Dubbo Firming Nominees Pty Ltd

Scoping Report – Dubbo Firming Power Station

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Photo: Proposed Project Site with FIE Abattoir in background

cwp renewables

MVC SERVICES

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Introduction

Background

Building on the 2019 New South Wales (**NSW**) Government's Energy Strategy, the Electricity Infrastructure Roadmap sets out a plan to deliver NSW's first five Renewable Energy Zones (**REZ**). The Roadmap proposes five initiatives, as follows:

1. Developing Regional NSW by attracting energy-intensive industries to co-locate with new energy infrastructure.
2. Delivering energy storage infrastructure by:
    a. contracting with the State Government 2GW of long duration storage by 2030 (in addition to the separate Snowy 2.0 project);
    b. investing $50 million in the Pumped Hydro Recoverable Grants Program to support the planning of 3GW of pumped hydro projects – i.e. get them "shovel ready" to compete for future government contracts;
3. Delivering Renewable Energy by:
    a. establishing the Transmission Development Scheme to de-risk REZ grid investment, by allowing speculative transmission to be built, the cost for which will eventually be recovered from connecting generators, but underwritten by NSW consumers;
    b. introducing the Electricity Infrastructure Investment Safeguard – Renewable Energy Zone generation, which mandates that the Government contracts with, by 2030, 3GW in the Central-West Orana REZ, 8GW in the New England REZ, with a further 1GW in other locations such as the Hunter-Central Coast region and the Illawarra region;
4. Firming, via the Electricity Infrastructure Investment Safeguard, which will award Long Term Service Agreements to firming capacity beyond the 2GW of pumped storage, when NSW's Energy Security Target is likely to be breached; and
5. Creating Opportunities for Industry, which espouses the "build it and they will come" philosophy, suggesting that cheap electricity will encourage industries, e.g. hydrogen and synthetic fuels, to locate to NSW.

Dubbo Firming Nominees Pty Ltd (**Proponent**) is developing the Dubbo Firming Power Station Project.

The Project will consist of a dual fuel (gas and liquid) fired power station and hydrogen electrolysis plant in Dubbo, NSW (**Project**) to provide energy firming and stability services within the Central-West Orana REZ and the wider National Electricity Market (**NEM**).

Approval for the Project is being sought from the Minister for Planning under the *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**).

Overview of the Project

The Project involves the construction and operation of a firming power station (see Figure 1), along with associated infrastructure including biofuel storage, gas and water supply and electricity network connections. The Project will provide dispatchable energy into the grid in periods of high

demand or low supply, and energy withdrawal from the grid via hydrogen production in periods of low demand or over supply.

The Project will provide grid firming/stability to electricity supplied by the Central-West Orana REZ to support the NSW Government's intent to ensure that NSW consumers have continued access to cheap, clean and reliable electricity.

Specifically, the Project will include:

- 64 Megawatt (**MW**) dual fuel fired power station
- 17.5MW Hydrogen generation plant
- Biofuel storage
- Water storage
- Connection to adjacent gas infrastructure by a 500m high-pressure gas pipeline
- ~2.5km high-pressure gas pipeline used primarily as a gas storage vessel
- Connection to adjacent electricity infrastructure by a high voltage (66kV) electricity line
- Connection to water supplies by water pipeline(s).

The Project has a capital investment value of approximately $130 million and is anticipated to be operational in 2024/25.

Following advice from the NSW Department of Planning and Environment (**DPE**), the Project satisfies the criteria of State Significant Development under Section 2.6(1) and paragraph 20(a) of Schedule 1 of the State Environmental Planning Policy (Planning Systems) 2021 (**Planning Systems SEPP**).

The Scoping Report was previously submitted to DPE on 10 September 2021 (**Initial Scoping Report**) with the Secretary's Environmental Assessment Requirements being issued on 19 October 2021.

Since then, the Proponent, a new project entity, has been incorporated and funded to be the proponent of the Project. The Project scope has also been broadened to include a dual fuel capability for power generation using biofuels.

This revised Scoping Report has been prepared, based on the Initial Scoping Report, in support of a request to review the Secretary's Environmental Assessment Requirements (**SEARs**) for adequacy following the proposed modification to incorporate a dual fuel capability for the firming power station which will enable the use of biofuel as a power generation feedstock.

An Environmental Impact Statement (**EIS**) will be prepared in accordance with the SEARs for the Project under Division 4.7 of the EP&A Act (State Significant Development). Table 1 provides an overview of where the Scoping Report criteria have been addressed in this document.

Table 1. Scoping Report Content Guide

Scoping Report requirement	Relevant section(s) of this Scoping Report
An overview of the Project, including justification and need	• Introduction • Site Description • Project Description • Consistency with Energy Policy, Strategies and Plans
An outline of the relevant planning legislation and approvals pathway	• Statutory and Planning Framework

Scoping Report requirement	Relevant section(s) of this Scoping Report
An outline of consultation that would be undertaken during the preparation of the EIS	• Consultation
Identification of the potential environmental and social issues that would be associated with the construction and operation of the Project	• Preliminary Environmental Assessment
Identification of further assessment likely to be required in the EIS	• Preliminary Environmental Assessment • Conclusion

The Proponent and Development Manager

The Proponent is a wholly owned subsidiary of CWP Renewables Pty Ltd. CWP Renewables develops, operates and owns renewable energy assets in Australia.

The Proponent has engaged Energy Transition Solutions Pty Ltd (**ETS**) as the development manager of the Project. ETS is an Australian developer of utility scale energy projects, with a commitment and focus on sustainable energy projects to assist in the transition of the east coast energy market to a renewable energy future.

The project development team are highly experienced in energy project planning and development, having invested over $90 million in nine operating assets in regional Australia, a mixture of solar, wind and batteries that collectively power over 200,000 homes.

CWP Renewables operates and owns 650 MW of renewable energy assets in the National Electricity Market and has a further five GW of wind, storage and firming projects in development.

The team at ETS is highly experienced in energy project planning and development, project financing and electricity transmission network connection in NSW, Queensland and Victoria.

Project Need

In accordance with the five initiatives in the NSW Electricity Infrastructure Roadmap, the Project will:

1. Be co-located with energy-intensive industries, supplying customers in the North Dubbo Industrial Area and the wider NEM;
2. Provide long term energy storage infrastructure by 2030;
3. Support the delivery of the renewable energy in the Central-West Orana REZ and create a new market (i.e. hydrogen production) for excess electricity generated across the REZ (and wider NEM);
4. Provide firming services to the local Central-West Orana REZ and existing grid infrastructure; and
5. Implement the opportunity to deliver a new hydrogen industry in Dubbo and the wider Central-West Orana region.

Further detail on this is provided in the *Consistency with Energy Policy, Strategies and Plans* section of this Scoping Report.

Site Description

Regional Context

The proposed Project site and associated network connections are wholly within the Dubbo Regional Council Local Government Area (**LGA**). Dubbo is in the Central West and Orana regions of NSW, and is the key agricultural, transport and industrial hub of the region. Retail trade, public administration, education and health care are also central to Dubbo's employment providing essential services to the city and surrounding region.

The Project site is in the heavy industrial area of North Dubbo. Surrounding the proposed site includes Fletcher International Export Abattoir (the largest employer in Dubbo), the Dubbo Livestock Markets, the Dubbo Sewage Treatment Plant and commercial agricultural enterprises including pivot irrigation. To the south of the proposed site, is a concrete batching plant and the Fletchers Industrial Estate is currently undergoing subdivision for further industrial development.

The proposed site is located along Yarrandale Road, which links to Boothenba Road to the north and Purvis Lane to the south, both of which are arterial roads connecting north Dubbo to the Newell Highway. Yarrandale Road also extends to connect with the Golden Highway further south.

The Site

The proposed Project site is located at 28L Yarrandale Road, Dubbo (Lot 13 of DP812799) with proposed gas, water and electricity connections in immediately adjacent land parcels. The location is approximately 4km north of Dubbo's town centre. The Project site is approximately 14 hectares in size and is currently used for cultivation of crops and pastures for grazing. There are no existing dwellings or structures presently on the site. Adjacent buildings are light-medium industrial businesses.

The Macquarie River is the closest waterway, approximately 1km from the site, with the Newell Highway, Dubbo Railway and the Dubbo Livestock Markets located between the proposed site and the river.

The site is centrally located within the Heavy Industrial Zoning (IN3) of the Dubbo Local Environmental Plan 2011 (**Dubbo LEP**). The Western District Memorial Park (zoned Private Recreation – RE2) is the closest non-industrial or utility land use and is approximately 900m to the north of the site along Boothenba Road.

The land is currently owned by Fletcher International Exports Pty Ltd (**FIE**), who also own the majority of the surrounding land (Fletchers Industrial Estate to the south and commercial agricultural land to the east) and own and operate the abattoir to the north.

Road access to the site would be provided by a new entry/ exit from Yarrandale Road.

The proposed utility connections, including the gas pipeline and the electrical transmission are directly adjacent to the proposed site with good access.

Figure 1. Dubbo Project investigation area

The high pressure gas pipeline connection would link the proposed power station (within the Project site) to the Central West Pipeline (**CWPL**) Dubbo scraper station operated by APA Group. The new pipeline connection would traverse the northern boundary of adjacent land (Lot 1 of DP1202166) to the south of the proposed site (also owned by FIE as part of the Fletchers Industrial Estate) for approximately 500m. The new pipeline would then terminate in the existing CWPL scraper station (Lot 4561 of DP1002246).

An additional length of pipeline will continue a further 2km to the east of Yarrandale Road, paralleling the Central Ranges Pipeline (**CRP**) in agricultural land owned by FIE (Lot 2451of DP1049405). This additional length of pipeline will provide gas and hydrogen storage to the Project site and customers in the North Dubbo Industrial Area.

The 66kV electricity connection would connect the proposed power station to the Yarrandale 66kV Substation operated by Essential Energy to the east (on the opposite side of Yarrandale Road). The new 66kV connection would include a crossing of the Yarrandale Road reserve and terminate within the existing 66kV Yarrandale substation (Lot 2510 of DP876959). An electrical switchyard (with the ability to connect future industrial customers) will also be included at the site.

