

Tallawarra Stage B - Open Cycle Gas Turbine Power Station Project

PRELIMINARY ENVIRONMENTAL ASSESSMENT

- Final
- 29 March 2007



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Summary

This report provides a Preliminary Environmental Assessment to support TRUenergy's Project Application for the Tallawarra Stage B Open Cycle Gas Turbine (OCGT) Project. The report identifies key environmental issues associated with the project and ultimately supports an application to the Minister for Planning under Section 75J(1) for project approval.

TRUenergy is currently constructing a 400MW Combined Cycle Gas Turbine (CCGT) Power Station at Yallah, on the shores of Lake Illawarra some 13km South of Wollongong in the Illawarra district of NSW. The Power Station is sited on part of the area previously occupied by the Tallawarra coal fired power station. TRUenergy wishes to proceed with Stage B of the project which involves the siting of peaking units with a notional capacity of 300 - 450MW adjacent to the CCGT Power Station.

The preliminary desktop investigations and site visit conducted in February 2007 indicate that the key environmental issues for the OCGT project include:

- Air quality impacts;
- Greenhouse gas emissions;
- Noise impacts; and
- Hazards and risk impacts.

A summary of the key environmental issues listed above is provided in the report. The intent of the discussion is to demonstrate the proponent's existing understanding of the issues and the need for further environmental assessment of these issues.

The potential impacts and management of other issues such as land use, flora and fauna, heritage, socio-economics, traffic, waste management, soils, surface water and groundwater and the reasons they have not been designated as key issues, are also discussed in this report. It is proposed that these other issues would be addressed in sufficient detail to assess the level of their impacts (if any). It is anticipated that any impacts identified would be able to be managed through appropriate mitigation measures and management plans.

The management of both key issues and these secondary issues would be handled through a Statement of Commitments and the Conditions of Approval of the project, which will determine the requirements for environmental management.



1. Introduction

TRUenergy is currently constructing a 400MW Combined Cycle Gas Turbine (CCGT) Power Station at Yallah, on the shores of Lake Illawarra some 13 kilometres south of Wollongong. The Power Station is located on the part of the site previously occupied by the Tallawarra coal fired power station.

TRUenergy is now looking to proceed with Stage B of the project which involves providing an Open Cycle Gas Turbine (OCGT) Plant adjacent to the CCGT Power Station. It will comprise two or three peaking units with a notional capacity of 300 - 450MW. The units will require dual fuel burners with a liquid fuel as a backup. The project site and surrounding "Tallawarra Lands" owned by TRUenergy is shown on **Figure 1**. Approximately 2 hectare of the Tallawarra Lands area (600 hectares) is required for Tallawarra Stage B project (refer to **Figure 2**), although a buffer area around the Power Station of approximately 50 hectares will be maintained.

The Project is considered to be classed as a 'Major Project' under Part 3A of the *Environmental Planning and Assessment Act 1979* (refer to **Section 3.1**). The Minister for Planning confirmed on March 13 2007 that in his opinion the development meets the requirements under Clause 6(1) of the State Environmental Planning Policy (Major Projects) 2005.

1.1 Purpose of the Document

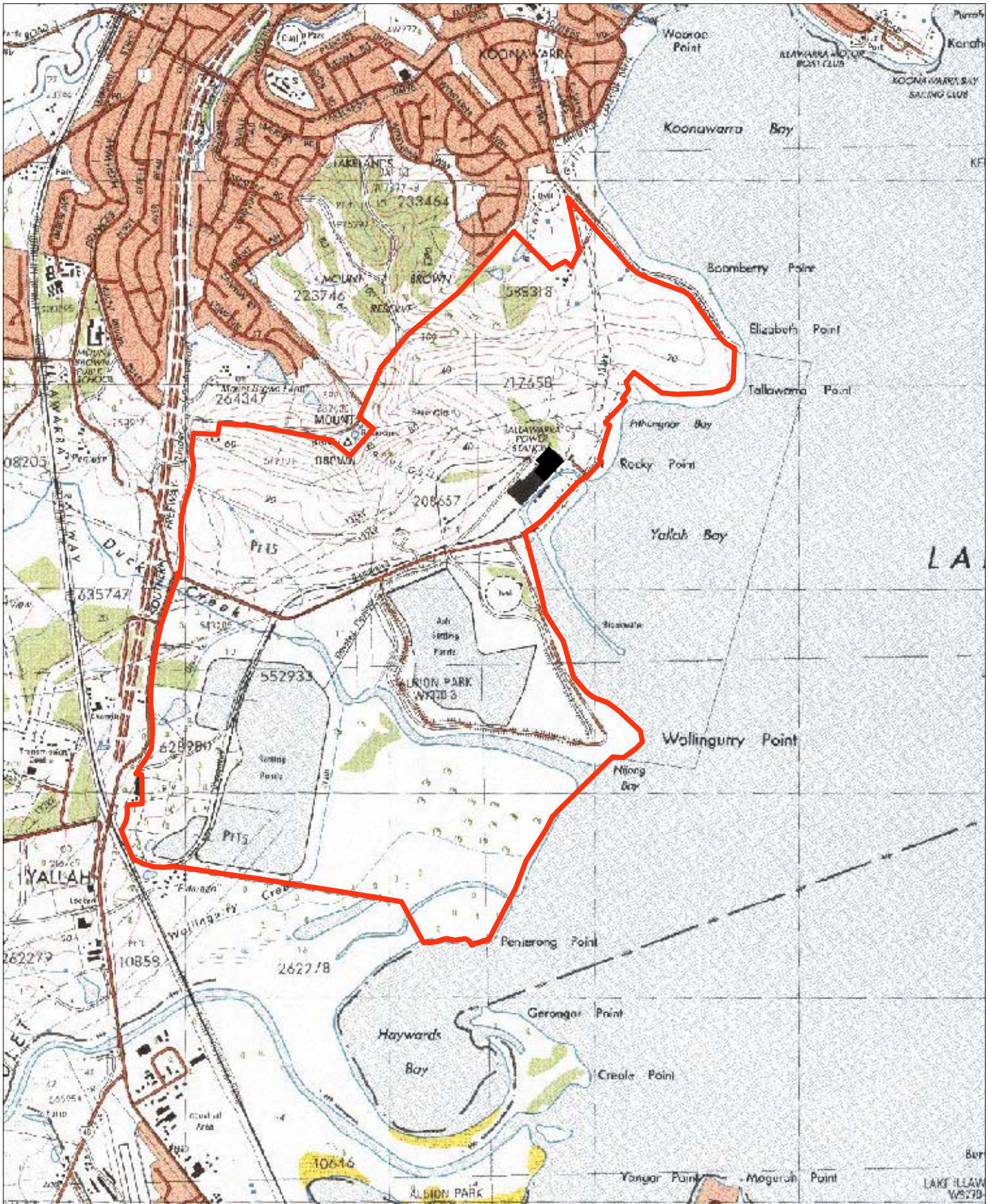
This Preliminary Environmental Assessment has been prepared to support TRUenergy's Project Application for the OCGT project, to brief the relevant government agencies about the proposed development, to assist the Director-General of the Department of Planning (DoP) to develop Environmental Assessment requirements, to introduce the environmental studies conducted to date and to identify key issues to be addressed in the Environmental Assessment Report prepared to support the Project Application.

