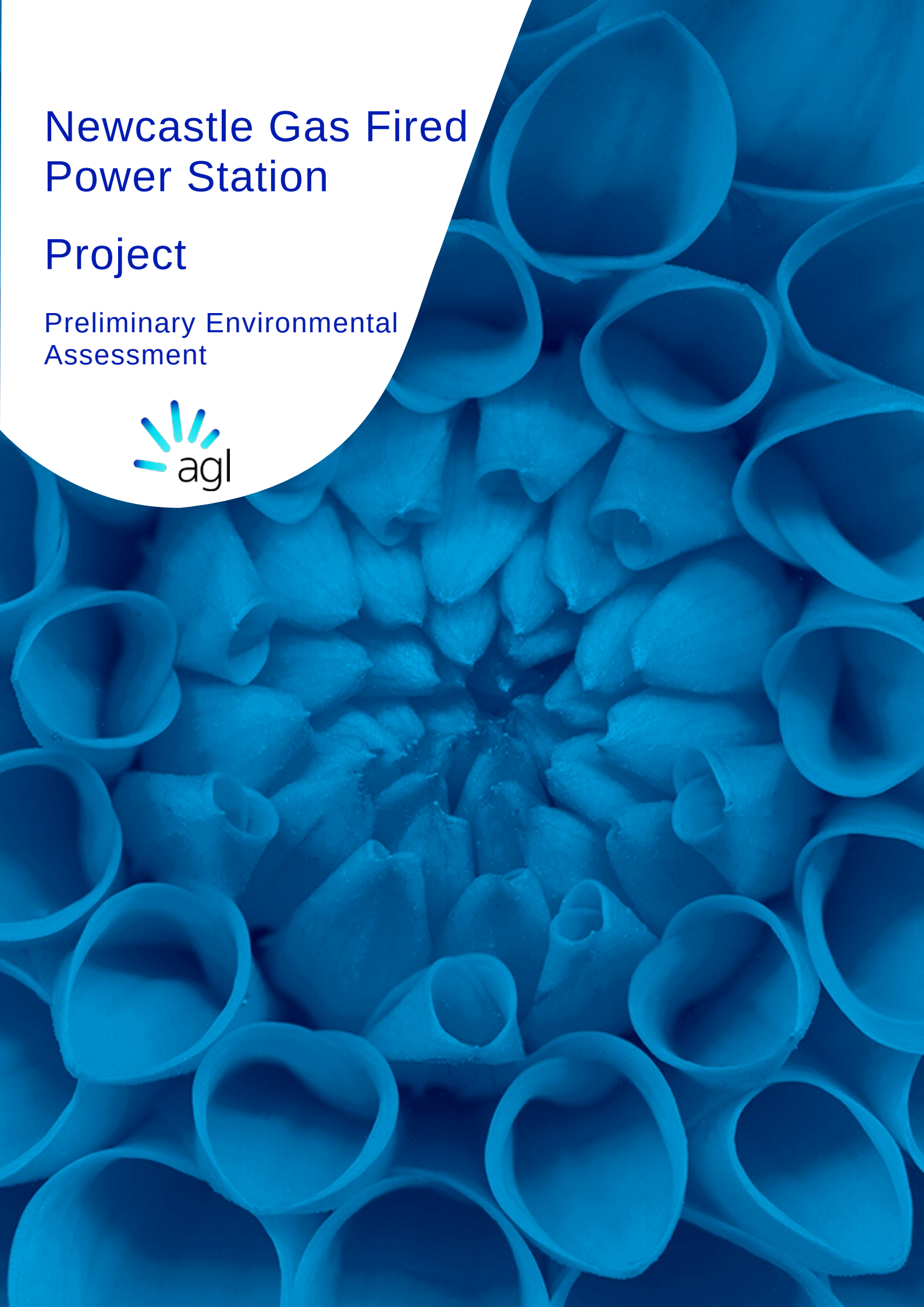
Newcastle Gas Fired Power Station

Project

Preliminary Environmental Assessment



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Document revision history

Date	Version	Author	Comments
09/01/2019	3	SO/MH	Final for submission

1. Introduction

1.1. Overview of the Project

AGL Energy Limited (AGL) proposes to develop a gas fired power station in Tomago, NSW ('the Proposal'). AGL ('the proponent') is seeking approval for the Proposal from the NSW Minister for Planning and Environment under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proposal involves the construction and operation of a power station with a capacity of approximately 250-megawatt (MW) and associated infrastructure including gas supply and electricity transmission connections. Specifically, the Proposal will include:

- A new power station with a nominal capacity of about 250MW comprising of either large reciprocating engine generators or aero-derivate gas turbine generators. The power station would operate as a "peak load" generation facility supplying electricity at short notice during periods of high electricity demand or low electricity supply.
- Facilities ancillary to the power station include gas compression facilities, fuel storage tanks and infrastructure including diesel storage and truck unloading facilities, water management facilities and office, administration / amenities areas, workshop / storage facilities.
- Connection of the power station to the gas supply at the Newcastle Gas Storage Facility (NGSF) with a new gas pipeline(s) and/or connection of the power station directly to the existing Tomago to Hexham high pressure gas pipeline.
- Connection of the power station to the existing TransGrid operated Tomago switchyard with a new 132kV transmission line.

The Proposal has a capital investment value of approximately $400 million.

1.2. Purpose of this report

The Proposal forms part of AGL's NSW Generation Plan which outlines how AGL proposes to replace the projected 1,000MW electricity shortfall once the Liddell power station retires. Other investments identified in AGL's NSW Generation Plan include the replacement / upgrade of turbines at Bayswater Power Station, a mixture of large-scale renewables, battery storage and demand response.

Critical State Significant Infrastructure (critical SSI) projects comprise projects that are deemed to be essential for the State for economic, environmental, or social reasons. The Proposal was declared as critical SSI by the NSW Minister for Planning in December 2018, under *State Environmental Planning Policy (State and Regional Development) 2011.*

This Preliminary Environmental Assessment (PEA) has been prepared by Aurecon on behalf of AGL. The PEA supports a request for the Secretary's Environmental Assessment Requirements (SEARs) to prepare the Environmental Impact Statement (EIS) for the Proposal under Division 5.2 of the EP&A Act. This PEA provides:

- An overview of the Proposal, including justification and need.
- An outline of the relevant planning legislation and approvals pathway.
- An outline of consultation that would be undertaken during the preparation of the EIS.
- Identification of the potential environmental and social issues that would be associated with the construction and operation of the Proposal.
- Identification of further assessments likely to be required in the EIS.

1.3. The proponent

AGL is a proudly Australian integrated energy business that has been operating for more than 180 years. It is committed to helping shape a sustainable energy future for Australia by reducing greenhouse gas emissions while providing secure and affordable energy to customers.

AGL operates base load, peaking and intermediate electricity generation plants supplying energy using traditional thermal generation as well as renewable sources including hydro, wind and solar. AGL employs over 8,300 people across Australia.

Within New South Wales, AGL employs over 4,000 people and is the owner and operator of the 2640MW Bayswater and 2000MW Liddell power stations in the Upper Hunter Valley. Both assets were acquired from the former NSW Government Corporation, Macquarie Generation, in September 2014.

AGL is a part owner and operator of the 200MW Silverton Wind farm (under construction) and 53MW Broken Hill solar farm in the state's west, as well as the 102MW Nyngan solar farm in central NSW.

In total these NSW assets produce approximately 13 per cent of the electricity consumed in the National Electricity Market (NEM).

The proposed power station is to be located in the Tomago area where AGL has an existing presence as the owner and operator of the Newcastle liquified natural gas storage facility. This facility supports the distribution of gas to homes and businesses across the greater Sydney and Newcastle region.

AGL's registered office and headquarters is located in the Sydney central business district.

2. Proposal overview

2.1. Site location and description

2.1.1. Proposed gas fired power station area

The location of the Proposal is shown in Figure 1 and Figure 2.

The proposed power station site is located at 1940 Pacific Highway, Tomago (Lot 3 DP1043561) about five kilometres south west of Raymond Terrace and about two kilometres north east of Hexham. The site has been used mainly for rural activities including grazing and agricultural purposes and hosts a single storey residential dwelling. The Hunter River is about 470 metres north-west. The site retains some isolated trees and stands of native vegetation are generally confined to the boundaries.

The adjacent lot to the west (Lot 2 DP1043561) would be used as a laydown area or similar, during construction and for water storage and other ancillary infrastructure during operation.

Both lots are owned by AGL and are zoned industrial. The site is more than two kilometres from the closest zoned residential area. Road access to the proposed power station site would be provided with a new access road that would extend from Old Punt Road to the proposed power station site. The proposed utilities areas including the gas pipeline investigation area and the electrical transmission investigation area are discussed below.

2.1.2. Utilities areas

The proposed utilities (gas and electricity) are proposed to be located in investigation areas shown in Figure 2. The utilities investigation areas would contain a new 132kV transmission line and one or more new gas pipelines.

The investigation area for the proposed high voltage electrical transmission line is located between the proposed power station site and the existing TransGrid Tomago 132kV switchyard. The proposed alignment will be confirmed following more detailed studies. The transmission line would be constructed as an above ground line which may include some underground sections if necessary. It would include a cleared easement up to 40 metres wide. Adjustments to the existing transmission line may be required to connect the new transmission line into the switchyard. The existing transmission line and switchyard are outside of the Proposal site.

The investigation area for the proposed gas pipeline consists of a broad corridor of land between the proposed power station site and the NGSF, approximately 1.8 kilometres long and 0.4 kilometres wide. The proposed alignment will be confirmed following more detailed studies. The gas pipeline would be constructed below ground and would include a cleared easement up to 25 metres wide. Construction may be undertaken using methods such as trenching, directional drilling or a combination of techniques.

A secondary gas connection is also being considered directly from the power station site to the existing Tomago to Hexham high pressure gas pipeline. This would require a pipeline to be constructed beneath Old Punt Road adjacent to the south east corner of Lot 3 DP1043561.

