Broken Hill Battery Energy Storage System

State Significant Development

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Executive Summary

AGL Energy Limited (AGL) proposes to develop a new 50 megawatt (MW) / 100 MW-hour (MWh) battery energy storage system (BESS) on industrial land within the City of Broken Hill, which is located in the Far West region of NSW.

The project involves the construction of a large-scale battery to store energy, supporting the reliability of energy supply to Broken Hill, and would connect to the electricity grid via an overhead transmission connection to the nearby TransGrid substation.

The project is located on a 0.8 hectare site, comprising undeveloped industrial land currently used for storage of disused vehicles and equipment. To access the TransGrid substation, the transmission line would traverse Crown Land comprising an unsealed vehicle track and ephemeral drainage line, with patches of moderate to low condition vegetation. The proposed development footprint, including transmission connection, is 2.5 ha.

The project has been sited and designed to largely avoid key constraints, including remnant native vegetation, heritage items, and potential noise and visual impacts on sensitive receivers. The nearest residence is located approximately 1.1 km south of the site

The project would capture, store and distribute energy generated from surrounding renewable sources including Silverton Wind Farm and Broken Hill Solar Farm and would provide a range of network services to augment the reliability of energy supply to Broken Hill. The project would also provide storage and firming capacity to the National Energy Market (NEM) as well as additional services to assist grid stability including frequency control ancillary services.

Statutory Context

The project is classified as State significant development under Section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Consequently, the Minister for Planning and Public Spaces is the consent authority for the development. However, under the Minister's delegation of 26 April 2021, the Director, Energy Assessments, may determine the development application.

Engagement

The Department exhibited the Environmental Impact Statement (EIS) for the project and received one public submission in support of the proposal.

Advice was also received from 11 government agencies, including Broken Hill City Council, which supports the project. No agencies objected, subject to recommended conditions of consent.

Assessment

The Department has undertaken a comprehensive assessment of the merits of the project and considered all potential issues, including the mandatory considerations under Section 4.15 of the EP&A Act. The key assessment issues identified for the project are the compatibility of the proposed land use and biodiversity.

The battery would be located on undeveloped industrial land, and the transmission connection would traverse Crown Land to access the TransGrid substation located approximately 120 m to the west. The site and transmission footprint are zoned IN1 General Industry and electricity generating works,

including battery storage, are permissible with consent under the relevant Local Environmental Plan and *State Environmental Planning Policy (Infrastructure) 2007*.

The site and surrounds comprise largely industrial land uses including freight storage and handling yards, while broader surrounding land use zones include SP1 Special Activities (Mining), SP2 – Infrastructure (Rail Infrastructure Facility), RU2 Rural Landscape and E4 Environmental Living. The battery units would be up to 3 m in height, similar to other industrial buildings in the locality.

The project has been designed to largely avoid impacts on native vegetation and threatened species. All residual impacts (including disturbance of 0.82 ha native vegetation and habitat) would be offset in accordance with the NSW Biodiversity Offset Scheme.

Noise impacts on surrounding residential receivers during construction and operation of the project are predicted to be within relevant criteria. Some minor exceedances of noise management levels are predicted at non-residential receivers during construction, however AGL has committed to implementing a range of noise mitigation measures to minimise these temporary impacts.

The Department has recommended a range of stringent conditions, developed in conjunction with agencies, to ensure that any residual impacts, including Aboriginal cultural heritage, historic heritage, water resources and hazards are effectively minimised or offset to meet acceptable standards.

Summary

Overall, the Department considers the site to be suitable for the proposed battery storage facility as it is located within an established industrial area, is in close proximity to the existing electricity network and would store and distribute energy generated from surrounding renewable sources.

The project is also consistent with the NSW's *Climate Change Policy Framework* and *NSW Net Zero Plan Stage 1: 2020 – 2030*, as it would contribute 100 MWh of renewable energy to the National Electricity Market. Importantly, the facility could dispatch energy to the grid when the energy generation from renewable sources is limited, which would increase grid stability and energy security.

The project would also provide flow-on benefits to the region and NSW as a whole, including up to 50 construction jobs and a capital investment of $80 million. Broken Hill City Council is also supportive of the project as it would be located within an industrial area and would not impact the amenity of the locality.

The Department considers that the project would not result in any significant impacts on the local community or the environment, and any residual impacts can managed through the implementation of the recommended conditions. On balance, the Department considers that the benefits of the project to the State of NSW significantly outweigh any residual impacts, and is therefore in the public interest and should be approved, subject to strict conditions of consent.

Contents

1 Project

AGL Energy Limited (AGL) proposes to develop a new State significant development (SSD) battery energy storage system (BESS) in the city of Broken Hill, within the Broken Hill local government area (LGA) (see **Figure 1**).

