

# Project Application and Preliminary Environmental Assessment Gas Supply Pipeline Liddell Power Station

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Macquarie Generation

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Parsons Brinckerhoff Australia Pty Limited ABN 80 078 004 798

*Suite 1, Level 3,  
55 Bolton Street  
Newcastle NSW 2300  
PO Box 1162  
Newcastle NSW 2300  
Australia  
Telephone +61 2 4929 3900  
Facsimile +61 2 4929 7299  
Email [newcastle@pb.com.au](mailto:newcastle@pb.com.au)*

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Author: Amy Stone, Brad Snedden, Wal Shepherd, Glenn Keevers.....

Reviewer: Shay Gill .....

Approved by: Brad Snedden .....

Signed:  .....

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# 1. Introduction

Macquarie Generation (the Proponent) has engaged PB to prepare a Project Application and supporting Preliminary Environmental Assessment in accordance with Part 3A of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* for the proposed Gas Supply Pipeline (hereafter referred to as 'the proposal').

Macquarie Generation is seeking Project Approval for the proposal under Part 3A of the *EP&A Act*. This report provides an outline of the proposal clearly indicating the scope of the project and a preliminary assessment of the potential key environmental issues.

This report has been prepared to provide relevant Government Agencies with sufficient detail of the project and potential key environmental issues to develop the Environmental Assessment (EA) requirements.

This report is presented in the following sections:

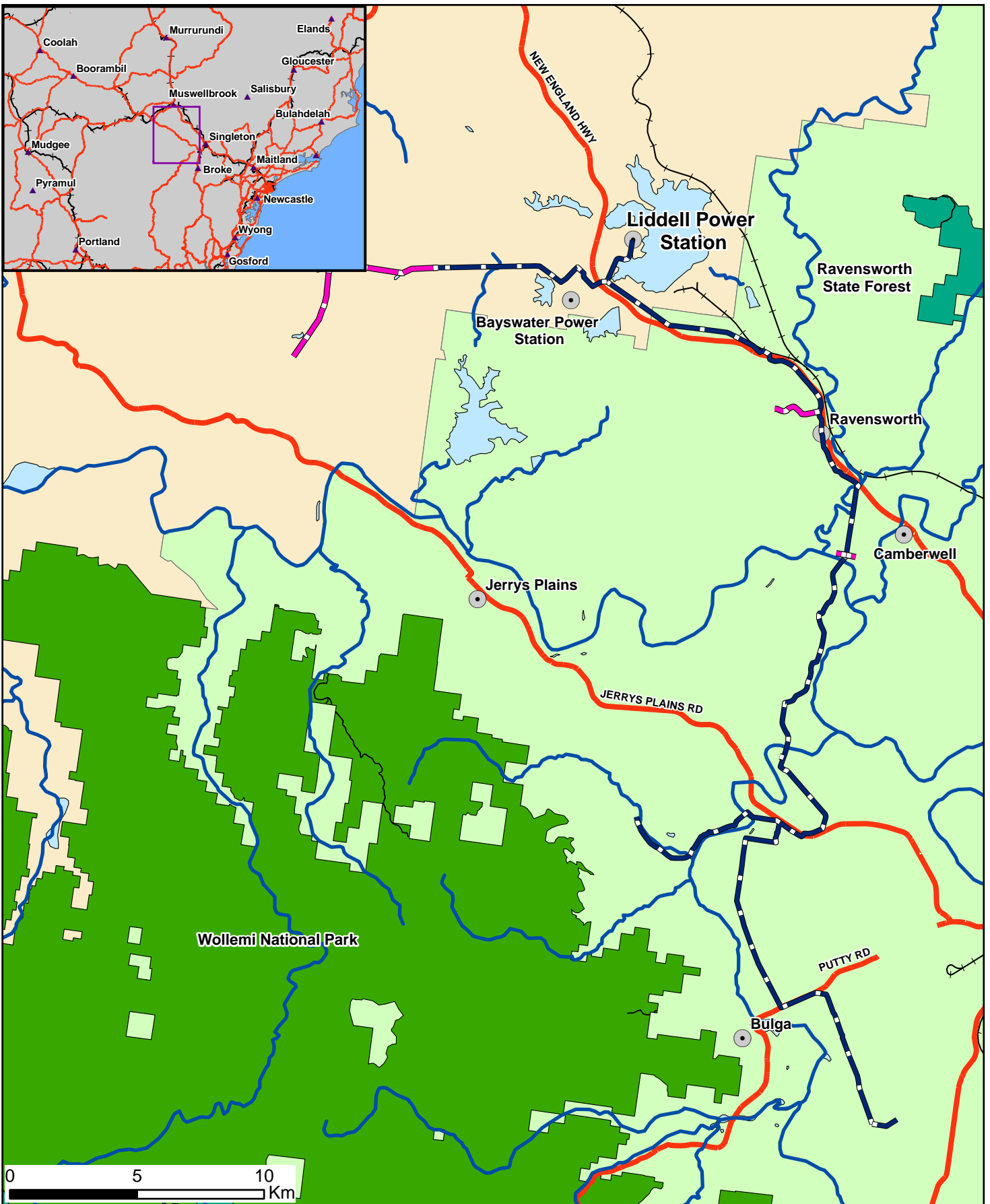
- Introduction – provides background to the proposal, project objectives and the proponent
- Project Description – provides a detailed description of the proposal and site location
- Planning Context – provides a description of the statutory planning context
- Preliminary Environmental Assessment – provides a description of the potential key environmental issues associated with the proposal and a summary description of the remaining environmental issues associated with the proposal
- Project Justification – provides justification for the proposed development.