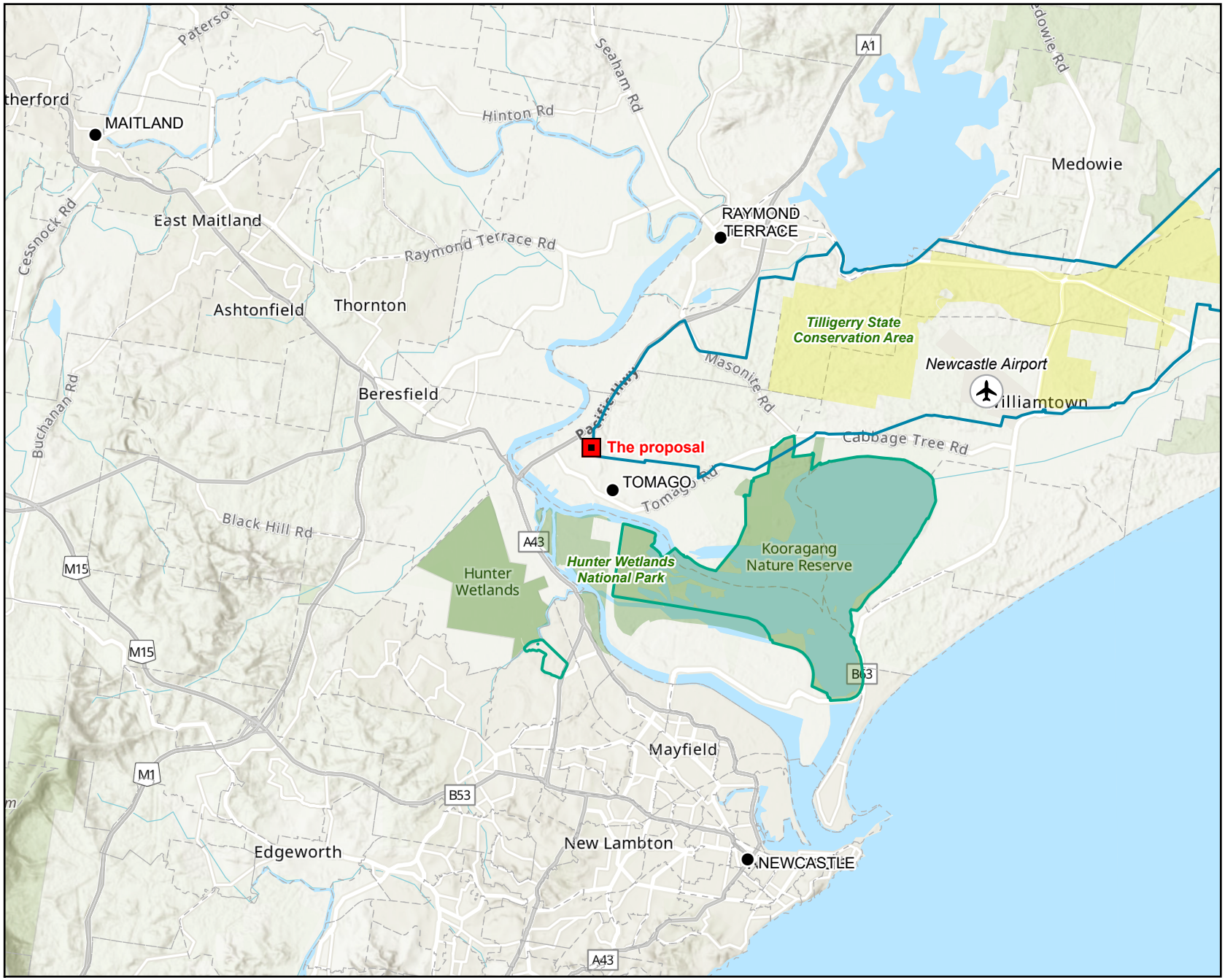
Land within the utilities investigation areas is zoned industrial. The land is vegetated and contains existing easements for gas pipelines, electrical infrastructure, and roads, where feasible AGL intends to use any existing easement corridors for the Proposal. There are no dwellings present within the investigation areas. Port Stephens Local Environmental Plan mapping has identified that parts of both proposed utilities investigation areas are flood planning areas, subject to 1 in 100 ARI (average recurrence interval) flood

events. The utilities investigation areas are within bushfire prone land and are within the Hunter drinking water catchment.

2.2. Regional context

The proposed power station site and the proposed utilities investigation areas are within Port Stephens local government area (LGA), located within the Hunter region of NSW as shown in Figure 1. The Port Stephens LGA has an area of 979 square kilometres and in 2016 ABS census the population was estimated to be 69,556. The closest population centre to the proposed power station site is Raymond Terrace, which is located about five kilometres to the north west. The urban centre of Newcastle is also located in the region. The main employment industries within Port Stephens LGA are manufacturing, public administration, and retail. Closer to the site is an aluminium smelter, Department of Defence, Royal Australian Air Force (RAAF) Base Williamtown, and the Newcastle airport.

The Tilligerra State Conservation Area is located just north and east of the gas pipeline investigation area. The Tomago Sandbeds, an underground water source associated with the Tilligerra State Conservation Area, are located to the east of the site. The Hunter Wetlands National Park is located about two kilometres south of the site and includes the Ramsar listed Hunter Estuary Wetlands.



aurecon

Legend

- The proposal
- Tomago Sandbeds
- Ramsar listed Hunter Estuary Wetlands
- Tilligerra State Conservation Area
- Hunter Wetlands National Park
- Towns
- Newcastle Airport

Source: Aurecon, LPI, Esri

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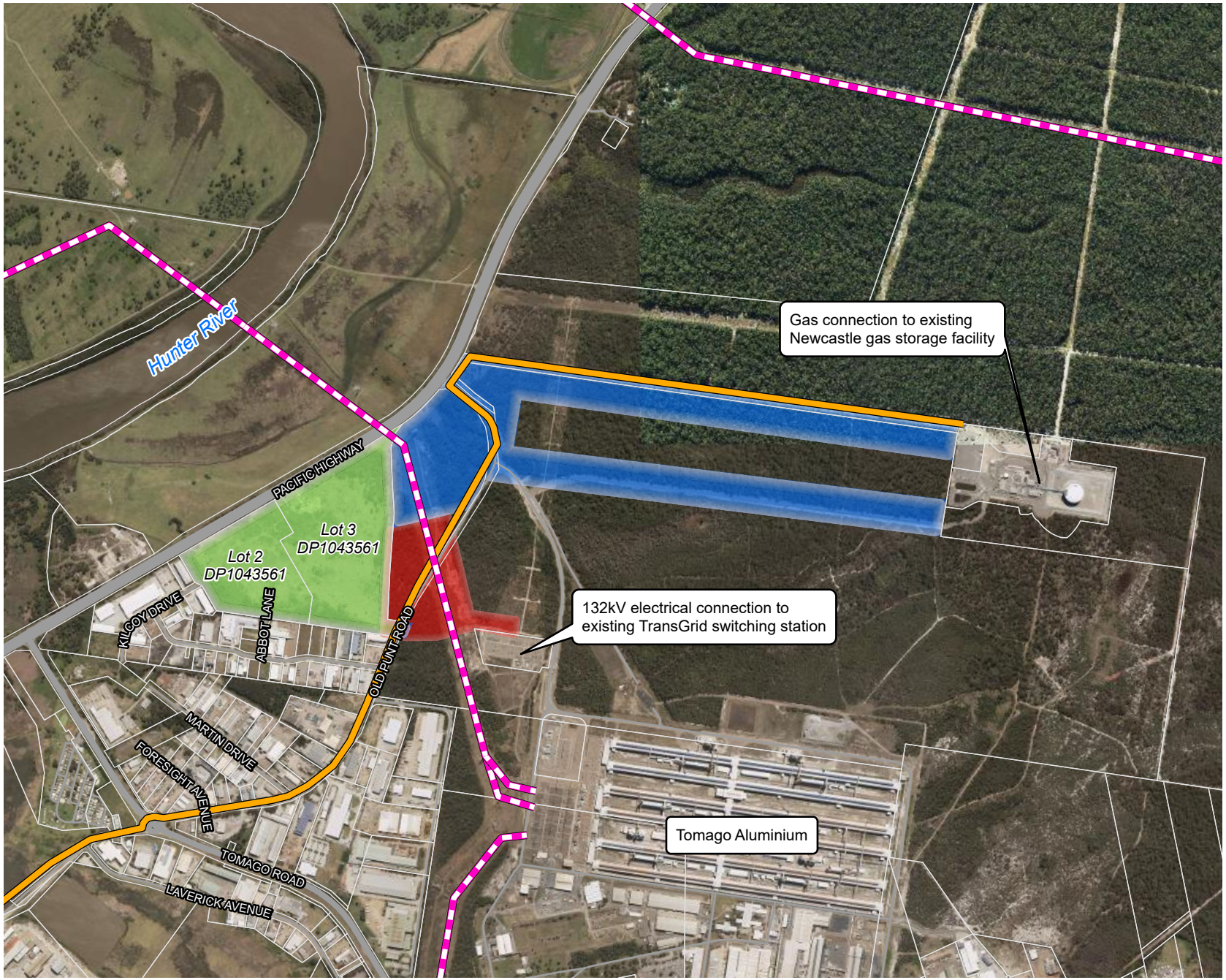
1:165,000

0 200 400m

Projection: GDA 1994 MGA Zone 56

Newcastle 250MW Gas Fired Power Station **Preliminary Environmental Assessment**

FIGURE 1: Location plan



Legend

- Gas pipeline investigation area
- Proposed power station site
- Electrical transmission easement investigation area
- Transmission Lines
- Tomago to Hexham Gas Pipeline
- Cadastre

Source: Aurecon, LPI

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Projection: GDA 1994 MGA Zone 56

Newcastle 250MW Gas Fired Power Station **Preliminary Environmental Assessment**

FIGURE 2: Site layout plan

2.3. Site selection

The proposed site has previously been the subject of an EIS and was granted development consent for a power station in 2002. That development consent has now lapsed. The attributes of the site that made the location optimal for a power station in 2002 are still relevant today. Many of the key location requirements for power facilities exist at the proposed site, including:

- Proximity to major gas supply pipelines and gas storage facilities.
- Proximity to the high voltage electricity transmission network and high electricity demand centres.
- Capacity of the transmission network to deliver electricity produced without constraint.
- Availability of suitably zoned land with compatible existing land use.
- Access for the delivery of heavy construction loads and ongoing liquid fuel transport routes.
- Availability of skilled construction and operations workforce.
- Proximity to centres for operational maintenance resourcing.
- Ready availability of water and wastewater management facilities.
- Local businesses and infrastructure sufficient to support a power station.