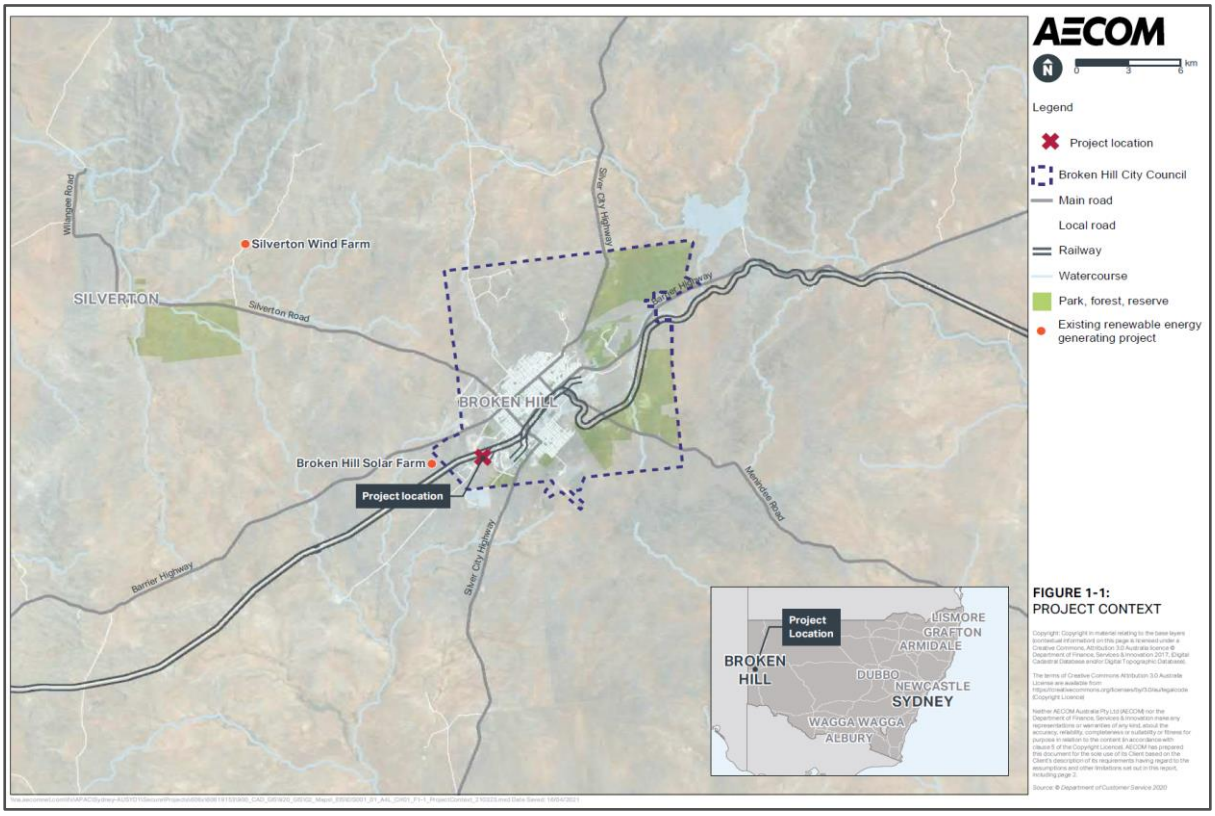


Figure 1 | Regional Context Map (Source: EIS)

The development involves construction and operation of a new BESS, with a storage capacity of approximately 50 MW and up to 100 MWh, and a transmission line connection to the Broken Hill substation.

The development is located adjacent to the Broken Hill substation, which forms part of TransGrid's south western transmission network and connects to Buronga on the NSW/Victorian border via 250kV overhead transmission line, and local, operational renewable energy developments at the Silverton Wind Farm and Broken Hill Solar Farm. Essential Energy currently maintain two 25MW diesel gas turbines to provide supply in the event of unplanned interruptions (involuntary load shedding).

The BESS is intended to support reliability of electricity supply at Broken Hill, to provide storage for energy that would otherwise be spilled energy from local renewables and provide back-up supply should the Buronga transmission line be down.

The key components of the project are summarised in **Table 1**, shown in **Figure 3**, and described in detail in the Environmental Impact Statement (EIS) (see **Appendix B**) and the Submissions Report (see **Appendix D**). **Figure 2** shows the site and **Figure 4** provides an example of a typical BESS (illustrative only).

View north across the site

View east across the site

Figure 2 | Project site (Source: EIS)

Table 1 | Main Components of the Project

Aspect	Description
Project summary	The project includes: **BESS** • construction and operation of the BESS, comprising up to 180 containerised or stacked lithium-ion type batteries with integrated control systems, inverters, heating, ventilation and air conditioning units, and transformers, on level hardstand surface • construction of a single-storey office building, control room and workshop area • establishment of site infrastructure, including a new driveway to Pinnacles Place and internal perimeter access road, operational parking and materials laydown area, site drainage, potable water, sewerage and electricity connections, and external security fencing. **Transmission line connection** • completion of an approximately 300m-long above-ground 22kV overhead transmission line connecting to the 22kV bus at the adjacent Broken Hill substation operated by TransGrid.
Project location	**BESS site** 74 to 80 Pinnacles Place, Broken Hill (Lots 57 and 58 DP 258288) **Transmission line corridor site** Crown Reserve (Lot 7302 DP1181129) and TransGrid Broken Hill substation site (Lots 1 DP 1102040)
Project area	2.5 hectares, with a 0.8 hectare development footprint
Site access	Site access would be via a new site access to be constructed on Pinnacles Place. Emergency access is via an access track on land to the west of the main battery site. Access to the TransGrid substation would be from Pinnacles Road via an existing sealed access driveway.
Construction	Construction would take place over an indicative 12-month program, with works to be conducted within standard construction hours: • Monday to Friday between 7:00am and 6:00pm • Saturday from 8:00am to 1:00pm • No work on Sundays or public holidays.
Operation	The expected operational life of the infrastructure is approximately 20 years, but it is envisaged that the development may be upgraded to extend this.
Decommissioning and rehabilitation	At the end of operational life, above ground components would be removed and land rehabilitated to pre-development conditions.
Hours of operation	24 hours a day, seven days a week
Jobs	Up to 50 construction jobs and up to 3 operation jobs
Capital Investment Value	Approximately $80,000,000

The proposed layout of the development is shown in **Figure 3**.

