Summary

S.1. Introduction

S.1.1 What is proposed?

The proposed Wellington Gas-fired Peaking Power Station ('the proposed power station') comprises four open-cycle gas-fired turbines with a total capacity of approximately 600 megawatts (MW). The power station would operate as a peaking plant and would be located near Wellington in Central New South Wales (NSW) (see Figure S-1). The power station site comprises approximately 45 hectares of land, with an operational footprint of approximately 6 hectares and the remaining land to be used as a buffer zone.

The proposed power station would operate on natural gas. This gas would be supplied via a new 100-kilometre long underground gas pipeline connecting the proposed power station to the existing Central West Gas Pipeline near Alectown. A compressor station would be constructed to connect the new gas pipeline with the Central West Gas Pipeline to safely provide the proposed power station with natural gas (see Figure S-1). The gas pipeline would require a construction easement of 25–30 metres wide and an operational easement of 20–25 metres wide. The power station, gas pipeline and compressor station are collectively referred to hereafter as 'the project'.

S.1.2 Why is it needed?

Both the Commonwealth and NSW Governments have recently released papers outlining the need for secure and sustainable energy: the White Paper (Commonwealth of Australia 2004) and the Green Paper (NSW Government 2004) respectively. In particular, the Green Paper states that peak energy demand in NSW is growing at a faster rate than average demand. The National Electricity Market Management Company's (NEMMCO) 2007 Statement of Opportunities, and the NSW Department of Premier and Cabinet's *Owen Inquiry Report* (Owen 2007) confirm this, estimating that the peak demand for electricity in NSW will exceed supply by 2013–14.

New generation is required to ensure that electricity supply meets this growing energy demand. Failure to address this would have significant social and economic impacts due to increased unreliability of the electricity supply network. Peaking plants have been identified as one of the most effective short-term measures that could be implemented to avoid supply shortfalls during peak demand periods.

S.1.3 The proponent

ERM Power owns and operates numerous gas-fired power stations (e.g. Oakey Power Station in Queensland), and has recently been the largest builder of power stations and gas pipelines in Australia. The company currently has two power stations under construction in Wagga Wagga and Western Australia.

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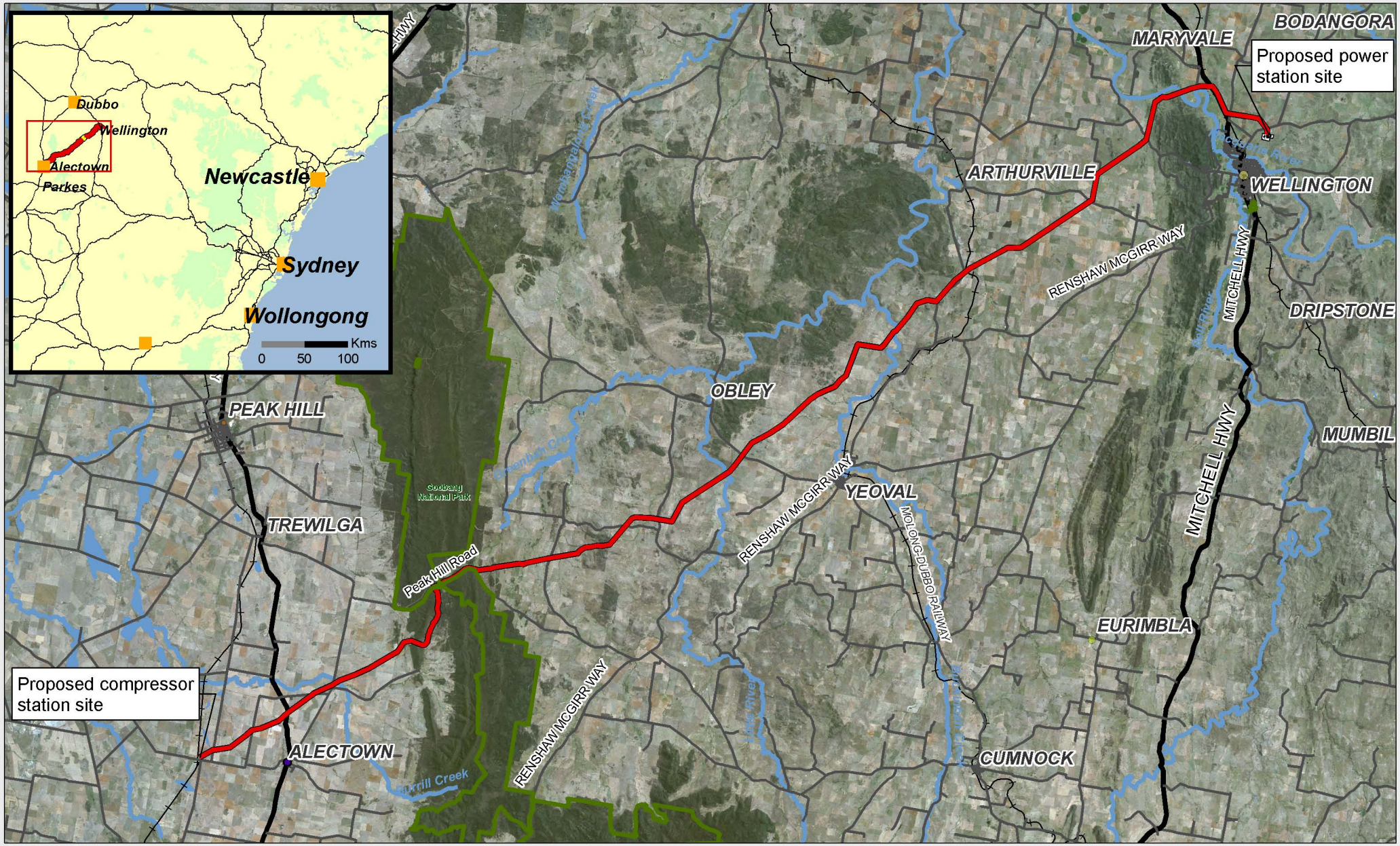

