

## Executive Summary

### Introduction

International Power (Australia) Pty Ltd (IPRA) is seeking Project Approval to construct and operate a gas turbine peaking power plant near Buronga, in the far southwest of NSW - referred to herein as the 'Buronga Peaking Power Plant'.

Subject to final plant selection, three gas turbines, each up to 50MW capacity, would occupy an area of approximately 4.1ha and be installed on Crown land presently the subject of a pastoral lease. The site proposed is adjacent to the TransGrid 220kV Buronga Switching Station, approximately 10km northeast of Buronga on the Arumpo Road as shown in **Figure 1-1**.

With a nominal output of up to 150MW, the Buronga Peaking Power Plant would (except for emergencies as allowed in its operating licence) normally operate on an as-required, intermittent basis for a total maximum period of up to 10% of any year.

Because the existing gas supply to Mildura is inadequate for the proposed peaking power plant and there are no plans in the foreseeable future to upgrade the existing pipeline and/or gas supply, IPRA proposes to fuel the plant using low sulphur distillate for the reasons identified in **Chapter 3**. However, IPRA would configure the gas turbines such that they would be capable of conversion to burn natural gas in the event that sufficient gas supplies become commercially available in the future.

The Buronga Peaking Power Plant as proposed by IPRA is a cost efficient and effective regional generation solution for the National Electricity Market (NEM) constraint scenarios arising from growth in peak electricity demand in NSW.

The Minister for Planning is the consent authority for the Buronga Peaking Power Plant as determined by the relevant legislation. This Environmental Assessment has been prepared in accordance with the requirements of Part 3A of the Environmental Planning and Assessment Act 1979 to provide the Minister for Planning with the required information to determine the environmental impacts and benefits of the Buronga Peaking Power Plant. This Executive Summary provides a brief description of the key outcomes of the environmental assessment as detailed in each of the chapters.

### Project Need

Peak power demand is growing faster than base load demand, which necessitates investment in peaking power generation plant. The Buronga Peaking Power Plant Project is consistent with NSW Government policy, which is to promote private sector investment in new electricity generation assets.

Over the past several years, the National Electricity Market (NEM) operator, NEMMCO, has highlighted the growth of electricity demand across NSW and, in particular, the growth of summer and winter peak demands.

Within the NEM, NSW is a net importer<sup>1</sup> of electricity - particularly reliant, in summer peak demand periods, on hydro-generation from the Snowy River Scheme and excess generation capacity in Victoria.

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<sup>1</sup> NEMMCO *Statement Of Opportunities 2007* - inter alia Table 2.4

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In its “*Statement of Opportunities 2006*” (SOO 2006) NEMMCO predicted an annual NSW peak demand growth of 2.1 - 3.2% (summer) and 1.4 - 2.7% (winter). In particular, NEMMCO highlights an existing shortfall in reserve peaking capacity of some 287MW. This is reasonably consistent with its most recent “*Statement of Opportunities 2007*” (SOO 2007) released on 31 October 2007 which predicts<sup>2</sup> an annual NSW peak demand growth of 2.3 – 2.8% (summer) and 1.5 - 2.8% (winter).

Hitherto, NSW has generally operated coal-fired base load plant with peak demand met by hydro-generation from the Snowy Mountains plant or by electricity imported from interstate. Drought conditions exacerbate the supply situation when hydro-generation is limited by water shortages. The NEM-wide growth of peak demand has meant that the opportunity to import is now rapidly decreasing.

Electricity demand growth of this order also places existing high voltage transmission assets at risk in reliably delivering power to the relevant load centres. Consequently, the Buronga Peaking Power Plant Project is also, in part, a response to a TransGrid report in March 2003<sup>3</sup> that identified high voltage constraint scenarios on its transmission system and on regional NSW interstate connectors. Notwithstanding that the MurrayLink interconnector with South Australia was subsequently built, this has not solved the problems in southwest NSW under certain demand scenarios or optimised the import/export efficiency on the NSW/SA/Victoria interconnected HV grid system as identified<sup>4</sup> by the National Electricity Market operator NEMMCO.

The proposed Buronga site is a strategic location for peaking power generation, being adjacent to an existing TransGrid 220kV switching station and associated high voltage network servicing the far west of NSW (including Broken Hill) and feeding into the Victorian system at Red Cliffs.