AGL investigated a range of potential sites for the power station. This review of sites considered key selection parameters including environmental, infrastructure, economic, engineering, and land use constraints and opportunities. The Proposal site was selected because it best satisfies the criteria for a gas fired power station and its ancillary infrastructure needs, whilst minimising the potential for environmental and social impacts.

2.4. Alternatives considered

The proposed power station would utilise either large reciprocating engines or aero-derivative gas turbine technology. For each technology there are multiple suppliers and products available. An evaluation and tender process will be undertaken to ultimately choose the technology to be implemented. This evaluation will consider several factors, some of which include:

- Performance characteristics such as thermal efficiency and output at different ambient conditions and loading, firing gas and/or diesel.
- Operational characteristics such as start-up times, usage rates of consumables such as water, oil and catalysts and auxiliary power consumption when off-line and in service.
- Compliance with legislation, codes and standards.
- Capital, operating and maintenance costs.

3. Proposal description

3.1. Overview

The Proposal would involve the construction and operation of a power station with a nominal capacity of about 250MW. The Proposal would supply electricity to the grid at short notice during periods of high electricity demand, particularly during low supply periods from intermittent renewable sources or during supply outages.

The Proposal would also involve the construction and operation of a gas pipeline(s) and an electricity transmission line. The pipeline(s) would supply the proposed power station with gas from the eastern Australia gas transmission pipelines via the Jemena network and the NGSF. A new electricity transmission line would transfer the electricity produced by the proposed power station to the national electricity network via connection to the existing 132kV Tomago switchyard.

The Proposal has a capital investment value of approximately $400 million and is anticipated to be operational in 2022.

The main elements of the Proposal are as follows:

- Power station comprising of either large reciprocating engine generators or aero-derivate gas turbine generators, necessary supporting ancillary equipment and supporting infrastructure. The power station would be capable of operating with diesel fuel, if necessary.
- 132kV electricity transmission line to the existing Tomago switching yard, operated by TransGrid.
- Gas transmission/storage pipeline(s) and receiving station, compressor units, and ancillary infrastructure.
- Storage tanks and laydown areas.
- Water management infrastructure including pond(s), a connection to Hunter Water potable and non-potable service and discharge infrastructure in line with Hunter Water requirements.
- Diesel storage and truck unloading facilities.
- Site access road.
- Office / administration, amenities, workshop / storage areas and carparking.

3.2. Power station

The power station would be a dual fuel power plant, capable of generating about 250MW of electricity. The proposed power station would either consist of large reciprocating engine generators or aero-derivate gas turbine generators. Generation units would be dual fuel capable, meaning they would be able to be supplied by natural gas and/or liquid fuel.

The decision to install gas turbines or reciprocating technology will be made based on a range of environmental, social, engineering and economic factors that will be considered as part of the power station design progresses.

Gas Turbine Technology

Electricity would be generated by gas turbine technology through the combustion of natural gas and/or liquid fuel in turbines. With its heritage in the airline industry, aeroderivative gas turbine units consist of a compressor, combustion chamber, turbine and generator. Air is compressed to a high pressure before being admitted into the combustion chamber. Fuel (natural gas or diesel as required) is injected into the

combustion chamber where combustion occurs at very high temperatures and the gases expand. The resulting mixture of hot gas is admitted into the turbine causing the turbine to turn, generating power. In an open cycle configuration, hot exhaust gas is vented directly to the atmosphere through an exhaust stack, without heat recovery.

Reciprocating Engine Technology

With its heritage in the shipping industry and a form of internal combustion engine, reciprocating engines used for power generation harness the controlled ignition of gas and/or diesel to drive a piston within a cylinder. A number of pistons move sequentially to rotate a crank shaft which turns the generator.

Ancillary facilities

The power station, regardless of chosen technology, would require supporting ancillary facilities. These would include:

- 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 collection and treatment facilities.
- Water storage tanks and ponds.
- Truck loading/unloading facilities.
- Liquid fuel storage tanks.
- Emergency diesel generators with associated fuel storage.
- 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.
- Workshop and warehouse.
- Firefighting system.
- Communication systems.
- Security fence, security lighting, stack aviation warning lights (if required) and surveillance system.
- Landscaped areas and staff parking areas.
- Concrete foundations, bitumen roadways, concrete pads in liquid fuel unloading station and gas turbine or engine unit maintenance areas.
- Concrete bunded areas with drains for liquid fuel tanks, liquid chemicals store, oil filled transformers (if installed) and other facilities where contaminated liquids could leak.
- Level construction and laydown area.
- Engineered batters to support and protect the power plant platform.
- Sedimentation pond and associated diversion drain and earth bunding.

3.3. Gas pipeline

Natural gas fuel will originate from the existing Australia gas network and the many facilities that feed it. The nearest supply point in the gas network is the AGL owned Tomago to Hexham high pressure gas pipeline which terminates at the AGL owned and operated NGSF. The NGSF is located about two kilometres north east of the proposed power station site.

To serve the power station with gas, a new gas pipeline(s) would be constructed to connect the power station to the gas supply available from the NGSF. The location of the connection(s) and the pipeline(s) have not been determined at this stage. The preferred route will be determined as the project design progresses and will be selected based on engineering, environmental and land access constraints and opportunities. Once the pipeline route is chosen, AGL would, as necessary enter into negotiations for a pipeline easement in accordance with the *Pipelines Act 1967*.

As an alternate gas supply or to augment the gas supply, AGL is also considering a direct connection to the Tomago to Hexham high pressure gas pipeline. This connection would be made just east of Old Punt Road, opposite the south-eastern corner of the proposed power station site.

The length and diameter of the pipeline(s) would be dependent on the route selected and whether the pipeline is used to store gas. Gas compression, conditioning, heating and other facilities necessary to transport and store gas are also likely to be required. It is likely that these facilities would be constructed at the proposed power station site.

3.4. Electricity transmission line

A high voltage 132kV electricity transmission line would be required to connect the proposed power station to the TransGrid Tomago 132kV switchyard, approximately 500 metres south east. The switching station would transfer the electricity produced at the power station to the regional electricity transmission system. The preferred route of the transmission line will be further refined as the project design progresses and based on engineering, environmental, and land access constraints and opportunities.

3.5. Water and wastewater

Water would be required to operate the power station. Water would primarily be used for evaporative cooling and for NOx suppression, if necessary. When used for NOx suppression water would be injected into the combustion chamber where it would vaporise and discharge through the exhaust stack. Additionally, evaporative cooling would be used on hot dry days to reduce the temperature of the inlet air.

The water for the proposed power station would be sourced from groundwater bores, nearby industry, the Hunter River and/or the Port Stephens municipal water supply system via an extension of the existing water supply infrastructure in Tomago.

Most of the water would be evaporated and discharged to the atmosphere via the exhaust stack. Excess water would be treated using an appropriate method if necessary. Options for the discharge of excess water are still being considered but may include evaporation, discharge to the sewer, removal by truck or treatment to an appropriate standard and discharge to the environment.

Other uses for water at the site would include:

- Firefighting water.
- Boosting the power of the power station.
- Water for washing the gas turbine compressor.
- Potable water for staff amenities.

Clean stormwater from the site would be managed where appropriate. Stormwater may be reused on site or may be discharged to the environment.

3.6. Vehicular access

The area around Tomago is serviced by a road network well suited to heavy haulage vehicles due to the industrial land uses. Old Punt Road is a sealed single lane, two-way council owned road. Old Punt Road connects to the Pacific Highway approximately one kilometre to the north of the proposed power station access point.

During construction oversized or heavy items would be transported along the Pacific Highway and Old Punt Road.

During operation, vehicular access to the Proposal area would be provided with a newly formed access off Old Punt Road. This access would be used by operational staff. Parking for staff would be provided on site.

3.7. Construction activities and construction staging

The power station is anticipated to be in operation in 2022. Key construction activities for the Proposal would include:

- Clearing of vegetation at the proposed power station site and as required along the electrical transmission and gas pipeline(s) easements.
- Demolition of existing house if not repurposed during construction and operation.
- Installation of gas pipeline(s) and electrical transmission line infrastructure.
- Earthworks to prepare the power station site and construction areas.
- Installation of foundations and underground services.
- Installation of aboveground civil, mechanical and electrical plant and equipment.
- Commissioning and testing.

4. Proposal justification and need

4.1. Electricity supply and the electricity market

NSW's peak electricity requirements are currently being met by:

- The Snowy Mountains and other Hydro-electric schemes.
- NSW coal fired plants, some of which are approaching retirement.
- Other NSW gas fired plants.
- Imported electricity from Queensland and Victoria.

The 'Final Report from the Energy Security Taskforce' prepared by the NSW Chief Scientist and Engineer released on 19 December 2017 (Chief Scientist & Engineer 2017) states that 'the electricity system is in a period of transition, innovation and reform'. It identified a series of risks and emerging issues for the NSW electricity system to maintain a reliable electricity supply. While instances of unserved energy have been rare, there are indicators that the electricity supply and demand balance in NSW is tightening and new risks are emerging, particularly with the failure of large generation plant or extreme weather events.