References in this document to the 'project area' relate to the proposed OCGT unit site and land required for ancillary facilities associated with the project, including existing facilities and their immediate surrounds.

1.2 The Proponent

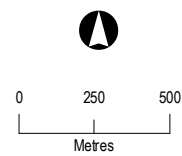
TRUenergy is part of the CLP Group. The CLP Group strives to be the leading investor-operator in the Asia-Pacific electric power industry. CLP invests and operates power plants and systems in Hong Kong, the Chinese mainland, Australia, India, Thailand and Taiwan. TRUenergy comprises the former TXU Australia, Yallourn Energy and Auspower businesses.

TRUenergy provides electricity and natural gas to residents and businesses in Victoria, South Australia, New South Wales, Australian Capital Territory and Queensland. It also owns power



Legend

- ▬ Tallawarra Lands
- ▬ Stage B Area



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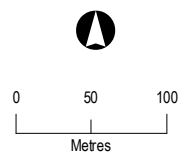


Figure 1- Locality Plan



Legend

■ Stage B Area



1:5,000 AtA4



Figure 2 - Site Layout

Source: Aerial supplied by NSW Dept of Lands, Topographic data by Streetworks.



stations in Victoria, South Australia and has the Tallawarra Power Station under development in New South Wales.

1.3 Background

In 1954 a coal fired power station was constructed on the site, which operated until 1989. The former plant and much of its ancillary buildings have been demolished and the operational areas of the site remediated.

The then owner of the site, Pacific Power, prepared an Environmental Impact Statement in 1998 to support the Development Application for a new combined cycle gas turbine CCGT power station. Wollongong City Council granted development consent for the CCGT power station in 1999.

The Tallawarra site was purchased by TRUenergy from Pacific Power on 30 April 2003. Initial site works for the power station commenced in 2004. Following a competitive tender process a contract was awarded to Alstom Power to engineer, procure and construct the power station based on its highly efficient, low emissions GT26 gas turbine.

The CCGT power station will utilize some of the existing infrastructure, such as the overhead power lines, water supply line and the concrete canals adjacent to the lake.

Commercial operation of the CCGT power station is expected to commence prior to summer 2008/2009. The approved CCGT power station will have a nominal 400MW capacity and will be supplied with natural gas via a lateral line from the Eastern Gas Pipeline which is situated to the west of the site. The electricity produced will be distributed using a purpose built switchyard and existing transmission lines.

The power station will assist TRUenergy meet its expanding retail base electricity demands and will help to maintain supply reliability for businesses and households in NSW.

1.3.1 Tallawarra Lands

As part of a separate approval process, TRUenergy are investigating future land use options for the remainder of the Tallawarra Lands site. TRUenergy submitted a pre-rezoning submission to Wollongong City Council in July 2005. A Local Environment Study (LES) has since been prepared for the site and submitted in draft form to Wollongong City Council for review in December 2006. The draft LES identifies preferred categories of development including, industrial, commercial, residential and conservation areas.

A draft Local Environment Plan (LEP) is currently being prepared for the site in accordance with the new standard LEP template.



The impact assessment for the OCGT Power Station development will assist in the determination of future land use boundaries for the Tallawarra Lands site. Potential future land uses will be considered as part of the impact assessment undertaken for this project.



2. Description of Proposed Development

2.1 Overview

The proposed Tallawarra Stage B Power Station would be located adjacent to the existing Tallawarra CCGT Power Station. It would operate to supply electricity at short notice during periods of peak demand or system emergency situations.

The power station would use open cycle gas turbines and have a nominal generating power capacity of up to approximately 450MW. Tallawarra Stage B would comprise 2 to 3 gas turbines with the electricity generated fed into the existing 132kV transmission network via an extension of the existing switchyard on the Tallawarra Power Station site.

