Land Use – Summary of Key Outcomes

The proposed Buronga Peaking Power Plant Project is located in the Wentworth Local Government Area (LGA). The proposed development site is approximately 10 km northeast of Buronga in south-western NSW.

The proposed development is located within a 4.0 ha site, immediately adjacent to the TransGrid 220kV Switching Station, approximately 10km northeast of Buronga. IPRA has secured option arrangements for land subdivision, change of use and lease transfer with the present lease holder of the land which is controlled by the Western Lands Commissioner.

The Development Site is zoned 1(a) (General Rural Zone) under the *Wentworth Local Environment Plan 1993* and the land immediately adjacent to the Development Site is zoned 1(a) (General Rural Zone), within which energy generation activities are permissible with development consent from the relevant authority.

Mitigation measures detailed in this Environmental Assessment relating to the control of noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters, would be implemented to ensure the proposal is managed in an effective and efficient manner, with minimal impact on adjacent land uses during construction or operation.

On the basis of these assessments, it is considered that the Buronga Peaking Power Plant Project would not have a significant impact on existing land use surrounding the proposed peaking power plant site.

Chapter 16 Land Use

16.1 Introduction

This chapter describes the land use patterns present in the area surrounding the proposed Buronga Peaking Power Plant site and assesses the potential impacts of the construction and operation of the proposal on adjoining land uses. One of the main focuses of this section of the Environmental Assessment is to discuss the land use implications of the project.

16.2 Existing Land Use – Development Site

The Buronga Peaking Power Plant Project is located in the Wentworth Local Government Area (LGA). The proposed development site is approximately 10 km northeast of Buronga in south-western NSW.

The proposed development is located within a 4.0 ha site, adjacent to an existing TransGrid-owned switching station and optimises connection flexibility to the 220kV switching station bus. The location of Buronga Peaking Power Plant Project proposed site is presented in **Chapter 1** (Introduction) **Figure 1-1**.

The Development Site is zoned 1(a) (General Rural Zone) under the Wentworth Local Environment Plan 1993 and the land immediately adjacent to the Development Site is zoned 1(a) (General Rural Zone).

16.3 Existing Land Use – Surrounding Areas

The local landscape pattern is generally defined by scrub pasture with areas of cultivated agricultural land for crop production. Land to the north and west of the proposed facility is generally scrub pasture for sheep and cattle grazing. Mature trees are present in scattered groups and denser clumps in the vicinity, and across, the general area of the proposed facility. Mature tree height is generally around 10m to 15m.

The closest residence is located to the north of Lake Gol Gol, approximately three kilometres south west of the proposed development site.

The TransGrid Buronga 220kV Switching Station is located to the south west boundary of the proposed facility and contains a number of electrical structures visible from surrounding areas.

The Arumpo Road corridor runs south west to north east along the boundary of the proposed facility. The sealed road rises gently to the north east and disappears from view over a crest at around 60m AHD when viewed from the road adjacent to the proposed facility.

The proposed peaking power plant site is located on Lot 2, DP 1037845 (formerly Lot 4, DP 802730) in the County of Wentworth. The proposed site is located on Crown land presently forming part of a large pastoral lease controlled by the Western Lands Commissioner (Western Lands Lease No. 3547). IPRA has secured option arrangements for land subdivision, change of use and lease transfer with the present lease holder of the land.

16.4 Potential Existing Land Use Conflicts

16.4.1 Construction Phase Impacts and Mitigation Measures

The main potential for environmental impacts associated with construction activities for the peaking power plant on surrounding land uses include:

- Air quality;
- Soil erosion;
- Traffic flow effects;
- Noise impacts; and
- Flora and fauna.

The potential impacts of the construction phase of the proposed peaking power plant on surrounding land uses are discussed in relevant chapters of this Environmental Assessment, including **Chapter 7** (Air Quality), **Chapter 8** (Soils, Geology and Groundwater), **Chapter 10** (Traffic), **Chapter 11** (Noise) and **Chapter 12** (Flora and Fauna). The potential effects of the proposed construction activities on surrounding land uses are briefly summarised below.

Air Quality

A range of dust suppression measures and soil and erosion controls would be implemented during the construction phase of the proposed Peaking Power Plant. These controls would be incorporated in a construction soil and water management plan to be developed as part of a Construction Environmental Management Plan (CEMP) for each element of the work.

Soils, Geology and Groundwater

The soil and water management plans would include procedures and controls to ensure that water runoff from construction activities is minimised, contained and (if required) disposed of appropriately, and to prevent spillages or leaks from construction equipment from entering water channels.

