1. Introduction

1.1 Background

Currently, approximately 10% of New South Wales' (NSW's) energy needs are met through the sourcing of power from other states. Growing energy consumption nation-wide, however, may see a decrease in the energy available to NSW from other states over interconnectors (Owen 2007). Therefore, it is essential that NSW develops the capability to meet growing energy demand, especially during periods of peak demand.

ERM Power proposes to develop a 600 megawatt (MW) open-cycle gas-fired power station that would operate as a peaking plant to supply energy at short notice during periods of peak electricity demand. The proposed power station would be built at Wellington in Central Western NSW (see Figure 1-1).

Parsons Brinckerhoff (PB) has prepared this Environmental Assessment on behalf of ERM Power for the proposed power station, its connection to the power grid, and an associated 100 kilometre natural gas pipeline and compressor station ('the project'). This Environmental Assessment has been prepared to identify the potential impacts of constructing and operating the project, and to develop mitigation and management measures to reduce those impacts.

1.2 The proponent

ERM Power owns and operates gas-fired power stations and over the last 3 years has been the largest builder of power stations and gas pipelines in Australia. ERM Power has a proven track record of planning, developing, project managing and operating electricity generation projects that extends over 20 years. ERM Power, in association with Babcock & Brown, developed the Collinsville Power Station re-powering concept, the Oakey Power Station, and the NewGen Braemar Power Station in Queensland. The company is currently building NewGen's Kwinana Power Station in Western Australia and the Uranquinty Power Station near Wagga Wagga in NSW.

1.3 Location

The proposed power station would be located at Wellington, approximately 50 kilometres south of Dubbo in Central Western NSW (see Figure 1-1). The proposed site is approximately 2 kilometres north-north-east of the outskirts of Wellington along the Gulgong Road (also known as Mudgee Road) and adjacent to TransGrid's 330/132 kilovolt (kV) Wellington substation (see Figure 1-2).

The land at the proposed power station site is gently undulating grazing land with some scattered paddock trees. The site drains to the south and is currently used for stock grazing. The land is currently zoned Rural 1(a) under the *Wellington Local Environment Plan 1995*. Three residences are located near the proposed power station site. The closest residence, Nanima House, is approximately 700 metres to the west, Mount Nanima is approximately 1.3 kilometres to the south, and the Keston Rose Garden Café is approximately 1.5 kilometres to the north-west. The closest residence in the Cadonia subdivision is approximately 1.6 kilometres to the north-east; however, most land parcels within this subdivision are approximately 2.5 kilometres away.

To supply gas to the proposed power station, a gas pipeline (approximately 100 kilometres in length) and a compressor station would be constructed to connect the proposed power station to the Central West Pipeline near Alectown (see Figure 1-1). The pipeline would pass through the local government areas (LGAs) of Wellington, Parkes and Cabonne. The key features of the proposed pipeline are listed in Section 1.4.2.

1.4 Key features of the project

Key features of the project are listed below. A more detailed description of the project is provided in Chapter 7.

1.4.1 Power station

- The proposed power station would operate as a peaking plant to supplement base load power at times of peak electricity demand, generally in the mornings and evenings, and particularly on hot summer and cold winter days when there is a high demand for cooling and heating. The power station would also provide electricity during emergency situations, such as black outs.
- The power station would comprise four gas-fired turbines in open-cycle formation. Each gas-fired turbine would be nominally rated at 150 MW giving the proposed power station a combined output of 600 MW.
- The power station is expected to have an annual capacity factor of around 4%, equating to between 350 hours per year (all four gas turbines operating) and 1,400 hours per year (one gas turbine operating) of operation.
- The power station would be located adjacent to TransGrid's 330/132 kV Wellington substation, and directly connected to the NSW power grid and the National Electricity Market; only limited transmission infrastructure would be required.
- The gas-fired turbines would be fitted with special dry, low oxides of nitrogen (NO_x) burners to minimise NO_x emissions; diesel would not be used to fuel the power station.
- In addition to providing new peak generation capacity within the National Electricity Market, the project would qualify for NSW Greenhouse Abatement Certificates, with more than 50,000 certificates expected to be produced each year.
- The proposed power station would only require approximately 20 megalitres of water per year, which could be sourced from the local domestic water supply.