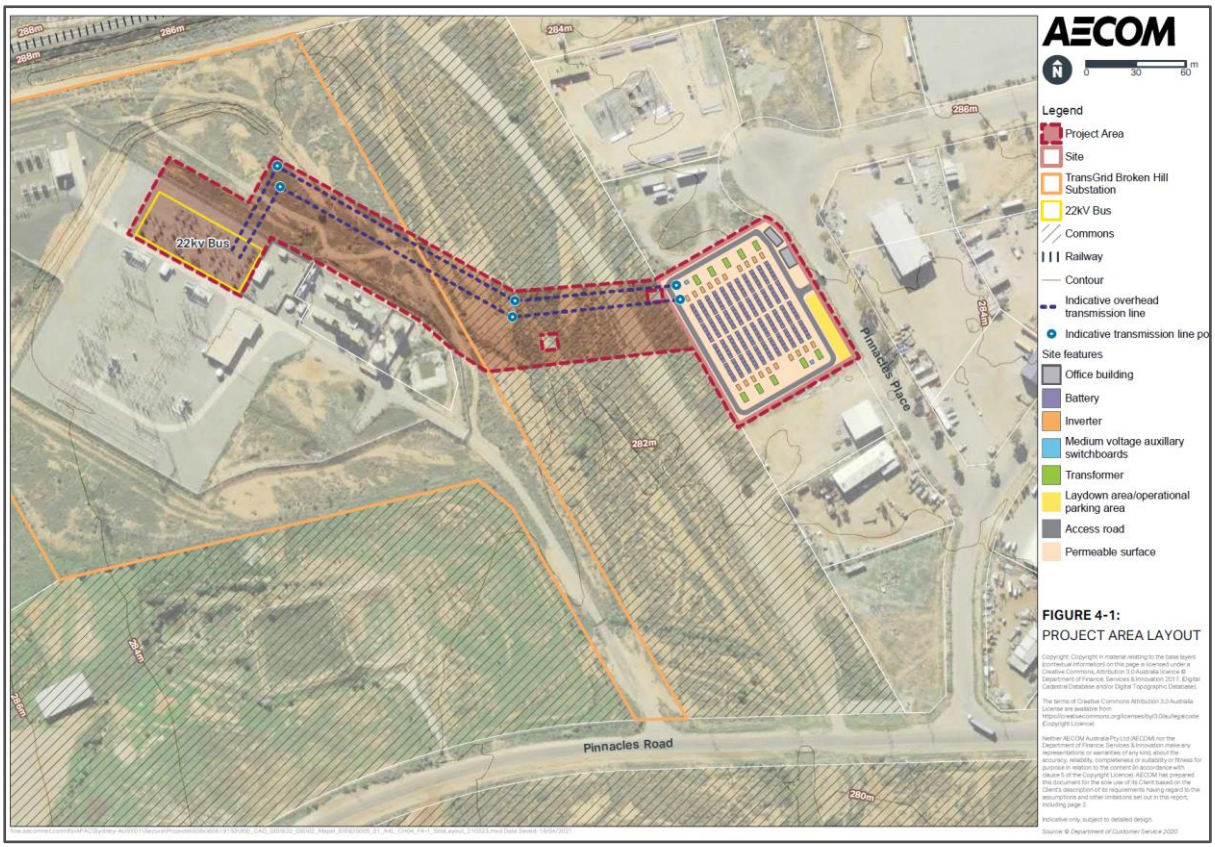


Figure 3 | Development layout (Source: EIS)

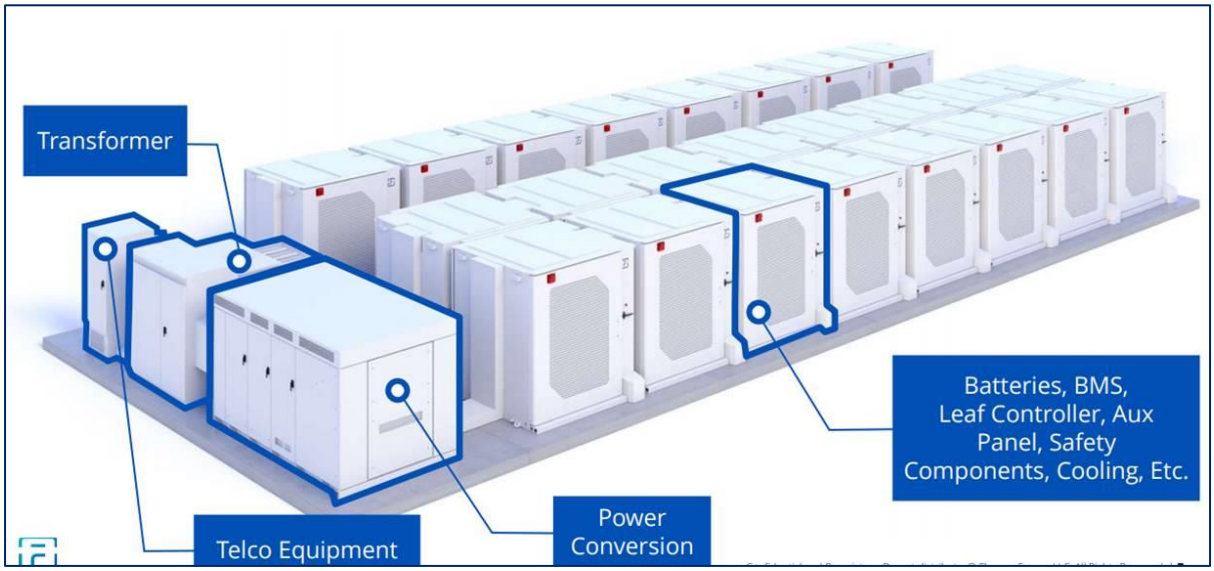


Figure 4 | Illustrative image of BESS (not specific to the Broken Hill BESS; Source: AGL)

2 Strategic context

2.1 Site and Surrounds

The project is located on a 0.8 hectare (ha) site in the Far West region of NSW. The site (shown in **Figure 3**) is zoned IN1 (General Industrial) under the *Broken Hill Local Environmental Plan 2010* (Broken Hill LEP).

The site is undeveloped industrial land comprising broad areas of bare land and generally degraded, moderate to low condition vegetation. The site is currently used for storage of disused equipment, vehicles and other materials (see **Figure 2**).

The project includes overhead transmission connection to the TransGrid Broken Hill substation located 120 m west of the site. The transmission connection traverses Crown Land, classified as Commons, comprising an unsealed vehicle track and ephemeral drainage line with patches of moderate to low condition vegetation.

The project including transmission connection has a 2.5 ha development footprint.

The site is approximately 2 kilometres (km) west of the City of Broken Hill. Adjacent land uses are largely industrial, including freight storage and handling yards, while broader surrounding land use zones include SP1 Special Activities (Mining), SP2 – Infrastructure (Rail Infrastructure Facility), RU2 Rural Landscape and E4 Environmental Living.

There are no residences within 1 km of the site and the closest residential receiver is 1.1 km to the south.

The Adelaide-Broken Hill Railway line and the Broken Hill Recycling Centre are located approximately 200 m north of the site and the Wills Street Waste Water Treatment Plant is located approximately 800 m to the north-east.

Pinnacles Place is a sealed local road proving access to the site and the closest classified road is the Wentworth Road/Silver City Highway 2.3 km south-east of the site.

2.2 Energy Context

In 2020, NSW derived approximately 20.4 % of its energy from renewable sources. The rest was derived from fossil fuels, including 72.8 % from coal and 3.1 % from gas. With no current plans for the development of new coal power stations in NSW combined with the rapid growth in the development of renewable energy sources, NSW requires additional firm supply, such as batteries and pumped hydro, for dispatchable energy.

This is highlighted in the 2017 *Independent Review into the Future Security of the National Electricity Market* (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional power generation to lower emissions power generation, noting a corresponding investment in new dispatchable capacity being required to maintain system reliability.

The 2019 *NSW Electricity Strategy* reports that firmed renewables are the lowest cost option to replace aging coal power stations, and that without additional private investment in firming technologies, NSW

faces a risk of not meeting its Energy Security Target following the planned closure of the Liddell Power Station in 2023.

AEMO's *2020 Integrated System Plan* (ISP) forecasts that the National Energy Market (NEM) will need up to 19 gigawatts (GW) of new, dispatchable resources to firm renewables over the next 20 years. The ISP also states that battery storage (such as the proposed Broken Hill BESS), are required to provide firming capacity and to support intra-day energy shifting.

The Department's *Far West Regional Plan 2036* identifies renewable energy as a priority growth sector and promotes the diversification of energy supplies for the region through renewable energy generation. Council also promotes business and industry investment in clean and renewable energy initiatives to support a strong and diverse economy with a minimised environmental footprint in the *Broken Hill 2033 Community Strategic Plan*.

The Broken Hill BESS broadly responds to the need for increased dispatchable electricity supplies to support the transition from traditional power generation, derived from fossil fuels, to renewable sources across NSW. The battery would also make an important contribution to reliability of the energy supply to Broken Hill, and would provide storage and firming capacity to the National Energy Market and assist grid stability.