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

- NEM and NEMMCO support at times of high inter-regional demand and/or constraints;
- Transmission network support to ensure reliability and quality of electricity supply; and
- Security of local electricity supply at times of system (planned or accidental) shut-down.

The multi-unit Buronga Peaking Power Plant concept offers:

- significant mitigation of growing peak electricity demand within NSW; and
- significant regional reinforcement in the event of extensive transmission system problems.

The facility would be capable of providing up to 150MW of capacity until such time as the transmission system can be stabilised, at which point the facility would resume its normal peaking role.

Distillate fired gas turbines of the type proposed at Buronga produce significantly less greenhouse emissions than traditional coal fired base load power plants. One environmental benefit of the plant proposed by IPRA is that generation at Buronga will alleviate the need for coal-fired plant to run when peak load demand creates a short term regional capacity shortfall.

The project would take approximately 6 to 8 months to build at an estimated cost of up to \$110 million.

<sup>2</sup> NEMMCO *Statement Of Opportunities 2007* - Tables 3.10 & 3.11

<sup>3</sup> *Supply to South West NSW* (TransGrid, March 2003)

<sup>4</sup> *Interconnector Limit Forecast for MTPASA* (NEMMCO, November 2007) and related discussion papers

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### Alternatives

A range of alternatives were considered as presented in **Chapter 3** of this Environmental Assessment. Gas turbines operating in open cycle mode as proposed are considered to be the only practical option when compared to alternatives such as hydro, wind, combined cycle gas turbines, reciprocating gas engines and coal fired generation for meeting the peak electricity demand and network support requirements described above.

The “do nothing” option was not considered by IPRA to be an option in light of the NSW Government Green Paper and the NEMMCO SOO 2007 load growth forecasts for NSW as discussed in **Chapter 2**.

In addition to desktop studies and field investigations, extensive consultation has been undertaken with NSW regulatory agencies, in particular with officers from DoP, DECC and DoH in regard to environmental aspects of the proposal. The outcome of this consultation is the proposal presented in this Environmental Assessment.

Provided that the project is commercially viable, is consistent with State and Local Government policy and satisfies relevant Acts and prescribed Regulations (zoning, environmental, heritage etc), IPRA considers that the key “alternatives” parameters are associated with cost effective plant and site selection. These factors comprise:

**(A) Plant selection**, these being:

- proven plant technology and “buildability” using local industries and other resources;
- satisfying environmental and socio-economic community requirements;
- plant sizing to satisfy the range of market and network support scenarios envisaged;
- plant to be “dual-fuel capable” in the event that natural gas supplies become commercially available in the future;
- available fuel(s) and reliability of fuel supply;
- plant capability to meet power quality, responsiveness, reliability and security parameters;
- procurement lead times to meet project deliverability requirements; and
- whole-of-life operational and maintenance requirements.

**(B) Site selection**, these being:

- land availability and zoning;
- convenient network access for grid connection;
- potential environmental and other community impacts;
- proximity to a NEM high voltage transmission regional interconnector node;
- a reliable supply centre for distillate fuel;
- access to water for plant process uses; and
- other local resources and infrastructure such as communications, transport access, etc which impact upon construction and ongoing operation.

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### *Plant*

Desktop studies were carried out to review plant characteristics best suited to providing both market and network support services at a commercially viable price. These very quickly centred on the plant type proposed in this Environmental Assessment for the reasons set out in **Chapter 3**.

NOx air emissions would be controlled through water injection being the most technically and cost efficient control mechanism to meet the required air emission standards for the operating regime envisaged. The modelling undertaken using conservative “Worse Case” emission scenarios demonstrates that other prescribed air emissions (including carbon monoxide, particulates, volatile organic compounds and so on) would fall within Regulatory limits.

### *Site Location*

Desktop studies indicated that a potential optimal site would lie somewhere along the 220kV transmission line between Red Cliffs in Victoria and the TransGrid switching station at Buronga (see **Figure 3-1**). Preferably, for ease of grid connection, the optimal location for the facility would be either:

- adjacent to the *SP AusNet* 220kV switchyard at Red Cliffs in Victoria; or
- adjacent to the TransGrid 220kV switching station at Buronga

Other locations along the Buronga - Red Cliffs “corridor” would only come under consideration if both of these preferred locations proved problematic for whatever reason.