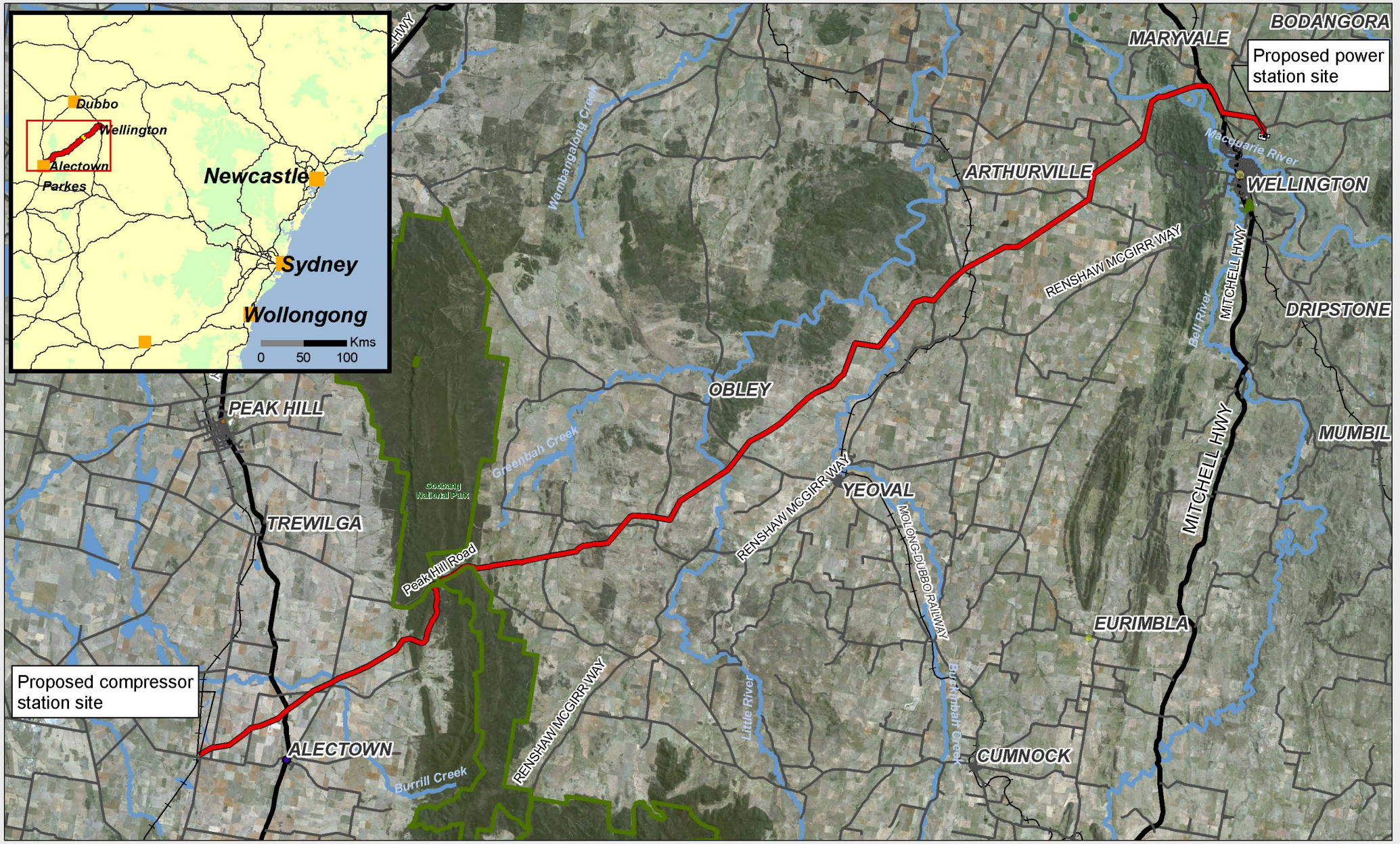

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Figure 1-1 Location of the project