3 Statutory Context

3.1 State significant development

The development is SSD under section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as it is development for the purpose of electricity generating works with a capital investment value of more than $30 million, which is identified as SSD under clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP).

Consequently, the Minister for Planning and Public Spaces is the consent authority for the development. However, under the Minister's delegation of 26 April 2021, the Director Energy Assessments, may determine the development application as Council did not object, there were less than fifty unique submissions from the general public objecting to the proposal, and a political donations disclosure statement has not been made.

3.2 Permissibility

The site is located wholly within land zoned IN1 - General Industrial under the Broken Hill LEP, the provisions of which are discussed in **Section 5**. The IN1 zone includes various land uses that are prohibited, and land uses that are permitted with and without consent. Electricity generating works, which includes electricity storage, is not expressly listed as a prohibited land use and is therefore a land use that is permissible with consent under the LEP zoning table for the IN1 zone.

Electricity generating works are further regulated by *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). Under clause 34 of the Infrastructure SEPP, electricity generating works are permissible with consent on any land in a prescribed rural, industrial or special use zone. Land zoned IN1 - General Industrial is a prescribed zone under the Infrastructure SEPP. Consequently, the project is permissible with development consent.

3.3 Other approvals

Under Section 4.41 of the EP&A Act, a number of other approvals are integrated into the SSD approval process, and therefore are not required to be separately obtained for the project.

Under Section 4.42 of the EP&A Act, a number of further approvals may be required, but must be substantially consistent with any development consent for the project.

The project would require approval under section 138 of the *Roads Act 1993*, as the project would involve connecting the site via a driveway to a public road.

Notwithstanding, the Department has consulted with relevant government agencies, considered their advice in its assessment of the project, and has recommended conditions of consent to address these matters (see **Appendix E**).

AGL also referred the project to the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and received confirmation that the project was not a 'controlled action' and would not therefore not have any significant impacts on matters of national environmental significance listed under the EPBC Act.

3.4 Mandatory Matters for Consideration

Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters are summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, and the EP&A Regulations
- the environmental, social and economic impacts of the development;
- the suitability of the site;
- any submissions; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

The Department has considered all of these matters in its assessment of the project, as well as AGL's consideration of environmental planning instruments in its EIS, as summarised in **section 5** of this report. The Department has also considered relevant provisions of the environmental planning instruments in **Appendix F**.

4 Engagement

4.1 Department's engagement

The Department publicly exhibited the EIS from 2 June 2021 until 29 June 2021, advertised the exhibition in the Broken Hill Barrier Daily Truth, and notified surrounding landowners in proximity to the project site.

The Department consulted with Council and the relevant government agencies throughout the assessment.

The Department notified and sought comment from TransGrid and Transport for New South Wales (TfNSW) in accordance with the Infrastructure SEPP, as discussed further in sections 4.4 and 5.2.

4.2 AGL's Engagement

AGL undertook engagement with the local community as detailed in the EIS, including a dedicated project webpage on the AGL website, with a dedicated email address and 24-hour enquiries and complaints hotline. AGL also consulted with nearby landholders via letters and phone calls, and held two community drop-in sessions, which were advertised in local newspaper.

AGL also undertook consultation with the Department and relevant government agencies, including Council, during the assessment process.

4.3 Submissions and Submission Report

During the exhibition period of the EIS, the Department received one public submission indicating support for the project.

Advice was also received from 11 government agencies, including from Broken Hill City Council. Full copies of the agency advice and public submission are attached in **Appendix C**.

AGL provided a response to all matters raised in submissions on the project (see **Appendix D**).

4.4 Key Issues – Government Agencies

Broken Hill City Council supports the project noting its location within an established industrial zone and low impact on the amenity of the area.

The **Department's Biodiversity, Conservation and Science Directorate** (BCS) initially requested further information on potential flooding, and biodiversity impacts relating to on-site vegetation, threatened species assessment and proposed mitigation measures. AGL addressed these issues in the Submissions Report and BCS have confirmed there are no residual issues. Biodiversity is discussed further in **section 5.2**.

Heritage NSW initially sought further information regarding the potential for subsurface archaeological deposits in proximity to the site. In the Submissions Report, AGL provided evidence demonstrating the low likelihood for subsurface deposit, which was supported by the Registered Aboriginal Parties involved in the site survey. Heritage NSW have confirmed no residual issues and recommended a

Heritage Management Plan be prepared for the project, which Department has included in the recommended conditions of consent. Heritage is discussed further in **section 5.2**.

Transport for NSW (TfNSW) supports the project and requested the AGL prepare a detailed Traffic Management Plan (TMP) in consultation with Council and TfNSW. AGL accepted this requirement and the Department has included the TMP in the recommended conditions of consent. Traffic is discussed further in **section 5.2**.

The **Rural Fire Service** (RFS) and **Fire and Rescue NSW** (FRNSW) recommended requirements related to bushfire and hazard preparation and management, which have been incorporated into the recommended conditions of consent. Hazards are discussed further in **section 5.2**.

The Department's **Water Group** (DPIE Water) and the **Natural Resources Access Regulator** (NRAR) supports the project subject to the preparation of a Soil and Water Management Plan, which has been agreed to by AGL. The Department has included conditions relating to erosion and sediment control, and DPIE Water and NRAR have confirmed there are no residual issues.

Australian Rail and Track Authority (ARTC) raised no objection to the project but requested to be consulted regarding any works that may potentially impact the rail corridor. In the submissions report, AGL noted the project would not impact the rail corridor, but committed to consultation with ARTC should it be required.

Regional NSW – Mining, Exploration & Geoscience (MEG) requested to be consulted regarding any biodiversity offset areas associated with the project. In the Submissions Report, AGL has committed to on-going consultation with MEG as part of its management and mitigation measures, and MEG have confirmed there are no residual issues.

TransGrid raised no objections to the project and provided advice regarding the network connection process.

Crown Lands raised no objection to the project and noted Council is responsible for the Crown land parcel over which the transmission connection and easement are proposed.

5 Assessment

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the key assessment issue, namely land use compatibility (see **section 5.1**).

The key constraints for the project are depicted in **Figure 5**. The Department has also considered the full range of potential impacts associated with the project and has included a summary of the conclusions in **section 5.2.** A list of the key documents that informed the Department's assessment is provided in **Appendix A.**

5.1 Compatibility of Proposed Land Use

The development is located on industrial land in the city of Broken Hill, south of the ARTC East West rail line and to the south west of the city. Rural, industrial and mining activities occur in the locality, west of the main residential areas of the city. The site is situated within the existing Kanandah Road/Pinnacles Place industrial precinct. At Pinnacles Place, activities comprise a range of heavy industrial uses including freight storage and handling yards, a diesel fuelling station, and mining support services including the EC Andrews Drillcore Facility. The Local Strategic Planning Statement identifies the precinct as supporting the majority of industry in the LGA, with potential for further land release in adjoining lands. The land use zoning of the precinct and surrounds is shown in **Figure 5**.