Traffic and Transport

The analysis of the performance of Arumpo Road with the construction traffic volumes indicates that the change in midblock traffic volume is relatively small (approximately 10%) and that the operation volume remains less than 2,400 vehicles per day.

Access into the proposed site would be off Arumpo Road. A short access road approximately 40m in length would be constructed to provide entry to the site from the existing sealed road surface. The access road would be built to the necessary design standards to accommodate heavy construction vehicles and future operations phase maintenance vehicles.

The traffic and transport assessment found that the State arterial road network and in particular Arumpo Road can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases.

Noise

An assessment of noise during the construction phase shows no exceedences at the existing residential receivers. These levels would be confirmed with the Contractor prior to commencement, based on final specification of plant and machinery. A Construction Noise Management Plan would be developed to ensure a suitable program and that specified noise levels are met.

Flora and Fauna

The development footprint is located entirely within lands previously cleared for agriculture and currently used as pastoral land. Preliminary investigations have not identified any known or likely threatened animal or plant species on the proposed site, however 12 threatened species and seven migratory species are known in the broader locality.

Areas considered within the Flora and Fauna assessment predominantly comprise of native vegetation with low to moderate disturbance. The proposed development will result in the removal of approximately 4 ha of native vegetation in total and will result in the removal of habitat including standing and fallen dead timber and hollow-bearing trees, and foraging resources for native fauna including those listed as Vulnerable under the *TSC Act*. Approximately 0.8 ha of Sandplain Mallee, 1.3 ha of Belah Woodland, 1.3 ha of Chenopod Shrubland and 0.6 ha of Blackbox Woodland will be cleared during construction of the proposed peaking power plant.

Construction activities are to be undertaken within the site and should not impact on any additional areas of native vegetation. Overall the impacts associated with the peaking power plant location with regard to flora are minor in the context of remaining vegetation in the locality and the surrounding region.

A CEMP and Operational Environment Management Plan (OEMP) developed for the project would include mitigation measures for the site to minimise the impacts of the development during construction. Implementation of these mitigation measures would ensure that the project would not have any impact on surrounding land use from a flora and fauna perspective.

16.4.2 Operation Phase Impacts and Mitigation Measures

The main potential for environmental impacts associated with the operation of the proposed peaking power plant on surrounding land uses include:

- air quality;
- noise impacts;
- bushfire risk;
- water management;
- visual impacts; and
- operational hazard.

The potential impacts of the operational phase of the proposed Peaking Power Plant on surrounding land uses are discussed in relevant chapters of this Environmental Assessment, including **Chapter 7** (Air Quality), **Chapter 9** (Visual), **Chapter 11** (Noise), **Chapter 13** (Bushfire Risk) **Chapter 14** (Water Cycle Management) and **Chapter 18** (Preliminary Hazard Analysis). The potential effects of the proposed operational activities on surrounding land uses are briefly summarised below.

The proposal would result in change to the land use of the site itself as the site is currently used primarily for pastoral purposes. The proposed site is located in an area that is zoned 1(a) (General Rural Zone) and development for the purposes of power generating projects is permissible with development consent in the 1(a) (General Rural Zone) under Wentworth Local Environmental Plan (WLEP) 1993.

Operation is not likely to have a significant impact on surrounding land uses due to the limited operating hours of the power plant (up to 10% of the time in any one year) and the buffer between the proposed peaking power plant and surrounding residences. It is unlikely that the properties surrounding the proposed site would be impacted in terms of the current land uses.

Air Quality

An assessment of the potential impacts on air quality was undertaken as part of this Environmental Assessment (refer **Appendix C**). The assessment adopted a largely conservative approach, in accordance with the DEC (2005A) *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*. The conservative approach assumed that the peaking power plant would be running all three distillate-fired gas turbines continuously for every hour of a full year.

In order to calculate the cumulative impact of the peaking power plant emissions on the local air quality, worst case background concentrations of the primary pollutants were obtained from the closest DECC monitoring stations.

The results of the “All Units Operating All hours” dispersion modelling showed that the predicted peak impacts in ground level concentrations of NO_2, PM_{10}, CO and SO_2, when added to peak background concentrations, were within the DECC regulatory criteria.

Given the infrequent operating time of the peaking power plant and the conservative nature of the air quality assessment, it is considered that the potential for adverse air quality impacts of the proposed Buronga Peaking Power Plant will be negligible.

Noise

An assessment of the potential impact of construction phase and operational phase noise was undertaken as part of this Environmental Assessment (refer **Appendix D**).

Based on the plant noise levels assumed in this modelling, noise level criterions were met for construction and operational phases for existing residences. No noise level exceedances have been predicted for the closest residence, including when a 5dB low frequency noise penalty was applied as a worst case scenario.