The gas turbines would run on natural gas as the primary fuel, with distillate fuel as a back-up fuel for use during a major interruption to, or periods of, limited natural gas supply. The natural gas would be supplied from an extension to the existing lateral connecting the CCGT to the Eastern Gas Pipeline (EGP).

The project comprises the following key components:

- power station plant comprising 2 to 3 gas turbine generators and ancillary plant;
- high voltage switchyard (extension) comprising high voltage transformers and switchgear;
- transmission line connection to the existing 132kV network;
- connecting gas pipelines, gas receiving station and gas conditioning station;
- distillate tank and unloading station;
- potable/fire water tank;
- demineralised water tank;
- electrical module; and
- emergency diesel generator.

The project will also utilise existing infrastructure associated with the CCGT power station including:

- control room, administration, amenities and workshop building;
- internal roads and car parking;
- domestic wastewater treatment and disposal system;
- security fencing; and
- landscaping and tree planting to provide visual screening of the facility.



2.2 Open Cycle Gas Turbines

The proposed Tallawarra Stage B Power Station would comprise two to three Open Cycle Gas Turbines with a combined nominal generating power capacity of up to approximately 450MW. Each gas turbine generator unit would consist of three main items being the gas turbine, generator and high voltage transformer.

In each gas turbine generator, air is drawn in through filters to remove particulate matter prior to compression. The compressed air then flows into the combustion chambers where natural gas is injected and burnt, increasing the temperature to approximately 1100 to 1200°C.

The combustors feature Dry Low Oxides of Nitrogen (NO_x) technology to produce very low NO_x emissions. The hot exhaust gases generated by the combustion process are used to drive a turbine which in turn drives an electrical generator to produce electricity. The hot exhaust gases pass through a silencer unit and are discharged through an exhaust stack fitted at the end of each gas turbine unit. The height of the exhaust stacks would be in the order of 40m.

2.2.1 Cooling System

The OCGT gas turbines would be cooled by an evaporative cooling system using water to cool the air stream before it enters the combustion chamber of the gas turbine. This system will ensure maximum efficiency of the gas turbines during hot weather conditions.

The gas turbines may incorporate spray humidification to further boost output on days of high humidity and high temperature.

2.3 Fuel

The gas turbines would be capable of running on natural gas and distillate fuel. Natural gas would be the primary fuel source, and distillate fuel would only be used as a back-up should there be a major disruption or shortage to the natural gas supply.

2.3.1 Gas Fuel

Natural gas fuel for the turbines would be supplied from a connection to the existing CCGT lateral connecting the Tallawarra site to the EGP. The new pipelines connecting the proposed power station to the existing pipelines would be located underground.

2.3.2 Distillate Fuel

The project includes installation of a distillate fuel tank(s) adjacent to the proposed power station. The tank(s) and associated pipework would be designed and banded to comply with requirements of Australian Standard *AS 1940 The storage and handling of flammable and combustible liquids*.



The distillate tank(s) would store fuel to supply the power station with sufficient fuel to operate in the event of an interruption to the natural gas supply and there is a need to operate the power station. Distillate fuel would be transported to the site via road tankers on an “as needed” basis.

2.3.3 Emissions Control

The gas turbines would be specified with dry, low NO_x combustors to produce NO_x emissions of 25 parts per million or less at full load when firing on natural gas.

When firing the proposed gas turbine facility on distillate fuel, additional demineralised water is injected into the combustion chamber of the gas turbine to lower the peak combustion temperature and limit the generation of NO_x emissions to less than 45 parts per million at full load.

The proposed gas turbine plant will comply with the *Protection of the Environment Operations (Clean Air) Regulation 2002* emission limits of 25 parts per million NO_x emissions in natural-gas firing mode and 45 parts per million NO_x emissions in distillate-fuel firing mode.

A continuous emission monitoring system would be installed to monitor all stack emissions against Environmental Protection Licence limits and other relevant regulations.

2.4 Ancillary Infrastructure

2.4.1 Transformers and High Voltage Switchyard

Each of the electric generators coupled to each of the gas turbines would operate at a voltage of approximately 22 kilovolts. This would be stepped up to 132 kilovolts using step-up transformers to evacuate the power from the site. Connection to the high voltage switchyard would be via an above-ground connection from the step-up transformers to a new dedicated bay adjacent to the existing high voltage switchyard.

2.4.2 Chemicals and Oil storage

Due to the nature of facility, only minor quantities of chemicals and / or dangerous goods would be stored at the facility. A list of the type and quantities of chemicals to be used and stored at the proposed power station will be outlined in the Environmental Assessment report.

Chemicals would be stored on-site in designated chemicals storage facilities that would be constructed in compliance with relevant Australian Standards.

Spill controls would be provided around the gas turbine generators to contain any leakage. A number of other gas turbine generator controls and alarms would indicate a lubricating oil leak including the low oil pressure alarm, low oil pressure trip and low oil level alarm.



2.4.3 Emergency Diesel Generators

Emergency diesel generators would be installed to provide emergency power during a station trip or a complete system shutdown.

2.4.4 Water

Water would be stored in tanks on site for fire services, evaporative cooling, water sprays and demineralised water for NO_x control when operating on diesel fuel. Potable water would be supplied to the Tallawarra Stage B OCGT Plant site from the existing Tallawarra site supply from the Sydney Water main. Waste generated from the demineralised water process will be discharged from site, via an existing constructed wetland in accordance with approved CCGT water management controls.