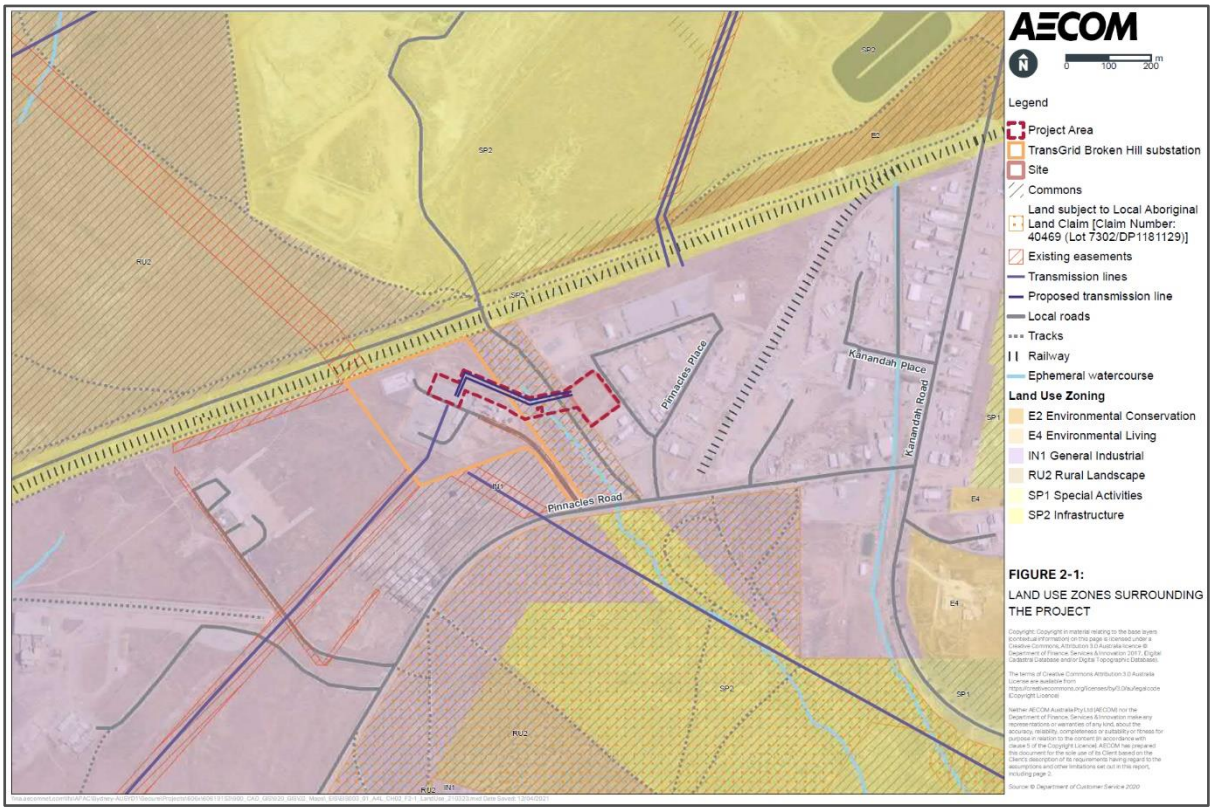


Figure 5 | Land use zoning (Source: EIS)

The Department considers that operation of the development is suitable within the industrial setting and adjacent uses of the locality. The installation of a large-scale BESS is permissible with development

consent on the site (see **section 3.2**), and is consistent with the industrial character of the Kanandah Road/Pinnacles Place precinct, which supports a range of utilities and industrial developments. The Department considers that the project is sited appropriately in close proximity to the existing Broken Hill substation and connecting overhead transmission lines, and with ease of access to existing transport networks. The use of the site for the BESS and transmission line would not preclude plans for development of surrounding land within the precinct for industrial and employment generating purposes and would contribute to increased energy security for growth in the region.

Given the surrounding industrial land use, and having evaluated the impacts of the development, the Department considers that the development would not result in any land use conflicts, and any amenity impacts of the development could readily be managed through the application of AGL's mitigation measures and the recommended conditions. The Department's assessment of off-site amenity impacts considered the impact of construction and operational traffic generation, noise, overland (hydrological) flows, and visual impacts, and concludes that the impacts would be minor subject to the recommended conditions (see **section 5.2**).

5.2 Other issues

The Department's consideration of other issues is summarised in the table below.

Findings	Recommendations
Biodiversity	
• The project site encompasses the industrial allotment, comprising broad areas of bare land and generally degraded low to moderate condition native vegetation; the transmission corridor, comprising an unsealed vehicle track and ephemeral drainage line with patches of low to moderate condition vegetation; and the TransGrid Broken Hill Substation, which has been extensively cleared of vegetation for equipment storage. • The project would disturb a total of 0.82 ha of low condition native vegetation and fauna habitat (Australian Bustard), comprising Bluebush shrubland (PCT 155). • Bluebush shrubland does not align with any Threatened Ecological Community (TEC) listed under the *Biodiversity Conservation Act 2016* (BC Act) or the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). • No threatened biodiversity, at risk of serious and irreversible impacts (SAII) under the BC Act, are known or considered likely to occur within the site. • The project is not considered to be a 'controlled action' under the EPBC Act. • The site is not considered to include potential Koala Habitat. • A total of eight (8) ecosystem credits (PCT 155) and nine (9) species credits (Australian Bustard) are required to offset impacts to native vegetation as a result of the project. The final credit requirement would be retired in accordance with the *NSW Biodiversity Offset Scheme,* which may include acquiring or retiring biodiversity credits,	• Retire the applicable biodiversity offset credits in accordance with the NSW Biodiversity Offsets Scheme. • Prepare and implement a Biodiversity Management Plan in consultation with BCS, including measures to protect and manage vegetation and fauna habitat outside the approved disturbance area.