Water will be either sourced from the mains system, from the Dubbo recycled water pipeline on Yarrandale Road, from FIE abattoir commercial operations or the Yarrandale Water Storage. The existing dams on site will be re-conditioned for water storage and handling or removed if not required.

Table 2. Relevant land

Affected Land (Lot / Plan)	Proposed infrastructure
Lot 13 of DP812799	Proposed Dubbo site
Lot 4561 of DP1002246	Connection to the CWPL Scraper Station
Lot 2510 of DP876959	Connection to the 66kV Yarrandale Substation
Lot 1 of DP1202166	Gas Pipeline – Connection & Storage
Lot 2451 of DP1049405	Gas Pipeline – Storage
Lot 2 of DP1235422	Water supply pipeline (Yarrandale Water Storage)
Lot 11 of DP812799	Water supply pipeline (FIE abattoir commercial operations)
Yarrandale Road	Site access Gas Pipeline – Storage 66kV electrical connection Water supply pipeline

Site Selection

Dubbo was selected as the preferred site for the Project due to its strategic location within the Central-West Orana REZ. The dual fuel fired power station will provide firming services to the intermittent renewable energy developments and connections in the REZ whilst the hydrogen electrolysis plant can utilise cheap renewable power to produce, store and blend hydrogen into the gas mix. The city of Dubbo and industrial energy users in the area also provide for a source of localised demand for electricity.

In addition to Dubbo's location within the REZ, it also provides key infrastructure requirements for dual fuel fired power generation and hydrogen facilities, including:

- Proximity to existing gas transmission pipelines and facilities
- Proximity to the existing high voltage electricity transmission network and demand centre
- Proximity to industrial energy users
- Capacity of the electricity transmission network to accommodate the nominated generation at the proposed power station
- Availability of suitably zoned land with compatible existing land use
- Access to major roads and highways in proximity for the delivery of heavy vehicle loads and ongoing transport and deliveries to/from the Project
- Availability of skilled construction and operations workforce
- Proximity to Dubbo for operational maintenance, contractors and suppliers
- Availability of water for industrial use.

Consideration of Alternatives

Several sites were investigated in proximity to Dubbo for the proposed Project but were ultimately not selected due to one or more of the following reasons:

- Existing land zoning not conducive
- Presence of restrictive planning overlays

- Existing land condition including presence of native vegetation
- Consideration of proximity to residential dwellings
- Longer distance required to connect to existing high pressure transmission gas, high voltage power or water assets; and
- Accessibility (low road quality, high traffic volume, longer distance to the Newell Hwy)

The existing CWPL traverses the Dubbo area from the west to the north, where an above ground facility is located at Yarrandale Road. The facility transfers gas from the CWPL to the Central Ranges Pipeline (**CRP**) and into the Dubbo gas networks (operated by Jemena). The CRP continues in a north eastern direction to Tamworth via Dunedoo, Coolah and Quirindi.

Essential Energy's 132kV Dubbo Substation located on Wheelers Lane is the primary electricity substation in Dubbo. Proximity to the site allows for easy feed in of electricity produced by the new dual fuel fired power station from the Yarrandale substation.

A study area in the proximity of the CWPL between the Dubbo airport and the Dubbo Sewage Treatment Plant was interrogated for most suitable sites for a potential dual fuel fired power station and hydrogen plant – see Figure 2. The area to the west of the Newell Highway was given least preference in comparison to the industrial area to the east due to:

- Proximity to the Dubbo airport
- Proximity to the Macquarie River and Environmental Management (E3) Zoning adjacent
- Number and proximity of residential receptors in the area; and
- Macquarie River, Dubbo township and transport corridor crossings if a connection to the Dubbo 132kV substation required.

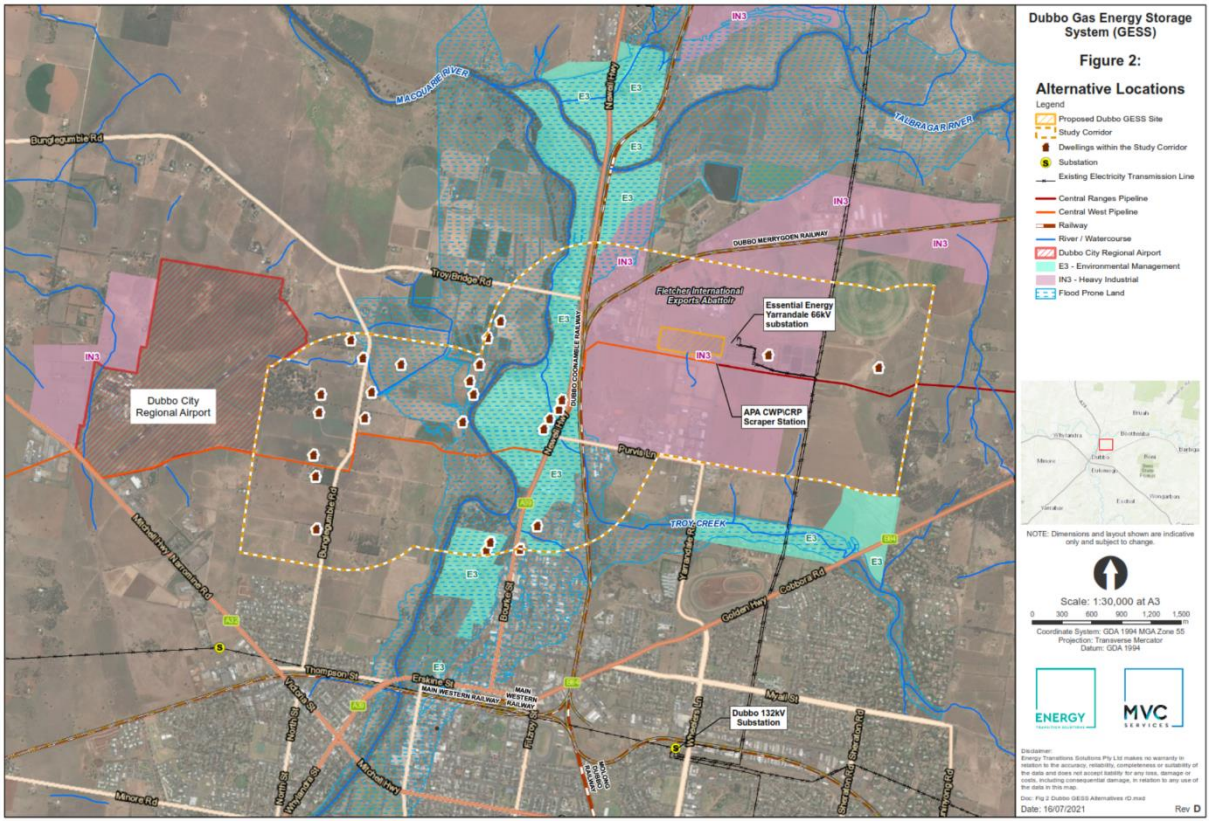

Figure 2. Dubbo Project site alternative locations

To negate the need for crossings of rail infrastructure for a gas pipeline connection to the proposed site and for compatible development and land use, the site selection area was refined to the heavy industrial zoned area (IN3) between the rail line to the north and rail line to the west. A key landowner was identified when undertaking land searches in the area. Through engagement with the landowner, preference to the subject land was agreed due to proximity to the CWPL above ground facility and the Yarrandale 66kV substation, negating the need for the further encumbrance of additional land with easements. The subject site also avoids key operational areas of the landowner's abattoir, commercial agricultural operations and the current and future subdivision of Fletchers Industrial Estate.

The subject site was also preferred due to previous disturbance and current land use for cultivation of crops - presenting low potential impact to native vegetation and wildlife, and the Project is unlikely to harm intact cultural heritage. In addition, the site is within the IN3 zoning and consistent with the land use under the Dubbo LEP.

Project Description

Overview

The Project has a capital investment value of approximately $130 million and is anticipated to be operational in 2024/25. The key aspects of the Project include:

- A new dual fuel fired power station with a nominal capacity of about 64MW comprising of dual fuel reciprocating engine generators or turbine generator(s). The power station would also be capable of operating with hydrogen blends based on hydrogen production at the site
- Facilities ancillary to the power station include (but are not limited to):
    - gas compression and regulation facilities
    - biofuel storage tanks
    - electrical cabling, switching and controls
    - upgrade/new access off Yarrandale road
    - truck parking, loading and unloading facilities
    - water supply, treatment and storage
    - office, administration and amenities
    - workshop and storage facilities; and
    - staff, contractor and visitor car parking area.
- Hydrogen Generation Plant with 17.5MW generation capability, along with hydrogen compression, storage, handling and blending facilities.
- A new high pressure gas pipeline connection (approximately 500m in length) between the Project site and the CWPL.
- A new high pressure gas pipeline ~2.5km extending from the Project site and paralleling the CRP to be used for balancing storage and supplying feedstock during periods of operation.
- A new 66kV electricity transmission line connection (approximately 100m in length) from the Project site to the existing 66kV Yarrandale Substation.

An indicative site layout is provided in Figure 3 and may be subject to change through the EIS and detailed design of the Project.