It is anticipated that in the early 2020s NSW will experience a reduction in its base-load coal-fired generation capacity. In particular the planned retirement of the Liddell coal fired power station in the Upper Hunter Valley will remove capacity from the network. The Australian Energy Market Operator (AEMO) has identified in its 'Advice to the Commonwealth Relating to AGL's Proposal to Replace Liddell' (AEMO 2018b) that there will be a 1,000MW generation gap following the closure of Liddell. This is not only relevant for NSW, but due to limited interconnector capacity, the AEMO Report recognised that it has National Electricity Market wide impacts. In its Integrated System Plan (AEMO 2018a), AEMO emphasises the need for sufficient fast-responding gas power development to be installed by the time the Liddell power station retires.

The construction of the proposed power station forms part of AGL's staged approach to bring new investment online ahead of the Liddell power station closure, as outlined in its *NSW Generation Plan*. Delivering greater energy security for NSW as well as creating flow on economic and social benefits for the State, providing employment opportunities for the region as well as strong and solid investment into regional NSW.

Amendments recently made to the *Electricity Supply Act 1995* (NSW) by the *Electricity Supply Amendment (Emergency Management) Act 2017* (NSW) make it clear that 'energy security is a high priority for the New South Wales Government' and it is strongly committed to preventing electricity shortages (Second reading speech for the *Electricity Supply Amendment (Emergency Management) Bill 2017*). The Proposal will assist NSW in achieving greater energy security by delivering an additional approximate 250MW of fast-start, flexible capacity into the grid.

4.2. Sustainability

The AGL Sustainability Report 2017, Sustainable Business Strategy (AGL, 2017) recognises that about three quarters of Australia's current thermal generation fleet is currently beyond its original engineering design life, and as such there is a concurrent need to modernise and decarbonise Australia's electricity generation sector. As the generator of approximately 25 per cent of the energy within the national electricity market, AGL has committed to playing a leading role in this transition.

The Proposal supports this transition. In its planning process for the retirement of Liddell, renewable technologies are being invested in by AGL. Together, gas peaking and renewable energy generation are part of a group of technologies that will provide emissions reduction while meeting the necessary rapid start up,

generation capacity, plant reliability and cost effectiveness necessary to meet the dynamic requirements of the NSW electricity demand.

4.3. Regional Plans

The Department of Planning and Environment's *Hunter Regional Plan 2036* includes a goal to diversify energy supply. Specifically, the *Hunter Regional Plan 2036-Implementation Plan 2016-2018* includes Direction 12 to diversify and grow the energy sector by promoting new opportunities arising from the closure of coal fired power stations that enable long term sustainable economic and employment growth in the region. With the closure of Liddell, significant local energy generation will be withdrawn from the Hunter Region. The Proposal is one of AGL's responses aimed at offsetting this loss of generating capacity in the region by providing an additional approximate 250MW of generation capacity.

5. Statutory and planning framework

5.1. Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act* 1979 (EP&A Act), *Environmental Planning and Assessment Regulation 2000* and associated 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 New South Wales.

Sections 5.12 and 5.13 of Part 5 of the EP&A Act provide for the declaration of SSI and critical SSI. Section 5.12(4) of the EP&A Act enables a SEPP or an order of the NSW Minister for Planning (published on the NSW legislation website) to declare development to be SSI. Section 5.13 enables the Minister to declare SSI to be critical SSI if "…in the opinion of the Minister, it is essential to the State for economic, environmental or social reasons".

The NSW Minister for Planning declared the Proposal to be critical SSI in December 2018 after a request was made to the Minister by AGL on 5 November 2018. The Declaration by the Minister came into effect following gazettal and inclusion in Schedule 5 of the State and Regional Development SEPP.

In accordance with section 5.16 of the EP&A Act, the Planning Secretary is to prepare the Secretary's environmental assessment requirements (SEARs), which would in turn require the preparation of an environmental impact assessment (EIS) for the Proposal for submission to the consent authority, the NSW Minister for Planning. This PEA has been prepared to support AGLs application for SEARs to guide the preparation of the EIS for the Proposal.

5.2. Environmental planning instruments

5.2.1. State Environmental Planning Policy (State and Regional Development) 2011

The State and Regional Development SEPP identifies development to which the critical State Significant Infrastructure assessment and approval process under Part 5 of the EP&A Act applies. In addition, the SEPP identifies development that is State significant infrastructure and State significant development.

Development specified in Schedule 5 is declared to be critical State significant infrastructure. Clause 16 of the SEPP provides:

Development specified in Schedule 5:

a) *May be carried out without development consent under Part 4 of the Act, and*

b) *Is declared to be State significant infrastructure for the purposes of the Act if it is not otherwise so declared, and*

c) *Is declared to be critical State significant infrastructure for the purposes of the Act.*

Therefore, as the Proposal has been declared critical SSI it requires approval under Division 5.2 of the EP&A Act.

5.2.2. State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)

The Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across NSW. Division 4 of the Infrastructure SEPP outlines provisions for electricity generating works. Clause 34(1) allows for development for the purpose of electricity generating works to be carried out by any person with consent on

any land in a prescribed rural, industrial or special use zone. Electricity generating works are defined as 'a building or place used for the purpose of making or generating electricity'.

The proposed power station is located within land zoned IN1 General Industrial under the Port Stephens LEP 2013 which is a listed zoning in Clause 34(1) and is therefore permissible with consent under the Infrastructure SEPP.

Under Clause 66A(1) a person may undertake development for the purpose of a gas pipeline without consent on any land provided the pipeline is subject to a licence under the *Pipelines Act 1967* or a licence or authorisation under the *Gas Supply Act 1996*. The proposed gas pipeline(s) is permissible without consent subject to AGL gaining the appropriate licences. As the Proposal is considered critical SSI a licence under the *Pipelines Act 1967* cannot be refused as discussed in Section 5.4.

Development for the purpose of aboveground electricity transmission lines can be undertaken without consent on any land by electricity supply authorities under Clause 41. However, the Proposal is considered critical SSI, and approval for the electricity transmission lines will be obtained under Division 5.2 of the EP&A Act.

Clause 104 of the Infrastructure SEPP refers to traffic generating developments and Schedule 3 lists the types of developments that must be referred to Roads and Maritime Services (RMS). As electricity generating works are not listed within Schedule 3 and the Proposal would not trigger Clause 104, as the Proposal would not accommodate 200 or more vehicles, the Proposal does not need to be referred to Roads and Maritime. However, given that the Proposal requires an EIS as it is critical SSI, AGL will consult with RMS on all aspects of the project that affect RMS infrastructure and responsibilities, including construction and operational vehicle routes, impact of the Proposal on the condition of existing roads, and requirement for dilapidation surveys, and the potential for any cumulative impacts from nearby road development works. Consultation will also be undertaken by AGL with Port Stephens LGA in regard to local roads.

The provisions of the Infrastructure SEPP prevail where an inconsistency arises between the Infrastructure SEPP and any local, regional or State policy, with the exception of the Coastal Management SEPP and the State and Regional Development SEPP. Clause 16 of the State and Regional Development SEPP operates to override the Infrastructure SEPP and provides that the Proposal may be carried out without development consent under Division 4 of the EP&A Act. Notwithstanding the above, as the Proposal is critical SSI, it requires approval under Division 5.2 of the EP&A Act

5.2.3. State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)

Under SEPP 33 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 SEPP 33 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 SEPP33 are required by Clause 12 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 assessment, consideration would be given to whether the Proposal is considered potentially hazardous or offensive.

5.2.4. State Environmental Planning Policy (Coastal Management) 2018

Approximately 800 metres to the west and 400 metres north of the proposed power station site there is an area mapped as 'coastal wetlands' and a 'proximity area for coastal wetlands' under the State Environmental

Planning Policy (Coastal Management) 2018. No works are to be undertaken within these areas, however as the proposed power station site is within the coastal environment area as defined by State Environment Planning Policy (Coastal Management) 2018 the biophysical, hydrological and ecological impacts of the works would be considered, and appropriate mitigation measures would be implemented to minimise any potential to affect nearby coastal areas.

5.2.5. State Environmental Planning Policy No. 44 – Koala Habitat Protection

State Environmental Planning Policy No 44 – Koala Habitat Protection (SEPP 44) aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas. SEPP 44 applies to all local government areas (LGAs) listed within Schedule 1, including Port Stephens LGA. The potential for the Proposal to disturb the of habitat and impact the Hawks Nest and Tea Gardens endangered koala populations has been addressed within Section 7.1.1.

5.2.6. State Environmental Planning Policy No. 55 – Remediation of land

State Environmental Planning Policy 55 – Remediation of Land (SEPP 55) provides for a consistent State-wide planning approach to the remediation of contaminated land. SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. There is the potential for contamination to be identified during the impact assessment of the Proposal and this has been addressed within Section 7.2.5.