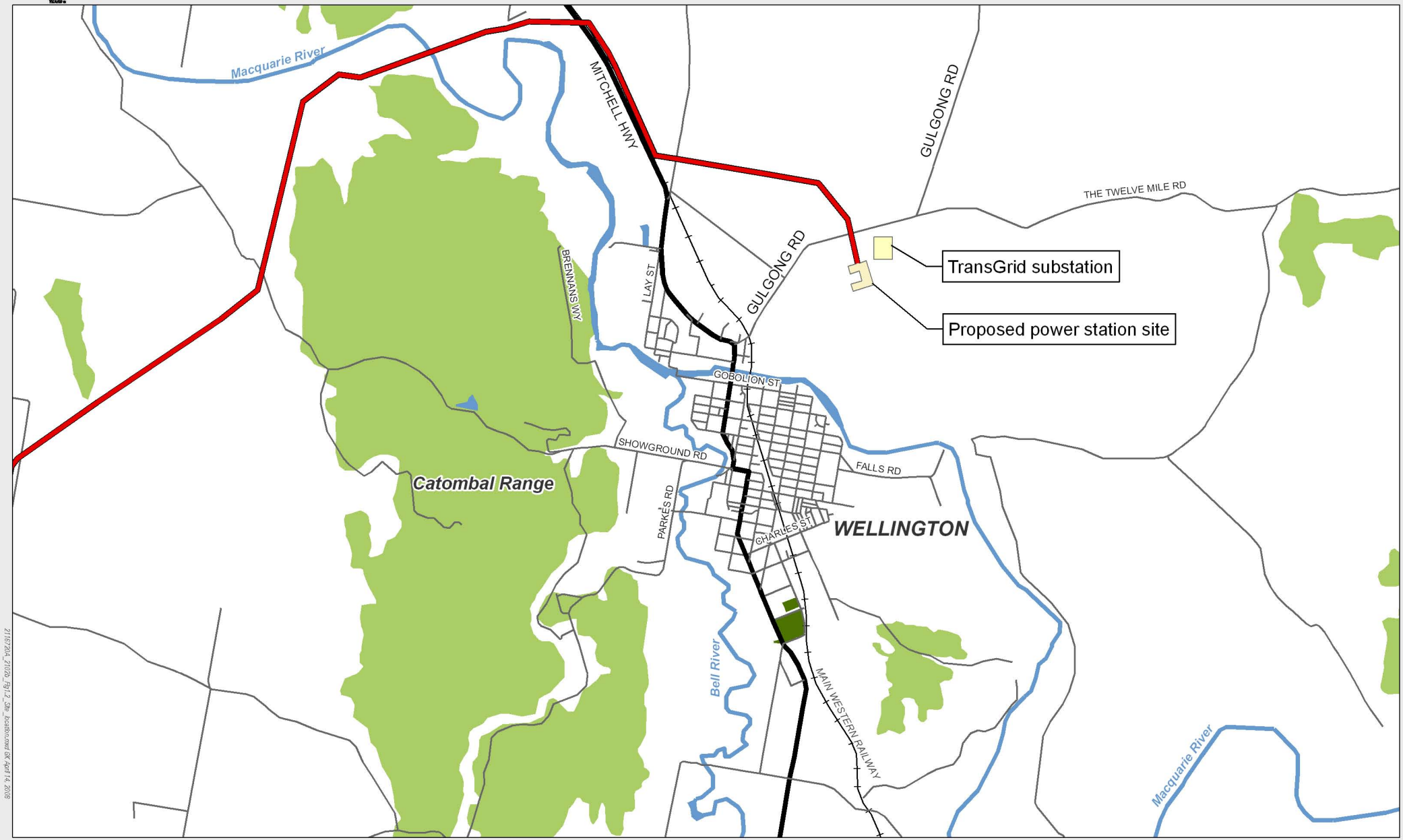

Figure 1-2 Location of the proposed power station site

1.4.2 Gas pipeline

- The proposed power station would operate on natural gas supplied over a new 100 kilometre underground pipeline from the Central West Pipeline near Alectown.
- The proposed gas pipeline would predominantly pass through cleared agricultural land affecting approximately 55 private land owners and five public/private authorities.
- The proposed gas pipeline would cross under the Macquarie River (immediately north-west of Wellington) and pass along Peak Hill Road between the northern and southern sections of Goobang National Park, near Herveys Range at Gingham Gap.
- The proposed gas pipeline would be constructed within a 25–30-metre wide corridor and would require an operational easement of 20–25 metres wide.
- The pipe itself would be approximately 350 millimetres in diameter and installed mostly using open cut trenching. Directional drilling or microtunelling would be used to cross under major roads, railways and watercourses.
- Two mainline valve stations would be located at approximately 30 kilometre intervals along the proposed gas pipeline, which would enable sections of the pipeline to be isolated in the event of damage or programmed maintenance.
- A compressor station would be constructed at the Alectown end of the proposed gas pipeline, where natural gas from the Central West Pipeline would be compressed into the proposed gas pipeline and delivered to the proposed power station.

1.5 Overview of approval process

1.5.1 Planning approval process

The project is classified as a major infrastructure project under the *State Environmental Planning Policy (Major Projects) 2005* (the Major Projects SEPP) by virtue of its inclusion in Schedule 1 of the SEPP as:

> 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.