2.4.5 Sewage Treatment

A small amount of wastewater would be generated by staff using the site. Sewage from amenities provided from staff would be directed to an existing on-site package sewage treatment plant to ensure that there is zero discharge from the site.

2.4.6 Site Office and Workshop

One of the aims of the project is to maximise the use of TRUenergy's currently approved CCGT Power Station equipment and infrastructure. The Tallawarra Stage B OCGT Plant will utilise the existing Tallawarra Power Station control room, administration building, amenities and workshop.

2.4.7 Site Access and Parking

Access to the Tallawarra Stage B OCGT Plant will be provided from the Princes Highway via Yallah Bay Road. The Power Station will also utilise the existing carpark facilities.

2.5 Workforce and Hours of Operation

It is expected that during construction of the Stage B OCGT Plant the peak employment level will be in the order of 200 personnel. Construction activities will be undertaken during standard daytime construction hours (7.00am to 6.00pm Monday to Friday and 7.00am to 1.00pm on Saturdays). No construction works are proposed to be undertaken on Sundays or public holidays.

Once operational the OCGT Plant will be managed and run by the existing CCGT personnel, although a small increase in number may be necessary to manage day-to-day routine operations and maintenance. There will be little if any net increase in employment at the Tallawarra Power Station during the operational phase of the OCGT Plant.



Shutdown maintenance activities would be undertaken by a casual workforce, in the same manner as for the CCGT Plant. This would result in a short-term increase in personnel at the site during these events.

2.6 Alternatives and Justification

2.6.1 Alternatives Considered to Date

During the development of the conceptual OCGT Power Plant a number of alternative locations, layouts and technologies on the site were considered. The Tallawarra site was identified as the preferred location for a power station as the site is already owned and operated by TRUenergy. A CCGT Power Station has already been approved for this site and is currently under construction. The OCGT would be designed to utilise some of the existing equipment and infrastructure associated with the CCGT Power Station. In addition, the proposed OCGT Plant would be located within a highly disturbed area associated with the former coal fired power station

Minimising environmental and social impacts and maximising efficiency have been major considerations in the evaluation of alternative options. Alternative options have included:

- Plant locations on the site;
- Peaking unit configurations;
- Number of peaking units; and
- Secondary fuel options.

Further discussion of the alternatives considered will be included in the Environmental Assessment report for the project.

The consequences of not proceeding with the proposal would result in the loss of the benefits of the project including:

- Increased reliability of supply during peak high demand periods;
- Improved security of electricity supply during system emergencies or blackouts;
- Improved environmental outcomes through the generation of lower greenhouse gas emissions per unit of output than conventional power generation technologies; and
- Social and economic benefits through the provision of direct and indirect employment opportunities.

2.6.2 Justification for Project

To meet future electricity growth in NSW a number of additional power plants will be required to serve both peaking capacity as well as intermediate and base load requirements. TRUenergy is seeking to construct and operate the Tallawarra Stage B OCGT Power Station to mitigate against



power shortages during peak times. It is anticipated that the power plant will operate infrequently throughout the year during peak electricity demand times (e.g. hot summer days or cold winter days or periods where the base plant is offline).

Tallawarra is the ideal site for a new OCGT Plant, being located adjacent to the CCGT Power Station and utilising existing infrastructure including electricity transmission and gas pipelines. The new plant would occupy a small area of the overall site.

Open cycle gas turbine units have a relatively fast start-up time, typically less than twenty five minutes from start to full load. Given this characteristic, open cycle gas turbine units are ideal for operations to meet peak and high shoulder load demands. The project would result in increased reliability of supply during high demand periods and improved security of electricity supply during system emergencies or blackouts.



3. Planning Considerations and Consultation

3.1 Planning Considerations

The project requires approval under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act) as it is of a class of development listed in Schedule 1 of the State Environmental Planning Policy (SEPP) (Major Projects) 2005. The listing in Schedule 1 of the SEPP that applies to this project is:

“Development for the purpose of an electricity generation facility that:

*(a) has a capital investment value of more than \$30 million for gas or coal-fired generation, or co-generation, or bioenergy, bio-fuels, waste gas, bio-digestion or waste to energy generation, or hydro or wave power generation, or solar power generation, or wind generation, or
.....”*

In addition to approval under Part 3A of the EP&A Act, the project may also require approvals under a number of additional Acts or assessment under State Environmental Planning Policies. The additional Acts and policies relevant to this project are listed in **Table 1** below with an indication of any approvals likely to be required.

■ Table 1 Other Potentially Relevant Acts and State Planning Policies

Planning Provisions	Comments	Relevant Licences/ Approvals/ Assessments
Commonwealth Legislation		
<i>Environmental Protection and Biodiversity Conservation Act 1999</i>	Under the <i>Environmental Protection and Biodiversity Conservation Act</i> (EPBC Act), approval of the Commonwealth Minister for the Environment and Heritage is required for any action that may have a significant impact on matters of national environmental significance.	A search of the EPBC Act database (refer to Appendix 1) indicates that the Project would not impact on any matters of National environmental significance prescribed by the EPBC Act, therefore approval from the Commonwealth Minister for Environment would not be required for this project.
NSW Legislation		
<i>Protection of the Environment Operations Act 1997</i>	The <i>Protection of the Environment Operations Act (POEO Act)</i> relates to pollution and waste disposal in NSW and provides for the licensing of certain types of development.	It is anticipated that the proposed project would require licensing under the provisions of the POEO Act.
Pipelines Act 1967	The <i>Pipelines Act 1967</i> was enacted to meet the need for efficient and economical transportation of petroleum and natural gas products over long distances. The Act is flexible enough to provide for the construction and operation of pipelines to carry any substance,	Under Part 3A of the EP&A Act a Pipeline Licence will be required to be obtained through NSW Department of Energy, Utilities and Sustainability after the Minister for Planning has approved the project.