5.2.7. Port Stephens Local Environmental Plan 2013

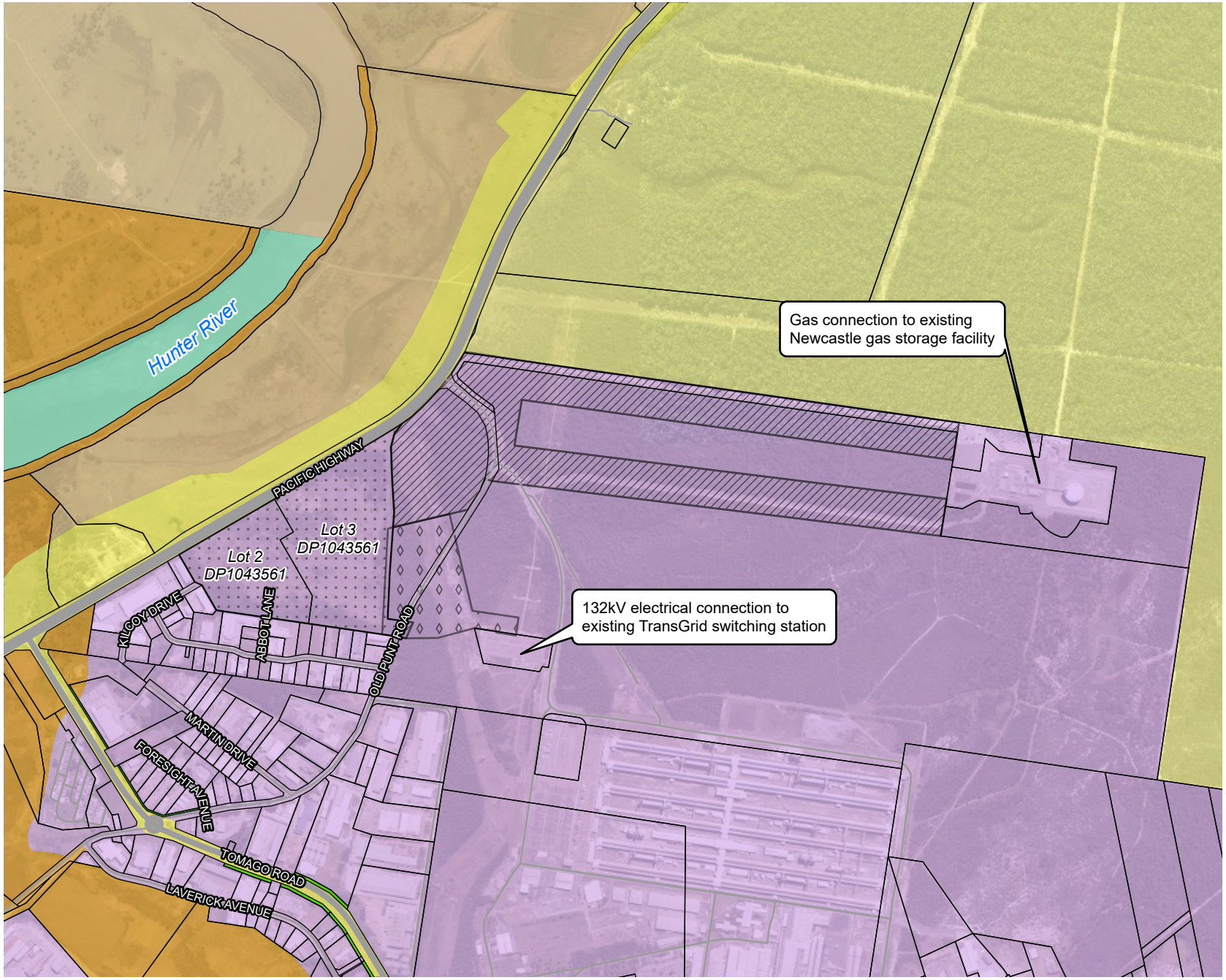
The proposed power station site and the investigation areas for the gas pipeline(s) and electrical transmission line are zoned IN1 General Industrial by the Port Stephens LEP 2013. The objectives of zone IN1 as stated in the Port Stephens LEP are:

- to provide a wide range of industrial and warehouse land uses,
- to encourage employment opportunities,
- to minimise any adverse effect of industry on other land uses,
- to support and protect industrial land for industrial uses.

Electricity generation is not listed among developments which are permitted with consent for the zone under the Port Stephens LEP; however, under clause 34(1) of the Infrastructure SEPP the Proposal is permissible with consent on any land in a prescribed rural, industrial, or special use zone. The investigation areas for the proposed gas pipeline(s) and electrical transmission routes are also zoned IN1 under the LEP.

Clause 16 of the State and Regional Development SEPP operates to override both the Port Stephens LEP and Infrastructure SEPP and provides that the Proposal may be carried out without development consent under Division 4 of the EP&A Act. However, as the Proposal has been declared critical SSI, it instead requires approval under Division 5.2 of the EP&A Act.

Figure 3 illustrates the land use zonings within and near to the Proposal.



Legend

- Gas pipeline investigation area
- Proposed power station site
- Electrical transmission easement investigation area
- Cadastre

LEP Zone

- E2 Environmental Conservation
- IN1 General Industrial
- RE1 Public Recreation
- RU1 Primary Production
- RU2 Rural Landscape
- SP1 Special Activities
- SP2 Infrastructure
- W2 Recreational Waterways

Source: Aurecon, LPI

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Projection: GDA 1994 MGA Zone 56

Newcastle 250MW Gas Fired Power Station **Preliminary Environmental Assessment**

FIGURE 3: Land Zoning

5.3. Other relevant NSW legislation and approval requirements

5.3.1. Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* 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) is to 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. The Biodiversity Offsets Scheme applies to SSI projects as per Section 6.2 (e).

Pursuant to Section 5.23 of the EP&A Act, for critical SSI an order or direction under Part 11 (Regulatory compliance mechanisms) of the *Biodiversity Conservation Act 2016* cannot be made or given so as to prevent or interfere with the carrying out of approved critical SSI.

5.3.2. Roads Act 1993

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

Under section 138 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.

As identified in section 7.2.1 of this report, construction of the gas pipeline(s) and electricity transmission routes may require works within public roads. However, as outlined in section 5.4, under section 5.24 of the EP&A Act, any permit required under Section 138 from the appropriate roads authority cannot be refused if it is necessary for carrying out approved SSI and is substantially consistent with the approval under Division 5.2.

5.3.3. Rural Fires Act 1997

The *Rural Fires Act 1997* facilitates the prevention, mitigation and suppression of bush and other fires in local government areas and parts of the State considered to be rural fire districts. The proposed power station, electrical transmission line and gas pipeline would be on bushfire prone land. However, as the Proposal is critical SSI under section 5.23 of the EP&A Act there is no requirement for a bush fire safety authority to authorise the Proposal under section 100B of the *Rural Fires Act 1997*.

5.3.4. National Parks and Wildlife Act 1974 (NPW Act)

The 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 Proposal, a Section 90 Aboriginal heritage impact permit is not required for approved critical SSI projects. However, an indigenous heritage assessment would be undertaken as part of the environmental impact assessment.

5.3.5. 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) and cannot be refused if the pipeline(s) is necessary for carrying out approved SSI and is substantially consistent with the approval under Division 5.2 (see section 5.24 of the EP&A Act).

5.3.6. Protection of the Environment Operation Act 1997 (POEO Act)

The POEO Act is administered by the Environmental Protection Authority (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 Proposal as electricity generation is a scheduled activity listed in Schedule 1 of the POEO Act. The Proposal meets the criteria 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 stated 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 application for a grant of an EPL cannot be refused if it is necessary for carrying out critical SSI and is to be substantially consistent with the approval under Division 5.2 of the EP&A Act (section 5.24(e)).

5.3.7. Water Management Act 2000 (WM Act)

The 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.

The following plan is relevant to the proposed site:

- Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources (2009). The water source that is relevant to the Proposal is the Newcastle Water Source.

Under the WM Act, should water need to be extracted from a surface water source defined in this 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 Proposal is critical SSI a water use approval, water management work approval or activity approval are not required, however an aquifer interference approval and water access licence would still be required, if applicable.

The Proposal 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.

5.4. Approvals under legislation not required for critical SSI

Under Section 5.23 of the EP&A Act certain specified authorisations are not required for critical SSI. These include:

- *National Parks and Wildlife Act 1974* – an Aboriginal heritage impact permit under Section 90.
- *Heritage Act 1977* - an approval under Part 4, or an excavation permit under section 139.
- *Rural Fires Act 1997* – a bush fire safety authority under Section 100B.
- *Water Management Act 2000* – water use approval, water management work approval or activity approval (excluding an aquifer interference approval).
- *Fisheries Management Act 1994* – a permit under section 201, 205 or 219.

Under Section 5.24 of the EP&A Act, the following authorisations cannot be refused if necessary for the carrying out of critical State significant infrastructure:

- *Fisheries Management Act 1994* – an aquaculture permit under section 144.
- *Protection of the Environment Operations Act 1997* – an environment protection licence under Chapter 3 of the Act.
- *Roads Act 1993* – a permit under Section 138 to impact on public roads.
- *Pipelines Act 1967* – a licence.

5.5. Commonwealth legislation

5.5.1. Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act is administered by the Commonwealth Department of Environment 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'. 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 'matters of national environmental significance' (NES matters).
- 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 19 July 2018 covering the proposed power station site and investigation area for the proposed gas pipeline(s) and electrical transmission routes plus a 1km kilometre buffer. The protected matters search identified NES matters located in and around the investigation area. The EIS would include an assessment of whether the proposal would have a significant impact on any of the NES matters.

Preliminary biodiversity investigations have identified that matters of national environmental significance are unlikely to be impacted by the Proposal. However, a referral to the Commonwealth is being prepared for the Proposal to allow the Commonwealth Department of Environment and Energy to consider whether the Proposal is a controlled action.

5.5.2. Native Title Act 1993 (Native Title Act)

The *Native Title Act* provides a legislative framework for the recognition and protection of native title rights that in certain circumstances allow, Indigenous people continue to hold rights to land and water, which come from their traditional laws and customs.

A search of the Register of Native Title claims on 20 July 2018 did not identify Native Title applications or determinations that affect the Proposal area. Further review will be undertaken during the EIS preparation.

6. Community and stakeholder consultation

6.1. Government agencies and utilities

Consultation would be undertaken with government agencies as required during the preparation of the environmental assessment, including:

- NSW Department of Planning and Environment.
- NSW Office of Environment and Heritage.
- NSW Department of Industry.
- NSW Office of Water.
- NSW Environment Protection Authority.
- Hunter Water Corporation (A Government owned corporation).
- Commonwealth Department of Environment and Energy.
- Commonwealth Department of Defence.
- Port Stephens Council and Newcastle City Council.
- Civil Aviation Safety Authority (A Government owned corporation).
- Air Services Australia (A Government owned corporation).
- Roads and Maritime.
- Department of Defence, RAAF.
- Newcastle Airport.
- Rural Fire Brigade Service.