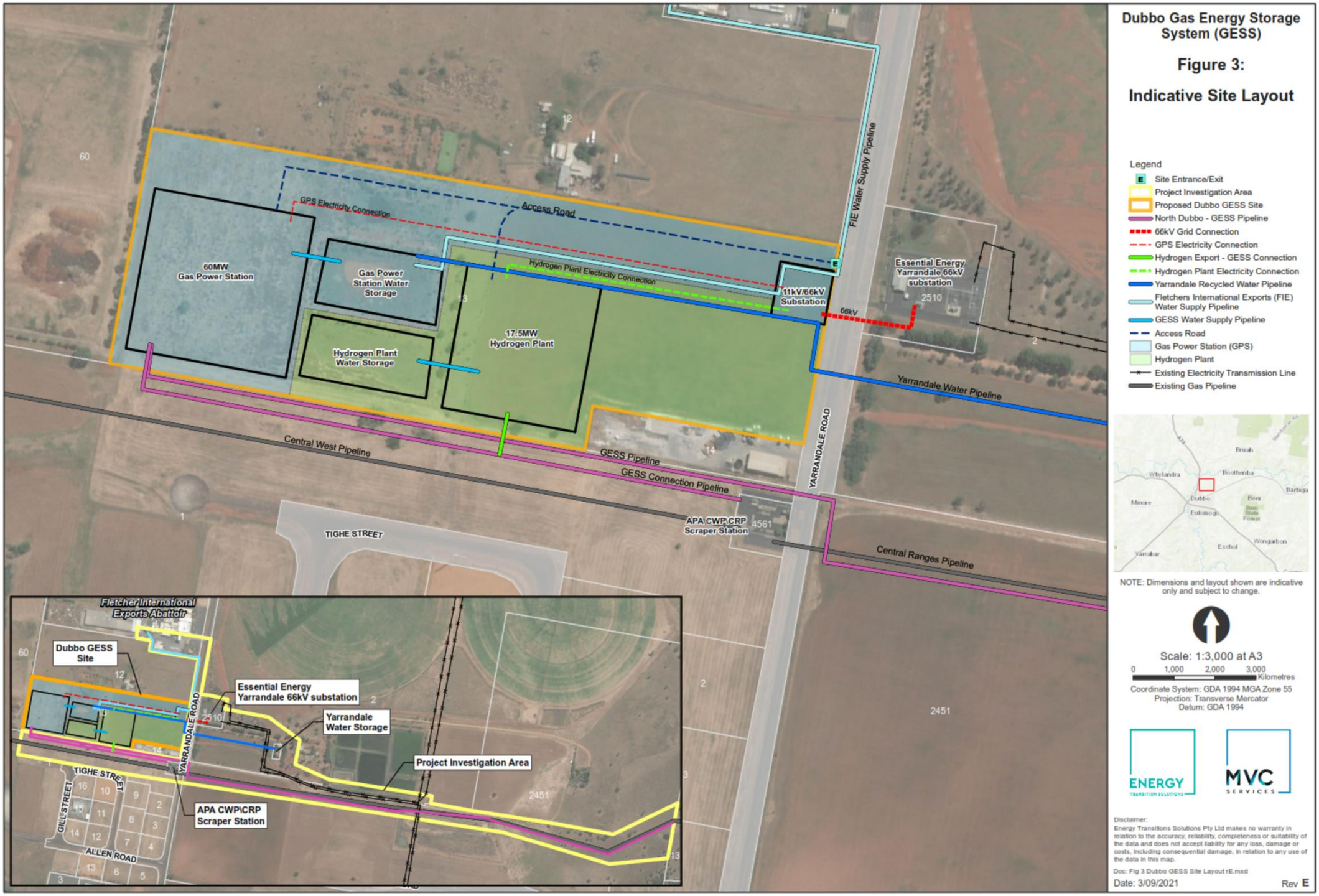

Figure 3. Dubbo Project indicative site layout

Power Station

The dual fuel fired power station would initially be capable of generating about 64MW of electricity. The proposed power station would consist of either large reciprocating engine generators or turbine generators. Generation units would be biofuel and hydrogen fuel capable, meaning they would be able to be supplied by biofuels or natural gas in the short term, and high hydrogen blends or biofuels into the future. The decision to install turbines or reciprocating technology will be made based on a range of environmental, social, engineering and economic factors that will be considered as the power station design progresses.

Dual Fuel Turbine Technology

Dual fuel turbine units generally consist of a compressor, combustion chamber, turbine and generator. Air is compressed to a high pressure before being admitted into the combustion chamber. Fuel (biofuel, natural gas, hydrogen or blend as required) is injected into the combustion chamber where combustion occurs at very high temperatures and the gases (air and combusted fuel) expands. The resulting hot air is admitted into the turbine causing the turbine to turn, generating power. In an open cycle configuration, hot exhaust air is vented directly to the atmosphere through an exhaust stack, without heat recovery.

Reciprocating Engine Technology

Reciprocating engines used for power generation harness the controlled ignition of the fuel to drive a piston within a cylinder. A number of pistons move sequentially to rotate a crank shaft which turns the generator.

Ancillary Facilities

Irrespective of the chosen technology, the power station would require supporting ancillary facilities including:

- Biofuel storage tanks
- Natural gas reception yard potentially including gas metering, pressure regulation, compression, heating stations, pigging facilities and provision for flaring
- Generator circuit breakers, generator step-up transformers and switchyard including overhead line support gantry
- Water supply, treatment and storage facilities
- Heavy vehicle entrance / exit on Yarrandale Road
- Hard stand area for truck parking, loading and unloading facilities
- Closed circuit cooling systems
- Control room, offices and messing facilities
- Electrical switch rooms
- Occupational health and safety systems including an emergency warning and evacuation system
- Office, administration and amenities
- Workshop and warehouse
- Firefighting system
- Communication systems
- Security fence, security lighting, stack aviation warning lights (if required) and surveillance system
- Landscaped areas and staff, contractor and visitor parking areas

- Civil features including concrete bunds, engineered batters and diversion drains for control of chemicals, oils, fuels and stormwater run off

Hydrogen Generation Plant

The Project also includes a new hydrogen electrolysis plant with a nominal capacity of approximately 17.5MW comprising either polymer electrolyte membrane (**PEM**), alkaline electrolysis (**AE**) or other mature electrolysis technology.

The electrolysis units would be modular and the type, size and number of electrolysers will be based on conversion efficiency, water consumption, start up times and a range of environmental, social and engineering and economic factors that will be considered as the electrolysis plant design progresses.

Auxiliary equipment required to support the electrolysis process would include compressors, heat exchangers, water purifiers and pumps, storage vessels and handling/blending facilities.

Polymer Electrolyte Membrane Technology

The PEM hydrogen production unit includes a hydrogen production system, a control system, and a DC power supply. Compared with the alkaline water hydrogen production system, the PEM hydrogen production system is quite simple: the gas after treatment device is relatively small, no special alkali tank is needed, and the water tank can also be used as an oxygen separator.

The PEM electrolyser modules broadly consist of the following sub-components:

- feed water pump
- demister
- water tank
- cooler/chiller
- water purification package
- PEM electrolyser stack
- hydrogen separator
- control valves

Alkaline Electrolysis Technology

The alkaline water hydrogen production device mainly comprises an alkaline water hydrogen production system, a control cabinet and a rectifier cabinet.

The alkaline electrolyser modules broadly consist of the following sub-components:

- alkaline electrolyser
- hydrogen separator
- oxygen separator
- closed loop gas cooling system
- circulating pump
- cooler
- water storage tank
- alkali tank
- control valves

Hydrogen Plant Operation

The hydrogen electrolysis plant would operate when there is low electricity demand or an excess of electricity in the grid. Hydrogen produced would be used for:

- Blending with natural gas and injecting into the CWPL, CRP or the Dubbo gas networks
- Blending with natural gas and supplying the dual fuel fired power station and industrial users “behind the meter” in the North Dubbo Industrial Area
- Transport fuel for truck, buses and vehicles
- Fuel for agricultural tractors and machinery in the Central-West Orana region
- Industrial feedstocks, including chemical, aluminium and steel manufacture; or
- A combination of any of the above.

Ancillary Facilities

Facilities ancillary to the hydrogen electrolysis plant include (but are not limited to):

- compression, pressure regulation and metering facilities
- hydrogen storage vessels
- truck parking, loading and unloading facilities
- water supply, management and storage
- office, administration and amenities
- workshop and storage facilities and
- staff, contractor and visitor car parking area.

Gas and electricity grid connections will be common to the dual fuel fired power station.

Gas Connection Pipeline

The ~500m high pressure gas connection pipeline would connect the Project site to the CWPL Dubbo Scraper Station which is currently operated by APA Group. The connection pipeline will be designed to transport sales quality gas from the existing CWPL Scraper Station to the Dubbo Project Site.

The pipeline route is defined in *Figure 3 – Indicative Site Layout.*

The connection pipeline will be designed in accordance with AS 2885.1:2018 (**AS 2885**). Piping in pipeline facilities will be designed as pipeline assemblies in accordance with Section 5.9 of AS 2885. Hydraulic design, process conditions, or flow and pressure control will be defined following the concept development stage of the Project.

The pipeline will be constructed of materials that are suitable for hydrogen transport and storage.

The design and operating conditions of the connection pipeline will be consistent with AS2885, ASME B31.12 and NSW regulatory requirements under the *Pipelines Act 1967* (NSW) (**Pipelines Act**).

The connection pipeline will be buried and the pipeline geometry will be defined during the concept development stage using detailed two-phase flow assurance modelling and taking into account gas supply availability and a range of environmental, engineering and economic factors.

Gas Storage Pipeline

The ~2.5km high pressure gas storage pipeline would connect the power station to a terminal point 2.5km East South East of the Project site. The purpose of the pipeline is to provide a storage vessel that can be filled with natural gas and/or hydrogen during off-peak periods to provide the feedstock for the Power Station during operation.

The pipeline route is defined in *Figure 3 – Indicative Site Layout*.

The pipeline will be designed in accordance with AS 2885. Piping in pipeline facilities will be designed as pipeline assemblies in accordance with Section 5.9 of AS 2885. Hydraulic design, process conditions, or flow and pressure control will be accurately defined following the concept development stage of the Project.

The pipeline will be constructed of materials that are suitable for hydrogen storage.

The design and operating conditions of the pipeline will be consistent with AS2885, ASME B31.12 and NSW regulatory requirements under the Pipelines Act.

The storage pipeline will be buried and the pipeline geometry will be defined during the concept development stage using detailed two-phase flow assurance modelling and taking into account gas supply availability and a range of environmental, engineering and economic factors.

Electricity Transmission Line

A high voltage 66kV electricity transmission line would be required to connect the proposed power station to the Essential Energy Yarrandale 66kV substation on the opposite side (eastern side) of Yarrandale Road. The new electricity transmission line will be approximately 100 metres in length and will either be buried below Yarrandale Road or connected via overhead poles/wires. The infrastructure required for connection and upgrade of the Yarrandale substation will be determined following submission of a detailed enquiry and connection agreement with Essential Energy.

Water and Wastewater

Water would be stored on site for process, domestic and firefighting uses. It is proposed that the significant quantities of process water required would be sourced from the mains system, the Dubbo recycled water pipeline in Yarrandale Road, from FIE abattoir commercial operations or the Yarrandale Water Storage. The existing dams on site will be re-conditioned and/or lined with a polyfilm for water storage and handling or removed if not required.