All potential sites along this corridor are effectively at the same elevation (approximately AHD50m) and therefore varying plant performance between sites was not a discriminatory factor.

IPRA undertook several field visits along the entire route and quickly determined that a location at or close to the Red Cliffs 220kV switchyard would prove impracticable given the limited land availability and proximity to residential areas.

The Buronga location satisfies the requirements set out in **Chapter 2** insofar as providing market and transmission system support in the regional far west of NSW.

Field visits included a review of local resources and infrastructure. The location is well served in its proximity to the regional centres of Buronga, Wentworth and Mildura together with associated services, transport and communications infrastructure.

The location, immediately adjacent the TransGrid 220kV Buronga Switching Station, facilitates ready connection into the high voltage NEM transmission grid at a point that is recognised as important having been mooted as a possible point for an interconnector into South Australia. In discussions with TransGrid, IPRA has established that there are no fundamental barriers to a grid connection at the Buronga site.

In discussions with the Wentworth Shire Council, whilst informal to date, council has no objection in principle to the proposed project and would rely upon the regulatory and planning processes to determine the merits or otherwise of IPRA’s proposal.

Environmental and other studies included in this Environmental Assessment have demonstrated that there are no major impediments to the project proceeding provided that appropriate plans are in place to manage the issues identified.

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### Project Description

The Buronga Peaking Power Plant Project would have total output of up to 150MW, comprising three gas turbines, each of nominal capacity up to 50MW, operating in open cycle and fuelled by distillate. The gas turbines would be capable of conversion to fire natural gas should commercially viable gas supplies become available in the future.

The multi-unit concept of three gas turbine units would be capable of operating individually or in conjunction, together providing - with a reliability factor in excess of 99% on an annual basis - reliable generation capacity embedded within the region but also able to respond to NEM peak demands.

The electricity generated at the facility would be fed into the 220kV high voltage transmission network via the TransGrid Buronga 220kV Switching Station abutting the power plant site.

The Buronga Peaking Power Plant would occupy an area of approximately 4.1ha and comprise the following main features:

- Three gas turbine enclosures (including air inlet, gas turbine and generator) generally up to 10m high depending upon final plant selection and three associated exhaust stacks (up to 20m high);
- Auxiliary system structures
- Fuel and water storage tanks generally up to 8m high;
- Three 132kV step-up transformers and associated electrical equipment; and
- Control building incorporating offices and ablutions, a switch room and a workshop.
- Stormwater and wastewater ponds

The plant would be built over a 6 to 8 month duration in one continuous phase with an expected average workforce of 27 persons and a peak workforce of 120 persons.

The operating regime for the facility 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 |
| • Raw water consumption per annum       | Nominal Average: 20ML   | Maximum: 40ML   |
| • Distillate consumption per annum      | Nominal Average: 19000t | Maximum: 29000t |

Distillate fuel will be of the low sulphur type to Australian Standard AS3570 with up to 1,500 tonnes of distillate stored at site at any one time.

During normal operation, staff levels are expected to average one person with up to two more on an intermittent basis. Minor plant inspections will involve up to 5 additional personnel. Major overhauls would occur once every three to five years and involve 20 to 40 personnel for a four to six week period.

Subject to detailed design investigations, it is intended that the significant quantities of process water required (refer **Chapter 14**) would be sourced from either harvested stormwater or, if practicable, from treated effluent sourced from the Buronga Sewerage Treatment Plant.

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Water treatment would comprise both reverse osmosis and chemical treatment to provide general process and demineralised water requirements.

Up to 300kL of process water would be stored at the site for use on an as required basis. In addition a minimum of 150kL of treated water will be reserved for fire fighting purposes.

Process water recovered from evaporative cooling would be recycled to the maximum extent possible before being discharged into a wastewater pond. Sludge accumulated in the wastewater pond over time would be periodically removed and disposed of to an appropriately licensed off-site facility. In the absence of a mains water connection, to the extent practicable, rainwater would be captured and used as potable water on site.