Findings	Recommendations
making payments in an offset fund, or funding a biodiversity conservation action. • With these measures, both BCS and the Department consider that the project is unlikely to result in a significant impact on the biodiversity values of the locality.	
Traffic and Transport	
• The transport route to be used by heavy vehicles during construction is from Adelaide via the State road network using the Barrier Highway, connecting with local roads at Creedon Street, Kanandah Road, Pinnacles Road and Pinnacles Place, which provides direct access to the site. All roads are approved B-double routes. • Light vehicle access for construction workers would be from several routes, including from Broken Hill City centre where worker accommodation would be available. • A new site access from Pinnacles Place would be constructed to the satisfaction of Council. • Access to the TransGrid substation for the transmission connection would be from Pinnacles Road via the existing sealed access driveway for the substation, and emergency access would be to the southwest corner of the site via an existing unclassified access road. • The main increase in traffic would occur over the 12-month construction phase generating up to 50 light vehicle movements and 20 heavy vehicle movements per day. • The project includes an on-site laydown area and AGL anticipates that the site's road frontage has a capacity for parking of up to 30 vehicles. • Heavy vehicles up to 26 m in length would be used for transporting materials and components to the site. AGL propose that no over-dimensional vehicles are required for the project. • Operational traffic would be significantly less than the construction phase. Heavy vehicles would not regularly access the site during operation, with heavy vehicle access only required for maintenance work or battery unit replacements, should this be required. • The proposed transport route has sufficient capability to accommodate the construction and operational traffic associated with the project, and no road upgrades are required. • Transport for NSW (TfNSW) has recommended a range of conditions including the preparation of a Construction Traffic Management Plan (CTMP), which has been incorporated into the recommended conditions of consent. • The Department has recommended conditions requiring AGL to construct a new site access from Pinnacles Place, undertake pre-construction and post-construction dilapidation surveys of Pinnacles Place, Pinnacles Road, Kanandah Road and Creedon Street, and to	• Restrict the number and size of vehicles during construction to peak volumes identified in this report. • Restrict access to the designated transport route. • Ensure the length of vehicles does not exceed 26 m. • Require a Traffic Management Plan (TMP) to be prepared in consultation with Council and TfNSW. • Construct site access to the satisfaction of Council prior to construction. • Undertake road dilapidation surveys of Pinnacles Place, Pinnacles Road, Kanandah Road and Creedon Street and repair any damage identified, to the satisfaction of Council.

Findings	Recommendations
repair any damage to the local road network as a result of construction traffic. • Council raised no concerns relating to traffic, transport and parking, and with the implementation of a TMP, the Department and TfNSW are satisfied that the project would not result in significant impacts on the road network capacity, efficiency or safety.	
Noise	
• AGL assessed noise and vibration associated with construction and operation of the development (including road traffic noise). • The noise and vibration assessment adopted minimum rating background noise levels (RBLs) for rural residential receivers of 35 dB(A) during day and 30 dB(A) at evening and night. AGL considered that the low RBLs was conservative given that there is some potential for existing industrial noise from existing uses in the precinct and surrounds. • While no exceedances of the relevant construction noise management levels (NMLs) were predicted at any residential receiver, the AGL's construction noise assessment identified potential exceedances of NMLs at three non-residential buildings within the industrial precinct, including up to 11-20dB at one receiver. • Consistent with other industrial proposals, the Department considers that these exceedances can be effectively managed through an adaptive construction noise management plan and has recommended conditions to this effect. • No exceedances of operation noise, road traffic noise or vibration criteria are predicted.	• Minimise construction noise in accordance with best practice guidelines • Ensure night time noise does not exceed 35 dB(A) LAeq,15min at any residence.
Water and Erosion	
• AGL's EIS provided a qualitative assessment of flood risk, focused on flooding impacts of the proposal. The assessment concluded that the development would not impact on overland flows and the site would not be affected by flooding, subject to commitments to: – elevate office buildings, inverters, transformers and batteries above finished surface level to provide further flood immunity; – limit post-development flows to pre-development flows in all events up to and including a 1% AEP storm event; – incorporate water sensitive urban design features including vegetated swales to meet water quality targets; – include scour protection or an energy dissipator at the site discharge point or up-flow to reduce off-site sediment deposition; and – finalise additional measures to protect transmission line poles within the Crown reserve to the west of the BESS site as part of detailed design. • BCS raised concerns about the consideration of overland flow events at the BESS site coinciding with flows in an adjacent drainage line in	• Ensure the BESS is designed, constructed and maintained to reduce impacts on surface water, localised flooding and groundwater.

Findings	Recommendations

the Crown reserve, and requested hydraulic modelling to determine the flood liability of the site.

- The Submissions Report included a 1D model, which concluded the BESS site would not be impacted by a 1% AEP event along the western drainage line, as flood waters would be contained within that area, including in the event of blockage in a culvert south of the site under Pinnacles Road (see **Figure 6**).
- BCS reviewed the Submission Report and confirmed it was satisfied with the response.

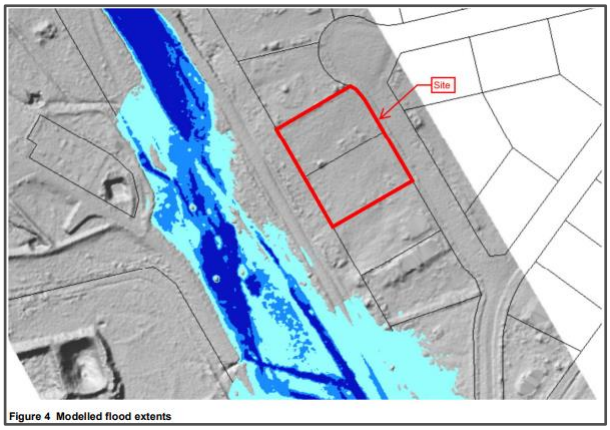


Figure 6 | 1% AEP flood extent in western drainage line

Hazards

- AGL's preliminary risk analysis (PHA) considered risk associated with transport and storage of hazardous materials and with operation of the battery storage itself, in accordance with SEPP 33, *Applying SEPP 33*, and the relevant Hazardous Industry Planning Advisory Papers.
- AGL's risk screening concluded the quantities and volumes of dangerous goods to be transported to and from site and stored on site were below risk thresholds.
- The PHA consequently provided a qualitative (level 1) analysis of potential risk associated with operations, including uncontrolled (thermal runaway) reactions, electrical fault, or cooling water spill.
- The PHA concluded the worst-case consequences for the development would be associated with potential for fire on site, and also identified high consequence risk associated with potential loss of containment of cooling water or oil.
- Overall, the PHA concluded that these risks would be low or moderate, provided its recommendations were implemented, including that adequate separation distances are provided both within the BESS (between components) and between the site and surrounding land use, relevant infrastructure and engineering controls are installed and maintained (such as fire-fighting equipment and site containment (bunding), and technology controls (such as

- Prepare and implement a Fire Safety Study;
- Prepare and implement a detailed Emergency Plan, that identifies procedures for managing risks on site;
- Implement procedures and controls for managing fire hazards, including maintenance of an asset protection zone in accordance with requirements of the RFS' Planning for Bushfire Protection guidelines.