Water sourced from the Dubbo recycled water pipeline would likely have to be purified using both reverse osmosis and chemical treatment technology to provide general process and demineralised water requirements.

Process water recovered from power generation evaporative cooling system would be recycled to the maximum extent possible before being discharged into a wastewater pond. Sludge accumulated in the wastewater pond over time would be periodically removed and disposed of to an appropriately licensed off-site facility or neutralised with a biological augmentation process. In the absence of a mains water connection, to the extent practicable, rainwater would be captured and used as potable water on site.

Sewage would be directed to the Dubbo sewage system, or alternatively, an on-site proprietary treatment system or septic system for pump out and offsite disposal.

A drainage collection and bund system including an oil and grit interceptor and appropriate traps would mitigate any risk of spills in and around plant and equipment areas.

The main requirement for process water is for the turbine inlet air cooling, turbine NOx emission control and for hydrogen generation purposes.

Actual water consumption would vary with ambient and operating conditions. It is expected that some evaporative cooling water will be required during most summer months when there is a high ambient temperature.

Evaporative cooling may not be required during winter months.

Water consumption rates will be confirmed through the detailed design phase of the Project.

Vehicular Access

The area around Dubbo is serviced by a road network well suited to heavy haulage vehicles due to the Newell Highway, Mitchell Highway and Golden Highway all intersecting within Dubbo. The proposed site is in close proximity to the Newell Highway and Golden Highway, with access to the Newell Highway from Boothenba Road and Purvis Lane, and the Golden Highway from Yarrandale Road (further to the south).

A new permanent heavy vehicle access for construction and operation will be required from Yarrandale Road, which will also support staff, contractor and visitor access (and parking) through construction and operation.

Consistency with Energy Policy, Strategies and Plans

Strategic Justification

Three quarters of NSW's electricity supply is expected to reach the end of its technical life within 15 years. This has the potential to lead to significant price increases and interruptions in energy supply, particularly with the integration of intermittent renewable energy into the electricity grid.

The Project aligns with the NSW Government's objectives for energy security and reliability outlined in the objects of the *Electricity Infrastructure Investment Act 2020*. The Project would provide firming services to facilitate the continued growth of the region's renewable energy generation within the Central-West Orana REZ, and also create a new market for hydrogen production for excess electricity in the REZ.

The Project is consistent with the Federal Government's priority to deliver a reliable, secure and affordable energy system with improved outcomes for energy consumers.

AEMO Gas Statement of Opportunities 2021 (**GSOO**)

The Project aligns with the GSOO's expectation that gas demand may become more 'peaky' in support of the anticipated increase in variable renewable energy production. The GSOO includes

an outlook for hydrogen production for the first time and recognises the role that green hydrogen can play in the realisation of carbon emission reduction objectives.

AEMO Integrated System Plan

The Australian Energy Market Operator (**AEMO**) 2020 Integrated System Plan (**2020 ISP**) was released on 30 July 2020. The 2020 ISP provides an actionable roadmap for eastern Australia's power system. The 2020 ISP draws on extensive stakeholder engagement and internal and external industry and power system expertise to develop a blueprint that maximises consumer benefits through a transition period of great complexity and uncertainty.

The 2020 ISP provides that

- 6-19 GW of new dispatchable resources are needed to back up renewables by 2040
- Gas Powered Generation can provide the synchronous generation needed to balance variable renewable supply and is a potential complement to storage.

The Project would provide a small contribution to the dispatchable resources required to back up renewables.

NSW Energy Strategy 2019

The Strategy is focussed on encouraging an estimated $8 billion of new private investment in NSW's electricity system in the next ten years including $5.6 billion in regional NSW. By supplying firming capacity to the Central-West Orana REZ, the Project would provide security of supply when the sun is not shining and the wind is not blowing ensuring continued reliability to the grid.

Electricity Infrastructure Investment Act 2020 (NSW)

The objectives of the Act that are relevant to the Project include:

- Encouraging and coordinating investment in new generation, storage network and related infrastructure
- Fostering local community support for investment in new generation, storage network and related infrastructure
- Creating employment and increasing opportunities for Aboriginal and Torres Strait Islander people
- Promoting consultation and negotiation with the traditional Aboriginal owners of land on which generation, storage and network infrastructure is proposed to be constructed.

NSW Electricity Infrastructure Roadmap 2020

Pursuant to the Electricity Infrastructure Investment Act, the roadmap is a plan to transition the NSW electricity sector into one that is cheaper, cleaner and more reliable. It includes the declaration of five REZ (including the Central-West Orana REZ) and lays down the framework to attract private investment into regional areas focussed on clean regional energy, including the establishment of an Electricity Infrastructure Investment Safeguard to deliver new generation, long duration storage and firming capacity. It aims to reduce NSW electricity emissions by 90 million tonnes by 2030.

NSW Climate Change Policy Framework 2016

This framework aims to maximise the economic, social and environmental wellbeing of NSW in the context of a changing climate, current and emerging international and national policy settings and actions to address climate change.

The Project is consistent with the framework's Aspirational Objectives and Policy Directions by facilitating the development of renewable energy and hydrogen production.

NSW Net Zero Plan Stage 1 2020-2030

The Plan outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions whilst taking practical steps towards reaching zero emissions by 2050. The Project would assist the NSW Government in supporting Net Zero Priority 1 and Net Zero Priority 3. With a proposed commissioning date in 2024/25, the Project has the potential to contribute to the 2020-2030 transition towards net zero by promoting renewable energy uptake and development in the Central-West Orana REZ.

Statutory and Planning Framework

Environmental Planning and Assessment Act 1979

The EP&A Act and associated regulations and environmental planning instruments (including State Environmental Planning Policies and Local Environmental Plans) provide the framework for the assessment of the environmental impact of development proposals in NSW.

Section 4.36 provides for the declaration of SSD pursuant to a State environmental planning policy or by order of the Minister. Section 4.42 of the EP&A Act provides that a licence under the *Pipelines Act 1967* (NSW) cannot be refused if a project is designated SSD.

The Project, as an energy generating facility, satisfies the criteria for SSD under Division 4.7 of the EP&A Act and section 2.6(1) and paragraph 20(a) of Schedule 1 of the Planning Systems SEPP.

The Proponent will continue to work with the DPE to establish the planning pathway for this development.

State and Local Environmental Planning Instruments

A summary of the relevant state and local environmental planning instruments is set out below.

In accordance with section 3.28 of the EP&A Act, in the event of an inconsistency between environmental planning instruments (and unless otherwise provided), there is a general presumption that a State Environment Planning Policy prevails over a local environmental plan or other instrument made before or after that State environment planning policy. In addition, pursuant to clause 2.5 of the Planning Systems SEPP, in the event of an inconsistency between the Planning Systems SEPP and another environmental planning instrument, whether made before or after the commencement of the Planning Systems SEPP, the Planning Systems SEPP prevails to the extent of the inconsistency. Accordingly, to the extent of any inconsistency, the priority of environmental planning instruments as they apply to the Project is in accordance with the following sequence:

(a) Planning Systems SEPP

(b) Transport and Infrastructure SEPP

(c) Dubbo LEP

State and Local Environmental Planning Instruments

State Environmental Planning Policy (Planning Systems) 2021

The Planning Systems SEPP determines development to which the State significant development assessment and approval process under Part 4 of the EP&A Act applies. Pursuant to section 2.6(1) of the Planning Systems SEPP, development is declared to be State significant development for the purposes of the EP&A Act if:

> *(a) the development on the land concerned is, by operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act; and*
>
> *(b) the development is specified in Schedule 1 or 2.*

Paragraph 20(a) of Schedule 1 of the SRD SEPP includes development for the purpose of electricity generating works (using any energy source including gas) that has a capital investment value of more than $30m.

State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environment Planning Policy (Transport and Infrastructure) 2021 (**Transport and Infrastructure SEPP**) aims to facilitate the effective delivery of infrastructure across NSW. Part 3 of Division 4 of the Infrastructure SEPP contains provisions relating to electricity generating works. Electricity generating works is defined in the Transport and Infrastructure SEPP as:

> *"a building or place used for the purpose of (a) making or generating electricity; or (b) electricity storage."*

Clause 2.36(1) of the Transport and Infrastructure SEPP provides that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a *prescribed rural, industrial or special use zone*.

As discussed below in more detail, the proposed site of the Project is in IN3 – Heavy Industrial and RU2 – Rural Landscape which are prescribed rural, industrial or special use zones under the Transport and Infrastructure SEPP.

Clause 2.121 of the Transport and Infrastructure SEPP refers to traffic generating developments and Schedule 3 lists the types of developments that must be referred to Transport for NSW (TfNSW). Electricity generating works are not listed within Schedule 3 and the Project is not anticipated to accommodate 200 or more vehicles. Accordingly, the Project does not need to be referred to TfNSW. However, the Proponent will consult with TfNSW on all aspects of the Project that may affect TfNSW infrastructure and responsibilities, including construction and operational vehicle routes, impact of the Project on the condition of existing TfNSW managed roads and the potential for any cumulative impacts from nearby road development works.

Consultation will also be undertaken by the Proponent with the Dubbo Regional Council regarding the upgraded entry/exit on Yarrandale Road and the broader expected impact to the local road network.

State Environmental Planning Policy (Resilience and Hazards) 2021

Under State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards **SEPP**), developers and consent authorities are required to assess the hazards and risks associated with a proposed development before approval is given for construction and operation. A potentially hazardous industry under the Resilience and Hazards SEPP is defined as development for the purposes of any industry where, if the development were to operate without employing any measures to reduce or minimise its impact the development would pose a significant risk to human health, life or property or to the biophysical environment.

Developments that are classified as potentially hazardous under the Resilience and Hazards SEPP are required by clause 3.11 to have a preliminary hazard analysis (**PHA**) prepared to determine the risk to people, property and the biophysical environment at the proposed location and in the presence of controls. During preparation of the environmental impact statement, consideration would be given to whether the Project is considered potentially hazardous or offensive in consideration of the provisions of the Resilience and Hazards SEPP.

Dubbo Local Environmental Plan 2011

The proposed Project site and the investigation areas for the gas pipeline(s), water supply and electrical transmission line are zoned IN3 Heavy Industry with a ~1km section of the gas storage pipeline proposed to be constructed and operated on RU2 – Rural Landscape by the Dubbo LEP 2011 **(Dubbo LEP).** The objectives of the zones are set out in the Dubbo LEP as follows:

IN3 Heavy Industry

- To provide suitable areas for those industries that need to be separated from other land uses
- To encourage employment opportunities
- To minimise any adverse effect of heavy industry on other land uses
- To support and protect industrial land for industrial uses.