Sewage would be directed to an on-site proprietary treatment system or to a septic system for pump out and off site disposal.

All surface water captured on the developed area would be collected in a stormwater pond and treated for use where possible. All waste and contaminated water would be captured and directed to a wastewater pond on site. An oil and grit interceptor and appropriate bunding and traps would ensure the surrounding environment of the site remains free of spills risk. The facility will be a zero wastewater discharge site.

All noise and air emissions will comply with statutory requirements. In particular, NO<sub>x</sub> air emissions will be controlled through water injection being the most cost efficient control mechanism (for the anticipated operational regime) to meet the required air emission standards.

Small amounts of chemicals and oil would be stored on site and all storage will comply with statutory requirements.

The Buronga Peaking Power Plant will be subject to Protection of the Environment Operations Act licence requirements. The site operations will be in accordance with its environmental management program and environmental management system ISO 14001: 2004 standard, OH&S ISO 18801 OHSAS and OH&S AS/NZS 4801 standards.

## Statutory Planning

The Buronga Peaking Power Plant Project is subject to the development and assessment processes and requirements of Part 3A of the Environmental Planning and Assessment (EP&A) Act. A Project Application was submitted by IPRA to the Department of Planning on 6<sup>th</sup> November 2006, including a supporting Preliminary Environmental Assessment.

On 1<sup>st</sup> August 2007 the Director-General declared that the project was considered a Major Project and therefore to be assessed under the provisions of Part 3A of the Environmental Planning and Assessment (EP&A) Act.

On 10<sup>th</sup> August 2007 the Acting Executive Director of the Department of Planning issued Environmental Assessment Requirements (EARs).

Other licences and approvals required for the Peaking Power Plant Project include:

- Environment Protection Licence under the provisions of the POEP Act; and
- Licence to keep Dangerous Goods from NSW WorkCover under the Dangerous Goods Act 1975 for the storage and handling of licensable quantities of dangerous goods.

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The development is zoned 1 (a) (General Rural Zone) under the Local Environmental Plan (LEP) where energy generation activities are permissible with development consent from the relevant authority.

### Community and Stakeholder Consultation

A stakeholder consultation process was developed and implemented to advise community stakeholders, Council representatives and relevant government authorities about the details of the proposed project and to solicit issues that should be addressed during the preparation of the Environmental Assessment.

Key issues identified during the initial consultation phase included:

- demonstration of need for the project;
- justification of location and fuel selected;
- potential environmental impacts: water, noise, and air quality;
- management of potential bush fire risk; and
- water supply and water management.

It is intended that an additional consultation phase will be conducted with information session(s) proposed to be held at an appropriate location during the period when the Environmental Assessment report is on public display, where representatives of International Power (Australia) Pty Ltd (IPRA) and members of the URS study team would be present to answer specific queries from the broader community.

Following approval of the Buronga Peaking Power Plant, ongoing consultation with key stakeholders would be maintained during the key phases of construction and operation.

### Air Quality

An air quality assessment of the proposed plant has been undertaken investigating local air quality impacts, impacts on human health and aviation safety. A greenhouse gas assessment has also been performed.

The impact of the proposed plant on local air quality has been assessed using the CSIRO's TAPM dispersion model. The modelled species included oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM<sub>10</sub>), carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>), lead and Hazardous Air Pollutants (HAPs).

The assessment has used a conservative approach, in accordance with the DEC (2005A) *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*. The conservative assumptions include assessment based on all three gas turbines continuously operating at full load for every hour of the year across a range of meteorological conditions.

IPRA is seeking a licence to only operate for up to 10% of a year except where extraordinary market or transmission system circumstances prevail as identified by the Minister in granting the Approval and stipulated in the associated environmental licence conditions.



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The assessment of the cumulative impacts against regulatory criteria has generally used the aggregate of the worst case predicted impacts and peak annual background concentrations from DECC (NSW EPA) and Victorian EPA monitoring stations.

The air dispersion modelling assessment concluded that under worst case meteorological conditions, with “All Units Operating All Hours” firing distillate, the predicted impacts on ground level concentrations of NO<sub>2</sub>, PM<sub>10</sub>, CO, SO<sub>2</sub> and lead when added to peak background concentrations, are within the DECC regulatory criteria.