As such, an environmental assessment of the project is required to be undertaken under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), for which the NSW Minister for Planning would be the consent authority. Figure 1-3 illustrates the planning approvals process under Part 3A of the EP&A Act; the planning approvals process for the project is discussed in more detail in Chapter 2.

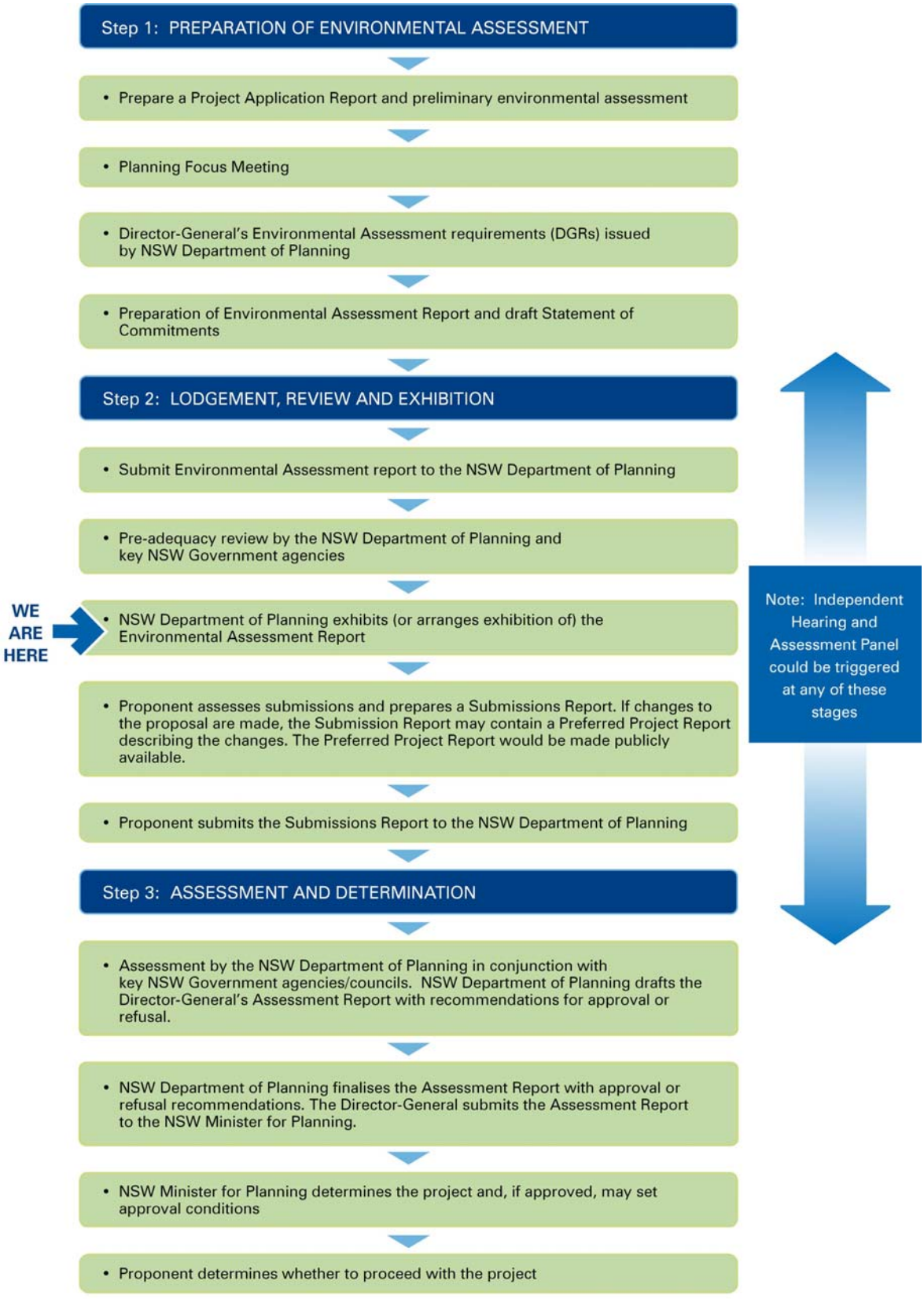

Figure 1-3 Planning approvals process

1.5.2 Approvals required under other NSW legislation

Additional approvals may be required for the project under the following NSW legislation:

- *Protection of the Environment Operations Act 1997*
- *Dangerous Goods Act 1974*
- *Pipelines Act 1967*
- *Roads Act 1993*
- *Crown Lands Act 1989*
- Civil Aviation Safety Regulation 1998
- *Electricity Supply Act 1995*.

Chapter 2 provides further details on other approvals that would apply to this project.