6.2. Community and other stakeholders

AGL has an existing Community Dialogue Group (CDG) for the NGSF. AGL has invited the members of the existing CDG to be involved in the Proposal. During the preparation of the environmental assessment consultation will be undertaken with members of the NGSF CDG and additional stakeholders including:

- Local Councillors and state and Federal Members of Parliament.
- Tomago Aluminium Company.
- Newcastle Airport.
- Ausgrid.
- TransGrid.
- Telecommunication providers.
- Worimi Local Aboriginal Land Council and Aboriginal stakeholder group(s).
- Business community groups.
- The community, including potentially affected land owners.

AGL would consult with the community through the development and operation of the Proposal. Community consultation activities for the Proposal would likely include website information, newsletters, factsheets, community information sessions such as townhalls or drop-in sessions, and face to face meetings. As part of AGL's commitment to the community, during all stages of this proposal AGL would:

Be proactive.
Engage with communities early and often to understand and respond to their interests and concerns.

Be flexible and inclusive.
Offer a range of engagement opportunities that are tailored to the variety of needs and preferences of the communities in which AGL operate.

Be transparent.
Act honestly and ethically in all dealings with the communities in which AGL operate.

Support employees and contractors to engage well.
Provide tools, peer support and training to enable all staff to deliver on AGLs commitment.

Continuously improve engagement.
Evaluate the effectiveness of engagement and modify it as needed to ensure that AGLs activities address community needs and expectations.

AGL's Community Engagement Policy can be viewed at agl.com.au/about-agl/sustainability/community-engagement

7. Preliminary environmental assessment

The following provides an overview of the key issues to be assessed in an environmental impact statement. Figure 4 shows an overview of constraints identified in this review.

7.1. Assessment of key issues

7.1.1. Ecology

Existing environment

The proposed power station site is largely cleared due to past agricultural activities, however, there are isolated native trees and the regeneration of native vegetation occurring in parts of the site. The investigation areas for the gas pipeline routes are generally densely vegetated with some areas of cleared land for roads and electrical easements.

The investigation areas and the eastern portion of the proposed power station site are bushfire prone land.

Preliminary biodiversity considerations have been identified through desktop reviews of native flora and fauna, vegetation types (or communities), natural features and biota of conservation significance. An EPBC protected matters database search indicated 53 threatened species, 39 migratory species and four threated ecological communities reported to occur within one kilometre of the proposal area. Of the threatened species there were 12 threatened flora and 41 threatened fauna species (five reptiles, seven mammals, two frogs, one fish and 26 birds). The EPBC desktop search identified the following threatened ecological communities may be present:

- Central Hunter Valley Eucalypt forest and woodland (CEEC – EPBC).
- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wates and South East Queensland ecological community (EEC – EPBC).
- Lowland Rainforest of Subtropical Australia (CEEC – EPBC).
- Subtropical and Temperate Coastal Saltmarsh (Vulnerable – EPBC).

Preliminary biodiversity surveys on the proposed power station site indicate that vegetation consists of cleared land and non-native vegetation as well as pockets of Coastal Foothills Spotted Gum-Ironbark Forest, Coastal Sand Apple – Blackbutt Forest, Swamp Mahogany – Paperbark Forest and Swamp Oak Rushland Forest. Previous data collected by RMS on the property indicates that the following endangered ecological communities (Biodiversity Conservation Act 2016) are present on the proposed power station site:

- Lower Hunter Spotted Gum - Ironbark Forest in the Sydney Basin Bioregion.
- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.
- Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions.

The investigation area for the proposed gas pipeline(s) consists of Coastal Sand Apple – Blackbutt Forest, Seaham Spotted Gum – Ironbark Forest, Swamp Mahogany – Paperbark Swamp Forest, Redgum-Apple-Banksia Forest and cleared land.

The electrical transmission route investigation area contains cleared land and Seaham Spotted Gum – Ironbark Forest.

Approximately 800 metres to the west and 400 metres north of the proposed power station site there is an area mapped as 'coastal wetlands' and a 'proximity area for coastal wetlands' under the State Environmental Planning Policy (Coastal Management) 2018. The Ramsar listed Hunter Wetlands National Park is about two kilometres south of the site.

Potential impacts

The proposed power station site and the investigation area for the gas pipeline(s) and electrical transmission line routes contain a variety of biodiversity values and a range of threatened biota. The construction and operation of the Proposal would have the potential to impact on the biodiversity of the area. The following impacts upon biodiversity have been considered as having potential to occur during the construction and operation of the Proposal:

- Vegetation disturbance due to clearing for the proposed power station and gas pipeline(s) and electrical transmission lines construction and easements.
- Flora/fauna habitat disturbance and fragmentation of habitat due to vegetation removal as part of construction.
- Disturbance of habitat and impact to the Hawks Nest and Tea Gardens endangered koala populations.
- Introduction and spread of invasive species and weeds.

Further assessment/recommendations

Further ecological assessment would be undertaken for the EIS, to confirm ecological constraints at the site and to avoid or minimise impacts. This would include a Biodiversity Development Assessment Report (BDAR). The above assessment would be informed and undertaken in accordance with the project SEARs and in line with required of Section 6.12 of the Biodiversity Conservation Act 2016.

7.1.2. Surface water and hydrology

Existing environment

The Hunter River is located about 470 metres north west of the site at its closest point and generally runs from north to south. The proposed power station site is at 14 to 16 metres AHD, relatively higher than the surrounding area. The topography of the proposed power station site slopes towards the Hunter River, indicating surface runoff would run towards the river. There are no mapped waterways running across the proposed power station site or the investigation areas for the gas pipeline(s) and electrical transmission line routes.

The proposed power station site would not be impacted by flooding being located on a relatively higher point in the landscape to the surrounding area and is not within the Port Stephens Local Environmental Plan 2013 'flood planning area'. However, the investigation area for the gas pipeline(s) is within the one in one hundred-year flood event mapping and may be impacted by flooding.

Both the gas pipeline(s) and electrical transmission routes investigation areas are within the Drinking Water Catchment identified by Port Stephens LEP 2013 which includes the Tomago sandbeds, a regionally important underground water source. The power station site is located outside of this catchment.

A search of WaterNSW groundwater monitoring bores found one groundwater bore within 500 metres of the proposed power station site, however, no groundwater data was available. There are several groundwater bores within the investigation area for the gas pipeline(s) and electrical transmission line routes. Of the groundwater bores queried standing water level was identified at its shallowest at 1.8 metres below ground level. Areas of shallow groundwater have been anecdotally identified in the north western part of the gas pipeline(s) investigation area.

Potential impacts

The Proposal has the potential to impact upon surface water and hydrology during construction and operation. The following surface water and hydrology impacts have been considered as having potential to occur during construction and/or operation of the Proposal:

- Accidental spill or discharge of chemicals or hydrocarbons, such as fuels and oils in vehicles and/or equipment with the potential to contaminate surface water.
- Erosion of soil and sedimentation through runoff and transport of eroded sediments to waterways particularly during high rainfall events.
- Dewatering sediment laden water from excavations.
- Flooding during construction of the gas pipeline(s) or electrical transmission line has the potential to result in erosion and any associated water quality impacts, including within the Hunter drinking water catchment.
- Transport of pollutants offsite contaminating groundwater, including potentially the Tomago sandbeds.
- Water or groundwater potential impacts associated with the disposal of wastewater.

Further assessment/recommendations

Potential impacts to water quality (surface and groundwater) and hydrology on surrounding land, including impediments to the flow of water will be considered in the EIS. The impact assessment would include:

- A surface water impact assessment and identification of potential impacts.
- A Neutral or beneficial effect on water quality (NorBE) assessment.
- Groundwater technical study.

The above assessment would be informed and undertaken in accordance with the project SEARs and the EIS would also identify recommendations for management and/or mitigation of potential impacts.

7.1.3. Noise and vibration

Existing environment

The Proposal is located within the Tomago industrial area with undeveloped land to the east and rural land to the north and west. Background noise levels would be characterised by aircraft, including defence aircraft at Williamtown and commercial aircraft at Newcastle airport, nearby industrial activities, noise of traffic travelling along the Pacific Highway as well as noise from natural sources such as birds and insects.

Current noise generating activities from the site are limited to typical residential development noise generating activities. The current residential property is likely to be demolished prior to or as part of the Proposal.

A review of satellite imagery indicates that the closest residential property is on the other side of the Pacific Highway and more than 300 metres to the west. The closest residential zoned area is more than two kilometres from the proposed power station site. No other sensitive receivers have been identified within 500 metres of the site.

Potential impacts

The following noise and vibration impacts have been considered as having potential to occur during construction and operation of the Proposal:

- Construction noise associated with earth works and building activities.
- General operational noise from the power station including low frequency noise from gas turbine or reciprocating engine operations.
- Gas pressure regulation and compression equipment.
- Transformers.
- Additional traffic associated with construction and operation.

Further assessment/recommendations

Further noise and vibration assessments would be undertaken for the EIS, to confirm potential impacts and to avoid or minimise impacts. This would include a noise and vibration technical study. The above assessment would be informed and undertaken in accordance with the project SEARs.

7.1.4. Aboriginal heritage

Existing environment

The Proposal is located within the Worimi Local Aboriginal Land Council area. The land on which the power station is proposed has been cleared and disturbed in the past. However, as the proposed power station site is at a relatively high point in the landscape, and given there are waterways nearby, there is the potential for Aboriginal heritage to be present.

The investigation area for the proposed gas pipeline(s) and electrical transmission routes includes undisturbed areas and existing cleared easements.