The highest cumulative 1-hour concentration of NO<sub>2</sub>, assuming all plant emitted NO<sub>x</sub> was present as NO<sub>2</sub>, was predicted to be 205 µg/m<sup>3</sup> against the criteria of 246µg/m<sup>3</sup> and short term CO and SO<sub>2</sub> concentrations were predicted to have minor impacts. Due to isolated high background levels, PM<sub>10</sub> was assessed in a contemporaneous manner.

The PM<sub>10</sub> assessment required a refined contemporaneous evaluation, as frequent background exceedances of the regulatory criteria occur due to natural processes, e.g. windblown dust from exposed agricultural areas. The *Approved Methods* require the assessment to show that no additional exceedances of regulatory criteria are likely to occur, thus periods where concentrations of PM<sub>10</sub> were approaching criteria were examined to ensure no additional exceedances resulted from the development. The peak 24 hour averaged concentration of PM<sub>10</sub> was shown to have a maximum cumulative impact of 49.1 µg/m<sup>3</sup> against the criteria of 50 µg/m<sup>3</sup>. Whilst this maximum cumulative impact was approaching criteria, the assessment showed that no additional exceedances of PM<sub>10</sub> are predicted to occur as a result of this development. It should be noted that this peak PM<sub>10</sub> value (49.1 µg/m<sup>3</sup>) incorporated a background concentration of 48.6 µg/m<sup>3</sup>, and assumed constant operation of the plant throughout the 24 hour period (which is conservative given the proposed peaking operation).

Annual cumulative concentrations for the criteria pollutants NO<sub>2</sub>, PM<sub>10</sub>, SO<sub>2</sub> and lead were also below regulatory criteria.

HAPs were assessed in accordance with approved methods for incremental impact (from the plant alone) and were well below regulatory criteria. Under distillate operation, the most significant incremental impact was cadmium for which the predicted worst case 1-hour concentration of 0.002µg/m<sup>3</sup>, was below the regulatory criteria of 0.018µg/m<sup>3</sup>.

A greenhouse gas assessment was performed which estimated that based on a typical operating scenario, the Buronga Project is estimated to release 0.023 million tonnes of CO<sub>2</sub>-e per year, which based on the 2005 inventory, represents 0.04% of the emissions from electricity generation in NSW, or 0.004% of all sources of greenhouse gas in Australia. Based on the theoretical upper limit of proposed operation, total greenhouse gas emissions from the Buronga Peaking Power Plant are estimated to be 0.098 Mt CO<sub>2</sub>-e per year, which based on the 2005 inventory, will contribute 0.17% of the emissions from electricity generation in NSW, and up to 0.02% of the Australian emissions of greenhouse gases for all sectors. Due to the conservative assumptions made in this scenario, actual operation will most likely result in the release of a small fraction of these emissions.



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A plume rise assessment / aviation safety study was performed which shows that the peaking power plant would produce exhaust plumes with vertical velocities that exceed 4.3m/s above the Obstacle Limitation Surface for approximately 2.5% of the year, based on a full year of three gas turbines operating. Whilst this assessment is considered conservative with respect to the modelled operating times and conditions, consideration should be given for the plant to be designated a potential hazard to aircraft operators in the area. The implementation of such designation would be at the discretion of CASA.

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.

### Soils, Geology and Ground Water

Groundwater at the proposed Buronga Peaking Power Plant site is well below the surface and therefore would be well below any site excavations.

The mitigation measures and safeguards implemented would ensure that soils and groundwater are adequately protected and managed using suitable design techniques and construction management. Accordingly any impacts on soils and groundwater resulting from the construction and operation of the proposed Buronga Peaking Power Plant Project would be negligible.

### Visual

Electricity generated by the Buronga Peaking Power Plant would be connected to the grid network via the existing TransGrid Buronga switching station adjacent to the development site.

The gas turbine exhaust stacks, which are the highest structures, have been assumed in this “worse case” assessment as being up to 20m high. However, subject to final plant selection, design parameters and air emission considerations, the final exhaust stack heights may be between 13m and 20m high.

The landscape and visual assessment carried out for the proposed Buronga Peaking Power Plant involved a comprehensive evaluation of the visual character of the landscape surrounding the proposed site. A primary objective of the visual assessment was to determine the likely visual impacts of the proposed facility on people living and working in, or travelling through surrounding areas.