The predicted modelled outcomes may be achieved or noise levels further reduced to meet receptor-level criteria by the implementation of relevant plant selection strategies and the incorporation of appropriate noise mitigation technology during plant design and manufacture.

Not withstanding, IPRA would ensure that:

- plant selection and detailed design processes would evaluate noise mitigation options based on the noise limits identified in this noise assessment;
- plant manufacture incorporates the features as determined necessary by the detailed design process to meet noise criteria at the relevant receptors; and
- post-commissioning, the plant noise outputs would be measured to demonstrate that actual noise emissions meet noise criteria at the relevant receptors.

The potential for sleep disturbance from the operation of the development was found to be negligible. Noise levels would be confirmed prior to commencement of operational activities.

Water Cycle Management

Mitigation measures will be employed to minimise soil erosion impacts during the operation phase of the proposed peaking power plant. Landscaping measures will minimise the potential for soil erosion.

Priority would be given to recycle stormwater as much as possible. This would be achieved by the installation of rainwater tanks collecting runoff from the buildings, and by the construction of a stormwater storage pond to store captured stormwater.

Appropriately bunded areas would be included for storage of fuels, oils and chemicals and areas within the operational plant area would be appropriately drained so that surface runoff would be prevented from infiltrating directly onto the ground and from reaching the groundwater. Implementation of these measures would avoid adverse impacts on surrounding land uses.

Wastewater volumes have been estimated and management strategies developed to maintain zero discharge from the site, except for natural surface flows, and to ensure minimal impact on surrounding land uses.

Landscape and Visual

While the overall potential visual impact of the Buronga Peaking Power Plant has been assessed as low, the following mitigation measures would potentially reduce the level of visual impact.

The mitigation measures involve a combination of screening of views (tree planting) and reducing the visual contrast between the visible portions of structure and the surrounding landscape. The colour and texture of structures in the Buronga Peaking Power Plant should be selected to blend with the surrounding landscape and utilise non-reflective materials.

Tree and shrub planting within the boundary of the site, utilising woodland species indigenous to the area, would provide additional screening to views surrounding the Development Site. Lighting associated with the Buronga Peaking Power Plant would be designed to minimise direct line of sight from possible view locations, including from Arumpo Road.

Traffic and Transport

Access into the proposed site would be off Arumpo Road. The traffic and transport assessment found that Arumpo Road can satisfactorily and safely accept the additional traffic generated by the development during the construction, operational and maintenance phases. A short access road approximately 40m in length would be constructed to provide entry to the site from the existing road. The access road would be built to the required design and standards to accommodate heavy construction vehicles and future operations phase maintenance vehicles.

Operational Hazard

The main hazard associated with the proposed project is associated with the handling of the distillate, a combustible fuel used to power the turbines. Other, less significant hazards may arise in fixed plant, storage and associated pipelines.

The risk analysis showed that the risk of fatality does not extend anywhere outside the boundaries and it is considered that the proposed development does not have a significant impact on societal risk. The risk of propagation of an incident at the proposed Peaking Power Plant does not encroach into any other industrial areas. The risk associated with the transport of dangerous goods and potentially hazardous materials is very low.

Despite the conservatism built into the risk assessment, the results show that the risk associated with this development is very low. The most stringent risk criteria, as required by the Department of Planning, are adhered to and therefore the project does not pose issues for the surrounding land uses.

16.5 Potential Future Development

16.5.1 Current Landuse Zoning

The site identified for the proposed peaking power plant is currently zoned 1(a) (General Rural Zone). Development for the purposes of power generating development, such as Buronga Peaking Power Plant Project, is permissible with development consent in this zoning. The areas surrounding the proposed peaking power plant site are also zoned 1(a) (General Rural Zone). The current zoning of these surrounding areas permits activities such as agriculture, forestry, rural housing and open space.

16.5.2 Potential Future Land Use Conflicts

There are no known potential land use conflicts as a result of the Buronga Peaking Power Plant Project.

Chapter 16 Land Use

16.6 Mitigation Measures

The proposal would result in changes to the land use of the site itself as the site is currently used primarily for pastoral purposes. However, the proposed site is located in an area that is zoned for rural purposes and development for the purposes of power generation facilities is permissible with development consent.

Mitigation measures detailed in this Environmental Assessment relating to the control of noise levels, air and water quality, traffic and transportation, visual amenity and other environmental matters, as detailed in **Chapter 7** through **Chapter 19,** would be implemented to ensure that the proposal is managed in an effective and efficient manner, with minimal impact on existing or possible future surrounding land uses.