



International Power



## CHAPTER 1

### Introduction

**URS**

## Introduction - Summary of Key Outcomes

Growth in peak electricity demand is presently at a level where the existing generating capacity in NSW does not meet the minimum reserve levels set down by the National Electricity Market operator and, over the next decade, rising peak demand will exceed installed capacity. Further, TransGrid the high voltage transmission system operator, has identified several regional areas of its network that will be problematic under certain load demand scenarios

To meet rising demand and to potentially provide transmission grid support to TransGrid, International Power (Australia) Pty Ltd (IPRA) proposes to construct and operate a nominal 120MW to 150MW gas turbine Peaking Power Plant near Parkes in Central West NSW. Three gas turbines burning natural gas sourced from the existing Central West Pipeline in Parkes would be installed on land adjacent to the existing TransGrid Substation on the Condobolin Road approximately 10 kilometres west of Parkes.

Except for emergencies as allowed in its operating licence, the Peaking Power Plant would operate on an as-required, intermittent basis for a total maximum period of up to 10% of any year.

IPRA is a wholly owned subsidiary of International Power plc, a UK-based independent power generation and operation company. Since establishing in Australia in 1996, IPRA has invested in excess of A\$5 billion and owns and operates power plants in Victoria, South Australia and Western Australia together with other energy-related businesses.

The project is also, in part, a response to the "Needs Statement" issued in March 2006 and a Request For Proposals issued in October 2006 by TransGrid which outlined high voltage transmission system constraint scenarios in the Cowra/Forbes/Parkes area. TransGrid sought generation proposals as alternatives to augmenting its regional grid. The Parkes Peaking Power Plant, as proposed by IPRA, is a cost efficient and effective generation solution for the identified constraint scenarios.

The Minister for Planning is the consent authority for the Parkes Peaking Power Plant Project as determined by the relevant legislation. Following initial discussions held with the Department of Planning, on 6/10/06 IPRA submitted a Project Application and on 28/10/06 the Department of Planning issued requirements pertaining to the preparation of an Environmental Assessment. The Environmental Assessment meets all legislative requirements and provides the Minister for Planning with the required information to determine the environmental impacts and benefits of the Parkes Peaking Power Plant Project.

Submissions received during the public exhibition period will be provided to IPRA who will prepare a response. The Department of Planning will prepare an assessment report for the Minister for Planning who will determine whether to grant Project Approval. Separate reports were prepared by specialists and comprise the source materials for the Environmental Assessment.

The Environmental Assessment comprises the Executive Summary, Project Background, The Project, Statutory Planning, Consultation, Environmental Assessment, Draft Statement of Commitments, Environmental Management and Monitoring, Conclusion, References and Appendices.

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## 1.1 Background

Over the next decade, New South Wales (NSW) will experience growth in peak electricity demand that will exceed existing generation capacity. NSW is the largest region of the National Electricity Market (NEM) in terms of capacity and demand for energy and is also experiencing the strongest demand growth. Present reserve peaking capacity in NSW is 287MW less than the prudent<sup>1</sup> minimum.

To meet the rising peak electricity demand and to relieve TransGrid's identified network problems under certain load demand scenarios, IPRA propose to construct and operate a nominal 120MW to 150MW gas turbine peaking power plant (known as the Parkes Peaking Power Plant) at a site located 10 kilometres west of Parkes (refer to **Figure 1-1**). The Parkes Peaking Power Plant project would be constructed in one stage.

## 1.2 Project Outline

The Parkes Peaking Power Plant would be constructed on an area of some 4 hectares, adjacent to the existing TransGrid 132kV substation.

Operating in open cycle mode, the Parkes Peaking Power Plant would comprise three gas-fired generating units of between 40MW and 50MW capacity with dual-fuel capability and able to use distillate as backup fuel to ensure continuity of generation during natural gas supply interruptions. These units would be capable of operating individually or in conjunction, together providing a high level of reliable generation capacity embedded within the region. This multi-unit concept would result in a reliability factor in excess of 99% on an annual basis.