A total of 10 view locations were selected and assessed. The main components of the proposed Buronga Peaking Power Plant that have the potential to be visible from surrounding areas include three exhaust stacks up to 20m high; gas turbine enclosures and air inlet ducts up to 10m high, and fuel and water storage tanks up to 8m high.

An assessment of the visibility rating for each view location indicated that:

- 5 of the 10 view locations have been determined to have a **NIL** visibility rating; and
- 5 of the 10 view locations have been determined to have a **LOW** visibility rating.

No residential view locations were determined to have a direct line of sight toward the proposed facility.

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This visual assessment concluded that the Buronga Peaking Power Plant would have a low visual impact on people in areas surrounding the site due to a combination of the following factors:

- existing vegetation and natural landforms generally screen the majority of views to the site and would, in most instances, screen the gas turbines, exhaust stacks and associated infrastructure from surrounding view locations;
- distant and partial views to the upper portions of the exhaust stacks may occur from portions of the Arumpo Road corridor, although the majority of these views would generally be restricted to areas of unoccupied agricultural pasture land surrounding the proposed facility;
- the exhaust stacks, which are the highest structures (up to 20m high), would only be fully visible from sections of the adjacent Arumpo Road corridor, with a duration of view generally less than 1 minute from passing vehicles, and from areas within the adjacent TransGrid switching station;
- the selection and application of appropriate colours to the power plant structures would be selected to blend with the surrounding landscape and utilise non-reflective materials;
- where visible, the proposed power plant would be viewed within the context of the existing TransGrid switching station facility, which contains a number of industrial structures of a scale and form similar to components of the proposed facility;
- emissions discharged from the gas turbine exhaust stacks will generally not be visible; and
- in the longer term, tree planting around the boundary of the proposed power plant would provide additional screening from the Arumpo Road and surrounding areas.

## Traffic and Transportation

The proposed Buronga Peaking Power Plant Project is located adjacent to Arumpo Road, approximately 10km north east of the township of Buronga, in south western New South Wales.

Regional and local roads in the vicinity of the proposed peaking power plant comprise the Sturt Highway, Silver City Highway and Arumpo Road.

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.

During construction, over-mass and over-dimensional loads such as the turbines, generators and transformers must be transported to site under Roads and Traffic Authority, NSW (RTA) and NSW Police permit conditions and along approved routes. The movement of large, over-mass and over-dimensional transports is envisaged from port facilities within Wollongong, Sydney or Adelaide.

Access to the proposed development site was assessed on the basis of a 19 metre long semi-trailer turning left into the proposed access road from Arumpo Road, northbound. This will cover construction vehicles approaching from both directions. It is considered there will be no significant impact or disruption to vehicle movements on Arumpo Road.

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This 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

The construction and operational phase noise and vibration impacts associated with the proposed peaking power plant at Buronga have been assessed primarily in accordance with the following policy guidelines published by the Department of Environment & Climate Change (DECC):

- NSW Industrial Noise Policy (INP);
- Environmental Criteria for Road Traffic Noise (ECRTN);
- Chapter 171 of the Environmental Noise Control Manual (ENCM);
- Noise Guide for Local Government (NGLG); and
- Assessing Vibration: A Technical Guideline (AVATG).

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

The 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.

Notwithstanding, IPRA would ensure that:

- plant selection and detailed design processes will 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 will 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 impacts due to extra traffic along Arumpo Road, during the construction and operation of the peaking power plant were found to be negligible.

A preliminary assessment of noise during the construction phase shows no exceedances at the existing residential receivers. These levels would be confirmed 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.

No vibration impacts are envisaged to occur at the residential receivers either during construction or operation of the facility.

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### Flora and Fauna

Areas considered within the Flora and Fauna assessment predominantly comprise of native vegetation of low to moderate disturbance including Sandplain Mallee, Belah Woodland, Chenopod Shrubland and Black Box Woodland. Other habitat resources at the site include aquatic and wetland habitats. Clearing of approximately 4 ha of these habitat types for construction of the proposed Buronga Peaking Power Plant is unlikely to have significant impacts with regard to flora in the context of remaining vegetation in the locality and the surrounding region.