A search of the Aboriginal Heritage Information Management System (AHIMS) database maintained by the Office of Environment and Heritage (OEH) was undertaken on 6 July 2018 for a broad area and identified four recorded Aboriginal sites within 200 metres of the area. The site information card for AHIMS site, Hexham M12RT 1 (38-4-1751) identified Aboriginal values associated with the proposed power station site. The site is listed as a potential archaeological deposit, which includes surface and sub-surface artefacts. Several artefacts were recovered from the site during test excavations that included the proposed power station site. The site is identified as an area of high Aboriginal heritage significance at the local level as it provides tangible evidence of the use of the area by Aboriginal people.

Potential impacts

The construction of the Proposal would have the potential to impact on the Aboriginal heritage of the area. The following impacts upon Aboriginal heritage have been considered as having potential to occur during the construction of the Proposal:

- Disturbance of Aboriginal sites during the construction of the Proposal.
- Unexpected or unidentified heritage items may be uncovered during the construction of the Proposal.

Further assessment/recommendations

Further assessment of Aboriginal heritage would be undertaken for the EIS, to confirm heritage constraints at the site and to avoid or minimise impacts. The above assessment would be informed and undertaken in accordance with the project SEARs.

7.1.5. Air quality and greenhouse gas

Existing environment

A search of the National Pollutant Inventory (NPI) maintained by the Commonwealth Department of Environment and Energy, undertaken on 19 July 2018 identified 11 sources emitting 33 air pollutants within the 2016-2017 reporting period in the vicinity of the Proposal. Other existing sources of air pollution would include vehicle emissions and emissions from nearby commercial and industrial activities, and agriculture practices. Key industrial sources identified by the NPI and in the vicinity of the Proposal include the Hexham Train Support Facility, Industrial Galvanizers Hexham, Hunter Galvanizing Tomago, Tomago Aluminium Smelter, Omega Chemicals, Newcastle Gas Storage Facility and Grahamstown Water Treatment Plant.

Potential impacts

The construction and operation of the Proposal would have the potential to impact on the air quality in the area. The following impacts upon air quality have been considered as having potential to occur during the construction and operation of the Proposal:

- Dust creation during construction (site clearing, excavation and handling of soils, wind erosion from disturbed areas and stockpiles, site grading activities and vehicle movements).
- Exhaust emissions from construction plant and equipment during construction.
- Flaring from the compression station (if required).
- Power station emissions, during operations the primary emission from the turbines or engines would be nitrogen, oxygen, carbon dioxide, water vapour, oxides of nitrogen, unburnt volatile organic compounds, carbon monoxide, sulphur dioxide and particulate matter.
- Greenhouse gas emissions.

Further assessment/recommendations

Air quality and greenhouse gas impacts would be assessed further as part of the EIS. An air quality impact assessment would be undertaken in accordance with the project SEARs.

7.1.6. Plume rise and aviation hazard

Existing environment

Newcastle airport is about 11 kilometres east of the proposal. The runway is shared between Department of Defence and commercial airline use.

The runway is used by 16 squadrons based at RAAF Williamtown Base. Military aircraft routinely use the runway and regional airspace.

Newcastle Airport is the 13th busiest airport in Australia handling over 1.2 million passengers in 2017. It is serviced by five airlines to ten direct destinations (Auckland, Adelaide, Ballina/Byron, Brisbane, Canberra, Dubbo, Gold Coast, Melbourne, Taree and Sydney). Around 40 commercial flights arrive and depart from Newcastle Airport each day.

Potential impacts

During construction, construction cranes up to 60 metres in height may be used. The impact of temporary construction equipment should be considered to avoid impacting flightpaths of aircraft using the Newcastle Airport runway.

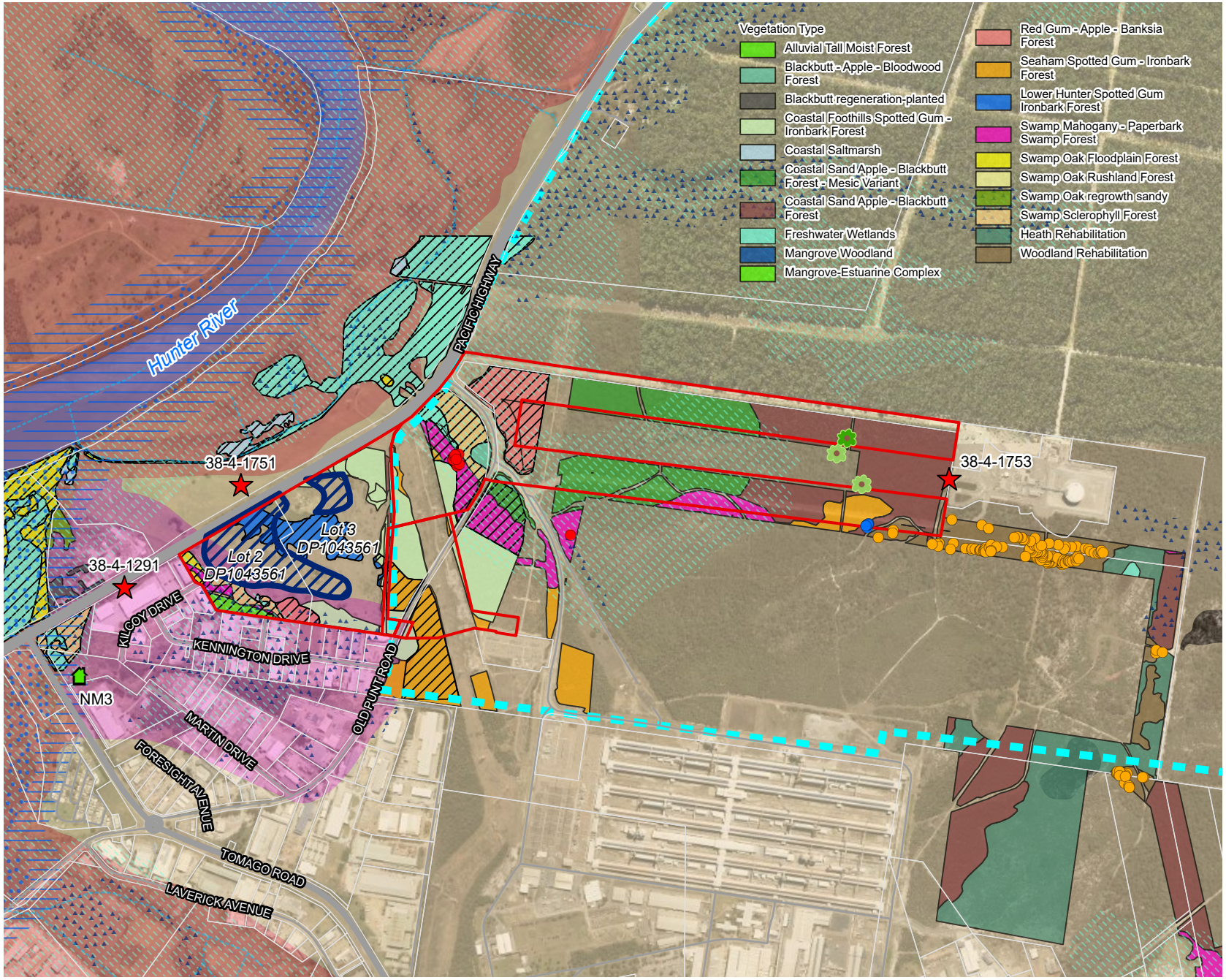
Exhaust stacks used in the operational power station may be between 20-35 metres in height. Exhaust gases may rise in a plume and potentially cause a hazard to aircraft. The likelihood for the proposed power

station to pose a hazard to nearby aircraft operations would be dependent on its final design, there may be potential to impact:

- Aircraft landing and take-off from Newcastle airport.
- Handling of aircraft flying overhead.

Further assessment/recommendations

Consultation would be undertaken with Newcastle airport, Air Services Australia, Department of Defence and the Civil Aviation Safety Authority (CASA) and any necessary relevant approvals would be sought. Further assessment of the impact of the proposed power station would be undertaken as part of the EIS.



Legend

- Key Areas
- Cadastre
- Noise sensitive receivers
- Waterways
- Flood Prone Land
- Wetland
- Coastal Wetlands (SEPP)
- Coastal Wetlands Proximity Area
- Drinking Water Catchment

Heritage

- Aboriginal heritage site
- Aboriginal heritage constraints (RMS)

Habitat

- Hollow-bearing Tree
- Large stick nest

Threatened Species

- Maundia
- Parramatensis
- Parviflora
- Endangered Ecological Communities (BC Act)

Acid Sulfate Soil Risk

- High Risk 1-2m
- High Risk 2-4m
- High Risk Sediments
- Low Risk above 4m

Source: Aurecon, LPI

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Projection: GDA 1994 MGA Zone 56

Newcastle 250MW Gas Fired Power Station **Preliminary Environmental Assessment**

FIGURE 4: Constraints

7.2. Other environmental issues

7.2.1. Traffic and transport

Existing environment

The area around Tomago is serviced by a road network well suited to heavy haulage vehicles. Vehicle access to the site will be off Old Punt Road via a newly formed access road. Old Punt Road (a sealed two-way council owned road) runs in close vicinity to the eastern boundary of the proposed power station site joining the Pacific Highway in the north. The Pacific Highway runs along the western boundary of the proposed power station site. These roads would be utilised for access to the proposed site and would be the major transport route for haulage and site vehicles during construction and operation. To the south, Tomago Road links Old Punt Road to the Pacific Highway. Minimal impact to these roads is expected as access to the proposed site is to be from the north.

Future extensions of M1 to Raymond Terrace by RMS may impact the land subject to the Proposal. Currently RMS route options have been considered in the development of the Proposal and ongoing cooperation is planned.

Potential impacts

The Proposal has the potential to impact upon traffic in the region during construction and operation. The following traffic and access impacts during construction of the Proposal have been considered:

- Increased traffic generation due to the importation of equipment and materials as well as construction employees and contractors to the construction site.
- Potential to increase the occurrence of road damage due to heavy vehicle use.
- Potential to increase traffic noise and congestion.
- Dust generation and movement from unsealed access along easements formed for the proposed gas pipeline and electrical transmission routes and air and surface water quality.
- The proposed gas pipeline(s) and electricity transmission routes may require works within public roads which would have the potential to disrupt local traffic in the area.