The Dubbo LEP does not prohibit energy generating facilities under Item 4 of the Land Use Table for IN3 and accordingly is a development permitted with consent pursuant to Item 3 of the Land Use Table.

RU2 Rural Landscape Objectives

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To maintain the rural landscape character of the land; and
- To provide for a range of compatible land uses, including extensive agriculture.

The storage pipeline proposed in the RU2 zoning will be buried and will not alter the existing land uses, the landscape character and is not incompatible with agricultural land uses.

Figure 4 illustrates the land use zonings within and near to the Project.

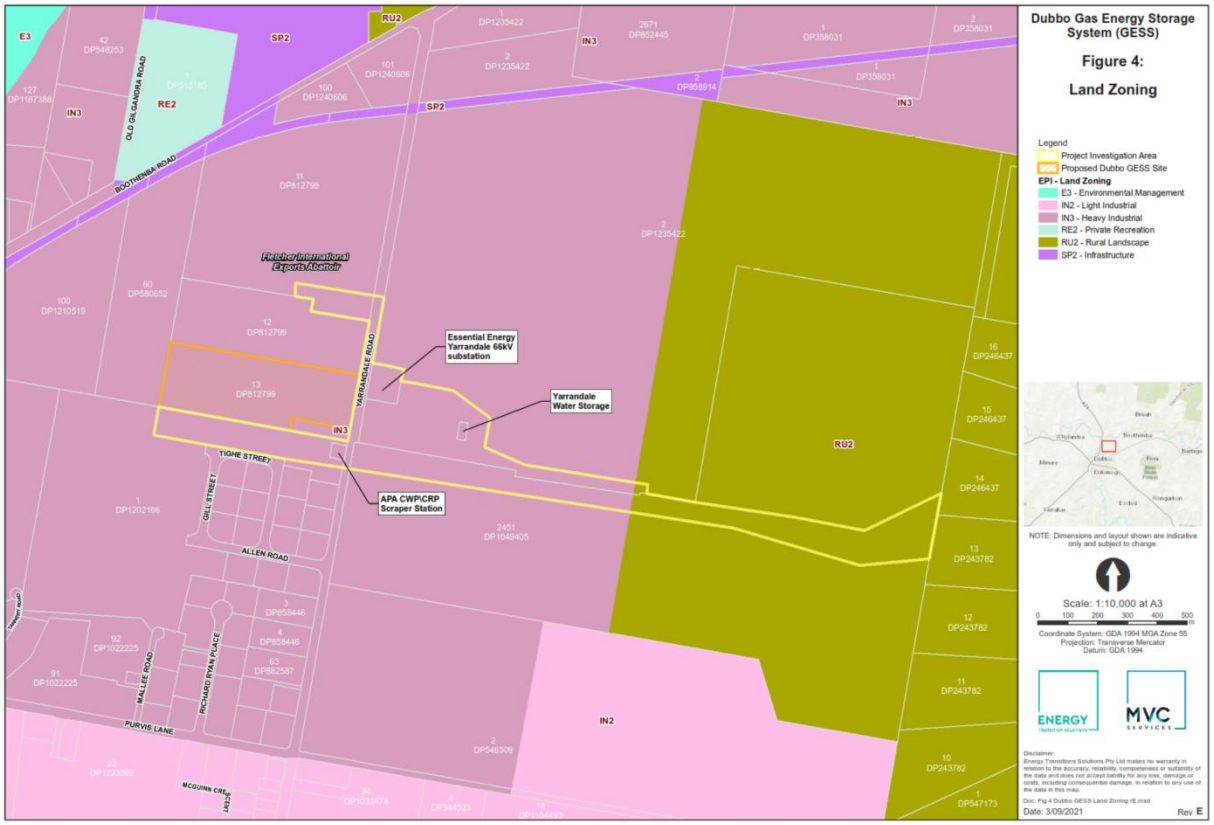

Figure 4. Dubbo Project site land zoning (Dubbo LEP 2011)

Pipelines Act 1967

Section 11 of the Pipelines Act outlines licensing requirements for pipelines. Under Section 11 a licence is required to:

a) commence, or continue, the construction of a pipeline.
b) alter or reconstruct a pipeline.
c) operate a pipeline.

A licence under the Pipelines Act would be required for the construction and operation of the proposed gas pipeline(s). Section 4.42 of the EP&A Act provides that a licence under the *Pipelines Act 1967* (NSW) cannot be refused if a project is designated State Significant Development.

Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (NSW) contains provisions for the assessment of impacts on biodiversity values of a proposed development, calculating measures to offset those impacts and establishing market-based conservation measures, including biodiversity credits. A Biodiversity Development Assessment Report (**BDAR**) will be prepared for the purposes of the biodiversity offsets scheme by an accredited person in relation to proposed development or activity that would be authorised by a planning approval as per Section 6.12. Part 7 of the Biodiversity Conservation Act details the provisions for Biodiversity assessment and approvals under the Planning Act that an application for State Significant Development under Part 4 of the EP&A Act must address.

Roads Act 1993

The *Roads Act 1993* (NSW) (**Roads Act**) regulates the carrying out of various activities on public roads and provides for the declaration of TfNSW and other public authorities including Councils as a roads authority for different types of roads (classified and unclassified).

Under section 138 of the Roads Act, the consent of the appropriate roads authority is required before a person can erect a structure, carry out work in, on or over a public road or dig up or disturb the surface of a public road. Construction of the gas storage pipeline, water supply pipeline and electricity transmission routes will likely require works within public roads.

Under section 4.42 of the EP&A Act, any permit required under section 138 of the Roads Act from the appropriate roads authority cannot be refused if it is necessary for carrying out approved SSD and is substantially consistent with the consent.

National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NSW) (**NPW Act**) aims to protect native flora and fauna and the integrity of any Aboriginal heritage items in NSW. It also provides for the protection of National Parks, Historic Sites, Nature Reserves, and State Recreation Areas. Although there may be the potential to impact Aboriginal Heritage as part of the Project, Section 4.41 of the EP&A Act details that a Section 90 Aboriginal heritage impact permit is not required for State significant development that is authorised by a development consent. Engagement with the Dubbo Local Aboriginal Land Council (**LALC**) would be undertaken, along with an indigenous heritage assessment as part of the environmental impact assessment.

Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (NSW) (**POEO Act**) is administered by the Environmental Protection Authority (**EPA**) (and, in certain respects, local authorities) and provides for the issuing of licences for environmental protection to authorise and control certain activities and work, such as waste, air, water and noise pollution. The owner or occupier of a premises engaged in scheduled activities is required to hold an environment protection licence (**EPL**) and comply with the conditions of that licence. The Proponent would require an EPL for the Project as electricity generation is a scheduled activity listed in Schedule 1 of the POEO Act. The Project meets the criteria set out in Column 2 of clause 17(2) of Schedule 1 being general electricity works with the capacity to generate more than 30MW of electrical power. 'General electricity works' is defined as the generation of electricity by means of electricity plant that, wherever situated, is based on, or uses, any energy source other than wind power or solar power.

The *Protection of the Environment Operations (General) Amendment (Thermal Energy from Waste) Regulation 2022* (**EtW Regulation**) provides a valid pathway for residual waste to energy projects where further material recovery of the residual waste through reuse, reprocessing or recycling is not financially sustainable or technically achievable. As biofuels are not residual waste, the Project is not captured by the EtW Regulation.

Engagement with the EPA will also determine requirements for the inclusion of the Hydrogen Generation Plant under a common licence (if required).

Section 4.41 of the EP&A Act provides that the application for grant of an EPL under Chapter 3 of the POEO Act cannot be refused if it is necessary for carrying out SSD and is substantially consistent with the consent under Division 4 of the EP&A Act.

Water Management Act 2000

The *Water Management Act 2000* (NSW) (**WM Act**) provides for the sustainable and integrated management of water sources in NSW for the benefit of both present and future generations. The WM Act controls the extraction of water, how water can be used, and the carrying out of activities on or near water sources.

Further provisions of this Act apply to water resources for which a water sharing plan has been gazetted. Under the WM Act, should water need to be extracted from a surface water source defined in a water sharing plan the following approvals may need to be obtained:

- An Access Licence to obtain access to a share of the water source.
- A Water Supply Works Approval to obtain permission to construct and operate water supply works (i.e. pumps, bores) for water supply, monitoring, drainage or flood mitigation work.
- An Aquifer Interference Approval may be required for extraction or dewatering activities.
- A Water Use Approval to obtain permission for how the water will be used.

As the Project is SSD a water use approval, water management work approval or activity approval would not be required, however an aquifer interference approval and water access licence may still be required should the project trigger a requirement for one (or both) under the Water Management Act 2000.

The Project would not require works within the waterfront area defined under WM Act, therefore a Controlled Activity Approval would not be required under the WM Act.

Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) is administered by the Commonwealth Department of Agriculture, Water and the Environment (**DAWE**) and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as 'matters of national environmental significance' (**MNES**). Approval from the Commonwealth Minister for Environment and Energy is required for:

- An action which has, would have or is likely to have a significant impact on MNES.
- An action which has, would have or is likely to have significant impact on the environment on Commonwealth land or an action by a Commonwealth agency which has, would have or is likely to have significant impact on the environment.

An EPBC Act protected matters search was undertaken on 25 June 2021 covering the Project investigation area for the proposed gas pipelines plus a 1km buffer. The protected matters search identified the following listed MNES:

- Wetlands of International Importance – 4, of which:
    - the closest to site being the Macquarie Marshes 150-200km upstream

- Listed Threatened Ecological Communities – 18, of which:
    - 12 are endangered (6 likely to occur within the area; 6 may occur within the area)
    - 6 are critically endangered (3 likely to occur within the area; 3 may occur within the area)

- Listed Threatened Species – 26, of which:
    - 5 are critically endangered (3 may occur within the area; 1 likely to occur within the area; 1 known to occur within the area)
    - 9 are endangered (7 may occur within the area; 1 likely to occur within the area; 1 known to occur within the area)
    - 12 are vulnerable (1 may occur within the area; 9 likely to occur within the area; 2 known to occur within the area)
- Listed Migratory Species – 9, of which:
    - 1 Migratory Marine Bird (likely to occur within the area)
    - 3 Migratory Terrestrial Species (1 vulnerable and known to occur within the area; 2 may occur within the area)
    - 5 Migratory Wetlands Species (1 critically endangered and may occur within area)
- Invasive Species – 26, of which:
    - 8 are pest bird species
    - 9 are pest animal species
    - 9 are pest plant species

The Project will undergo a self-assessment process in accordance with the *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (DEWHA, 2013) that will determine whether referral under the EPBC Act is required.