Section 5A of the EP&A Act, although not formally required as part of the Part 3A assessment process, has been addressed as a guide to the consideration of impacts on threatened species, populations and ecological communities listed under the *TSC Act*. Accordingly, 7-part tests of significance were performed for the threatened biota described above. The assessments conclude that the proposed development is not 'likely' to impose a 'significant effect' on these species should appropriate mitigation measures be implemented during construction and operation of the peaking power plant.

Mitigation measures related to construction and operation of the peaking power plant include:

- Erosion and sediment control;
- Dust control;
- Pre-clearance survey;
- Tree clearance protocol;
- Groundcover clearance protocol;
- Weed and pest management; and
- Site management.

### Bushfire

The site for the proposed Buronga Peaking Power Plant is identified as bush fire prone within the Wentworth Shire Bush Fire Prone Land Map and has been assessed in accordance with the Rural Fires Act 1997.

Consultation was undertaken with the local Rural Fire Service to seek feedback on the proposal.

Mitigation measures are provided to ensure any risk of bush fire at the proposed Buronga Peaking Power Plant site is appropriately managed.

### Water Management

The water requirements, wastewater production, stormwater management and flooding potential have been assessed for both construction and operation of the Buronga Peaking Power Plant Project.

Rainwater and stormwater captured on the developed area would be used on site as much as practicable.

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Subject to detailed design investigations, it is intended that harvested site stormwater and, where practical, treated effluent from the Buronga Sewage Treatment Plant (STP) would be recycled for use at the site as the primary source of 'raw water' for process and other water needs. Based on the documentation provided in the DWE web-site regarding "Farm Dams", the requirements of the Maximum Harvestable Right Dam Capacity and dam licensing do not apply to this site. Raw water would be treated on-site by a water treatment plant (having a reverse osmosis capability) for use as demineralised plant process water, fire fighting and domestic water. A maximum of 40ML of raw water would be required per annum but it is anticipated that average annual raw water requirements would be approximately 20ML. Raw water derived from stormwater would be stored in a collection pond (stormwater pond) on site before treatment and raw water derived from STP effluent (trucked to site) would be stored in a dedicated site storage tank before treatment.

The average volume of process water required for air emission control and inlet air cooling purposes is expected to average 15ML per annum up to a maximum of 30ML. Process water production includes 150kL of stored water reserved exclusively for fire fighting purposes.

Landscaping water is proposed to be sourced from rainwater, treated effluent and recycled waste water.

The expected volume of wastewater produced from the water treatment plant is up to 12ML per annum, representing the main wastewater source of the peaking power plant. This wastewater would be directed to the site waste water pond. There would be provision for pump out and off-site disposal, in the unlikely event that the waste water pond is full when additional storage is required. Wastewater volumes have been estimated and management strategies developed to maintain a zero discharge from the site except as part of the natural surface flows.

Rainwater runoff from landscaped areas would generally be directed to cut-off drains the outlets of which would be designed to maximise the dispersion of these high flows and thereby minimise their potential to cause off-site erosion downstream. Detention would be provided so that nominated peak flows from the site do not exceed existing flows. Accumulated water in bunds would be directed to the storm water pond after passing through the interceptor.

The storm water and waste water ponds would each be lined with an appropriate liner to minimise the risk of the water escaping into the natural groundwater system. When required, the accumulated sediments/waste sludge collected in the ponds would be disposed of by a licensed contractor.

All construction works would be undertaken in a manner to minimise the potential for soil erosion and sedimentation.

### Heritage

No Aboriginal or European sites were located on the proposed Buronga Peaking Power Plant site during the course of the literature and database review or the field survey. There are no cultural heritage constraints to the Buronga Peaking Power Plant development.

### Land Use

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.

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The proposed development is located within a 4.0 ha site, currently part of a pastoral lease immediately adjacent to the TransGrid 220kV Switching Station, approximately 10km northeast of Buronga. IPRA has secured lease transfer arrangements with the leaseholder of this pastoral 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.

### Socio-Economic

An economic impact assessment has been undertaken to determine the potential socio-economic impacts of the proposed Buronga Peaking Power Plant.