The operational phase of the Proposal would generate additional traffic on the Pacific Highway and Old Punt Road from infrequent diesel trucking and from a modest number of staff that would be accessing and parking at the power station site.

Further assessment/recommendations

Further traffic and transport assessment would be undertaken for the EIS to confirm constraints at the site and to avoid or minimise impacts. This would include a traffic and transport technical study. The above assessment would be informed and undertaken in accordance with the project SEARs. Additionally, further consultation with RMS on the design development of the M1 to Raymond Terrace project should be considered in the development of the Proposal.

7.2.2. Visual amenity

Existing environment

The visual character of the Proposal area is dominated by industrial operations to the south and sparsely distributed rural-residences to the north and west. The proposed power station site is at a relatively higher topography to the surrounding area at 14-16 metres AHD. The surrounding topography is relatively flat with gently rolling hills to Beresfield in the west, towards Fullerton Cove in the east, Raymond Terrace in the north and the suburbs of Newcastle (Sandgate) in the south. Other major infrastructure within 10 kilometres of the site includes the NGSF and Tomago Aluminium Smelter, TransGrid Tomago switching station, Pacific

Highway, electrical transmission and distribution lines, Grahamstown Water Treatment Plant and the Kooragang Island port.

Potential impacts

The Proposal has the potential to impact upon visual amenity and landscape character during construction and operation. The following visual impacts have been considered as having potential to occurring during construction of the Proposal:

- Construction facilities, including portable structures and laydown areas.
- Excavations and earthworks.
- Machinery present.
- Civil works to facilitate access and easements.
- Dust and reduced air quality from construction works.

Construction impacts would be temporary and limited to the length of the construction period. Therefore, they are not expected to have a long term visual impact. The following visual impacts have been considered as having potential to impact during operation of the Proposal:

- A new visual feature of the landscape, with visible structures including the proposed power station, exhaust stack(s), site access road, gas pipeline(s) marker signs, and electricity transmission line.

Further assessment/recommendations

A visual and landscape character impact assessment would be prepared as part of the EIS to investigate potential visual impacts of the Proposal and mitigation options, this would include a visual impact technical study. The above assessment would be informed and undertaken in accordance with the project SEARs.

7.2.3. Non-Aboriginal Heritage

Existing environment

Searches of the following heritage lists were undertaken:

- NSW State Heritage Register.
- Port Stephens Local Environmental Plan 2013.
- Australian Heritage Database.

No heritage items were identified within the proposed power station site or investigation areas for the proposed gas pipeline(s) and electrical transmission route.

Potential impacts

The construction of the Proposal would have the potential to impact on the non-Aboriginal heritage of the area. The following impacts upon non-Aboriginal heritage have been considered as having potential to occur during the construction of the Proposal:

- Unexpected or unidentified heritage items may be uncovered during the construction of the Proposal.

Further assessment/recommendations

Further assessment of non-Aboriginal heritage would be undertaken for the EIS, to confirm heritage constraints at the site and to avoid or minimise impacts.

7.2.4. Land use

Existing environment

A description of the Proposal area and surrounds is provided in Section2.1. The proposed power station site is located within the Tomago industrial area and surrounded by rural land uses to the north and west, with the Hunter River being 470 metres to the north west. The proposed power station site is predominately cleared, however, there are some isolated trees and areas of vegetation regeneration particularly around the boundaries of the power station site. The proposed power station site has been used for mainly rural-residential uses including a single residence, grazing and agriculture.

Outside of the proposal area, the nearest residence is located on the northern side of the Pacific Highway and is more than 300 metres from the Proposal. The closest residential zoned area is more than two kilometres from the proposed power station site. No other sensitive receivers have been identified in within 500 metres of the Proposal.

Potential impacts

Construction of the proposed power station would be consistent with existing surrounding industrial land uses.

Further assessment/recommendations

Potential impacts on surrounding land uses will be considered further within the EIS.

7.2.5. Topography, geology and soils

Existing environment

As previously noted the proposed power station site is at a relatively high point to the surrounding landscape at 14-16 metres AHD, with the investigation area for the gas pipeline being relatively flat sloping to a low point between the NGSF and the proposed power station site. The proposed electrical transmission route is on gently sloping land to the east.

Reference to the 1:250,000 scale Geological Series Sheet for Newcastle (S1 56-2) indicates that the Proposal area is marked as ‘Qa’ indicating gravel, sand, silt, clay, “Waterloo Rock” Marine and freshwater deposits and ‘Pc’ – Tomago Coal Measures (shale, mudstone, sandstone, tuff and coal).

The soil landscape of the Proposal area generally consists of poorly drained acid soils with low fertility. Port Stephens LEP Acid Sulfate Soils (ASS) mapping identifies the soils in the Proposal area as predominately Class 4 ASS.

A search of the OEH Contaminated Land Record of Notices on 6 July 2018, identified one former contaminated site within Tomago at 25 School Drive. The identified site is over two kilometres south east of the identified proposed power station site and was deemed to be contaminated by the presence of lead and chromium in soils and groundwater on the premise and in the surrounding area. Additionally, given the proposed power station and investigation areas for the proposed gas pipeline and electrical transmission route are within an industrial area, there is the potential for unidentified contamination.

Potential impacts

The following impacts upon topography, soil and geology have been considered as having potential to occur during the construction of the Proposal:

- Regrading of the site to accommodate the power station.
- Excavations and vegetation removal may cause: soil erosion and sedimentation (including potential for sediment laden run-off).

- Vehicle movement may cause soil compaction, or disturbance and dispersion of soil including dust generation.
- Disturbance of Acid Sulfate Soils.
- Potential for chemical and fuel spills during construction or operation which may result in localised contamination of soils.

Further assessment/recommendations

An impact assessment of topography, soil and geology, would be prepared as part of the EIS to investigate potential impacts of the Proposal and mitigation options, this would include a soils and contamination technical study. The assessment would be informed and undertaken in accordance with the SEARs.

7.2.6. Social and economic impacts

Existing environment

The Proposal is located within the Port Stephens LGA which has a population of approximately 69,556 and is part of the broader Hunter region. The major population centre of Port Stephens LGA is Raymond Terrace approximately five kilometres north west of the proposed power station site. The major industries of employment are Defence, supermarket and grocery stores, aged care residential services, takeaway food services, hospitals, and retail. The proposed power station is not considered to be located within an area noted for tourism or agriculture.

Potential impacts

The following social and economic impacts have been considered as having potential to occur during the construction and operation of the Proposal:

- Amenity based impacts on the local community such as noise, vibration, air, traffic, and visual impacts.
- Provision of additional employment during construction and to a lesser extent, during operation.

Further assessment/recommendations

An assessment of social and economic impact of the Proposal would be prepared as part of the EIS and would include a socio-economic technical study. The assessment would be informed and undertaken in accordance with the project SEARs.

7.2.7. Waste

Waste would be generated by the Proposal during both construction and operation, including:

- Generation of construction waste.
- Generation of green waste from clearing.
- General rubbish during operation and construction.
- Wastewater generated by the operation of the proposed power station as well as wastewater not released under normal operations into the environment.

The EIS would provide an assessment of the waste to be generated during the construction and operation of the Proposal.

7.2.8. Hazards and risk

The operation of the proposed power station may result in the potential for isolated risks and hazards, including:

- Discharge from wastewater pond.

- Fire initiated from activities onsite.
- Fire/explosion from a failure of a branch, fitting or part of the gas pipeline(s).
- Risks associated with liquid fuel including leakage, fire/explosion and transport.

In addition to the above risks the proposed power station and investigation areas for the proposed gas pipeline(s) and electrical transmission route are within bushfire prone land and the investigation area for the gas pipeline(s) is partially within a 1 in 100-year Annual Recurrence Interval (ARI) flood area.

As part of the EIS a hazard and risk technical study would be undertaken including Level 1 qualitative Preliminary Hazard Analysis in line with the requirements of SEPP33.

7.2.9. Cumulative impacts

There is the potential for cumulative impacts during both the construction and operation of the Proposal. The Proposal is likely to contribute to cumulative noise and air quality impacts during both construction and operational phases. The Proposal may contribute impacts to environments in other aspects that are already subject to impact from other sources. However, if the Proposal does not result in impacts for a given aspect or issue, then it will not contribute to any cumulative impacts for that aspect or issue.

Due to the close location to the Proposal of the M1 to Raymond Terrace motorway project under development by RMS, cumulative ecological impacts and Aboriginal heritage impacts may occur in association with this development proposal. No other substantial development proposals have been identified near the Proposal area, however the existing industrial facilities in the region may propose changes to their operations in the future.

Potential cumulative impacts of the Proposal would be further considered as part of the EIS.

8. Conclusion

AGL proposes to develop an approximately 250MW gas fired power station at Tomago, in the greater Newcastle region of NSW. The Proposal would involve the development of a power station, gas pipeline(s), an electricity transmission line and other associated auxiliary infrastructure.

This Preliminary Environmental Assessment provides a description of the Proposal for which the NSW Minister for Environment has declared under Section 5.13 of Division 5.2 of the EP&A Act as a critical SSI project.

The key environmental issues that require further assessment as part of an EIS have been identified as:

- Ecology.
- Surface water and hydrology.
- Noise and vibration.
- Aboriginal Heritage.
- Air quality and greenhouse gas.
- Plume rise and aviation hazard.

Other environmental issues have also been identified for further assessment as part of an EIS.

This Preliminary Environmental Assessment forms part of the Proponent's request for the Secretary's requirements for the environmental assessment. Upon receipt of the Secretary's requirements, the Proponent will undertake the environmental assessment and submit it to the Department of Planning and Environment as part of the application for approval of the Proposal.

9. References

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