## 1.1 Background to proposal




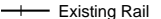


Macquarie Generation is proposing to construct a pipeline to supply gas fuel to *supplement* coal-fired electricity generation that occurs at Liddell Power Station, which is located in the Upper Hunter Valley of NSW (refer to Figure 1).

The purpose of the pipeline is to utilise the currently wasted coal mine gas of the neighbouring Upper Hunter coal mines. Coal mine gas is of mixed quality with extremely variable composition and delivery rate (quantity), which can restrict the opportunity for use as a fuel in traditional generation technologies such as gas turbines or gas engines. The current practice for disposal of gas of this quality is disposal as waste by flaring into the atmosphere.


Macquarie Generation proposes an innovative alternative of which the pipeline is the essential element. The gas, piped to the power station, would be directly injected into the coal combustion fire-ball within the power station boilers. This project will ultimately be the first known large scale implementation of supplementary gas combustion in coal-fired boilers in Australia. The enabling factor in this approach is the coal-fired boilers' unique tolerance of gas inconsistency. The gas as a fuel *supplement* may displace up to 5% of the coal (by mass) required to generate a given amount of electricity. In addition, Liddell Power Station has gas turbines on site that could also be fuelled by this waste gas under certain circumstances.





-  Main Pipeline
-  Local Gas Collection Networks
-  Localities
-  Existing Rail
-  Surface Water
-  Existing Roadways

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 PDF File: 2122755A\_fig1\_060207

Title:		<b>Site Location Plan</b>			
Project:		Gas Supply Pipeline		Datum:	MGA 94 / Zone 56
Client:		Macquarie Generation		Scale:	1:200 000
Proj. No.	2122755A	Layout Size:	A4	Drawn:	CSB
GIS Proj:		T:\NCL - J - NCLData\A502-NCL\PROJ\2122755A_Macquarie_Gener\10_GIS		Designed:	CSB
Checked:		BS		Date:	06 February 2007
DWG. No.:		2122755A_1		Date:	06 February 2007
Fig. No.:		1			

## 1.2 Proposal objectives

The objectives of the proposal are to:

- Construct a pipeline to supply gas fuel to *supplement* coal-fired electricity generation at Liddell Power Station. The proposal would be the first known large scale implementation of supplementary gas combustion in coal-fire boilers in Australia.
- Provide nearby Hunter Valley mines with the means to dispose of methane gas as required by their consent conditions, to the extent of up to 270 thousands tones per year (or 5.6 million tonnes CO2 equivalent).
- Reduce the greenhouse impacts of both the coal mining process and electricity generation.
- Offset greenhouse gas production in response to Greenhouse Gas Reduction Scheme (GGAS) obligations under Macquarie Generation's electricity contract with Tomago Aluminium.

## 1.3 The proponent

Macquarie Generation is a State Owned Corporation, established in 1996 following NSW electricity system reforms. Macquarie Generation own and operate Liddell and Bayswater Power Stations, which are located between Singleton and Muswellbrook in the Upper Hunter Valley of NSW.

The core business of the proponent is related to the production and wholesale trading of electricity to the National Electricity Market. Macquarie Generation produces approximately 15% of the electricity needed by the population in Eastern Australia from South Australia to Northern Queensland. This equates to 40% of the electricity required by the people of NSW, making Macquarie Generation Australia's largest electricity generator.

## 2. Project description

### 2.1 Site location and description

The proposed main pipeline is approximately 65 km in length (refer to Figure 2). The pipeline will almost exclusively transverse coal mine or Macquarie Generation properties (refer to Figure 3), which are significantly disturbed by past agricultural practices and/or mining operations. It incorporates several public road crossings as well as crossings of watercourses, such as the Hunter River, Wollombi Brook, Foy Brook, Bayswater Creek, Saltwater Creek, and Saddlers Creek. Where possible, the pipeline will also traverse existing haul roads and property access roads, as well as cleared property boundaries or fence lines.

The proposed pipeline has a southern and western component. The main component of the pipeline is the southern route, which originates some 35 km south of Liddell Power Station. This point of origin lies 12 km southwest of Singleton and 1 km north of Broke. The pipeline will conclude at Liddell Power Station, located on the New England Highway, south of Muswellbrook. This southern component of the route is approximately 50 km in length.

The western component of the pipeline is approximately 7.5 km in length, and originates at the coal mine directly adjoining Macquarie Generation's main land holding.

The proposed pipeline traverses a considerable number of allotments. Because the proposed development is considered a '*linear infrastructure project*' under clause 8F of the *Environmental Planning and Assessment Regulation 2000* it is not necessary to detail all relevant allotments. In lieu of such detail, a detailed plan of the land affected is provided in Figure 3.

### 2.2 Description of proposed development

Macquarie Generation is proposing to establish a pipeline to supply gas fuel to *supplement* coal-fired electricity generation at Liddell Power Station (Figure 2). The pipe material is anticipated to be polyurethane, buried approximately one metre below the ground surface, and up to a maximum 450mm in diameter. The pipeline may need to consist of two separate pipes to address certain processes in a mine's operation, typically the separation of pre-mining gas drainage from post-mining gas drainage.

The proposed pipeline will potentially take gas from up to eight coal mines south and west of Liddell Power Station. Lateral pipelines will extend from the main pipeline to relevant gas wells. The location of these lateral pipelines will be determined by the final mine plan of each coal mine, and as such form part of a "local gas collection network" that does not form part of this proposal. The coal mine gas, to be supplied by the pipeline to Liddell Power Station, contains methane diluted mainly with air and is primarily sourced as a by-product of underground longwall operations. The gas is of mixed quality with extremely variable composition and delivery rate (quantity), which can restrict the opportunity for use as fuel in traditional generation technologies such as gas turbines or gas engines. The current practice for disposal of gas of this quality is disposal as waste by flaring into the atmosphere.

Operation of the pipeline shall occur whilst there is an available supply of gas, and it is anticipated that there would be in the order of at 10-20 years of mine waste gas available in

