Proposed pipeline route | Major roads | Rail line | Water body

Minor roads | Major drainage | National parks

Figure S-1 Location of the project

0 5 10 Kms

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S.2. Planning and statutory context

The project is classified as a major infrastructure project under *State Environmental Planning Policy (Major Projects) 2005* (the Major Projects SEPP). As such, an environmental assessment is required to be undertaken under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), with the NSW Minister for Planning as the consent authority.

The project is also classified as a critical infrastructure project, under a declaration made by the Minister for Planning on 26 February 2008, meaning that it is considered an essential project for the economic, social or environmental welfare of the State of NSW.

The NSW environmental assessment process requires that all relevant environmental matters be examined, and that all relevant community and government stakeholders be involved. The key issues and main stakeholders relevant to the specific project are defined by the Director-General's Environmental Assessment requirements (DGRs). The DGRs for this project were issued on 31 January 2007 and identified the key issues to include greenhouse gas generation, and impacts on air quality, noise and vibration, visual amenity, flora and fauna, and Aboriginal heritage.

The EP&A Act provides that environmental planning instruments, other than SEPPs, do not apply to a Part 3A project. However, the Minister may take these into account. The permissibility of the proposed development under the Wellington, Parkes and Cabonne Local environmental plans are, therefore, a relevant consideration, and may assist with the Minister's assessment and determination of the project.

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*.

S.3. Community consultation

Consultation with the community and other stakeholders is a key part of the environmental assessment process, and is required under the EP&A Act. Consultation activities have been undertaken both prior to and during the preparation of the Environmental Assessment, and have included meetings with land owners, stakeholders and Aboriginal groups; information released through letters and the media; establishment of a 1800 information line and project email; and a visit to ERM Power's Oakey power station with key community and stakeholder representatives.

The issues most frequently raised by the community and stakeholders relate to air quality and emissions to air from the proposed power station.

Upon completion of the environmental assessment process, the Environmental Assessment report will be placed on public display for a minimum 30-day period. The responses received

from the community during exhibition will be addressed through a Submissions Report for submission to the NSW Department of Planning (DoP).

Community and stakeholder consultation would continue throughout construction and operation of the project, guided by a community and stakeholder involvement plan.

S.4. Description of the project

S.4.1 Alternatives considered

Supply options

ERM Power considered seven alternative options to meet the growing peak energy demand in NSW:

- the 'do nothing' option
- demand management
- hydro-electric power stations
- wind turbines
- coal-fired power stations
- open-cycle gas turbine power stations (the project)
- combined-cycle gas turbine power stations.

Analysis revealed that the proposed open-cycle gas turbine power station would be the most appropriate and economic option.

