20.1 Ecologically Sustainable Development

The Environmental Planning and Assessment Regulation 2000 requires that an Environmental Assessment include:

"The reasons justifying the carrying out of the development or activity in the manner proposed having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development."

The principles of Ecologically Sustainable Development, as listed in the Regulation, are as follows:

a) "The precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

b) Inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

c) Conservation of biological diversity and ecological integrity.

d) Improved valuation and pricing of environmental resources."

20.1.1 Precautionary Principle

International Power (Australia)'s (IPRA) precautionary approach is demonstrated by the design and management controls to be implemented as part of the proposed Buronga Peaking Power Plant. The controls proposed specifically address the threat of serious or irreversible damage from:

- land use change;
- air emissions;
- noise emissions;
- surface water discharges;
- soil and groundwater contamination;
- impacts on flora and fauna;
- bushfire;
- visual impacts;
- damage to cultural artefacts;
- wastewater disposal; and
- potential hazards.

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Monitoring of these aspects would be carried out in accordance with regulatory and current best practice and licence requirements. Where deviations from expected conditions are recorded, the matter would be investigated immediately and appropriate action taken as necessary, to prevent any adverse environmental impact as required by the Environmental Management Plans (Construction and Operation) for the proposed facility.

The proposed Peaking Power Plant would utilise modern technology with known consequences and effects. The technology proposed represents the most appropriate technology for short run, fast response generation to meet peak demand and is used throughout the world by the leading electricity generating companies.

Buronga Peaking Power Plant will implement an Environmental Management System and OH&S Management System and would seek third party certification to ISO 14001:2004, AS/NZS 4801 & ISO 18001 Standards.

20.1.2 Inter-Generational Equity

IPRA proposes to construct a peaking power facility that would comprise three distillate-fired gas turbine generating units each of up to 50MW capacity subject to final plant selection. The type of power plant proposed has been designed to meet with the principles of inter-generational equity in the following ways:

- the use of distillate fired technology which has less environmental impacts than traditional coal fired technology;
- the use of open cycle turbine technology, which represents optimised acceptable operational practice in meeting peak load demand; and
- throughout the lifespan of the proposed peaking power plant, opportunities to minimise resources and maximise recycling and reuse of materials would be reviewed. This would be effected through the implementation of a waste management policy and associated plan, which would influence the design and management of both the construction and operational phases.

20.1.3 Conservation of Biological Diversity and Maintenance of Ecological Integrity

The proposed project would not significantly affect the biological diversity or ecological integrity of the Buronga area. Studies conducted on the flora and fauna of the area indicate that no rare, endangered or threatened species are likely to be impacted adversely by the proposed development. However, mitigation measures would be implemented during both the construction and operational phases of the project, to ensure the existing ecological integrity is maintained in the area.

20.1.4 Improved Valuation and Pricing of Environmental Resources

It is difficult to assign a monetary value to the environment of the locality, given the lack of precedence and guidelines in the valuation of environmental resources. The approach taken would be to manage any environmental impacts by identifying appropriate mitigation measures to minimise adverse environmental impacts and including the cost of these safeguards in the total project cost.

The cost of implementing these mitigation measures would be reflected in the overall cost of providing electricity to consumers hence improving the pricing of environmental resources. This approach would allow the value and price of environmental resource protection to be more accurately quantified.

20.2 Environmental Assessment Findings

A brief summary of the main findings of the Environmental Assessment is presented below. Detailed descriptions of each aspect are presented in the separate sections of the Environmental Assessment. Details of environmental management and monitoring techniques and the commitments made by IPRA which would be implemented for the proposed Peaking Power Plant are presented in **Chapter 19**.

20.2.1 Bio-physical Environment

The main findings of the biological and physical environment assessment are summarised below.

Air Quality

The study of the likely impact of the Buronga Peaking Power Plant has consisted of the following three components:

- impact on ambient air quality;
- aviation safety; and
- a greenhouse gas assessment.

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

Soils and Geology

Groundwater at the Project site is well below the surface and therefore would be well below any site excavations.

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

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Visual

The Visual Assessment concluded that the proposed 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 220kV 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 peaking power plant would be viewed within the context of the existing TransGrid 220kV 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.

Noise

Based on the plant noise levels assumed in the modelling, noise level criterions were met for construction and operational phases for the closest existing residence, which is located approximately 3km from the proposed site. 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.

Not withstanding the modelled outcomes, reduction of actual noise emissions 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.

As a consequence, IPRA would ensure that:

- plant selection and detailed design processes will evaluate noise mitigation options based on the noise limits identified in the 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.

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

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.

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.

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. It has been determined that the potential issues can be managed through the implementation of appropriate mitigation measures that cover wastewater, surface water, soil erosion and spills and site management.

Heritage

No known Aboriginal or European sites were located within the proposed Buronga Peaking Power Plant Project site during the course of the field survey. There are no cultural heritage constraints to the Buronga Peaking Power Plant development.

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.

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Land Use and Property Impacts

The proposal would result in changes to the land use, as the site is currently part of a pastoral lease immediately adjacent to the existing TransGrid 220kV Switching Station. IPRA has secured option arrangements for land subdivision, change of use and lease transfer with the present leaseholder of the land which is controlled by the Western Lands Commissioner. However, while the proposed site is located in an area that is zoned for rural purposes, 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, 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

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.

Traffic

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.

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.

Preliminary Hazard Analysis

It is considered that the current installation does not have a significant impact on societal risk as:

- the risk of fatality at the nearest residential area is well below the criterion for new installations of one chance in a million per year;
- the risk of fatality at the nearest open space and the nearest industrial area are also well below the criterion of ten and fifty chances per million years;
- the risk of injury at the nearest residential area is well below the criterion for new installations of fifty chances per million years;
- the risk of propagation of an incident at the Buronga Peaking Power Plant does not encroach into any other industrial areas; and
- the risk of fatality does not extend anywhere close to any residential and is well within the criteria for business / industrial areas.

20.3 Conclusion

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

The proposed Buronga Peaking Power Plant would comprise three gas turbine generators operating in open cycle mode, each rated up to 50 MW. The gas turbines would burn low sulphur distillate fuel and would be capable of later conversion to fire natural gas should future gas supplies become commercially available. The electricity generated by the facility would be feed into the 220kV high voltage transmission network via the TransGrid high voltage Buronga Switching Station immediately adjacent to the proposed power plant site.

The plant would operate for up to 10% of the year.

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

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

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The Environmental Assessment has been produced to ensure that the following regulatory and community requirements 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.

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, considered cumulative impacts with existing known facilities, and utilised conservative assumptions;
- 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 Department of Planning. Where appropriate, environmental safeguards, in the form of mitigation measures, have been recommended 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.