Planning Provisions	Comments	Relevant Licences/ Approvals/ Assessments
	<p>whether gaseous, liquid or solid, suitable for transportation by pipe, but does not automatically extend to all types of pipelines.</p> <p>This involves the general oversight of location, development and acquisition of land and easements to facilitate the actual construction and maintenance of the pipeline.</p>	
<p>Roads Act 1993</p>	<p>A licence under Section 138 of the Roads Act is required in order to undertake works within a road reserve.</p>	<p>Access to the project site currently exists off the Princes Highway. If this access changes as a result of the proposal, an application would be made to the Road Authority.</p> <p>Heavy equipment and plant components (including turbines) will be transported to the site via road from Port Kembla. The RTA will be consulted regarding traffic management for this activity.</p>
<p>Dangerous Goods Act 1974</p>	<p>This Act is administered by WorkCover and requires that licences be held for the storage, transport and use of dangerous goods, as prescribed by the Dangerous Goods Regulation 1999.</p>	<p>A licence will be required for any prescribed goods where relevant thresholds are exceeded.</p>
<p>State Environmental Planning Policies</p>		
<p>State Environmental Planning Policy (SEPP) 33 – Hazardous and Offensive Development</p>	<p>SEPP No. 33 requires the consent authority to consider whether an industrial proposal is a potentially hazardous industry or a potentially offensive industry. A hazard assessment is completed for potentially hazardous development to assist the consent authority to determine acceptability.</p>	<p>A hazard assessment will be required to be completed as part of the environmental assessment for the project in order to determine if the project is categorised as a potentially hazardous or potentially offensive industry.</p>
<p>Regional Environmental Plans</p>		
<p>Illawarra Regional Environmental Plan No.1</p>	<p>This Plan aims to maximise opportunities for the region by identifying regional planning issues. The Plan details specific provisions relating to the supply and demand for different land uses.</p>	<p>The 3A assessment will consider the aims and objectives of this Plan.</p>
<p>Local Environmental Plans</p>		
<p>Wollongong Local Environmental Plan (LEP) 1990</p>	<p>This Plan provides statutory planning controls for the Wollongong local government area. The project site is zoned 5(a) Special Uses and the proposed OCGT peaking units are permissible with development consent in this zone.</p> <p>As discussed above, a new LEP is</p>	<p>The Part 3A assessment will consider the objectives of the 5(a) Special Uses zoning and future land uses on the Tallawarra Lands site.</p>



Planning Provisions	Comments	Relevant Licences/ Approvals/ Assessments
	currently being prepared for the surrounding Tallawarra Lands site.	
Draft Wollongong Local Environmental Plan (Interim Review)	The purpose of this draft LEP is to update the current LEP by removing anomalies, clarify provisions, reflect best practices and improve the readability of the LEP.	Proposed amendments to the draft LEP do not have any specific implications for the project site.

3.2 Authority Consultation

The authority consultation process for the project has commenced with an initial briefing meeting held with the Department of Planning (DoP). TRUenergy have since sought Ministerial authorisation to proceed under Part 3A of the *Environmental Planning and Assessment Act 1979*.

The next stage of the consultation process is the lodgement of the Project Application and this Preliminary Environmental Assessment with DoP who may then organise a Planning Focus Meeting. All relevant government agencies, including Wollongong City Council, would be invited to attend the Planning Focus Meeting and to provide advice to the DoP regarding the Environmental Assessment Requirements for the project.

In addition to the DoP, the key agencies for this project will be:

- Department of Environment and Conservation (DEC);
- Department of Energy, Utilities and Sustainability (DEUS); and
- Wollongong City Council (WCC);

Consultation with the above authorities and any others specified by DoP will be ongoing throughout the environmental assessment phase of the project.

Consultation will also be undertaken, as necessary, with Air Services Australia, Civil Aviation Safety Authority and the Department of Transport and Regional Services with regard to potential impacts on Illawarra Regional Airport.

3.3 Community Consultation and Social Impact Assessment

Initial consultation with the community regarding this project has been undertaken by briefing the Tallawarra Power Station Community Liaison Group. The Tallawarra Power Station Community Liaison Group was convened in 2003 to facilitate information transfer and inform the community regarding the CCGT Power Station. The group comprises 25 representatives from the local community organisations, government agencies and leaseholder representatives.



Consultation with the Tallawarra Power Station Community Liaison Group and broader community will be ongoing throughout the environmental assessment phase of the project. Where requested or considered necessary, individual meetings with community members will also be undertaken.

The full details of the community consultation program will be documented in the Environmental Assessment report prepared for this project.



4. Preliminary Environmental Assessment

4.1 Environmental and Community Context

The project site is located to the south east of Dapto, on the western foreshore of Lake Illawarra. The site is some 80 kilometres south of Sydney and 13 kilometres southwest of Wollongong. The location of the project site and immediate surrounds are shown in **Figure 1**.