Native Title Act 1993

The *Native Title Act 1993* (Cth) recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs.

A review of the Native Title Vision (NTV) portal of the area in June 2021 did not identify any Native Title claims or determinations for the Project Investigation Area. All works and infrastructure are proposed on freehold land or designated roads and will not affect any Native Title rights or interests.

Consultation

Consultation Principles

The Proponent is committed to undertaking best practice engagement during planning and delivery of the Project. This will ensure landowners/occupiers, stakeholders and the community have meaningful opportunities to participate.

These consultation principles and commitments will be incorporated into consultation on the Project:

- Openness and Transparency: Ensure consultation activities enable open and transparent communication between the Proponent and all stakeholders through the timely distribution of project information that is clear, accurate and relevant.
- Collaboration and Inclusion: Ensure that stakeholders are sufficiently informed about the Project, their rights as stakeholders during the EIS process and to the aspects of the Project to which they can influence.
- Acting with Integrity: Ensure that consultation and engagement is conducted in a manner that fosters mutual respect and trust.

Consultation Objectives

The consultation objectives for the Project are:

- to increase awareness, understanding and support of the Project, including the process of the design, approvals, construction and operations of the Project
- to minimise impacts to stakeholders by proactively mitigating potential impacts where possible and provide timely responses to enquiries and requests for information via easily accessible communication channels; and
- to facilitate genuine stakeholder input to minimise impacts, maximise benefits and meet commitments made to the community.

Consultation Timing and Purpose

Table 3. Proposed consultation timing and purpose

Phase	Timing	Purpose	Participation
Planning and Design	2021 - 2023	• Project & Proponent awareness • Understanding and support for the Project • Understanding potential concerns/impacts • Involve in Project definition • Ability to provide feedback on the Project • Enable Project planning and design to align with community and stakeholder expectations	• Inform • Involve • Collaborate • Empower
Construction	2023/24	• Construction impacts and timing	• Inform • Consult
Operation	2024/25 onwards	• Implementation of operations engagement plan	• Inform • Consult

Stakeholder Identification

Table 4. Identified stakeholders and preliminary issues

Stakeholder Group	Stakeholder	Preliminary Issue
Local Government	• Dubbo Regional Council	• Local employment • Land use and planning • Community impacts • Community services and infrastructure/roads • Socio-economic impacts
Regulatory Agencies	• Department of Agriculture, Water and Environment – DAWE (Cth) • Department of Planning & Environment – DPE (NSW) • SafeWork NSW • NSW Environment Protection Authority • Transport for NSW – TfNSW	• Environmental impacts • Accountabilities • Impact on amenity • Community impacts • Socio-economic impacts • Safety and health risks • Heritage impacts
Elected Representatives	• Federal Ministers & MPs • State Ministers & MPs • Local Government/ Mayor & Councillors	• Environmental Impacts • Socio-economic impacts • Community sentiment to development • Community support • Impact on amenity • Local employment
Indigenous and cultural heritage	• Tubba-Gah (maing) Wiradjuri Aboriginal Corporation • Dubbo Local Aboriginal Land Council	• Cultural heritage • Connection to country/land • Employment opportunities • Environmental impacts
Landowners and residents	• Landowners and occupiers • Nearby/neighbouring, industry, business and landowners	• Property access • Legal arrangements/land values and compensation • Local employment • Visual and noise impacts • Safety • Community sentiment to development
Business, Industry & Special Interest Groups	• Dubbo Chamber of Commerce and Industry • Cyclist groups	• Local business and procurement opportunities • Employment opportunities • Energy supply to local industry/business
Infrastructure and Utilities Providers	• APA Group • Jemena • Essential Energy • Dubbo Regional Council (Yarrandale Road and water supply) • Telstra	• Infrastructure capacity • Impact on existing infrastructure/ need for upgrade of existing infrastructure • Safety

Stakeholder Group	Stakeholder	Preliminary Issue
		• Access in proximity of existing infrastructure
Media	• National media • State media • Local media	• Community interests • Energy security • Environmental impacts

Consultation Methods

The following methods of consultation will be utilised to engage with stakeholders, landowners and the broader community.

Table 5. Methods of consultation

Methods of Consultation	
Digital communications	
Website	A project specific website or site on the Proponent's existing website that will contain up to date project information and will be continually updated as the project progresses.
Project email	A designated project email address for enquiries in respect of the Project.
Email updates	Email communications and project updates, sent at regular intervals (distribution list of those that register interest)
Print communications	
Website Fact Sheets, FAQs and Brochures	Fact sheets and other written communications will be developed to provide updates on the Project and provide specific information based on stakeholder feedback throughout the consultation period. Fact sheets will be made available in hard copy at key locations in the community (where permitted) and in soft copy on our website and distributed through project distribution lists.
Letter distribution	Letters will be used in the initial consultation phase to introduce the Project and to establish appropriate forms of communication that will used (including invitation to join the Project distribution list). Letters will be used to provide formal correspondence and may be used to formally respond to stakeholders in respect of specific issues, concerns or requests.
Media	Media releases and media packs to be utilised at key project milestones
Public displays/ notices	Public notices to be placed in local and state newspapers to promote activities and the Project and in accordance with regulatory obligations.
Direct engagement	
In person	Meeting stakeholders face-to-face (in person or virtually)
Drop-ins	Drop-in community information session(s) will be targeted at local residents, industry and people from the community. Drop-in sessions will include static displays and Project information on hand. Drop-in sessions will be hosted in an accessible public facility.
Community events	Attending and participating in local events including supporting, exhibiting and contributing to community events where appropriate.
Landowners	Targeted consultation with directly affected and adjacent landowners based on their communication preferences

Privacy and Data Handling

Information collected by the Proponent and its Project team in discussions with stakeholders will only be used for Project purposes and will be managed in accordance with the *Privacy Act 1988* (Cth).

The Proponent will ensure that any personal information is not disclosed without stakeholder consent, except if necessary to prevent a threat to life or health, required or authorised by law or reasonably necessary to enforce a law.

Information Recording

A Stakeholder Records Management System (**SRMS**) will be established for the Project. The system will hold copies of all correspondence and feedback received during the consultation processes and all correspondence regarding the Project provided in response.

The SRMS will be regularly updated following contact or correspondence to ensure records are maintained up to date.

Information will be stored in accordance with the *Privacy Act 1988* (Cth).

Monitoring and Continuous Improvement

The effectiveness of our consultation methods will be continually monitored through several measures including participation levels, community feedback and responses to consultation activities. Pending effectiveness, the way in which the project engages with stakeholders will be continuously revised to ensure that consultation objectives are met throughout the Project.

This will ensure that consultation is adapted to manage any issues, engagement opportunities or community preferences as they arise through the Project's development.

Reporting

Reports on consultation and how feedback, comments, concerns and issues raised have been addressed by the Project will be prepared to support regulatory compliance and assessment of project planning and EIS submissions.

Preliminary Environmental Assessment

This section contains an outline of the existing environmental conditions on the proposed development site. This will be used as a foundation for assessment, the outcome of which will form the basis of the EIS.

This Preliminary Environmental Assessment does not consider indirect environmental impact of gas sourcing or power infrastructure usage beyond the connection of new infrastructure to existing gas and electricity assets.