The generating units would be of proven technology, comprising small compact generators enclosed in soundproof enclosures. They would be of the "fast start" type and able to provide "black start" capability (on either natural gas or distillate) for re-energising TransGrid's local regional network in the event of a major system collapse.

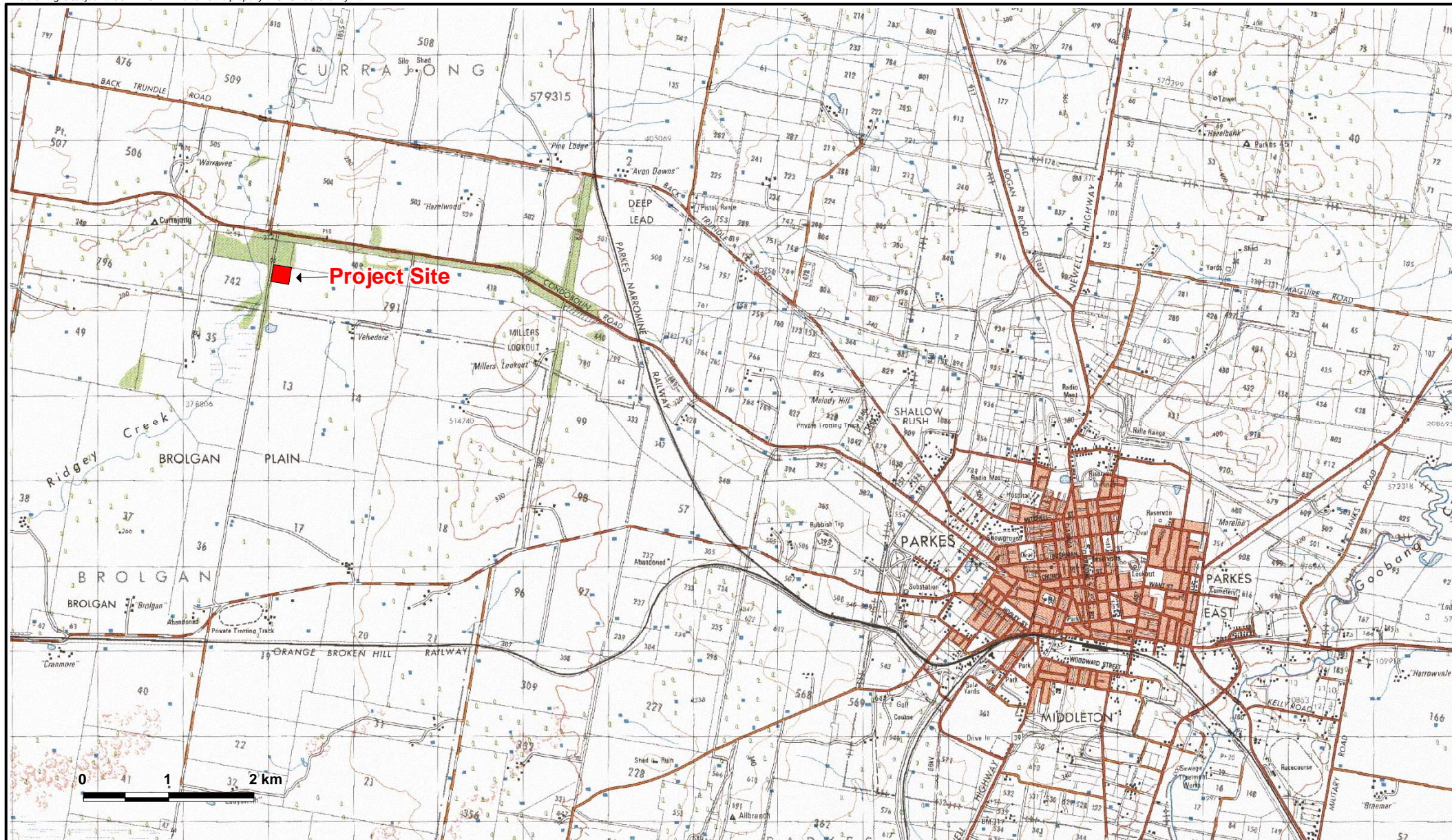
IPRA has commenced plant layout and sizing studies and has sought tenders for the procurement of plant ranging in nominal capacity between 40MW and 50MW. The operating regime for the Parkes Peaking Power Plant Project in the short to mid term peaking role is anticipated to be:


- Operating hours per turbine per annum      Nominal Average: 600hrs      Maximum: 875hrs
- Total Generation per annum      Nominal Average: 75GWh      Maximum: 115GWh
- Natural gas consumption per annum      Nominal Average: 850TJ      Maximum: 1240TJ
- Raw water consumption per annum      Nominal Average: 20ML      Maximum: 40ML
- Backup distillate consumption (if required) of up to 6000 tonnes per annum total; with up to 1,200 tonnes of distillate at site at any one time. Distillate fuel will be of the low sulphur type to Australian Standard AS3570.

The proponent is seeking approval for up to 200 operating hours per turbine per annum firing distillate in the event of natural gas supply interruption.

<sup>1</sup> NEMMCO *Statement Of Opportunities* 2006





Client INTERNATIONAL POWER (AUSTRALIA) PTY LTD	Project ENVIRONMENTAL ASSESSMENT - PARKES PEAKING POWER PLANT	Title SITE LOCATION						
	<table border="1"> <tr> <td>Drawn: AJW</td><td>Approved: CJ</td><td>Date: 18/12/2006</td></tr> <tr> <td>Job No: 43177456</td><td colspan="2">File No: 43177456.008.wor</td></tr> </table>	Drawn: AJW	Approved: CJ	Date: 18/12/2006	Job No: 43177456	File No: 43177456.008.wor		Figure: 1-1
Drawn: AJW	Approved: CJ	Date: 18/12/2006						
Job No: 43177456	File No: 43177456.008.wor							



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The electricity generated by the Parkes Peaking Power Plant would feed into the 132 kV transmission network via step up transformers connecting to the existing switchyard in the adjacent TransGrid substation.

The Parkes Peaking Power Plant would use natural gas supplied via an underground pipeline from the existing Central West Pipeline (refer to **Figure 1-2**). The design at the takeoff at the Central West Pipeline may require an isolation, pigging and control facility whilst a natural gas metering and control facility is required at the Parkes Peaking Power Plant.

IPRA has finalised arrangements with the landholder to secure the land for the Parkes Peaking Power Plant and has similarly secured easement options for the natural gas pipeline route.

Except for emergencies as allowed in its operating licence, the Peaking Power Plant would operate on an as-required, intermittent basis for a total maximum period of up to 10% of any year.