The project site has been significantly modified as a result of previous land use associated with the operation of the former coal powered power station and its ancillary operations. The former power station had a considerably larger overall footprint than the approved CCGT Power Station and proposed OCGT units. The broader Tallawarra Lands site has been utilised for grazing purposes.

The project site is zoned 5(a) Special Uses. The site is located on the footslopes of Mount Brown located to the north-west of the site and the foreshore of Lake Illawarra located immediately to the east of the site.

The climate of the Illawarra region can be described as temperate and is moderated by the proximity of Lake Illawarra and the Pacific Ocean. The region experiences warm to hot summers, with average maximum temperatures of 27.0°C in February and cool to mild winters, with average minimum temperatures of 6.8°C in July. The annual average maximum and minimum temperatures are 22.7°C and 12.0°C respectively. The mean rainfall is 1227mm per year with February, April and June being the wettest months. Rainfall occurs on average on 72 days per year.

4.1.1 Land Ownership

TRUenergy owns all of the land within the OCGT project area and surrounding Tallawarra Lands, a total area of 600 hectares (refer to **Figure 1**). As part of the previously approved CCGT Power Station project and the proposed OCGT project design, TRUenergy has retained a buffer zone on its own land around the development site.

4.2 Assessment of Key Issues

4.2.1 Air Quality & Greenhouse Gas Emissions

The existing air quality around the project area is influenced by surrounding rural-residential and residential land uses, vehicular traffic movements and emissions, rail traffic movements and emissions, surface disturbance and exposure of soil associated with construction works and industrial land uses.

In addition, the Illawarra region is subject to existing concerns regarding air pollution, specifically photochemical smog which is associated with emissions of NO_x. The regional topography and



climate conditions including prevailing wind direction contribute to emissions being transported from over Sydney to the Illawarra basin.

Construction of the Tallawarra Stage B Power Station and associated infrastructure would require the excavation, levelling and clearing of approximately 2 hectares. Other sources of dust during construction include vehicle movements and demolition activities.

Appropriate dust management measures would be implemented throughout the duration of construction activities including watering of exposed soils when necessary, water sprays for dust-generating excavation and demolition activities and progressive restoration of disturbed areas. These standard measures would ensure that the impacts from dust generation are minimised and are minor.

The combustion of fuels by construction equipment and vehicular movements will also contribute to emissions within the local environment. However, provided equipment and vehicles are properly maintained emissions would cause a significant impact.

Operation of the Tallawarra Stage B Power Station would result in the emission of combustion products through exhaust stacks. The emissions would largely comprise carbon monoxide, carbon dioxide and nitrogen oxides (NO_x).

Conclusion and Need for Further Assessment

Dust and combustion emissions would be generated from construction activities associated with the Tallawarra Stage B OCGT power station project. However, provided standard mitigation measures as detailed in the section above are implemented, the impact of these sources of pollution on air quality would be minor and temporary.

A comprehensive air quality and greenhouse gas emission assessment will be completed for operation of the Tallawarra Stage B Power Station project as part of the Environmental Assessment, including CASA plume modelling, calculation of predicted emissions and identification of appropriate mitigation measures. The emissions from the exhaust stacks will be the most significant factor in this regard, with extensive plume modelling being conducted incorporating a number of variations in the meteorological characteristics of the region and topography.

4.2.2 Noise

Background noise levels at the project site are currently low with the main contributors being rural use and the rail and road corridors. However it is understood the area will be impacted by the approved CCGT Power Station currently under development. Existing residential development is located approximately 1 kilometre to the north and north-west of the project site and 2.5 kilometres



to the south-west. However, TRUenergy have lodged a pre-rezoning submission to Wollongong Council for the rezoning of the surrounding Tallawarra Lands. As such future noise receivers must be assessed as part of this project.

It is expected that noise emissions associated with the operation of the project would mainly be limited to the gas turbines and generators. Operational noise would be short-term and intermittent in nature. During construction, noise would be generated through building and assembly works, major earthworks and excavations, crane operations and material deliveries.

Construction and operational noise impacts would generally be mitigated through appropriate management and design measures. Standard noise controls would be implemented during the construction phase such as limiting construction to DEC normal working hours and maintaining ongoing consultation with nearby residential receivers.

Conclusion and Need for Further Assessment

A noise assessment would need to be undertaken to assess the operational impacts of the project. This would include monitoring of existing noise levels, evaluation of future noise sources (particularly the approved CCGT Power Station which is currently under construction) and the modelling of the potential impacts in accordance with industry recognised standards and protocols. The criteria used to assess the noise impacts would be reviewed in consultation with DEC. Potential future land uses, associated with the rezoning of Tallawarra Lands, would also be considered as part of this noise assessment.

4.2.3 Hazard Analysis

State Environmental Planning Policy No. 33 (SEPP 33) – Hazardous and Offensive Development applies to all industries that are considered to be potentially hazardous industry or potentially offensive industry. The policy is designed to ensure new developments only proceed if they are suitably located and able to demonstrate that they can be built and operated with an adequate level of safety. The assessment process detailed in the guidelines accompanying SEPP33 would be applied to the project to ensure that risks to surrounding land uses are clearly identified and mitigation measures developed, if required.

In order to determine whether an industry is classified as ‘potentially hazardous industry’ DoP has developed a risk screening procedure based on the quantity of dangerous goods involved in the proposal and the distance of these materials from the project site boundary. Hazardous materials are classified by the Australian Code for the Transport of Dangerous Goods by Road and Rail (Australian Dangerous Goods Code). If a project proposes to store quantities of these goods below the relevant thresholds it can be assumed there is unlikely to be a significant off-site risk and the proposal is therefore not classified as ‘potentially hazardous industry’.