Table 6. Preliminary Environmental Assessment

Aspect	Existing Environment	Potential Impacts	Proposed Planning Actions
Key Environmental Aspects			
Air Quality, Odour and Greenhouse Gas Emissions	Dubbo City Regional Airport (~4km WSW of site) has been monitoring air quality since 2007 with an estimated 41,689 people living within 25km of the airport. Total Suspended Particles (TSP), Fine particles as PM2.5 and Fine particles as PM10 are measured from this site.	• Emissions produced by the gas combustion process during power generation being released to the surrounding receiving environment. • Localised dust generation by clearing and construction activities creating driving hazard and adjacent businesses. • Exhaust emissions generated by construction phase plant, equipment and vehicles.	• Project design will adopt available technology and process to reduce and minimise greenhouse gas emissions and particulate matter. • Project design will calculate expected emission types and volumes. • Air quality assessment will involve a quantitative prediction of air quality impacts that will be calculated using *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2016). • Project Design and expected emission volumes will be presented and evaluated under the requirements of the POEO Act and POEO 'Clean Air' Regulation 2010 in an Air Quality and Greenhouse Gas Assessment.
Hazardous Development	The proposed Project development site is located within a designated heavy industrial zone. Adjacent businesses include concrete batching, petfood processing and Fletcher International abattoir.	Development of the Project would introduce a number of additional failure scenarios including: • Catastrophic failure of the gas plant, pipeline or other pressurised plant on site. • Hydrocarbon leaking, leaching, spillage or contamination. • Biofuel leaking, leaching, spillage or contamination • Uncontrolled discharge of wastewater from site. • Fire ignited on site. • Bush fire threat.	• A Preliminary Hazard Assessment will be prepared that is consistent with Resilience and Hazards SEPP and references applicable planning advisory circulars. • Pipelines will be designed in accordance with the provisions of AS2885.1, the Pipelines Act and Pipelines Regulation. This will ensure safe basis of design and operation of the Project. • EIS risk assessment will focus on identifying reasonable and practicable mitigation measures that can be implemented during construction and operation of the Project to minimise likelihood and reduce consequence where possible to do so.
Plume Generation (Aviation Hazard)	Airports and airstrips within a 50km radius of the Project site include: • Dubbo City Regional Airport (~4km WSW of the proposed Project site). The airport operates 24 hours and is serviced by over 200 regular public transport flights per week plus charters, air freight and general aviation flight training. • Narromine airport is approximately ~37km WSW of the proposed Project site. There are no commercial flights operating currently but there is significant gliding operation and Narromine Shire Council is currently taking expressions of interest to expand the aviation services operating out of the airport. • Bogdanora airstrip is ~43km Southeast of the Project site. It is owned and operated by Dubbo Regional Council and used by light aircraft only.	• Aircraft hazard caused to aircraft due to exhaust gas plume. • The dual fuel fired power station exhaust stack causes a physical impact hazard to low flying Aircraft.	• Prepare plume rise modelling in accordance with the Civil Aviation Safety Authority circular AC139-05v3.0 – Plume rise assessments (CASA, 2019) • Undertake consultation with Dubbo City Regional Airport to discuss any impacts from the proposed development. • Evaluate the requirement for permanent aircraft lighting on the stack in consultation with CASA and surrounding airports as required.
Noise and Vibration	The site is positioned within 1km of the Dubbo regional livestock markets, Fletcher International Abattoir, grain stores, industrial businesses, the Newell Highway and Railway. Immediately adjacent to the Project is a small concrete batching plant and pet food processing business on Yarrandale Road. Existing background noise is consistent with land zoned in a heavy industrial area with operational noise and heavy road and rail vehicular movement.	• Generation of nuisance construction noise by vehicle movements, machinery and equipment potentially affecting surrounding residential, commercial and ecological receptors. • Generation of operational noise from dual fuel fired power generation and electrolysis during operation of the Project including: – Low frequency noise from the turbine(s) – Increased heavy vehicle movements during operational hours; employee vehicles at start/end shifts – Gas regulating/metering equipment at the pipeline take-off (within existing scraper station facility) – Additional infrastructure that will be installed within the existing Yarrandale substation. • Employee noise exposure exceeds safe work tolerance level(s) during construction and operation.	• Incorporate noise reduction measures (acoustic attenuation, product selection) that are reasonable and practicable into the design and procurement process. • Limit noise generating construction or operational activities to times of the day to minimise impact. • Conduct a full assessment of noise and vibration generating activity and evaluate the likelihood of impact on surrounding receptors as part of the EIS having consideration for the NSW EPA *Noise Policy for Industry 2017*. • Ensure compliance with the *Work Health and Safety Regulation 2017* and any other regulatory or licence conditions. • Employees to exercise duty of care for their own health and safety and others to make the workplace safe.
Biodiversity and Biosecurity	The Project Investigation Area consists of cleared agricultural land or road reserve with introduced grass and weed species dominating the locality. Preliminary investigation of desktop information has identified several species or vegetative communities that may occur, are likely to occur or are known to occur within the area, although no records exist within the Project Investigation Area.	• Native vegetation removal: impact to threatened species or ecological communities during construction. • Federal and State listed invasive weed species may be introduced or spread during construction. • Introduction or spread of an environmental or agricultural pathogen.	• An ecological assessment (desktop and on-ground) will be undertaken to identify presence or absence of State and Federally listed species and ecological communities. Findings will be mapped and analysed with recommendations of avoidance and minimisation presented. EPBC Act referral undertaken subject to self-assessment.

Aspect	Existing Environment	Potential Impacts	Proposed Planning Actions
	It is highly likely that the Project Investigation Area will contain environmental weeds, agricultural weeds and weeds of national significance.	• An uncontrolled release scenario may cause site run-off to impact aquatic flora and fauna.	• A BDAR will be prepared by an accredited assessor and presented in the EIS. • The ecological assessment scope shall include an assessment of presence of invasive flora and fauna species. • Biosecurity measures and plant/ machinery hygiene to be consistent with APGA Code of Environmental Practice, with specific protocols determined based on weeds/pests identified or likely in Project area. • Erosion and sediment risk will be evaluated as part of the EIS process with appropriately scaled mitigation measures being developed and presented in an erosion and sediment management plan. Any drawings describing engineered sediment containment will be incorporated into detailed design and reflected in the EIS. • Ecological assessment findings will also include an assessment of flora and / or fauna offset requirements.
Indigenous Cultural Heritage	The Project is located on Tubba-Gah People's country, their interests are represented by the Tubbah-Gah (maing) Wiradjuri Aboriginal Corporation. The Dubbo LALC is the relevant LALC for the Project area. The land within the Project Investigation Area has been disturbed for agricultural purposes and in the case of the storage pipeline for the construction of the CWPL and CRP (typically, these pipelines would have cleared a construction right of way of ~25m – more around the scraper station). The Project site sits within 1km of the Macquarie River and 1.6km of the Talbragar River. A search of the Aboriginal Heritage Information Management System was conducted on 30 June 2021. Eleven Aboriginal sites were located within a 1km radius of the nominated Project site whilst no aboriginal cultural heritage places had been declared.	• Disturbance of a known Indigenous Cultural heritage site or place of significance. • Accidental discovery of bones or heritage items during site excavation.	• Assessment of Aboriginal heritage will be undertaken as part of the EIS process in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* and in consultation and participation of the Dubbo LALC. • Any sites identified as part of the assessment process would be analysed to determine how impact could be avoided or minimised in consultation with interested parties. • Accidental discovery protocol to be developed as part of the EIS process in consultation with interested parties.
Other Environmental Aspects			
Topography, Surface Water, Hydrology, Groundwater and Water Quality	The Project site sits at 280-285m AHD with the storage pipeline rising to 322m. Existing drains gravity feed into a low point that has three holding dams on the Project site. Land is highly disturbed with very little vegetation other than introduced species or planted natives. The confluence point of the Macquarie and Talbragar Rivers is ~3km northwest from site. In referencing the Dubbo Regional Council 2018 Flood Study, the Project Investigation Area falls entirely outside of the Probable maximum flood area of the Macquarie and Talbragar rivers. These rivers are known to contain water dependent riparian vegetation and groundwater dependent ecosystems. Groundwater flow from site runs west towards the Macquarie River just over 1km from site. Groundwater bores in the locality depict water bearing zones between 16.8m and 64m depth. The closest bore to the Project site (GW003498 'Yarrandale' bore water at a depth of 64m). There are no active water sharing plans in this area.	• Potential for localised dewatering during construction • Inadequate storage or handling of hazardous fuels, chemicals, wastes or other contaminants. • Localised surface water interference. displacement caused by new buildings, altered drainage water flows and compaction. • Altered groundwater flow regime to the Macquarie River and Talbragar River riparian corridors.	• The EIS will include and assessment of likelihood of impact of the development on localised groundwater with reference to the NSW Aquifer Interference Policy. • Pipelines will be constructed in accordance with the soil management provisions of the APGA Code of Environmental Practice, NSW 'Blue Book' and Appendix P: Land-Based Pipeline Construction of the IECA Best Practice Erosion and Sediment Control Manual (2008). • Erosion and sediment risk will be evaluated as part of the EIS process with appropriately scaled mitigation measures being developed and presented in an erosion and sediment management plan. Drawings describing drainage and sediment containment will be incorporated into detailed design and reflected in the EIS. • Water supply requirements and wastewater treatment or management provisions will be calculated during the detailed design phase and assessed in the EIS to identify water sources for construction and operation and to demonstrate compliance with NSW regulation. • Water quality assessment will be undertaken in the EIS with reference to applicable guidelines to determine whether construction and operation of the Project will be consistent with State and Local water quality objectives. • The Environmental Risk Assessment in the EIS will evaluate: – Potential for the Project to generate surface water or groundwater contamination – Potential for connectivity to the Macquarie and Talbragar rivers, riparian vegetation corridors, GDEs and Wetlands. – storage, handling and disposal of fuels, chemicals and contaminants in accordance with Australian standards and best practice guidance. – spill response management during construction and operation of the Project.