Findings	Recommendations
automatic shutdown)) and appropriate management processes are put in place during construction and operations. • The Department considers that the hazard risk for the development can be managed subject to the recommendations of the PHA and recommended conditions of consent.	
Bushfire	
• In addition to the PHA, AGL conducted a bushfire risk assessment, in consideration of the requirements of *Planning for Bush Fire Protection* (RFS 2019). • Given the site and surrounds are sparsely vegetated, and the development proposes clearing to enable construction and provide adequate clearances under the proposed transmission line, the Department accepts that the bushfire risk is likely to be low and readily manageable during operation. • To actively manage risk during the life of the development, the risk assessment recommended AGL maintain the site as an inner protection area (that is, a 'fuel-managed area' with minimal vegetation), provide an asset protection zone (APZ) of 10.5m on the western perimeter of the BESS site, maintain vegetation clearance underneath the transmission line in accordance with the relevant industry guideline, and establish internal roads to meet property access standards under *Planning for Bush Fire Protection.* • AGL also committed to preparing a Bushfire Emergency Management and Evacuation Plan for the development.	• Minimise fire risks of the development, including through maintenance of the APZ • Incorporate bush fire management requirements into the detailed Emergency Plan.
Heritage	
<u>Aboriginal Cultural Heritage</u> • Survey of the site, including the transmission corridor, identified a predominantly disturbed landscape, subjected to historic grading and levelling of topsoils. • No archaeological sites or areas of potential archaeological deposit were identified during survey. • Registered Aboriginal Parties (RAPs) identified two lithic items they considered might potentially be artefacts, however neither item satisfied the criteria for identification as a stone artefact. As a precautionary measure, RAPs moved both items outside of the potential ground surface disturbance areas. • If Aboriginal artefacts or skeletal remains are identified during construction of the project, all work would cease, and an unexpected finds procedure would be implemented. • The Crown land parcel over which the transmission corridor is proposed, is subject to an undetermined Aboriginal Land Claim. AGL consulted with NSW Aboriginal Land Council (NSWALC) and the Broken Hill Local Aboriginal Land Council (BHLALC) regarding the claim. NSWALC raised no objections to the project, and BHLALC formally endorsed the development noting AGL's commitment to	• Prepare and implement a Cultural Heritage Management Plan, including procedures for unexpected finds, in consultation with RAPs.

Findings	Recommendations
developing an Aboriginal Employment Strategy and Aboriginal Heritage Management Plan as part of the project. Historic Heritage • The City of Broken Hill, comprising the entire Broken Hill City Council Local Government Area, was included on the National Heritage List in 2015. The listing, made under the EPBC Act, acknowledges the City's significant contribution to Australian prosperity through mining operations, its landscape, planned design and history as a place of technical achievement and research. • The project, being located within an established industrial area, would not have any direct impacts on the heritage values of the City of Broken Hill such as the landscape, land regeneration areas or other the reminders of City's mining origins. • AGL referred the project to the Commonwealth under the EPBC Act, who confirmed the project did not constitute a 'controlled action' as it would not have a significant impact on any matters of national environmental significance. • The site and immediate surrounds are not subject to any other historic heritage listings. • The Department is satisfied that the project would not have any adverse impacts on heritage items in the local area. Any unexpected finds of potential heritage significance could be appropriately managed by an unexpected finds protocol. • With these measures, the Department and Heritage NSW consider that the project would not significantly impact the heritage values of the locality.	
Land Contamination	
• The EIS includes a preliminary site contamination assessment of the transmission corridor, and a detailed site investigation of the BESS site, which has a history of industrial use including storage of machinery and fuels. • Assessment of the transmission corridor found no history of industrial use and a low likelihood of contamination. Whilst no remediation of the corridor is required, AGL have committed to implementing an unexpected finds procedure covering the construction of the transmission line. • The detailed site investigation found a small area of localised petroleum hydrocarbon impacts in surface and subsurface soils within the battery site (approximately 1 m x 0.5 m x 0.5 m), resulting from spilled fuels and oils stored in bulk containers on the site. AGL have committed to prepare a Remedial Action Plan for the excavation of this material. • No groundwater was encountered to a depth of 8 m, indicating a low risk for construction impacts on groundwater or workers encountering groundwater of unknown quality. • A Remedial Action Plan and unexpected finds procedure would be prepared and implemented.	• Prepare and implement a Remedial Action Plan with appropriate validation. • Prepare unexpected finds procedure for contaminated land.

Findings	Recommendations
• With these measures, the Department is satisfied that the site can be made suitable to accommodate the proposed development.	
Visual	
• AGL assessed visual impacts of the development from representative viewpoints on Pinnacles Place, to the southeast of the site within the industrial area, and from Pinnacles Road, south of the site. • There are no residential receivers within 1 km of the site. • Overall, the assessment concluded that the impact would be low or negligible, given the industrial character of the proposed development would present a low magnitude of change, and the site sensitivity was low to negligible. • The Department acknowledges that the development proposes approximately 2.7 m high perimeter security fencing, but notes that security fencing is common within the precinct including on the existing site.	• Minimise visual impacts by selection of less obtrusive colours and reflective surfaces.
Decommissioning and Rehabilitation	
• The Department has developed standard conditions for battery energy storage systems to cover this stage of the project life cycle, including clear decommissioning triggers and rehabilitation objectives. • With the implementation of these measures, the Department considers that the battery system would be suitably decommissioned at the end of the project life, or within 18 months if operations cease unexpectedly, and that the site be would appropriately rehabilitated.	• Include rehabilitation objectives requiring the site to be rehabilitated within 18 months of cessation of operations.
Socio-Economic Impacts	
• The project would generate direct and indirect benefits to the local community, including: – up to 50 construction jobs over the 12 month construction period, and up to three operational jobs for on-going maintenance; – expenditure on accommodation and businesses in the local economy by workers involved in the project; – the procurement of goods and services by AGL and associated contractors, noting AGL's preference to source workers locally wherever possible; – reduced disruption to energy supply for Broken Hill. • AGL has demonstrated that the Broken Hill LGA holds sufficient accommodation to house the construction workers not already residing in Broken Hill. • The project is unlikely to result in increased demand on community services and infrastructure such as roads, given that AGL would be required to repair any damage to local roads resulting from the construction of the project, and the facility would only require infrequent maintenance visits during operations.	• No specific recommendations

Findings	Recommendations
• Overall, the Department considers that the project would have a positive socio-economic impact on the local community.	

6 Recommended Conditions

The Department has prepared recommended conditions of consent for the project (see **Appendix E**).

The Department consulted with AGL and the relevant agencies, including Council, on the conditions for the project.