The Tallawarra Stage B OCGT plant would be located adjacent the existing Tallawarra Stage A CCGT power station. The existing power station stores and uses a variety of chemicals for operation and maintenance activities. The cumulative risk of the existing chemical storage and use combined with the chemicals proposed for the Stage B OCGT Power Station will be assessed.

Conclusion and Need for Further Assessment

The operation of the Stage B OCGT Power Station would result in increased chemical use and deliveries at the Tallawarra power station site. An assessment of the cumulative hazard posed by the chemical and fuel storage and deliveries for the existing power station and the proposed OCGT Power Station would be undertaken using the SEPP 33 guidelines as a framework. The findings of the hazard assessment would be detailed in the Part 3A Environmental Assessment for the project.

4.3 Other Environmental Issues

There is a range of potential environmental issues associated with the OCGT peaking units project that are not considered to be key issues. These issues are considered secondary issues given the characteristics of the project and the availability of appropriate safeguards for mitigation. **Table 2** outlines these issues.

It is proposed that these issues would be addressed in sufficient detail to assess the level of their impacts (if any). It is anticipated that any impacts identified would be able to be managed through appropriate mitigation measures and management plans.

The management of both key issues and these secondary issues would be handled through a Statement of Commitments and the Conditions of Approval of the project, which will determine the requirements for environmental management.

■ **Table 2 Other Environmental Issues**

Existing Environment	Potential Impacts	Management and Mitigation Measures
<p>Land Use</p>		
<p>The proposed OCGT Power Station is situated on the former coal fired power station site. TRUenergy has a current approval for a CCGT Power Plant adjacent the proposed Power Station. The CCGT is currently under construction.</p> <p>The surrounding Tallawarra Lands site is currently owned by TRUenergy and is leased for grazing purposes. The Tallawarra Lands site has potential for a variety of land uses to improve the site's usability, including residential, commercial and industrial. A pre zoning submission was made to Wollongong City Council in July 2005 to seek Council's in principle support to proceed with the preparation of a formal rezoning submission and draft Local Environment Plan for Tallawarra lands.</p> <p>At a full council meeting in September 2005, TRUenergy received approval from Wollongong City Council to proceed with the preparation of a formal rezoning submission, and Council resolved to move towards a revised Local Environment Plan for the site. Since Council's decision to proceed, a Section 54 response from Department of Planning has been received outlining the range of issues that must be investigated in the Local Environment Study.</p> <p>Dapto and Koonawarra residential areas are located approximately 1 kilometre north-east and north of the project site, respectively. A new residential subdivision, Haywards Bay, is located approximately 2 kilometres south of the project site.</p>	<p>The construction and operation of the OCGT Power Station is consistent with the former and current land use of the site. The proposed site is located on the former coal fired power station site and adjacent to the approved CCGT Power Station.</p> <p>It is considered unlikely that the construction and operation activities associated with the project would cause any significant risk to land use within the project area. A buffer area has been designated around the approved CCGT Power Station. The proposed OCGT Power Station would be sited inside the designated buffer area.</p>	<p>The OCGT power plant has been sited on part of the area previously occupied by the Tallawarra coal fired power station. In addition the proposed disturbance footprint of the project has been minimised.</p> <p>Overall, the adverse impacts on land use are expected to be minimal.</p> <p>The management of existing and proposed land use of the project area is not considered to be a key environmental issue.</p>

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Existing Environment	Potential Impacts	Management and Mitigation Measures
Flora and Fauna		
<p>The land on which the proposed OCGT Power Station would be located has been previously disturbed by former Power Station infrastructure.</p> <p>Much of the surrounding Tallawarra Lands have been previously cleared of vegetation as a result of past land use. Remnant vegetation is found in localised parts of the site as shown on Figure 2.</p> <p>Remnant vegetation associated with Yallah Creek to the north of the project site is listed as a threatened ecological community under the <i>Threatened Species Conservation Act 1995</i>. Tallawarra Lands also provide habitat for several threatened species, including the green and golden bell frog, large bent-wing bat, large-footed myotis bat and four other bat species.</p>	<p>The majority of infrastructure associated with the proposed OCGT Power Station will be located within the former power station site and will not cause any significant vegetation disturbance or clearing.</p>	<p>No further ecological assessment is considered necessary.</p> <p>Sediment and erosion control measures would be implemented and maintained around all areas, exposed as part of construction activities to minimise the potential for indirect impacts building on existing infrastructure used for the CCGT Plant .</p> <p>As such, it is considered unlikely that the OCGT Power Station project would cause any significant impact on flora and fauna.</p>
Surface Water		
<p>The proposed OCGT Power Station is located within the Lake Illawarra Catchment. Yallah Creek, an intermittent creek flowing from Mount Brown to the northern section of the existing inlet canal borders the northern extent of the project area.</p>	<p>During the construction and operation phases of the development, surface water runoff from the site would have the potential to impact on surrounding water bodies, including Yallah Creek and Lake Illawarra.</p> <p>It is anticipated that the peaking units will have relatively small process water requirements for power generation as the gas turbines will be operated in open cycle mode.</p>	<p>Sediment and erosion control measures would be implemented and maintained around all areas exposed as part of construction activities to minimise the potential for indirect impacts on receiving waterways.</p>
Socio-Economic		