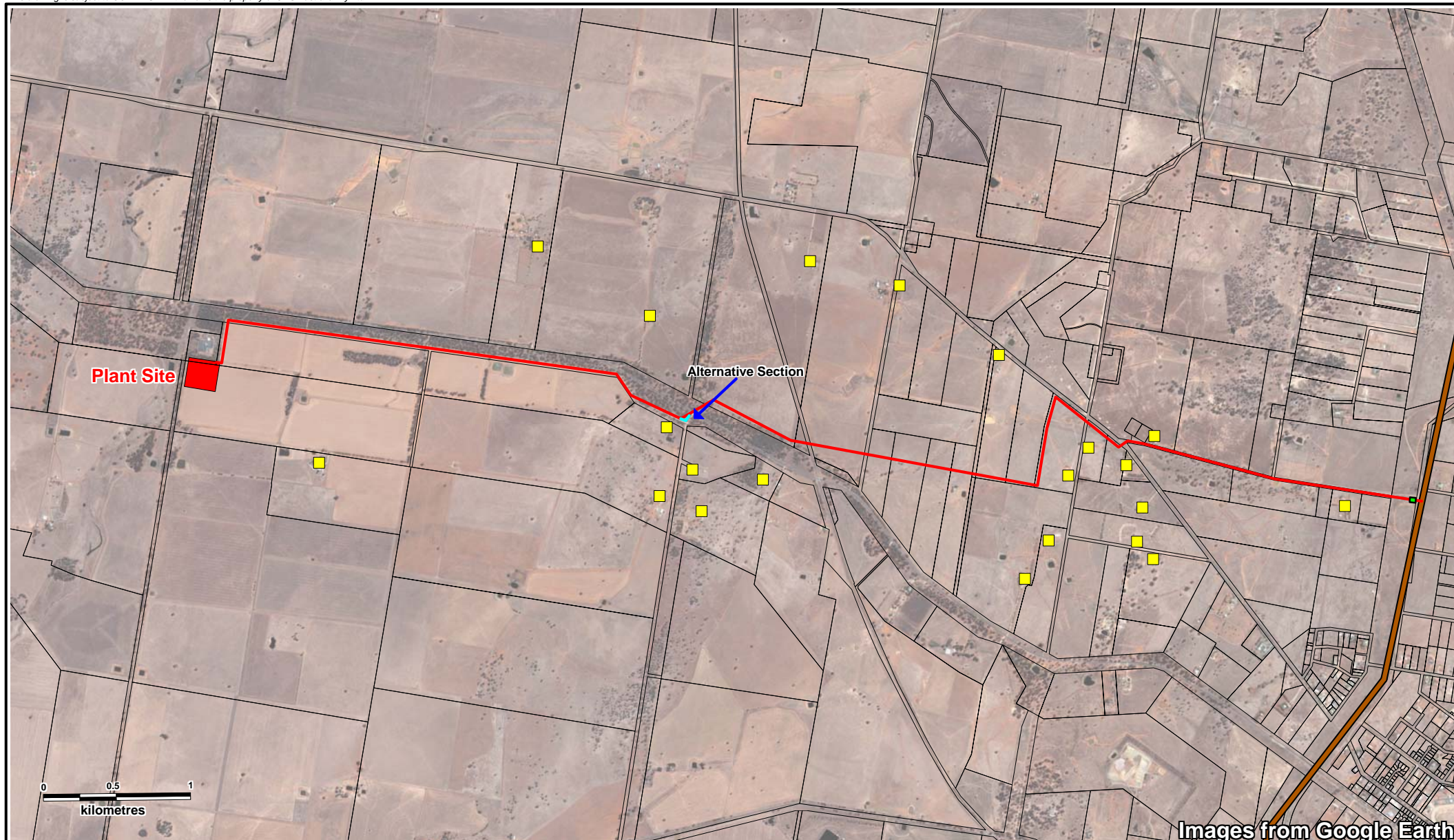
The project would take approximately 6 months to build at an estimated cost of up to \$110 million within a total estimated development cost of \$130m.

### 1.3 Project Objectives

The key objectives of the Parkes Peaking Power Plant Project are as follows:


#### *Operational/Functional*

- significantly contribute to meeting peaking regional load growth;
- contribute to inter/regional supply security through connection to the National Electricity Market;
- provide a credible solution to the TransGrid 132kV transmission system constraint scenarios;
- optimise connectability to both the TransGrid and the Country Energy electricity systems;
- optimise flexibility for TransGrid in managing its regional HV grid systems;
- avoid or defer for an extended period, any need for Country Energy to augment its existing local Parkes 66kV system;
- be natural gas fired both as a preferred fuel type under IPRA's environmental policy and also to qualify for NSW Greenhouse Abatement Certificate (NGAC's);
- be dual fuelled to ensure reliability during interruption to natural gas supplies;
- comprise multiple generation units to ensure reliability; and
- be sized to operate in the short to mid term as peaking plant so as to:
  - provide a fast start response to National Electricity Market load transients
  - mitigate as far as possible the TransGrid constraint scenarios; and
  - minimise natural gas demand to a responsible level of consumption.



- Proposed Route
- Existing Pipeline
- Gas Pipeline Take-off point
- Houses

Source: Map compiled using Cadastral Plus, 2004 MapInfo Australain Pty Ltd and PSMA Australia Ltd.