Site options

ERM Power conducted a comparative assessment of three potential sites to identify the most appropriate location for the project. The sites are in proximity to TransGrid's Wellington substation to ensure a strong connection to the NSW power grid. Sites 1 and 2 are located on the north-eastern floodplains of the Macquarie River. These sites were not considered suitable as the constraints (e.g. increased footprint, construction difficulties) outweighed the benefits (e.g. fewer residences in proximity). The selected site is located directly south of the existing substation and, as such, would provide optimum efficiency of transfer into the national electricity supply network; and remove the need for constructing considerable lengths of new 330 kilovolt (kV) transmission lines and a switching station, hence minimising environmental and social impacts as well as the power station footprint.

The proposed location and orientation of the power station's four gas-fired turbines and exhaust stacks was selected based on the results of preliminary noise modelling, and careful consideration of numerous other engineering, environmental and social constraints and benefits (see Figure S-2). If, through design development, the locations of any of the four gas-fired turbines and exhaust stacks change, the environmental impacts of any such change will be reviewed to ensure they are consistent with the environmental impact predictions made in this Environmental Assessment. Any increase in the environmental impact of the final design will be assessed, and mitigation measures developed accordingly, prior to the commencement of construction.

Gas pipeline route

The proposed gas pipeline route was determined during the concept development phase, and considered engineering, environmental and social benefits and constraints. A one-day workshop (attended by representatives of ERM Power, geographic information systems (GIS) specialists, and senior specialists in ecology, cultural heritage, environmental

planning, and land use and property issues) was held to refine a preliminary route between Alectown and the proposed power station site. On-site consultation was then undertaken with the affected land owners to further refine the pipeline route.

S.4.2 The power station

The proposed power station would be located approximately 2 kilometres north-north-east of the outskirts of Wellington on Gulgong Road (also known as Mudgee Road), adjacent to TransGrid's 330/132 kV Wellington substation (see Figure S-1). The operational footprint would be approximately 6 hectares, with the remaining land used as a buffer zone for mitigation measures such as visual screening.

The main components of the proposed power station are summarised in Table S-1.

Table S-1 Main components of the proposed power station

Component	Details
Open-cycle gas-fired turbines	▪ four open-cycle gas turbines, each with a nominal capacity of 150 MW ▪ total output capacity of approximately 600 MW ▪ utilise dry, low nitrous oxide (NO_x) technology ▪ gas-fired turbines equipped for water injection.
Gas receiving facility	▪ header pipeline connecting the facility to the gas-fired turbine facility ▪ an actuated isolation valve installed at the inlet to the facility ▪ gas filtration, heating and pressure regulation equipment ▪ over-pressure protection and emergency venting systems ▪ process control and communications equipment.
Ancillary plant items	▪ water, fuel and chemical storage ▪ transmission connection ▪ air pollution control ▪ emergency generators ▪ fire protection ▪ emergency response ▪ process control ▪ facility security.
Control room/office	

The proposed power station would only come on-line during peak demand periods, or in response to system emergency or black out conditions, particularly on cold winter and hot summer days. As such, it is expected to have a 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).

Construction of the power station would be expected to take 18–20 months. Daily workforce numbers would fluctuate between approximately 10 and 150 personnel, peaking at 200 personnel for a few months during the core construction activities. Mechanical, electrical and civil personnel would comprise the majority of the workforce. Six full-time personnel would be required to oversee the operation and maintenance of the power station.