Existing Environment	Potential Impacts	Management and Mitigation Measures
<p>The regional economics are partly dependent on the continued investment of local industries such as Tallawarra power station.</p>	<p>The construction works would provide a short-term financial benefit to the community, with some of the labour and resources sourced directly from the region.</p> <p>Operation and maintenance of the project would support the continued employment generated from the CCGT Tallawarra power station and specialist maintenance providers.</p>	<p>No further assessment or economic justification for the project is considered necessary.</p>
<p>Traffic</p>		
<p>The development site is situated within close proximity to local and regional road networks. The Princes Highway and Southern Freeway are situated to the west of the Tallawarra Lands site, both of which provide direct access to major centres including Wollongong and Sydney.</p> <p>Access to the site is provided via a private road which intersects with the Princes Highway, providing both northbound and southbound access.</p>	<p>During construction, new traffic movements would be generated by construction workers and material deliveries to and from the project construction sites. There is a potential for conflict with local traffic to exist during this stage.</p> <p>Access to the site will be via Yallah Bay Road (the existing Tallawarra CCGT Power Station access road) off the Princes Highway, south of Dapto.</p> <p>The existing road network is considered sufficient to accommodate the increased traffic movements from the proposed development.</p>	<p>Consultation would be undertaken before construction with the appropriate roads authority regarding the works that may affect roads or traffic.</p> <p>A Traffic Management Plan (TMP) would be developed as part of the CEMP.</p> <p>The impacts on road traffic are considered to be minimal, short –term and localised and therefore traffic is not considered to be a key issue.</p>
<p>Visual Amenity</p>		
<p>The proposed OCGT Plant would be located on the edge of Lake Illawarra adjacent to the approved CCGT Power Station. Views of the area from existing residential areas on the western shoreline of Lake Illawarra are generally limited due to intervening topography and screening vegetation. Views from residential areas on the eastern shoreline of Lake Illawarra would be limited, intermittently screened by intervening vegetation and against the backdrop of Mount Brown. Views of the OCGT Plant would not dominate the horizon.</p>	<p>The proposed OCGT Power Station may be visible through screening vegetation from Lake Illawarra, existing residential development on the eastern shore of Lake Illawarra and areas of the surrounding Tallawarra Lands. The proposed OCGT Power Station would be in keeping with the nature of the site, as it is to be situated adjacent to the approved CCGT Power Station.</p>	<p>Temporary and permanent screening of some structures would be considered in the project design.</p> <p>During construction the work areas would be maintained in an organised and tidy condition, disturbed areas would be rehabilitated, as soon as practicable, following completion of excavation works and temporary screening would be erected where appropriate.</p> <p>The proposed OCGT Power Station would be in keeping with the former and existing nature of</p>

Existing Environment	Potential Impacts	Management and Mitigation Measures
<p>The OCGT Power Station may also be visible from areas within the surrounding Tallawarra Lands area.</p>		<p>the site. The management of visual amenity associated with the construction and operation of the project is not considered to be a key environmental issue. No further assessment of this issue is proposed.</p>
European Heritage		
<p>A desktop search of the Wollongong City Council LEP and NSW Heritage Office – State Heritage Inventory has not identified any European heritage items occurring within the project area. However, some remnants and buildings associated with the former power station have been identified as having some possible industrial heritage value.</p>	<p>Former buildings and remnants associated with the former power station, located within the project site are subject to a separate demolition application process and are not subject to this approval. It is considered highly unlikely that construction and operation activities associated with the project would cause any significant risk to European heritage values within the project area. European heritage is therefore not considered a key issue.</p>	<p>If a potential European heritage site is uncovered during the works the works in that area would cease until the find could be assessed by an appropriately qualified archaeologist.</p>
Aboriginal Heritage		
<p>A search of the DEC Aboriginal Heritage Information System (AHIMS) database identified seven previously recorded Aboriginal sites located within 200m of the project area. Two types of sites were recorded; middens and artefact scatters.</p>	<p>All infrastructure associated with the proposed OCGT Power Station will be located within the former power station site and will not result in any further ground disturbance.</p>	<p>No further Aboriginal heritage assessment is required. Sediment and erosion control measures would be implemented and maintained around all areas exposed as part of construction activities to minimise the potential for indirect impacts. As such, it is considered unlikely that the OCGT Power Station project would cause any significant impact on Aboriginal heritage.</p>
Waste		
<p>Waste management systems and facilities (including an on-site package sewage treatment plant) have been established at the project site as part of the Stage A CCGT Power Station</p>	<p>During construction, general building waste such as timber, masonry, scrap metal, packaging materials and plastics would be generated. In addition, a small quantity of waste (sewage and</p>	<p>A Waste Management Sub-Plan (WMP) which would incorporate the principles of avoid, re-use and recycle would be developed for the construction phase of the proposal. The WMP</p>

Existing Environment	Potential Impacts	Management and Mitigation Measures
project.	domestic rubbish) would be generated from the construction compound. The OCGT project would not generate significant quantities of waste during operation.	would detail any procedures for the management of construction wastes from the site. This would be part of the CEMP. Any hazardous material would be stored, handled and transported in accordance with relevant legislation and guidelines.
Contaminated Land		
The proposal is located within an area that may have been subject to contamination from previous land uses i.e. the former coal fired power station.	During construction, contaminated soil or building materials may be encountered and disturbed.	An assessment of potential contamination risks would be undertaken prior to construction. Any contamination detected will be managed according to the requirements of the <i>Contaminated Land Management Act</i> , SEPP 55 and appropriate guidelines. Procedures for the management of contaminated material would be outlined in the CEMP.