Client INTERNATIONAL POWER (AUSTRALIA) PTY LTD	Project ENVIRONMENTAL ASSESSMENT - PARKES PEAKING POWER PLANT		Title GAS PIPELINE ROUTE
	Drawn: AJW	Approved: CJ	Figure: 1-2
	Job No: 43177456	Date: 02/07/2007 File No: 43177456.009	

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**Environmental and Social**

- Provide electricity with relatively low greenhouse gas emissions;
- Minimise (visual, air emission, noise and traffic) community impacts;
- include, wherever possible, recycling of consumables, particularly water; and
- Provide electricity where land zoning is compatible for the peaking power plant development and adequate separation from sensitive neighbours, such as residential housing, exists.

**1.4 The Proponent**

The proponent<sup>2</sup> is International Power (Australia) Pty Ltd (IPRA), a wholly owned subsidiary of International Power plc, a UK-based independent power generation and operation company. International Power plc has interests in 40 power stations in 20 countries around the world and is listed on the London Stock Exchange and has a current market capitalisation in excess of A\$11bn. Further information on International Power plc and IPRA is available on its website [www.ipplc.com](http://www.ipplc.com)

Since establishing in Australia in 1996, IPRA has invested in excess of A\$5 billion and focused on becoming a leading player in the energy industry. The company owns and operates more than 3600MW of renewable, gas-fired and brown coal-fired generating plants in Victoria, South Australia and Western Australia. Its interests also extend across energy retailing (Simply Energy) and the (SEAGas) gas pipeline between Victoria and South Australia as shown in **Table 1-1**.

**Table 1-1**  
**IPRA Australian Energy Assets**

Asset	Fuel / Type	Gross Capacity MW	Net capacity MW
Hazelwood, Victoria	Coal	1,635	1,500
Loy Yang B Power Station, Victoria	Coal	1,010	707
Synergen Peaking Units, South Australia	Natural Gas/Distillate	360	360
Pelican Point Power Station, South Australia	Natural Gas (CCGT)	485	485
Canunda Wind Farm, South Australia	Wind/renewable	46	46
Kwinana Power Station, Western Australia	Natural Gas (CCGT)	118	58
SEA Gas underground pipeline	n/a	n/a	n/a
Simply Energy	n/a	n/a	n/a
<b>Total</b>		<b>3,654</b>	<b>3,156</b>

IPRA employs some 1000 Australians across its national business and is an innovative and proactive company, highly regarded in the industry as a project developer and as an asset manager.

<sup>2</sup> IPRA or a special purpose related body corporate



## 1.5 Environmental Assessment Process

### 1.5.1 Major Projects

In NSW the *Environmental Planning and Assessment Act 1979* (EP&A Act), and its supporting legislation the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), provide the framework for development and environmental assessment.

The Parkes Peaking Power Plant Project is considered to be a Major Project pursuant to clause 24 of Schedule 1 of SEPP Major Projects as it is development for the purpose of electricity generation that has a capital investment value of more than \$30 million, and is therefore subject to the development and assessment processes and requirements of Part 3A of the EP&A Act. Refer to **Chapter 5** for further detail.

The Director General declared that the project was considered a Major Project and to be assessed under the provisions of Part 3A.

On 28 October 2006 the Executive Director of DoP, as delegate for the Director-General of DoP, issued Environmental Assessment Requirements pursuant to section 75F(2) of the EP&A Act to IPRA (refer to **Appendix A** for the Director-General's Environmental Assessment Requirements).

### 1.5.2 Planning Focus Meeting

Because a Planning Focus Meeting (PFM) had recently been held in Parkes for another proposed power generation facility, the Department of Planning did not require a PFM for the Parkes Peaking Power Plant Project.

## 1.6 Environmental Assessment Preparation and Exhibition

The Environmental Assessment has been prepared in accordance with Part 3A of the EP&A Act and the Director General's Environmental Assessment Requirements.