1.6 Structure of this Environmental Assessment

1.6.1 Purpose

The NSW environmental assessment process requires that all relevant environmental matters be examined, and that all relevant community and government stakeholders be involved. The process enables stakeholders to convey their views on a proposal to the proponent and the NSW Government.

This Environmental Assessment documents the likely benefits of the proposal, quantifies and assesses potential impacts, and identifies the types of environmental management measures proposed to be implemented to reduce potential adverse impacts. The Environmental Assessment also provides baseline data for use in future monitoring of the project's environmental performance. This is discussed further in Chapter 12.

1.6.2 Environmental Assessment requirements

The Director-General of the Department of Planning (DoP) has defined the key issues that must be considered in this Environmental Assessment in the Director-General's Environmental Assessment requirements (DGRs) (see Appendix A). These issues form the basis of the detailed environmental assessment for the project. The draft *Environmental Impact Assessment Guidelines for Network Electricity Systems and Related Facilities* have also been referred to in the preparation of this document.

Issues and concerns raised by representatives from relevant local and State Government agencies during a planning focus meeting in November 2006 have also been considered. Chapter 4 summarises these and other issues raised by government agencies, the community and other stakeholders.

Whilst specific issues have been raised by government and other stakeholders, the EP&A Act and its Regulation place a broader obligation on proponents to consider all potential environmental issues in relation to a proposal. A full assessment of all potential environmental issues is contained in Chapter 8.

1.6.3 Structure of the Environmental Assessment

This Environmental Assessment addresses the requirements of all relevant legislation and guidelines. It has been prepared to assist the community and decision-makers in understanding the project, its likely environmental consequences and the mitigation measures to be implemented to reduce or avoid effects on the environment and community.

It is not practical or possible to consider every environmental issue at the same level of detail. Therefore, with guidance provided by the DGRs, the outcomes of the community consultation process and the results of detailed studies, the Environmental Assessment identifies and analyses the key issues. This analysis is supported by five technical papers, included in Volume 2 of this document (see below).

The Environmental Assessment is presented in two volumes as follows:

- Volume 1 — *Environmental Assessment* (the main volume).
- Volume 2 — *Technical Papers*.

Volume 1 consists of following chapters:

- Chapter 1 *Introduction* — provides an overview of the proposal, its objectives and the determination process.
- Chapter 2 *Planning and statutory context* — discusses the relevant planning requirements under the EP&A Act and other relevant legislation.
- Chapter 3 *Existing environment* — describes all aspects of the environment of the proposed power station site and gas pipeline route.
- Chapter 4 *Consultation* — describes the methods used to involve government and community stakeholders in the consultation processes.
- Chapter 5 *Project objectives and need* — provides details on the objectives and need for the project.
- Chapter 6 *Project development and alternatives* — discusses available technology options and explains the reasons by which the preferred options were selected, and the process undertaken for selection and optimisation of the proposed power station site, plant location and orientation, and pipeline route.
- Chapter 7 *Description of the project* — provides a detailed description of the project design, its operation and maintenance requirements, an overview of the construction program and a description of other infrastructure requirements.
- Chapter 8 *Environmental risk analysis* — outlines the key issues identified for the project.
- Chapter 9 *Environmental impact assessment – key issues* — discusses key issues identified in the DGRs.
- Chapter 10 *Environmental impact assessment – additional impacts* — discusses additional potential impacts identified through the environmental risk analysis.
- Chapter 11 *Draft Statement of Commitments* — outlines the standards, procedures, methods and protocols for identifying, mitigating and managing the identified environmental impacts of the project, including any commitments for further assessment and approval.

- Chapter 12 *Justification and conclusion* — summarises the justification of the proposal in relation to its objectives and the principles of ecologically sustainable development.

The following documents are included in the appendices to Volume 1:

- Appendix A — *Director-General's Environmental Assessment requirements*
- Appendix B — *Geology maps*
- Appendix C — *Soils maps*
- Appendix D — *Land ownership map*
- Appendix E — *Documentation of consultation*.

Volume 2 includes reports from the detailed technical investigations carried out to inform the findings summarised in the main volume of the Environmental Assessment. These are:

- Technical Paper No. 1 — *Biodiversity Assessment*
- Technical Paper No. 2 — *Heritage Assessment*
- Technical Paper No. 3 — *Noise and Vibration Assessment*
- Technical Paper No. 4 — *Air Quality Impact Assessment*
- Technical Paper No. 5 — *Visual Impact Assessment*
- Technical Paper No. 6 — *Preliminary Hazard Analysis*.