The economic impact assessment highlights that the total direct and indirect value added or GDP effects for the construction period are \$17.6 million, while the total operational value added or GDP effects are \$1.5 million per annum. Employment effects range from 250 Full Time Employment (FTE) positions (including direct and flow on effects on employment) during the construction period, to 16 FTE positions per year of operations when both direct and indirect effects are considered. The effect of this increase in employment on household incomes is \$25 million during the construction stage and \$1 million per annum during the operational period.

The analysis shows positive economic and social benefits at the national level in terms of contribution to GDP, household income and employment resulting from the peaking power plant construction and operation.

### Preliminary Hazard Analysis

The Preliminary Hazard Analysis (PHA) assessment has been carried out in accordance with the Department of Planning's HIPAP No 4 (*Risk Criteria for Land Use Planning*) and HIPAP No 6 (*Guidelines for Hazard Analysis*). The main hazard associated with the proposed project is associated with the handling of the distillate, a combustible fuel used to power the gas 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 associated with the transport of dangerous goods and potentially hazardous materials is very low. The most stringent risk criteria, as required by the Department of Planning, are adhered to.

## Executive Summary

The risk assessment carried out in this study assumed that the safety assessment process would continue throughout the design, construction and commissioning of a potentially hazardous facility to refine and update the outcome of the development approval / environmental risk process.

### Draft Statement of Commitments

The Draft Statement of Commitments has been prepared in accordance with section 75F (6) of the EP&A Act.

The inclusion of appropriate environmental management measures into the detailed design and construction of the project would mitigate adverse impacts on the environment. The proposed adoption of the relevant measures identified in the Draft Statement of Commitments into Construction Environmental Management Plans (CEMP) and Operation Environmental Management Plan (OEMP) would be an important component of the proposal and reiterate the commitment of IPRA and its contractors to mitigation of environmental impacts identified in this assessment.

The Draft Statement of Commitments describes the environmental management and monitoring to be undertaken during the construction and operation of the Buronga Peaking Power Plant.

### Conclusions

Project Approval under Part 3A of the EP&A Act is being sought by IPRA for the construction and operation of a distillate fired power plant at Buronga, NSW with a nominal total generating capacity of up to 150MW.

The proposed Buronga Peaking Power Plant would comprise three distillate-fired gas turbine generators operating in open cycle mode, each rated at up to 50MW (subject to final plant selection). They would be “dual fuel capable” in the event that natural gas supplies become commercially available in the future. Except for emergencies as allowed in its operating licence, would operate on an as-required, intermittent basis for a total maximum period of up to 10% of any year.

Mitigation measures - to ensure impacts to both the bio-physical and socio-cultural environment remain acceptable throughout the planned facility lifespan - have been factored in through:

- The proposed type of generation technology;
- Specific power plant design and site layout; and
- Environmental Management Plans (EMP's) covering both Construction and Operations, which would set out specific compliant environmental policies and management plans.

The Environmental Assessment has been produced to ensure that the following regulatory and community requirements and interests have been addressed:

- Environmental Planning and Assessment Act 1979;
- State Environmental Planning Policies and Regional Environmental Plans;
- specific requirements identified by the Department of Planning Director – General; and
- local residents and businesses.



## Executive Summary

Having regard to the Environmental Assessment findings and the principles of Ecologically Sustainable Development, the reasons justifying the carrying out of the development in the manner proposed are as follows:

- environmental issues associated with the proposed development of the generating facility have been fully considered;
- where modelling of impacts was carried out it was on the basis of the worst case scenario, utilised conservative assumptions and considered cumulative impacts with existing facilities;
- potential impacts identified are capable of being mitigated and the proposed development does not represent a threat of serious or irreversible environmental damage; and
- biological diversity and ecological integrity of the area would not be affected by the proposed development.

Environmental impacts associated with the proposed Buronga Peaking Power Plant have been identified and addressed in this Environmental Assessment according to the Environmental Assessment Requirements issued by the NSW Department of Planning. Where appropriate, environmental safeguards have been recommended in the form of mitigation measures to minimise the environmental effects of the project.

No significant adverse environmental impacts have been identified through the course of studies. Environmental impacts that have been identified comply with relevant standards and are capable of being mitigated through the use of appropriate environmental controls.