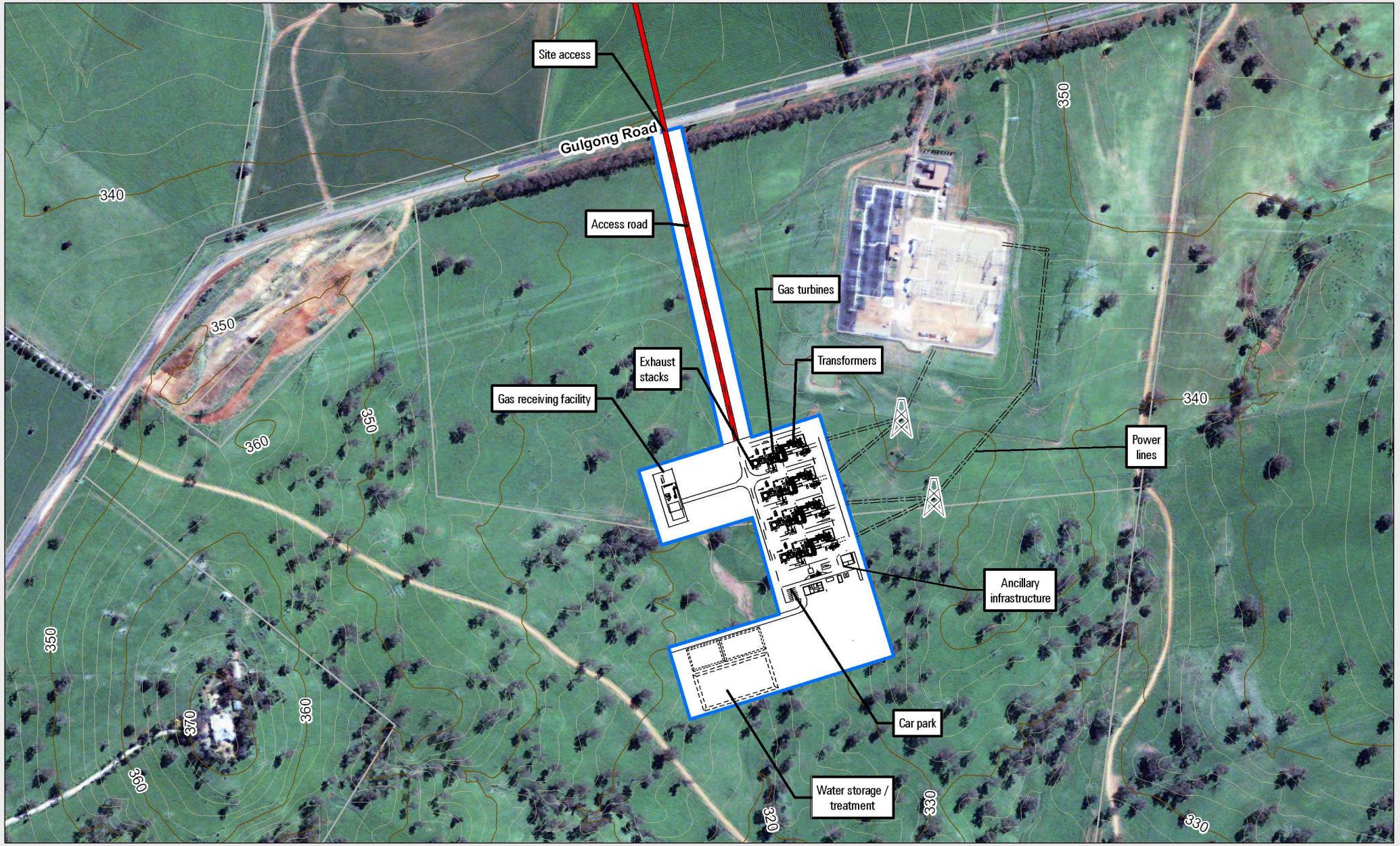

Figure S-2 Indicative operational layout of the proposed power station site

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S.4.3 The gas pipeline

The proposed gas pipeline would comprise a 350-millimetre diameter lateral steel pipeline connecting the Central West Pipeline near Alectown to the proposed power station.

The main components of the gas pipeline are summarised in Table S-2.

Table S--2 Main components of the proposed gas pipeline

Component	Details
Underground pipeline	▪ approximately 100 kilometres long ▪ would provide approximately 3 days of gas supply for electricity generation ▪ 20–25-metre wide operational easement to be negotiated with land owners for maintenance ▪ design would comply with the requirements of Australian Standard *AS 2885-2007 Pipelines: Gas and liquid petroleum* and *Dangerous Goods (General) Regulation 2007.*
Pipeline mainline valves	▪ two located (aboveground) at approximately 30-kilometre intervals along the pipeline ▪ typically housed in security-fenced and gravelled areas of approximately 25 metres by 25 metres.
Compressor station	Discussed in Section S.4.4.

Weekly inspections along the negotiated gas pipeline easement would be undertaken by patrol officers.

The proposed gas pipeline would be constructed within a 25–30-metre wide easement and construction would take 12–14 months. A construction camp would need to be established approximately halfway along the gas pipeline route.

The main construction method would be open-cut trenching. Directional drilling would be used in sensitive areas, such as major road (e.g. the Mitchell Highway and the Newell Highway) and rail (e.g. Bowenfels–Dubbo Line of the Main Western Railway and the Molong–Dubbo Railway) crossings, the Macquarie River and sensitive environmental areas.

Construction of the gas pipeline would proceed progressively along the route and would require a peak workforce of approximately 100 personnel, with around 80 personnel and associated vehicles along the pipeline at any one time.

Following installation, the gas pipeline would be hydrostatically tested to demonstrate its integrity and establish the actual maximum operating pressure.

