coles, with many others considering this option.

Insurance

The Pleystowe BESS will have a range of insurance policies to cover the site in case of damage or fire. We have been discussing with insurance experts, have not indicated that there would be any impact to neighbours' ability to get appropriate insurance. We are not aware of this happening on any of our previous projects. However, we are committed to investigating this further.

We ask that anyone who may have had discussions with their insurers or have been advised this by other sources please get in touch with us and provide as much information as possible so that we can continue to investigate.

Some concerns that really need to be addressed are:

The source material for building the batteries, is it benefiting the country supplying the material? Is it harming the miners of the material? Does it include child labour?

As one of the global leading renewable energy manufacturers, Trina Solar has always committed to complying with all applicable laws, rules, and regulations. We are further committed to conducting businesses in an ethical, humane, and responsible manner. As part of enforcing this commitment, Trina Solar strives to ensure that our products do not incorporate or contain components or materials produced, manufactured or provided using forced labor or slavery in any form. Trina implements strict supply chain management procedures in our daily business operations. We have also regularly reviewed contract terms and letters of commitments with all our suppliers to reaffirm our zero tolerance for forced labour from any of our upstream suppliers.

(1) Trina's global supply chain team monitors our global supply chain partners worldwide to ensure that they avoid any involvement or sourcing associated with forced labor practices.
Please find attached Trina Solar Australia's 2022 Modern Slavery Statement, which is in accordance with the Modern Slavery Statement Act 2018 (Cth).
We have already registered the attached statement at Australian Border Force website:
https://modernslaveryregister.gov.au/statements/13299/

(2) Trina has communicated the importance of fair treatment of labourers and the need for transparent investigation into the origin of materials and the working conditions of employees. Through contract terms, letters of commitment, shared tracing information, and supplier audits, Trina ensures that our suppliers comply with our social responsibility obligations, including labour practices.

(3) We conduct periodic checks and audits among our suppliers ourselves and through independent third parties appointed by us. Suppliers found to have labour compliance issues and refuse to cooperate with investigations or be transparent are blacklisted. Additionally, for certain key materials, Trina procures

raw materials for suppliers to process, ensuring Trina has complete control over the origin of raw materials.

(4) Externally, Trina's sustainability efforts are being audited by EcoVadis since 2014. EcoVadis is the world's largest and most trusted provider of business sustainability ratings, creating a global network of more than 75,000 rated companies. You may find all of our EcoVadis Certifications from our official website (link below).

Trina Solar Group and Trina Solar Australia have classified modern slavery risks into external and internal categories. The external modern slavery risks are managed by Trina Solar Group's procurement team while any intercompany risks are managed by the human resource and legal & compliance departments of Trina Solar Group and Trina Solar Australia together.

Trina Solar Group manages supplier risks through internal procurement practices and a supplier performance evaluation system. This system rates suppliers on a scale of one (1) to five (5), considering their commitment to corporate social responsibility and treatment of workers. It involves evaluating metrics like employee turnover ratio, reported breaches related to health or ethics, and other key factors to gauge supplier's employee satisfaction.

You can find more information:

- 2022 Modern Slavery Statement **Annex I**
- Trina Solar's Code of Business Conduct and Ethics: **Annex II**
- Trina's vision on sustainability: https://www.trinasolar.com/au/our-company/sustainability-downloads

All supplier-provided information undergoes assessment against Trina Solar's Code of Business Conduct and Ethics. Non-compliance necessitates immediate remediation by the supplier or results in their immediate suspension.

Internally, Trina Solar Group's human resource department regularly updates employee handbooks to align with applicable laws concerning employees' rights at work. Additionally, we offer online courses and conduct an annual engagement survey for all employees. This survey helps gauge sentiments regarding fair treatment, health and safety, benefits, training, and other relevant aspects

How long will the batteries last?

At least 20 Years

What happens to the batteries when they are no longer useful?

Decommissioning will likely involve: • Dismantling and removing the BESS infrastructure • Removing related infrastructure • Rehabilitation of the site

What about the toxic waste in obtaining the materials for making the batteries?

Where possible, balance of plant material (such as steel and concrete) will be recycled. Whilst inverters, control systems and other electronic equipment may be more challenging to recycle, useful materials from these components can often be recovered.

Do the batteries become toxic landfill when they are no longer useful?

We will not landfill the batteries when it decommissioned and we will transport the whole infrastructure to the processing plant. The recyclable percentage of a lithium battery varies, but generally, around 95-99% of a lithium battery can currently be recycled. The recyclable components include cobalt, nickel, copper, aluminium, and, to a lesser extent, lithium itself. Currently, in some cases, BESS recycling is not completely profitable and can result in financial losses. However, with advancements in recycling technology and the increasing demand for recycled materials, profitability could improve in the future.

Details of the decommissioning process are typically outlined by way of a

Decommissioning Management Plan, that is prepared prior to a BESS being decommissioned and identifies all infrastructure, equipment, buildings and structures to be removed and details of how these will be removed.

Who manages the power to and from BESS? Will it be controlled by the community or will some other entity be able to turn it off and on at will?

The charging and discharging of the battery, as well as the operation and management of the power plant, will be subject to the conditions of the Connection Agreement signed with TSNP, Powerlink, and regulated by the requirements of the Australian Energy Market Operator (AEMO). Additionally, there will be an operations and maintenance team to ensure proper performance, and an asset management team to optimize production.

Further Information:

If you're a member of the local community and have any questions, suggestions, or interest in the project, we encourage you to reach out to us via email:

Web: https://PleystoweBESS.com.au/

Email: PleystoweBESS@trinasolar.com