The objectives of the Environmental Assessment are:

- to comply with the requirements of the EP&A Act, as formalised in the Director-General's Environmental Assessment Requirements;
- to provide the Minister for Planning with sufficient information to determine the environmental impacts and benefits of the Parkes Peaking Power Plant Project; and
- to inform the community about the Parkes Peaking Power Plant Project

The EP&A Act 1979 requires that the Environmental Assessment be placed on exhibition for public review for a minimum period of 30 days.

### 1.6.1 Decisions and Assessments

Subsequent to exhibition of the Environmental Assessment, copies of all submissions or a report of all issues raised will be provided to IPRA and relevant Government authorities. IPRA will review the submissions and respond to issues raised.



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The Director General will prepare an assessment report on the Parkes Peaking Power Plant Project which will take into account comments from relevant Government authorities as well as other stakeholders and the community. The assessment report will be provided to the Minister for Planning who will determine whether to grant Project Approval and conditions in accordance with the EP&A Act.

### 1.6.2 Key Assessment Requirements

The Director General's Environmental Assessment Requirements identified specific issues to be addressed in the Environmental Assessment. These comprised review and assessment of:

- strategic justification;
- greenhouse gases;
- air quality impacts
- noise impacts;
- visual amenity impacts;
- water quantity and quality;
- flora and fauna impacts;
- hazard and risk impacts; and
- general environmental risk analysis.

These key issues were addressed with specific investigations that were completed by specialists for which separate reports have been developed. These investigations were used as source materials for this Environmental Assessment and are submitted as components of this Major Project application. Where these investigations are very detailed they are presented in **Volume 2 Appendices** and summaries provided in the relevant sections of this main report. In other instances the whole assessment forms the relevant section of this main report.

### 1.6.3 General Environmental Risk

The Director General's Environmental Assessment Requirements state that the Environmental Assessment must consider environmental risks that may lead to potential environmental impacts associated with both the construction and operation of the project. Further to the issues listed in **Section 1.6.2** above, additional issues that are considered relevant to this project included:

- traffic and transport;
- landscape and visual;
- cultural heritage;
- land use and property impacts; and
- socio economic.

As noted above, these investigations were used as source materials for this Environmental Assessment and are submitted as components of this Major Project application with an appropriately detailed impact assessment of these additional key impacts. Where these investigations are very detailed they are presented in **Volume 2 Appendices** and summaries provided in the relevant sections of this main report. In other instances the whole assessment forms the relevant section of this main report.

## 1.7 Document Structure

The Environmental Assessment document is divided into ten parts. The content of each part is outlined below:

- *Executive Summary* – This part provides a brief description of the key issues and findings detailed in the other parts of the Environmental Assessment.
- *Project Background* – **Chapter 1** briefly outlines the environmental impact assessment process, describes the background and context to the project and provides an outline of the proposed Parkes Peaking Power Plant Project.
- *The Project* – **Chapters 2 to 4** detail the needs, objectives and alternatives of the project and provides a detailed description of the proposed Parkes Peaking Power Plant Project.
- *Statutory Planning*– **Chapter 5** includes the relevant controlling Commonwealth and State legislation, and nominates the various licences and approvals required to enable the proposed Parkes Peaking Power Plant Project.
- *Consultation* – **Chapter 6** summarises the issues raised during consultation with statutory and other relevant authorities, and the local community. The issues raised during the consultation process are then prioritised for the following sections of the Environmental Assessment.
- *Environmental Assessment* – **Chapters 7-18** provides an overview of the existing environment, an assessment of the likely impacts of the proposal and the identification of appropriate mitigation measures to safeguard the environment. The cumulative impacts of the proposed Parkes Peaking Power Plant Project are also addressed.
- *Draft Statement of Commitments* – **Chapter 19** outlines IPRA's commitment to proposed environmental management measures to safeguard against any potential impacts, and ongoing monitoring.
- *Conclusion* – **Chapter 20** addresses the principles of Ecologically Sustainable Development (ESD) and provides justification for the proposed Parkes Peaking Power Plant Project.
- *References* – **Chapter 21** provides a list of materials referenced during preparation of the Environmental Assessment.
- *Appendices* – This part contains the correspondence received and the detailed assessments conducted for the Environmental Assessment.