These conditions are required to:

- prevent, minimise, and/or offset adverse impacts of the project;
- ensure standards and performance measurements for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The recommended conditions use a risk-based approach that focuses on performance-based outcomes. This reflects current government policy and the fact that batteries require relatively limited ongoing environmental management once the project has commenced operations. In line with this approach, the Department has recommended operating conditions to minimise traffic, biodiversity, amenity, heritage, water and bushfire impacts, and that the following management plans be prepared and implemented:

- Traffic Management Plan;
- Biodiversity Management Plan;
- Heritage Management Plan;
- Remedial Action Plan;
- Emergency Plan.

The recommended conditions also require AGL to provide detailed final layout plans to the Department prior to construction.

Other key recommended conditions include:

- *biodiversity offsets* – retiring biodiversity offset credits in accordance with the NSW Biodiversity Offsets Scheme;
- *contamination – requiring* the site to be remediated as part of the project development;
- *operating hours* – undertaking construction, upgrading or decommissioning activities on-site during standard construction hours, unless these activities are inaudible at non-associated receivers;
- *fire* – ensure that the development complies with the relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2019*; and
- *roads* – requiring maintenance and repair of any damage during construction, upgrades or decommissioning activities.

7 Evaluation

The Department has assessed the development application, EIS, submissions and Submissions Report provided by AGL and advice from relevant government agencies. The Department has also considered the objectives and relevant considerations under section 4.15 of the EP&A Act.

The development is located in an industrial precinct, adjacent to the Broken Hill substation. The site is located close to major road corridors, and within a region supporting major renewable energy development, including the Silverton Wind Farm and Broken Hill Solar Farm.

The Department considers the site to be appropriate for a BESS, as it has ready access to major electricity transmission network infrastructure. The development is consistent with the character of the existing industrial area, that supports a range of utilities and industrial developments. The development would provide an additional and substantial investment towards improving the reliability of the network at Broken Hill, provide storage and firming capacity to the NEM, and additional services to assist grid stability including frequency control ancillary services.

The development has been designed to largely avoid key constraints, including amenity impacts to surrounding industrial land uses, ephemeral watercourses, remnant native vegetation and Aboriginal heritage sites. Any residual impacts would be minor and can be managed through the recommended conditions of consent.

In particular, the Department has closely considered hazards and risks associated with operation of a large-scale BESS. Overall, AGL has proposed a robust suite of design measures and controls, including locating the battery components above flood prone land, providing adequate setbacks from neighbouring developments, maintaining setbacks and cleared areas to minimise bushfire risk, and committing to installing and maintaining technology controls, bunding and fire-fighting equipment on site. To support the AGL commitments, the Department has recommended a series of hazards management plans and studies be implemented during the life of the development consistent with industry guidelines.

On balance, the Department considers that the project achieves an appropriate balance between maximising benefits of a new BESS to augment the existing electricity network, and minimising the potential impacts on surrounding land uses and the environment. The Department considers that the project is in the public interest and should be approved, subject to the recommended conditions of consent (see **Appendix E**).

8 Recommendation

It is recommended that the Director, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants consent** for the application in respect of Broken Hill Battery Energy Storage System (SSD-11437498), subject to the conditions in the attached development consent; and
- **signs** the attached development consent and recommended conditions (see **Appendix E**).

Recommended by:

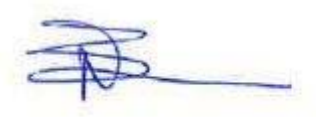
Karl Okorn 8/9/21
Team Leader
Energy Assessments

Recommended by:

Dominic Crinnion 8/9/21
Team Leader
Energy Assessments

9 Determination

The recommendation is **Adopted ~~/ Not adopted~~** by:



8/9/21

Nicole Brewer
Director
Energy Assessments

Appendices

Appendix A – List of referenced documents

Broken Hill Battery Energy Storage System – Environmental Impact Statement, AECOM Australia Pty Ltd (May 2021)

Broken Hill Battery Energy Storage System – Submissions Report, AECOM Australia Pty Ltd (July 2021)

Appendix B – Environmental Impact Statement

https://www.planningportal.nsw.gov.au/major-projects/project/40686

Appendix C – Submissions

https://www.planningportal.nsw.gov.au/major-projects/project/40686

Appendix D – Submissions Report

https://www.planningportal.nsw.gov.au/major-projects/project/40686

Appendix E – Recommended Conditions of Consent

https://www.planningportal.nsw.gov.au/major-projects/project/40686

Appendix F – Statutory Considerations

In line with the requirements of Section 4.15 of the EP&A Act, the Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include:

- the objects found in Section 1.3 of the EP&A Act; and
- the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

The Department has considered all of these matters in its assessment of the project and has provided a summary of this assessment below.

Aspect	Summary
Objects of the EP&A Act	The objects of most relevance to the Minister's decision on whether to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act. The Department considers the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 1.3(c)), particularly as the project: • is a dispatchable, renewable energy storage system with the potential to increase grid stability and energy security; • is a permissible land use on the subject land; • is located in a logical location within an established industrial area in close proximity to the TransGrid Broken Hill substation; • is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard; • would generate up to 50 construction jobs; • would contribute to a more diverse local industry, thereby supporting the local economy and community; • would not fragment or alienate resource lands in the LGA; and • is consistent with the goals of NSW's *Climate Change Policy Framework and Net Zero Plan Stage 1: 2020 – 2030* and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions. The Department has considered the encouragement of ESD (Object 1.3 (b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. In addition, the Department considers that appropriately designed BESS facility development, in itself, is consistent with many of the principles of ESD. AGL has also considered the project against the principles of ESD. Following its consideration, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD. Consideration of environmental protection (Object 1.3(e)) is provided in **section 5** of this report. Following its consideration, the Department considers that the project could be undertaken in a manner that would at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts could be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits. Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is also provided in **section 5** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality, and any residual impacts can be managed and/or mitigated by imposing appropriate conditions.
State significant development	Under Section 4.36 of the EP&A Act the project is considered a State Significant Development. The Minister for Planning and Public Spaces is the consent authority for the development. Under the Minister's delegation of 26 April 2021, the Director, Energy Assessments, may determine the project.

Aspect	Summary
Environmental Planning Instruments	The Broken Hill Local Environment Plan (LEP) 2010 applies and is discussed in **section 2.1** and **3.2** of this report, particularly regarding permissibility and land use zoning. The Project is permissible under the LEP as well as under the Infrastructure SEPP. In accordance with the Infrastructure SEPP, the Department has given written notice of the project to TransGrid and TfNSW. AGL completed a preliminary risk screening in accordance with SEPP No. 33 – Hazardous and Offensive Development and confirmed the project was not categorised as potentially hazardous or potentially offensive development. The Department has considered the provisions of SEPP No. 55 – Remediation of Land. A Detailed Site Investigation of the land found contaminated land within the project site, and the Department is satisfied the site would be suitable for the development following the remediation measures proposed in the EIS.