S.4.4 The compressor station

The proposed compressor station would be located on approximately 200 metres by 500 metres of land adjacent to the Central West Gas Pipeline near Alectown. The facility would comprise two separate compressor enclosures, an exhaust vent stack, an air-cooled heat exchanger, an inlet shut-off valve, a pipeline inlet valve, gas filtration, and process control and communication equipment.

The compressor station would be remotely monitored and controlled using computerised process control and monitoring equipment from control rooms located within the proposed power station.

Construction of the compressor station would occur in three distinct stages: civil works, mechanical works and electrical works. Construction would take approximately 3 months and would require a multi-disciplinary labour force of approximately 24 personnel with a peak of 15–16 personnel on-site at any time.

S.5. Environmental assessment

S.5.1 Existing environment

The proposed power station site and gas pipeline route are located within the Orana and Central West Regions of NSW. Wellington, a township in Orana, is approximately 360 kilometres north-west of Sydney, and 50 kilometres south of Dubbo. It is largely agricultural, producing crops (predominantly grains for cereal), wool, beef and fat lambs. As such, much of the land has been previously cleared.

The proposed power station site is adjacent to an existing substation and is in proximity to the recently developed Wellington Correctional Centre. The remainder of the surrounding land is predominantly agricultural, with several neighbouring residential properties: Nanima House, Mount Nanima and the Cadonia subdivision. The Keston Rose Garden Café is located to the north-east of the proposed site.

The proposed gas pipeline route would pass through the Wellington, Cabonne and Parkes local government areas. Similar to Wellington, the majority of land within Cabonne and Parkes is used for grazing and agriculture.

The key features of the area's existing environment are summarised in Table S-3.

Table S-3 Key features of the existing environment

Feature	Description
Topography	▪ generally flat to undulating.
Air quality	▪ characteristic of a rural environment ▪ no major pollutant generating facilities in immediate locality.
Noise	▪ low ambient noise environment with rural classification.
Biodiversity	▪ area largely cleared of native vegetation ▪ Goobang National Park is largest area of remnant native vegetation.
Aboriginal heritage	▪ no Aboriginal sites, objects, places or other heritage values registered within the 200–metre wide corridor around the proposed power station and gas pipeline route.
Historic heritage	▪ Nanima House is registered on the Register of the National Estate.

S.5.2 Environmental risk analysis

The key environmental issues associated with the project have been identified through a review of the DGRs, and input from various government agencies and community consultation.

An environmental risk analysis has been undertaken for all environmental issues (key and other). Further, comprehensive studies have been undertaken and technical papers prepared to assess the potential impacts of issues identified as having high initial risk (and some medium risk) and appropriate mitigation measures have been identified. Technical papers have been prepared for biodiversity, heritage, noise and vibration, air quality, visual amenity and preliminary hazard analysis issues.

S.5.3 Overview of potential impacts

Key issues

The key potential environmental, social and economic impacts of the project are summarised in Table S-4, along with key management commitments proposed to avoid, remedy and mitigate those potential impacts.

Table S-4 Key potential impacts and commitments

Key issue	Identified key potential impact	Key management commitments
Greenhouse gas emissions	Greenhouse gases could potentially be released as a result of various construction activities (i.e. vegetation clearing, operating plant and equipment). During operation of the proposed power station, emissions would result from direct combustion of natural gas. Operation would result in lower greenhouse intensity than all other types of power station in Australia. Operation of the gas pipeline would have a negligible contribution to project impacts, as losses due to leaks would be adequately minimised. Operation of the compressor station would account for less than 5% of the project's power generation, so is not considered a significant component of overall emissions.	A construction environmental management plan (CEMP) would be implemented to ensure efficient construction and, hence, minimised emissions. Good practice regarding construction and operation of the proposed power station and compressor station would be implemented. Industry practices to minimise gas leaks would be implemented.
Air quality	Dust generation and emissions would potentially be created by construction works (i.e. vehicle movement, excavations, vegetation clearing). The main impacts associated with operation of the proposed power station and compressor station would arise from combustion emissions. No air quality impacts are predicted to be associated with operation of the gas pipeline.	A CEMP would be implemented to ensure efficient construction and, hence, minimised potential for impact. The gas turbines would use dry, low NO_x technology and, during normal operational mode, would be expected to achieve best practice NO_x emissions. Industry standard mitigation measures would be implemented.
Noise and vibration	Noise levels during some construction activities (ground clearance and excavation works) would potentially exceed Department of Environment and Climate Change (DECC) compliance levels at some sensitive receptors. During operation of the proposed power station, noise levels would	Standard environmental management measures would be implemented to mitigate potential construction noise impacts where possible. Negotiation and consultation with affected property owners would be undertaken where noise above DECC noise goals is experienced,