Aspect	Existing Environment	Potential Impacts	Proposed Planning Actions
Traffic, Transport and Access/Egress	Yarrandale Road is a two-way, two lane undivided, sealed road terminating at Boothenba Road to the North and supplies access to Fletcher International Exports. The road is subject to a large volume of heavy vehicles due to the proximity to adjacent concrete batching plant, grain storage facilities, Fletchers and lighter industry to the south of the Project site. Yarrandale Road is an approved road to carry oversize and/or overmass (OSOM) vehicles, providing an unencumbered link to NSW Ports and the broader interstate OSOM network. Sports cyclists regularly use Yarrandale Road for training as part of the Dubbo 'town loop'. One school bus uses the road but does not stop through this section of Yarrandale Road due to lack of residential housing.	• Increased traffic volume during construction. • OSOM vehicles will be required to transport critical components of the gas station and storage pipeline. • Increased traffic volume during operation. • Increased incidence of interaction of heavy vehicles with cyclists.	• Use of existing vehicle access off Yarrandale Road to take advantage of existing line of sight and eliminating the need for a completely new access point to site. • New turning lane and access to be designed to handle OSOM deliveries. • New access will enable heavy vehicle separation from Yarrandale when slowing/ turning. • Engage with local cycling community and other road users to open and maintain a dialogue regarding cyclist movement and heavy vehicle movement during construction and operation. • EIS will detail OSOM vehicle routes, frequency and permitting requirements.
Geology and Soils (incl. contamination)	There is no acid sulphate soil present within the Project Investigation Area. Water bore logs within the Project investigation area describe the soil and geological profile as having a topsoil layer up to 0.6m deep underlaid by a ~3-5m deep mixture of clay and floating boulders that gives way to a clay/ sandstone composition to a depth of 21m-35m. Beneath the sandstone lays a basalt / shale deposit to ~60m containing pockets of water-bearing sandstone.	• Soil compaction affecting surface water flow and groundwater recharge. • Aeolian erosion generated from stockpiles and vehicular movements during construction. • Soil movement caused by rainfall events during construction. • Accidental discovery and disturbance of contaminated soil.	• Detailed design phase will involve soil test program to be undertaken on site. • EIS will contain detailed assessment of site soil testing and identify potential for the proposed development to impact on underlying soil composition. • EIS risk assessment will evaluate likelihood and consequence of soil compaction, contamination and erosion. • Pipelines will be constructed in accordance with the soil management provisions of the APGA Code of Environmental Practice and Appendix P: Land-Based Pipeline Construction of the IECA Best Practice Erosion and Sediment Control Manual (2008).
Historical Archaeology	No items of historical archaeology have been identified within the Project Investigation area following searches of Schedule 5 of the Dubbo Local Environmental Plan Heritage, NSW State Heritage Register, NSW Environmental Planning Instrument – Heritage layer and the Australian Heritage Database.	• Accidental discovery of an item of historical archaeology.	• Accidental heritage discovery protocol will include provision for discovery of historical archaeology (as well as indigenous heritage).
Visual Amenity	The visual character within the Project Investigation Area is a mixture of industry, intensive agriculture, urban fringe and small rural-residential holdings.	• Aesthetics of the Project are inconsistent with surrounding industry. • Inconsiderate design causes risk of inundation during rainfall events. • Disturbance to visual amenity and landscape character during construction caused by dust generation, vehicular activity, earthworks, excavations and laydowns. • Construction of the Project creates a negative aesthetic or impact to surrounding businesses and residents.	• Consideration of the aesthetics of the Project will be incorporated into the design process. • Visual impact and landscape character influence of the Project development and operational features will be considered in the EIS. • Engagement and consultation with near neighbours in relation to site aesthetics and screening requirements.
Land Use	The Project site sits within land zoned for heavy industrial use. Current land use on the Project site consists of extensive grazing, store and laydown for heavy vehicles and their trailers from the adjacent abattoir. Surrounding land use is consistent with the zoning including concrete batching plant, petfood processing and abattoir. The storage gas pipeline corridor consists of cleared pasture or cropping ground with lifestyle acreage and smallholdings adjacent to the eastern end of the alignment. The CRP continues to be operational with an easement protecting certain land uses within the pipeline corridor.	• Land use may be inconsistent with the intent of the LEP and surrounding present/ future land use.	• Suitability of the Project development and operation will be considered in the EIS in the context of existing and future land use on site and in the adjacent area. • Engagement with Dubbo Regional Council and surrounding landowners and residents on the land use and planning for the Project area.
Waste Generation	Nil waste generation on site currently.	• Increase in waste generation during construction and operational phases. • Inappropriate disposal of waste during construction and/or operation of the Project. • Lack of waste segregation • Disposal of fuel, lubricant or chemical containers. • Generation of wastewater via Project operation. • Wastewater runoff from site during high rainfall events.	• Incorporate circular economy concept into the design process. • Identify waste generation and disposal streams for construction and operation of the Project. • Maintain compliance with the *Waste Avoidance and Resource Recovery Act 2001* and best practice guidelines • Analyse wastewater generation, storage, treatment, drainage and disposal in the EIS.
Electric and Magnetic Fields (**EMF**)	Existing Yarrandale 66kV substation and overhead infrastructure present adjacent to Project site.	• Increase in EMF caused by power generation and new 66kV infrastructure and connection.	• Incorporation of EMF generation into design process. • EIS to assess scale of EMF hazards to surrounding land uses that would be produced by power generation and connection

Aspect	Existing Environment	Potential Impacts	Proposed Planning Actions
Bushfire Resilience	The Project site is not located within bushfire prone land, but it is within 1km of Vegetation category 2 zoned land. The gas storage pipeline would be partially located within category 2 zoned land and within 1km of category 1 zoned land.	• Construction and operation of the Project would collectively add to the risk of causation or perpetuation of a bush fire. • Insufficient training is provided to key personnel on site during construction and operation. • Bushfire emergency response planning is flawed or absent.	• Bushfire risk and resilience characteristics will be identified and incorporated into the Project design phase. • EIS environmental risk assessment will evaluate bushfire risk and response during construction and operational life of the Project in consultation with relevant stakeholders.
Social/ Economic Effect(s)	The Project site is entirely within the Dubbo Regional Council which has an estimated regional population of 54,843. The city of Dubbo is a regional centre with over 5,000 businesses in operation supplying almost 23,000 jobs. Dubbo's core industries are health, retail, education, government services, tourism, manufacturing, construction, agriculture, business services and transport.	• Increased short term demand for rental/ housing during construction. • Employment opportunities generated from construction and operation of the Project. • Local dispatchable power generation increasing resilience of the local supply network.	• Incorporate local content as a priority into development of the Project (i.e., procurement of skills, products, goods and materials). • Promote local direct and indirect employment opportunities. • Social and economic assessment will be prepared as part of the EIS.
Cumulative Impact(s)	The Project site is in close proximity to existing electricity and gas infrastructure and intends to supply power to the adjacent Fletcher International Export Abattoir as well as the Dubbo network.	• Cumulative impact to native vegetation and cultural heritage based on surrounding developments • The Project operation as a firming power supply would facilitate the development of the Central-West Orana REZ and enable the region to meet broader goals for the sustainable, reliable and affordable production of power. • Adjacent industry may be impinged or encouraged by the Project development	• The EIS will include cumulative impact of the proposed Project taking into account positive and negative aspects and surrounding developments.

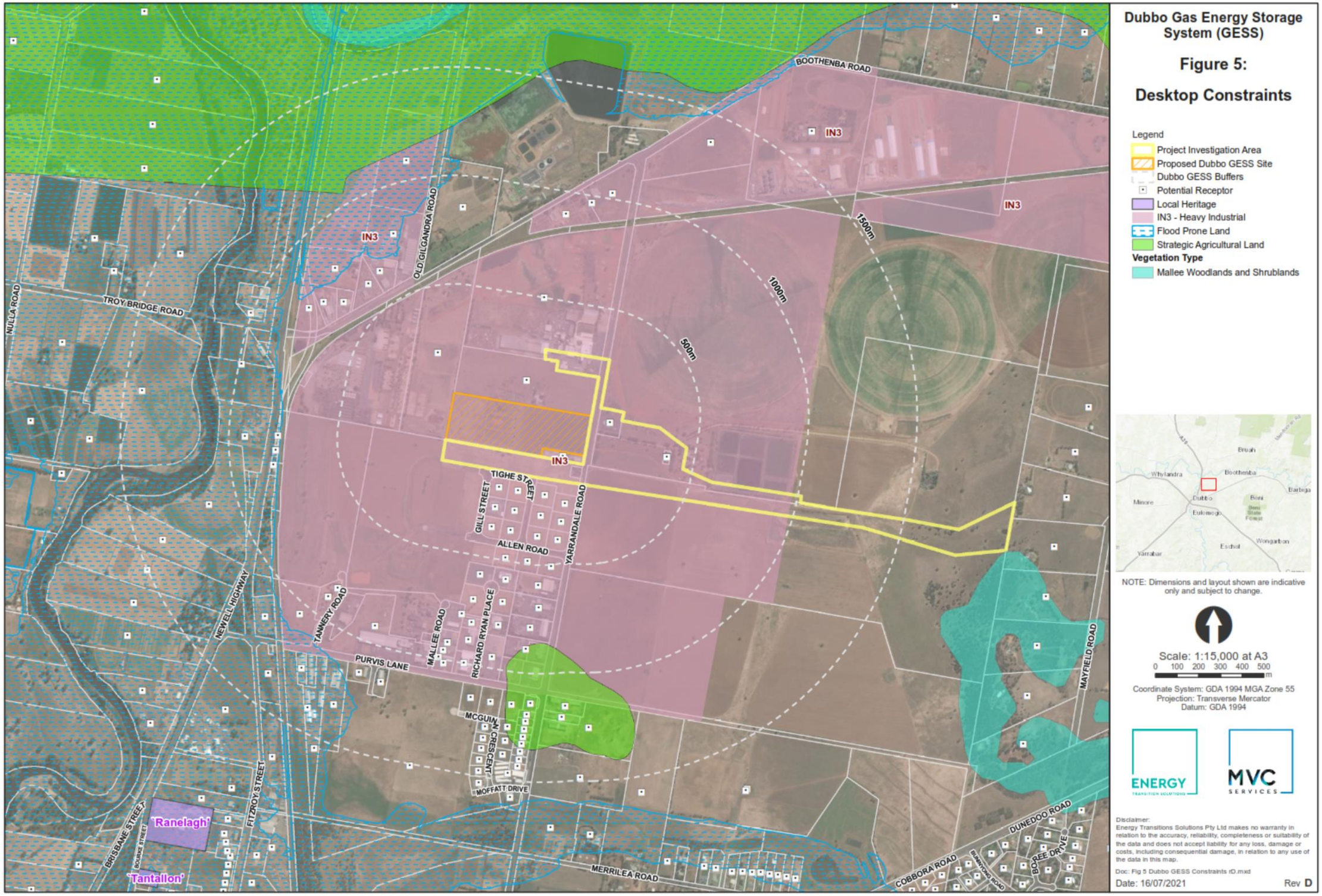

Figure 5. Dubbo Project site desktop constraints analysis

Conclusion

The Proponent intends to develop a firming power station in the industrial precinct north of Dubbo, NSW. The Project will consist of:

- 64 MW dual fuel fired power station
- 17.5 MW Hydrogen generation plant
- Biofuel storage tanks
- Water storage
- Connection to adjacent gas infrastructure by a 500m high-pressure gas pipeline
- ~2.5km high-pressure gas pipeline used primarily as a gas storage vessel
- Connection to adjacent electricity infrastructure by a high voltage (66kV) electricity line
- Connection to water supplies by water pipeline(s)

It is intended that the Proponent will apply to the Minister seeking State Significant Development status under Part 4 of the EP&A Act.

Further assessment is likely to be required for the following aspects:

- Air Quality and Emissions via an Air Quality Assessment
- Hazardous development via a Preliminary Hazard Assessment
- Plume Generation via plume rise modelling
- Noise and Vibration via assessment of noise during detailed design and receiving environment
- Ecology via desktop review, modelling and on ground survey focussed on native vegetation, ecological communities and pest plant/animal species
- Indigenous Cultural Heritage via desktop review, consultation with the LALC and on ground survey

Other aspects that will be considered during detailed design and analysed in the EIS include:

- Topography, Surface Water, Hydrology, Groundwater and Water Quality
- Traffic, Transport and Access/Egress
- Geology and Soils (incl. contamination)
- Historical Archaeology
- Visual Amenity
- Land Use
- Waste Generation
- Electric and Magnetic Fields
- Bushfire Resilience
- Social and Economic Effect(s)
- Cumulative Impact(s)

This Scoping Report has been prepared in accordance with the provisions of the EP&A Act in support of the Project's application for the SEARs. An EIS will be prepared as part of the detailed planning and design phase of the Project.

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