Key issue	Identified key potential impact	Key management commitments
	exceed adopted noise design goals at some sensitive receptors during neutral and/or adverse meteorological conditions.	and project-specific mitigation measures would be implemented, to ensure best management outcomes.
Visual impact	Short-term visual impacts may be experienced during construction of the project. The four exhaust stacks of the gas-fired turbines would be visible from some nearby residences and from some longer range views. The proposed power station would be intermittently visible to traffic travelling along Gulgong Road.	Standard mitigation measures would be implemented. Construction activities would move progressively along the pipeline route to ensure that any visual impact would be short term. Design of the proposed power station would take visual amenity into account. Standard mitigation measures (i.e. colouring the structures to blend with environment and vegetation screening) would be implemented.
Biodiversity	Construction of the proposed power station would require some clearing of scattered paddock trees. Construction of the proposed gas pipeline would require some clearing of woodland vegetation, which may lead to removal of fauna habitat elements, habitat fragmentation and edge effects, direct mortality of plants and less mobile animals dispersion of weeds, increase in pest species, and disturbance to aquatic habitats.	The extent of clearing would be limited as much as possible. Standard erosion and sedimentation controls would be implemented. Revegetation and rehabilitation would be undertaken. The construction corridor would be narrowed through sensitive areas.
Aboriginal heritage	There are no risks associated with the construction and operation of the power station. Objects/sites of Aboriginal heritage significance in the vicinity of the gas pipeline route may be impacted by construction activities.	Aboriginal heritage objects/sites would be avoided, restored and/or archived. Should any items of Aboriginal heritage significance be found during construction, work would cease immediately and Aboriginal heritage specialists would be consulted.
Hazard and risk	There is a potential risk of accidents associated with changed road conditions, increased driver confusion and construction equipment. The main potential hazard is loss of containment. The proposed power station is within 15 kilometres of Bodangora Airstrip, and the gaseous efflux from the exhaust stacks is likely to be greater than 4.3 metres per second at 110 metres above ground level. As such, it could potentially affect aviation activities. Typical hazards associated with construction and operation near transmission lines may exist.	Industry standard management measures would be implemented. Appropriate safeguards have been included in the design of the proposed power station. Leak prevention/minimisation measured would be implemented. The Commonwealth Aviation Safety Authority would be notified of the project for assessment, once approved.

Other environmental issues

The project is expected to have relatively minor potential impacts on the following environmental issues, given the implementation of standard management and mitigation measures: traffic and transport, historic heritage, land use and property, socio-economic, geology and soils, hydrology and water quality, waste and cumulative impacts.

S.5.4 Draft Statement of Commitments

A draft Statement of Commitments has been developed based on the management and mitigation measures identified in the Environmental Assessment. This will ensure that construction and operation of the project is undertaken in accordance with the environmental principles outlined in the Environmental Assessment.

The draft Statement of Commitments may be revised in response to stakeholder and/or community input during public exhibition of the Environmental Assessment. The revised Statement of Commitments will guide subsequent phases of design development to minimise impacts on the environment. All works would be undertaken in accordance with the Statement of Commitments.

S.6. Conclusion and next steps

The project is justified in relation to the project objectives, is consistent with the principles of ecologically sustainable development, and would have the following major benefits:

- securing NSW's energy supply during periods of peak demand
- providing a commercially viable power station, using proven technology, that has a significantly lower greenhouse intensity factor than coal-fired power generation
- helping to reduce the NSW greenhouse gas pool coefficient
- improving system security, stability and emergency response
- generating electricity that is market-competitive and consistent with current trends and future energy demands.

This Environmental Assessment has considered the potential impacts of construction and operation of a proposed gas-fired peaking power station in Wellington, NSW, and the associated gas pipeline and compressor station. It has been prepared in accordance with the provisions of Part 3A of the EP&A Act, the DGRs and issues raised by other statutory agencies.

In conclusion, it is considered that, with the adoption of the proposed environmental management measures and safeguards proposed by ERM Power, the potential environmental impacts can be adequately mitigated and managed.

The next steps for the project are as follows:

- exhibition of the Environmental Assessment for a minimum 30-day period and invitation for the community and stakeholders to make submissions (currently occurring)
- preparation of a Submissions Report in response to formal submissions received
- preparation of a Preferred Project Report and final Statement of Commitments, if required
- assessment and determination by the DoP.